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Editorial

Innovative Practices in Business: In order for businesses to stay competitive in the quickly changing business environment of today, innovation in management techniques has become essential. Several innovative business management strategies that are shaping the future of work. Agile management, initially popular in IT industry, has now expanded to other fields. Agile approaches, like Scrum and Kanban, enable teams to quickly adjust to shifting client demands and market situations, promoting an innovative and continuous development culture. The adoption of remote and hybrid work styles has escalated due to the COVID-19 pandemic. In order to maintain productivity and engagement during this transition, new management techniques are needed, such as virtual team-building exercises, sophisticated digital collaboration tools, and effective communication plans.

Big data and analytics have revolutionized the process of making decisions. Data is being used by businesses to understand customer behavior, market trends, and operational efficiency. Predictive analytics and machine learning algorithms enable managers to personalize customer experiences, expedite processes, and make well-informed decisions. The holacracy style of management decentralizes authority and distributes decision-making across self-organizing groups. This tactic boosts adaptability to changes, fosters creativity, and gives employees more authority. Nowadays, modern businesses are putting eco-friendly technologies into practice, reducing carbon emissions, and promoting ethical sourcing.

Companies are adopting initiatives to improve work-life balance and mental health as a means of acknowledging the significance of employee well-being. Initiatives like wellness programs, flexible work schedules, and mental health resources are starting to become commonplace. Innovation laboratories and incubators are being established by numerous organizations in order to promote creativity and innovation. Teams can test new concepts, innovations, and business strategies in these designated areas without taking any risks.

Automation and AI are revolutionizing corporate processes in many different areas. These technologies increase productivity, save costs, and improve customer service. Examples of these technologies include chatbots, robotic process automation (RPA), and sophisticated machine learning applications.

The landscape of business management is continuously evolving, driven by technological advancements, changing workforce dynamics, and increasing emphasis on sustainability and well-being. Organizations may achieve sustainable growth, create a resilient future, and negotiate the challenges of the contemporary business environment by adopting these innovative approaches.

New Delhi

Editor

31st July 2024

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Impact of Social Media Advertising on Buying Behaviour of Consumers Belonging to Generation – Z; with Special Reference to Fast Fashion Industry

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ABSTRACT

The following research aims to understand and analyze how social media advertising influences the purchasing behavior of individuals from Generation – Z (11- 26 years old) within the context of the Fast Fashion Industry. The primary goal of this study is to explore the extent to which social media advertising strategies used by the fast fashion brands affect the preferences, decision making processes and buying patterns of Generation – Z category, a generation that has grown up surrounded by technology and connectivity. The main objective of this research is to uncover valuable insights for marketers, businesses and researchers interested in understanding and optimizing strategies to understand the needs of tech-savvy demographic in the Indian market. A questionnaire is used to gather the required data. SPSS is used for the data analysis. One Sample Binomial test is applied on the data for testing the hypothesis.

KEYWORDS: *Social Media, Generation-Z, Fast fashion, SPSS.*

INTRODUCTION

In the last few years, the world of advertising has gone through a transformative shift, with the growth of social media platforms as powerful marketing tool. Businesses and marketers use various social media advertising platforms like Facebook, Instagram, Twitter, Pinterest, Snapchat, You Tube, etc. to reach their target audience. Among the most influential demographic segments engaging with these platforms are individuals belonging to Generation – Z, born between 1997 and 2012. This digitally connected generation has grown up in an era where social media and instant connectivity has become very normal. Thus, to analyze the effect of social media advertising on the buying behavior of Generation – Z has become a significant area of interest for marketers and researchers.

The influence of social media on younger generation consumers has been particularly studied with respect to fast fashion industry. This industry is characterized by

its ability to rapidly produce trendy clothing inspired by changing fashion shifts at affordable price. The nature of fast fashion industry aligns well with the fast pace nature of social media.

Let's delve into the dynamics of this relationship;

Digital Natives and Social Media Adoption

Generation Z grew up in a world where smartphones, apps, and social platforms are part of their day-to-day life. Their familiarity with technology and social media platforms makes them an attractive target audience for marketers.

Platforms like Instagram, Facebook and YouTube resonate with Gen Z, providing opportunities for brands to showcase products, lifestyle, and trends.

Relationship between Social Media and Purchase Decisions

Social media acts as a virtual marketplace, where Gen

Z discovers new products, explores trends, and seeks recommendations.

Peer influence, influencer marketing, and user-generated content plays important role in shaping their preferences.

Brands that effectively use social media can influence Gen Z's buying decisions by creating authentic, relatable content.

Fast Fashion Industry and Social Media

The fast fashion industry thrives on rapid product turnover, affordability, and trend responsiveness.

Social media platforms allow fast fashion brands to showcase their latest collections, engage with followers, and create a sense of urgency around limited-time offers.

Flash sales, exclusive discounts, and user-generated fashion content contribute to the relationship between social media and fast fashion.

LITERATURE REVIEW

The research conducted by Ballester, Navarro, and Sicilia (2012) holds importance for brand managers as it illuminates the role of message consistency in shaping brand knowledge structures conducive to brand equity. When dealing with unfamiliar brands, it is advisable for brand managers to prioritize consistent messaging to bolster awareness. Conversely, for established brands, communication strategies should aim to reignite consumer interest by employing moderately consistent messages capable of sparking consumer excitement and prompting reconsideration of these brands.

D.P Kumar & K.V Raju's (2013) study explores the connection between emotional responses as independent variables and their impact on the attitudinal and behavioral aspects of consumer buying behavior. The research involves gathering responses from 110 participants with the objective of evaluating how advertising influences the buying behavior attitudes of both male and female consumers. Ultimately, the paper concludes that advertising serves as a means of communication aimed at persuading audiences—whether viewers, readers, or listeners—to make purchases or engage with products, information, or services.

Di Pietro, L. &. (2012) offer valuable insights into the importance of Facebook-mediated marketing communications in shaping new direct marketing strategies. Their findings highlight the increasing significance of social networks as effective tools for IT-driven businesses, offering a range of services beneficial for both consumers and marketers.

Dorado, L. (2011). The author analyzes the role of social media in changing fashion trends and how it affects the fashion retail industry. The paper concludes that social media has become an integral part of the fashion industry, and it has a significant impact on the fashion retail industry.

Ioanas, E. &. (2014) utilize a sample size of 116 participants for their research, employing SPSS for data analysis. Their study reveals the substantial influence of social media on consumer behavior, emphasizing its indispensable role for businesses in connecting with their customer base. The paper offers valuable perspectives on how social media shapes consumer behavior and underscores its significance within business marketing strategies.

H. McCormick et al, J. P. (2014). It provides a detailed account of the history of fashion retailing, its evolution, and future prospects. The article covers topics such as the history of retailing, global fashion retail markets, retail marketing mix, and the PEST analysis of fashion retailing. It also discusses the impact of technology on fashion retailing and the Porter's Five Forces model in the era of mobile communication technologies.

The paper Geisler, W. S. & Cormack, L. K.,(2011) presents a comprehensive review of formal models concerning overt attention, highlighting their significance in guiding and interpreting studies related to visual search and similar tasks. The chapter succinctly outlines fundamental principles of attention, key differences among models of overt attention, and provides instances of such models applied in various contexts such as visual search, reading, free viewing, and interactive behaviors.

Hypothesis

H01 - Consumers do not trust the information provided by social media for Fast Fashion Products.

H02 - Consumers do not get influenced by the social media advertisement for Fast Fashion Products.

RESEARCH METHODOLOGY

This study focuses on exploratory research targeting Generation -Z consumers in central India. Primary data is used for this research which is first-hand information collected directly from the respondents. For this data collection, Google form is used, which is a widely used online survey tool. The questions are structured according to the research objectives. The target audience is Generation -Z consumers, individuals born between 1997 and 2012. The data is collected from 160 respondents. The collected data is then analyzed using SPSS.

ANALYSIS & OUTCOME

H01 - Consumers do not trust the information provided by social media for Fast Fashion Products.

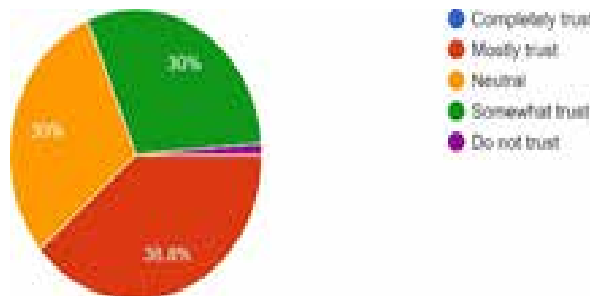


Fig 1. One-Sample Binomial Test Summary

Table 1: One-Sample Binomial test (H₀₁)

Total N	112
Test Statistic	50.000
Standard Error	5.292
Standardized Test Statistic	-1.039
Asymptotic Sig.(2-sided test)	.299

Interpretation: The above table represents, One sample binomial test for consumer trust on the social media advertisement of Fast Fashion. The asymptotic significance is (>.001) thus the null hypothesis fails to reject.

H₀₂ - Consumers do not get influenced by the social media advertisement for Fast Fashion Products.

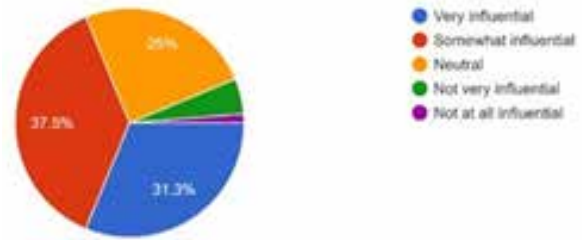


Fig 2. One-Sample Binomial Test Summary

Table 2: One Sample Binomial Test (H₀₂)

Total N	120
Test Statistic	110.000
Standard Error	5.477
Standardized Test Statistic	9.037
Asymptotic Sig.(2-sided test)	<.001

Interpretation: The above table represents, One sample binomial test for influence of social media advertisement on buying behaviour of consumers related to Fast Fashion products. The asymptotic significance is (<.001) thus the null hypothesis is rejected.

DATA ANALYSIS

For H01, the results of the One Sample Binomial Test, with an asymptotic significance greater than 0.001, lead to the failure to reject the null hypothesis. In practical terms, this suggests that, based on the statistical analysis conducted, there is not enough evidence to claim a significant level of trust among consumers regarding the information provided by social media for Fast Fashion Products. The null hypothesis, stating that consumers do not trust the information from social media for Fast Fashion Products, stands, and the data does not support the assertion of a significant change in consumer trust.

It's crucial to understand that when the null hypothesis is not rejected, it doesn't automatically imply the absence of trust altogether; rather, it indicates that the evidence from the test is not strong enough to reject the idea that consumers do not trust the information from social media for Fast Fashion Products.

For H02, the results of the One Sample Binomial Test, with an asymptotic significance of less than 0.001, lead to the rejection of the null hypothesis. In practical

terms, this suggests that, based on the statistical analysis conducted, there is enough evidence to claim a significant influence of social media advertisement on the buying behavior of consumers related to Fast Fashion Products.

The rejection of the null hypothesis implies that there is statistical support for the idea that social media advertisements have a significant influence on the buying behavior of consumers in the context of Fast Fashion Products. This information is valuable for marketers and businesses as it suggests that their social media advertising efforts are associated with a noticeable impact on consumer's purchasing decisions.

CONCLUSION

The continuous evolution of social media platforms and the emergence of new trends pose both opportunities and challenges for fast fashion brands targeting Generation Z. Staying aware about the latest platform features, trends, and cultural shifts is crucial for brands aiming to maintain relevance and engage effectively with their target audience.

Generation Z is heavily influenced by social media platforms in their purchasing decisions. The visual and interactive nature of platforms like Instagram, Facebook, and Twitter resonates well with this generation, shaping their perceptions and preferences. Fast fashion brands that effectively leverage these platforms through engaging content, influencer collaborations, and targeted advertising campaigns can establish a strong connection with Generation Z consumers. The fast fashion industry's success in influencing Generation Z buying behavior through social media advertising lies in a strategic and adaptive approach.

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An Analysis of Factors Influencing Student's Decision, Pursuing to Study Abroad in the Vidarbha Region, with Special Reference to Future Counselors

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ABSTRACT

The research focused on understanding the factors influencing student's decisions to study abroad in the Vidarbha region. Utilizing a descriptive survey design. With special reference to the Future Counselors Study Abroad Consultants. A structured questionnaire was designed for data collection, supplemented by interviews with study abroad counsellors to uncover the factors driving student's decisions. Using SPSS, the data were thoroughly analyzed. Regression analysis, ANOVA tests, reliability statistics, correlation regression, and graphical analysis were all included. The results indicated that "Status Symbol" (IV1) and "Course Expense" (IV3) significantly influenced decisions, while "Personal Aspiration" (IV2) was deemed statistically insignificant. Findings from Google Form responses and interviews underscored the importance of online research, family guidance, and specific motivators like status symbols and international exposure. The study's validity was supported by statistical evidence and insights from Future Counselors Study Abroad Consultants. Additionally, the research provided a broader context by integrating Ministry of External Affairs statistics and comparing education consultants in the region. Recommendations highlighted the need for a strategic focus on course expenses and effective marketing aligned with student's preferences. In conclusion, the comprehensive analysis offers valuable insights into the diverse factors shaping student's decisions to pursue studies abroad in Vidarbha.

KEYWORDS: *International exposure, Study abroad, Vidarbha region, Education consultants, Study Abroad consultants, Student preferences, Status Symbol, Personal Aspiration.*

INTRODUCTION

The globalization trend that has been occurring for several decades has had a significant impact on student's willingness to pursue higher education abroad. The number of students studying abroad has increased significantly, from 1.3 million in 1990 to five million in 2014 (OECD, 2008). The desire for a wider range of educational opportunities and experiences is growing, as seen by the increase in the migration of international students. Historically, the USA, the UK, Australia, Germany, France, and Canada have been popular study destinations.

India is the country from where the majority of

international students come. In the academic year 2014–15, 8132,888 students from India were studying in the United States alone (Forbes, 2012).

This represents a significant rise in the number of Indians seeking education overseas. Forecasts indicate that by 2025, there may be eight million globally mobile students yearly, indicating that the increasing pattern will likely continue (OECD).

Factor Influencing the Pattern: A variety of variables are responsible for the trend towards foreign education. The OECD (2008) lists several significant motivators, such as the desire for higher-paying jobs in US IT companies, the acquisition of real-world experience, more course

possibilities, and plenty of job opportunities. Studying abroad decisions are also influenced by pursuing a Permanent Residency (PR) and the desire for better living conditions.

Purpose and Preferred Courses: Students are drawn to study abroad by the promise of higher income and the presence of thriving industries like IT and pharmaceuticals. Popular subjects include computer science, business, international business, technical fields, fashion and design, culinary arts, hotel management, and architecture.

Role of Consultants in the Decision-Making Process: Consultation with education consultants is an essential step in the decision-making process for students who choose to study overseas. These advisors are crucial in advising students according to their academic backgrounds and in suggesting suitable countries and programming. In addition, there are pre-departure briefings, document collection, profile evaluation, university shortlisting, financial assistance interviews, visa interviews, and university applications.

This research aims to provide insights crucial for educational institutions and consultants, helping them refine recruitment strategies for international students. Specifically, it may benefit Future Counselors in Vidarbha by improving their services to meet student needs effectively.

OBJECTIVES

1. To find out the factors which affect student's decision-making process to Study Abroad.
2. A comparative analysis of different Overseas Education Consultancy Services in Nagpur, with a special focus on Future Counselors.

SCOPE OF STUDY

- This research project aims to understand why students from Vidarbha opt for international education, exploring their decision-making process and its influencing factors.
- The study evaluates the role of consultants, such as Future Counselor Overseas Education Consultants in Nagpur, who provide support in areas like applications, visas, finances, and cultural adjustment.

- Comparative analysis of Overseas Education consultants in Nagpur, especially Future Counselor. The study seeks insights into student's preferences for studying abroad and the impact of consultancy services in a changing landscape.

LITERATURE REVIEW

Khushbu Agarwal & Dr Rumna Bhattacharya & Dr P. K. Banerjee (2019) [1]; This paper examines the evolving landscape of higher education, emphasizing the competitive nature of the industry. The research explores factors influencing student's decisions to study abroad, including benefits and barriers. The study, conducted in Ranchi and Jamshedpur, utilizes a planned questionnaire from abroad admission consultants and IELTS/TOEFL coaching facilities. Both qualitative and quantitative methods are employed to identify motivational and restricting factors. The expected outcome is insights that can help global universities redesign recruitment and marketing techniques to attract and keep international students.

Vineet. R. Kamble & Dr Priyanka Bobade (2020) [2]; This paper highlights the role of overseas education consultancy in the context of the rising trend of Indian students going abroad for higher education. The study, conducted at Kapol College and CATKing Educare in Mumbai, aims to understand the prevalence and benefits of students seeking consultancy services. Primary data is gathered through surveys, while secondary data is obtained from research articles and company websites. The findings reveal a significant percentage of students rely on consultancy for guidance, with a high satisfaction rate (88.5%) regarding services like Profiling, Documentation, Counselling, and Standardized tests. Recommendations are made based on these findings.

Suh Li Phang (2013) [3]; This paper highlights the challenges in modern higher education, shaped by globalization and heightened competition, have spurred increased research into the factors impacting international student's decisions to pursue education abroad. With nations vying for these students, understanding the drivers of mobility is crucial. Suh Li Phang's perspective notes that economic and social factors in home countries act as a "push" factor, sending students overseas, but there are several "pull" factors

which influence student's decisions on where to study. These factors, grouped into communication, location, and social aspects, encompass the quality of digital platforms, the attractiveness of the destination, and the role of social networks. Recognizing and addressing these dynamics is crucial for attracting and retaining international students in the competitive higher education landscape.

Bodycott, P. & Lai, A. (2012) [4]; This paper highlights the decision to study abroad is typically made by students themselves, but it is significantly influenced by immediate family members, as noted by researchers such as Bodycott and Lai (2012) and Bodycott (2009) [4] [5]. Influence from family is a key consideration while choosing to study abroad, is highlighted by Shank, Quintal, Taylor (2005), Mazzarol, Soutar (2002) [6] [7]. Students consider the viewpoints of family, friends, parents, and relatives, with a particular emphasis on the crucial role of parents (Mazzarol & Soutar, 2002; Bodycott, 2009) [7] [5]. Recommendations from these "gatekeepers" carry substantial weight in the decision-making process (Mazzarol & Soutar, 2002) [7]. Family values can influence behaviour in a variety of ways. (c and Etzel 1982) [8], influencing student's selection of host universities (Bourke 2000; Moogan, Baron, and Harris 1999) [9] [10]. The small size of nuclear families, combined with parents funding their children's education, underscores the significance of both financial considerations and psychological separation in this decision-making process.

Bourke, A., (2000) [5], A higher education model of the factors influencing international trade A student's decision to pursue further education is greatly influenced by their friends, as highlighted by researchers like Kellaris and Kellaris (1998) and Licata and Maxham (1998) [11] [12]. Research from the last decade has shown again how important friends' recommendations are to international students when they are selecting their host universities. (Bourk 2000) [9]. Shanka, Ali-Knight, and Pope's (2002) [13] According to a study, 37% of overseas undergraduate students saw parents and peers as important information sources for destinations like Australia and the UK. Several things contribute to this influence, such as the possibility of having peers who are already enrolled in the same educational institutions

and the firsthand accounts of peers and their families. The importance of word-of-mouth referrals, which are seen as unbiased, trustworthy, and non-commercial, is correlated with the influence of family and friends.

Now, let's examine the official statistics as per the Ministry of External Affairs. India has the largest population living abroad, with 32 million Non-Resident Indians (NRIs) and Persons of Indian Origin (PIOs) according to the Ministry of External Affairs. Over 11.33 lakh Indian students are studying in 99 countries, with a significant number in Canada and the US, followed by Gulf countries, Australia, the UK, and China. Around 5.25 lakh Indian students are in Asian nations, while over 40% (4.5 lakh) study in North America. Australia and New Zealand have 1.25 lakh students combined. Thirty-two European countries host 1.5 lakh Indian students. Thirty countries have fewer than 100 Indian students, while 15 hosts over 10,000 each. Andhra Pradesh and Punjab contribute significantly to the 22 lakh Indian students who pursued education abroad in the five years leading up to 2021. Six states, including Punjab, Maharashtra, Tamil Nadu, Gujarat, Karnataka, and Andhra Pradesh, represent 56% of all Indian students studying abroad.

Hypothesis Formulation

Table 1.

H1	The Status Symbol of students pursuing education abroad significantly affects student decision-making.
H2	The Personal Aspirations of students pursuing education abroad significantly affect student decision-making.
H3	The Course Expenses of students pursuing education abroad significantly affect student decision-making.

RESEARCH METHODOLOGY

Research Design

The study employs a mixed-methods approach, utilizing both qualitative and quantitative research methodologies. Primary data collection involves distributing a structured questionnaire via Google Forms to respondents in the Vidarbha region.

Data Collection Type & Method

Primary Data Collection: A survey method involving a structured questionnaire through Google form was used to gather the data.

Secondary Data Collection: Literature review through J-gate online Journals and websites.

Sample Size: 200+ respondents from the Vidarbha region.

Sampling Frame: The target population includes students in the Vidarbha region who are considering or have considered studying abroad.

Sampling Technique: Convenience-based sampling.

Interviews: Interviews were conducted with representatives from consultancy services in Nagpur, with a specific focus on Future Counselor. Questions will cover the services offered, challenges faced, and the impact of consultancy on student’s decision-making processes, culminating in valuable insights for the research paper.

ANALYSIS & OUTCOME

Table 2:

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.663	.661	4

Discussion: As we can see Cronbach’s Alpha is 0.66 which is very close to 0.7 (acceptable figure) we can go ahead with statistical analysis.

Table 3:

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
DV	3.52	3.604	.481	.251	.570
IV1	4.18	4.080	.478	.304	.575
IV2	4.17	3.770	.512	.287	.547
IV3	4.54	4.583	.313	.136	.675

Discussion: As we can see Course Expense (IV3) is minorly increasing the reliability of the data to 0.68 we are not dropping this variable from statistical analysis.

Table 4:

Model Summary ^a										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.501 ^a	.251	.240	.866	.251	22.470	3	201	<.001	1.571
a. Predictors: (Constant), IV3, IV1, IV2										
b. Dependent Variable: DV										

R: Represents the co-relation;

R square

Discussion: How much of the total variation in the dependent variable (Student Decision) can be explained by the independent variables Status Symbol (IV1), Personal Aspirations (IV2), and Course Expense (IV3)?

*R= 0.501 this means that there is a decent correlation between different variables.

Adjusted R square

Discussion: It gives us an idea of how well our model generalizes and ideally and ideally, we would like its value to be the same or very close to R square.

*As can be seen the R square value is 0.251 this means 25% of the model is only being explained by the independent variable, and the rest approximately 75% is being explained by unknown factors.

Difference of the model:

0.251 – 0.240 = 0.011 (around 1%) this shrinkage means that if the model were derived from a population rather than a sample it would account for approximately 1% variance in the outcome.

The cross-validity of this model is good.

Last: We could see that the P value is less than 0.05 so the model is significant.

Table 5:

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	50.608	3	16.869	22.470	<.001 ^b
Residual	150.904	201	.751		
Total	201.512	204			

a. Dependent Variable: DV
b. Predictors: (Constant), IV3, IV1, IV2

Discussion: As we can see from the ANOVA table how well the regression equation fits the data (i.e. predicts the dependent variable).

As the P value is less than 0.05, this regression model statistically significantly predicts the outcome variable (i.e. it is a good fit for the data)

Table 6:

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Const.)	1.024	.129		7.946	<.001
IV1	.424	.081	.358	5.214	<.001
IV2	.135	.078	.124	1.726	.086
IV3	.221	.076	.186	2.893	.004

a. Dependent Variable: DV

Discussion: The coefficient table provides us with the necessary information to predict Student Decision (DV) from Status Symbol (IV1), Personal Aspiration (IV2), and Course Expense (IV3), as well as determines whether the independent variable contributes significantly to the model (By looking at significance level).

As we can see from the P value Personal Aspiration (IV2) is statistically insignificant as P value 0.086 is more than 0.05. Thus, our regression equation can be formed as follows:

$$SD = 1.024 + (0.424) SS + (0.221) CE$$

SD = Student Decision

SS = Status Symbol

CE = Course Expense

$$\text{Student Decision} = 1.024 + (0.424) \text{STATUS SYMBOL} + (0.221) \text{COURSE EXPENSE}$$

Hypothesis Testing

Table 7:

H1	The Status Symbol of students pursuing education abroad significantly affects student decision-making.	Accepted
H2	The Personal Aspirations of students pursuing education abroad significantly affect student decision-making.	Rejected
H3	The Course Expenses of students pursuing education abroad significantly affect student decision-making.	Accepted

The p-value for personal aspiration is 0.086, which exceeds 0.05. Therefore, IV2 (personal aspiration) is deemed statistically insignificant. Consequently, we reject the null hypothesis.

OUTCOME

Using SPSS software Questions 3 and 6 were chosen for the analysis, focusing on factors influencing students in pursuing studies abroad. From question 3, three key variables—Quality of Education, Career Opportunities, and International Exposure—were integrated into a dependent variable labelled “Student Decision” (DV). Consultancy Services, considered less influential, were excluded. Subsequently, based on the findings from question 3 & 6, three independent variables were created: “IV1” denoting “Status Symbol” (comprising Cultural Exposure, Country of Program, and Seeking Qualification with Worldwide Recognition), “IV2” as “Personal Aspiration” (including Duration of the Program and Internship Opportunities), and “IV3” as “Course Expense” (involving Program Cost in Comparison to Home Country, Foreign Scholarship Availability, and Unavailability of the Course in the Home Country). After rigorous regression analysis, ANOVA tests, and Reliability Statistics, the P value for

“IV2” (Personal Aspiration) was found to be statistically insignificant at 0.086, exceeding the threshold of 0.05. Consequently, “IV2” was removed from the equation. The refined regression equation, $SD = 1.024 + (0.424)SS + (0.221)CE$, indicates that students from the Vidarbha region Students are influenced or motivated to pursue studies abroad primarily by “IV1” (Status Symbol) and “IV3” (Course Expense). These variables encapsulate elements such as Cultural Exposure, Program Location, Financial Considerations, and the desire for Qualifications with Global Recognition.

Insights from collected Google Form responses in Vidarbha reveal key factors driving students to study abroad. Online research (51.2%) and family guidance (38%) play major roles. Many have family or friends who studied abroad (51.7%). Career opportunities (74.1%) and education quality (62.9%) are key considerations. Challenges include finances (50.7%), language barriers (48.8%), and homesickness (38.5%). Financial position is crucial (37.6%), with the US (56.1%) and UK (59%) as top choices. Consultancy use is at 25.9%, with 54% satisfaction. Expectations include university selection (61%) and visa support (73.2%). Some (27.3%) seek work visas, linking study with future employment. The validity of these findings is supported by statistical evidence and insights from Future Counselors Study Abroad Consultants support findings that students pursue overseas education for status, international exposure, and potential for permanent residency. While some seek career growth and financial gain, counsellors stress the importance of broader benefits like cultural immersion, learning, and global connections.

Interview Questions

Why do students want to study abroad?

Abroad education offers practical knowledge, diverse course options, and abundant job opportunities, especially in IT, with the USA offering top-paying roles. Preferred destinations include Canada, the UK, and the USA, with growing interest in other European nations. Students from Vidarbha prioritize studying abroad for status, exposure, and international recognition.

Purpose of studying abroad?

Students get the highest salaries. Many giant industries, like pharmaceutical and IT companies, are based in

foreign countries. They enroll for PR. Living standards are better abroad, which improves their financial capacity.

Most preferred courses and influential?

IT or computer science-related, Business, International Business, Technical, Fashion and Design, Culinary, Hotel Management, Architecture.

Students are influenced by friends or family who have studied abroad, often seeing it as a path to career success.

How does a consultant help in studying abroad?

The overseas education process involves counselling to determine suitable countries and courses based on the student's academic background. Then, documents are collected and the profile is evaluated. Next, applications to universities are submitted, followed by a payment deposit upon receiving offer letters and preparing for visa interviews. Consultants assist with financial aid and provide pre-departure briefings to students.

FINDINGS

Furthermore, according to our findings, overseas consultants in the Vidarbha region need to focus on course expenses and how students can maximize scholarships for their courses. Marketing efforts should center on showcasing life abroad, as our findings indicate that students from the Vidarbha region aspire to study abroad for international exposure and status symbols. This suggests a strategic approach for consultants to address the specific preferences and priorities of students in the region, ensuring effective guidance and support throughout their education abroad journey.

CONCLUSION

The comprehensive analysis integrating statistical tools, Google Form responses, interviews, and official statistics from the Ministry of External Affairs offers a thorough understanding of the factors shaping student's decisions to pursue studies abroad in the Vidarbha region. The SPSS-driven regression equation identified “Status Symbol” (IV1) and “Course Expense” (IV3) as pivotal factors driving students, emphasizing elements like Cultural Exposure, Program Location, and Financial Considerations. The removal of “Personal Aspiration” (IV2) due to statistical insignificance underscores the

influence of these remaining variables. Google Form responses validate these insights, emphasizing online research, family guidance, and diverse influencers. Interviews reveal student's motivations, such as status symbols, international exposure, and global recognition, aligning with the statistical emphasis. Ministry of External Affairs statistics provide a broader context, while the comparative analysis of education consultants highlights the importance of personalized guidance.

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Impact of Mental Health Support by an Organization and Its Affect on Productivity

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ABSTRACT

The study examined the impact of mental health support provided by an organization and its affect on productivity. A descriptive survey design was adopted. All the employees working in corporate sector from different geographical region in India is routine in this study. A structured questionnaire is customised for data collection. The data has been collected through Google form. The collected data is analysed using SPSS to perform One- Sample Binomial Test for testing the research hypotheses. The .505 level of significance is used for the hypothesis testing. According to the study's findings, the provision of mental health support by an organization has a significant positive impact on productivity. By fostering a supportive and understanding work environment, organizations can enhance employee morale, reduce stress, and improve overall mental well-being. This leads to increased engagement, improved focus, and better decision-making abilities among employees. As a result, productivity is enhanced, leading to better outcomes for both the employees and the organization. Therefore, investing in mental health support is not just beneficial, but crucial for an organization's success.

KEYWORDS: *Mental health support, Productivity, Organization, Well-being, Performance, Employees, Workplace.*

INTRODUCTION

According to the World Health Organization (WHO), a decent work is good for mental health, while poor working environments, including discrimination and inequality, excessive workloads, low job control and job insecurity, pose a risk of mental health.

Mental health support in the workplace plays a crucial role in promoting overall well-being, employee satisfaction, and productivity. This study aims to investigate the impact of mental health support at an organization and its effect on productivity.

This research seeks to investigate and analyze how does the provision of mental health support within an organization affect the productivity of its employees and eventually on organization.

There are effective actions that can be taken to prevent mental health risks at work as well as protect and promote mental health at workplace. Employers benefit

from supporting mental health at work as it can improve staff retention, work performance and productivity.

Some actions that employers can take to support workplace mental health such as make mental health a priority, enhance mental health support, communicate available supports, cultivate an inclusive culture, measure and hold accountable.

The programs that will aim to equip employees with the tools to manage stress, promoting a healthy work-life balance, providing access to counselling services, to creating a supportive and inclusive culture, and navigate challenges effectively.

The premise of this discussion is the belief that such mental health support can lead to enhanced productivity. When employees feel supported and their mental well-being is prioritized, it can lead to increased job satisfaction, improved performance, and reduced absenteeism.

LITERATURE REVIEW

A toxic work environment (TWE) impacts employee engagement (EE). It uses the conservation of resources (COR) theory and organizational support theory (OST) to propose a model where TWE negatively influences EE, both directly and indirectly, via organizational support (OS) and employee well-being (EW). The study, of Rasool S.F; Wang, M; Tang, M; Saeed, A; Iqbal, (2021) which uses data from 301 employees in Chinese SMEs, confirms that TWE negatively affects EE. It also finds that OS and EW significantly mediate the relationship between TWE and EE. In summary, the study concludes that a toxic work environment can lead to negative emotions among employees, causing stress, burnout, depression, and anxiety. However, employee well-being and organizational support can enhance employee engagement despite a toxic work environment.

According to N. Sagar, Dr. Singh R (2022) there is impact of mental health on employee productivity and task performance across different sectors. It reveals that in private sector organizations, high-stress jobs can detrimentally affect an employee's mental health and performance, leading to a decline in productivity when stress surpasses a certain level. On the other hand, in public sector organizations, where the work environment is generally less stressful, an employee's mental well-being doesn't significantly impede their performance. As a result, employees in a positive mental state tend to outperform those in a less positive state. The study underscores the crucial role of physical and mental health in retaining high-performing employees. It recommends regular mental health assessments for employees and the development of strategies to balance the demands of high performance, organizational objectives, and other work-related stressors.

In his research (Wu et al.,2021) identifies eight key areas: organizational culture, mental health benefits, resources, policies, a healthy environment, leadership support, outcomes measurement, and innovation. The research underscores the significance of cultivating a work environment that supports mental health and outlines essential practices that organizations can adopt to enhance employee well-being. It indicates that high-stress roles in private sector organizations can

have a detrimental effect on employee mental health and productivity. The paper also emphasizes the importance of leadership support and a healthy work environment in fostering mental health. It highlights the necessity for regular checks to identify mental health issues among employees and devise strategies to balance high-performance demands, organizational objectives, and other work-related stressors.

In his research Dr. K Chandrasekar (2011) the workplace environment has a significant effect on employee morale, productivity, and engagement. It notes that many workplaces are unsafe and unhealthy, with issues such as poorly designed workstations, unsuitable furniture, inadequate ventilation, inappropriate lighting, excessive noise, insufficient fire safety measures, and a lack of personal protective equipment. The research indicates that employees in such environments are susceptible to occupational diseases, which can negatively affect their performance and reduce productivity. It emphasizes that the quality of an employee's workplace environment has a substantial impact on their motivation and subsequent performance. The paper underscores the importance of creating a work environment where employees can be productive, as this is crucial for increasing an organization's profits. It highlights the interconnectedness of work, the workplace, and work tools, suggesting that the workplace becomes an integral part of work itself.

According to C. de Oliveira et al. (2022) analyzes there is a correlation between poor mental health, especially depression and anxiety, and decreased productivity, manifesting as absenteeism and presenteeism. However, the study also notes that most research focused only on the most prevalent mental disorders and relied on questionnaires, surveys, and administrative data for regression analysis. There were few studies that used longitudinal data, controlled for unobserved heterogeneity, or addressed endogeneity, resulting in a scarcity of high-quality studies. Despite the consistent findings, the paper concludes that there is a need for more high-quality, longitudinal, and causal inference studies to formulate clear policy recommendations. It also suggests that future research should investigate the impact of working conditions, work arrangements, and workplace policies on presenteeism such as vacation time and leaves of absence.

In his research, B. Arul Senthil (2021) concluded that positive and healthy work environment plays a significant role in boosting employee morale, productivity, and engagement. It highlights that workplace with subpar conditions, marked by inappropriate furniture, poor ventilation, unsuitable lighting, high noise levels, and inadequate safety measures, can result in reduced productivity. The research points out that employees in such environments are susceptible to work-related diseases, which can adversely affect their performance and productivity. It emphasizes that the quality of an employee’s workplace environment profoundly affects their motivation levels and subsequent performance. The paper concludes by stressing the importance of fostering a work environment that promotes productivity, as it is crucial for the organization’s profit growth. It also suggests that the interplay between work, the workplace, and work tools makes the workplace an essential part of work itself.

Hypothesis

H01: Employees are not satisfied with the mental health support provided by the organization.

H02: The mental health support provided by the organization do not help in increasing productivity.

RESEARCH METHODOLOGY

A descriptive survey was the methodology used for this investigation. The design is focused to find out the affect of mental health support provided by the organization and its impact on productivity at workplace also to study different measures taken by corporate for well-being of employees. According to the previous, the strategy was deemed suitable because the study will use questionnaires to gather respondents’ perspectives.

182 employees working in corporate sector from different geographical region in India made up the study’s population.

A questionnaire served as the data collection tool. The decision to employ a questionnaire was made in accordance with Rasool S.F; Wang, M; Tang, M; Saeed, A; Iqbal, (2021) recommendation that questionnaires be used when gathering information regarding Organizational support, Employee well-being and employee engagement.

The research involved convenient sampling techniques through questionnaires which has the benefit of being less expensive and time-consuming.

The research conducted in following steps;

Determining the hypothesis of the research. Collection of primary data.

Analysis of data by using One-Sample Binomial Test through SPSS.

Drawing conclusion from the findings.

To gather information from the respondents, the researchers conducted survey through Google form and interview. The method for gathering data was direct. This method was deemed appropriate since it allowed the researchers or research assistants to fully understand the perspective of the respondents. The SPSS, received the collected data. To produce descriptive statistics on means and standard deviations in order to respond to the study objectives, this programme was utilised. One-Sample Binomial Test approach with .050 significance level was used.

ANALYSIS & OUTCOME

H01: Employees are not satisfied with the mental health support provided by the organization.

The One- Sample Binomial Test has used to test the first null hypothesis in Table 1. The table represents the employee satisfaction for mental health support provided by the organization. The significance level is .505 which is (>.001), thus the null hypothesis fails to reject.

Table 1. Hypothesis Test Summary

Null Hypothesis	Test	Sig.	Decision
The categories defined by VAR00004 = no and yes occur with probabilities .500 and .500.	One-Sample Binomial Test	.505	Retain the null hypothesis.

The distribution of VAR00003 is normal with Hypothesis mean 92 and standard deviation 52.683.	One-Sample Kolmogorov-Smirnov Test	.200 ^{b, c}	Retain the null hypothesis.
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One-Sample Binomial Test Summary

Total N	182
Test Statistic	52.000
Standard Error	6.745
Standardized Test Statistic	-5.708
Asymptotic Sig. (2-sided test)	<.001

One-Sample Binomial Test Summary

Total N	182
Test Statistic	96.000
Standard Error	6.745
Standardized Test Statistic	.667
Asymptotic Sig. (2-sided test)	.505

HO2: The mental health support provided by the organization do not help in increasing productivity.

The One- Sample Binomial Test has used to test the first null hypothesis in Table 2. The table represents the organization’s mental health support services do lead to productivity gains or not. The significance level is .505 which is (<.001), thus the null hypothesis is Rejected.

Table 2. Hypothesis Test Summary

Null Hypothesis	Test	Sig.	Decision
The categories defined by VAR00004 = no and yes occur with probabilities .500 and .500.	One- Sample Binomial Test	.505	Retain the null hypothesis.
The distribution of AR00003 is normal with Hypothesis mean 92 and standard deviation 52.683.	One- Sample Kolmogorov-Smirnov Test	.200 ^{b, c}	Retain the null hypothesis.

FINDINGS

The implementation of mental health initiatives has positively impacted team collaboration and morale. This has led to high engagement levels within the organization. There is a consistent fulfillment of responsibilities, and a willingness to assist colleagues with work-related issues. Tasks specified in job descriptions are always completed. This suggests a productive and supportive work environment.

The mental health support provided by an organization can significantly enhance decision-making and problem-solving abilities at work. It can help reduce stress and anxiety, leading to clearer thinking and better focus. This, in turn, can improve an individual’s ability to make informed decisions and solve problems effectively. Furthermore, a supportive work environment can foster collaboration and innovation, which are key to problem-solving.

First, we inquired about the relationship between the mental health support offered by an organization and the satisfaction of its employees. The finding of this study confirms the negative relationship between a mental health support by organization and the employee’s satisfaction, which supports hypothesis H0(a).

Second, the impact of mental health support provided by the organization helps in increasing productivity or not, and the finding of this research show that there is a positive influence on employees, which supports hypothesis H0(b).

The productivity level is also increased if organization focuses on workload which will not negatively impact their employees work and family life, availability of stress support and adequate check-ins from seniors.

This will not only create a better environment for the employees to work but also create positive feeling

toward work. So, overall, mental health support can contribute to improved performance and productivity at work.

CONCLUSION

The study reveals the influence of organizational mental health support for their employee well-being and productivity in workplace with reference to corporate sector helps in bringing out the result for the problems faced by the employees availing the employee engagement activities in the workplace.

The study also helps in understanding how the organizations environment, culture, practices, and policies contribute to the better mental health support at an organization.

Whether the organization is valuing their work goals, support during tough times, flexibility with working hours, and providing time for family matters to their employees or not. This study is beneficiary for both management as well as the employees where the management can know the needs and expectations of their employees and the employees can also convey their needs and requirements to the organization through this study. Also, to know the fulfillment level of the employees on the well-being activities.

The provision of mental health support by an organization has a significant positive impact on productivity. By fostering a supportive and understanding work environment, organizations can enhance employee morale, reduce stress, and improve overall mental well-being. This leads to increased engagement, improved focus, and better decision-making abilities among employees. As a result, productivity is enhanced, leading to better outcomes for both the employees and the organization. Therefore, investing in mental health support is not just beneficial, but crucial for an organization's success.

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Impact of Startups on Indian Economy

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ABSTRACT

Indian entrepreneurs have established themselves on the global stage. Startup plays the very crucial role in boosting the growth of economy. The startup ecosystem in India is growing rapidly, increasing job opportunities, rise in GDP, etc. In this day and age, the role of entrepreneurs in economic prosperity is being enhanced. It is because entrepreneurs become incubators of breakthrough technologies that they generate jobs and give themselves greater opportunity for careers; more employment leads to stronger economies, which has direct impact on growth in cities where startups are based. Opportunities for new businesses in India could be increased by increasing awareness of government initiatives and incentives, such as loan disbursements to priority industries, promotion of engagement and networks benefits among Tier 2 and 3 cities including easing the funding and tax breaks granted to foreigners and national investors. Increasing awareness of public policy initiatives and incentives, for example by loan disbursements to priority industries, promotion of involvement and network benefits between Tier Two and 3 cities, as well as facilitating the financing and tax advantages granted to foreigners and Indian investors could increase new business opportunities in India. The impact of startups, their growth, analysis of the entrepreneurial ecosystem and its effects on India's economy and economic growth are analysed in this research paper. The report aims to highlight the impact or influence of startups on an Indian economy and its various variables and how it affects during COVID-19.

KEYWORDS: *Startups, Indian economy, COVID-19.*

INTRODUCTION

A startup is a company or project undertaken by an entrepreneur to seek, develop, and validate a scalable business model. Startup simply means transforming one's idea into reality. If the value of startup is over US\$ 1 Billion it is called as 'Unicorn', if the value of startup is over US\$ 10 Billion it is called as 'Decacorn' and if the startup is valued over US\$ 100 Billion it is called 'Hectocorn'.

The startup ecosystem consist of angel investors, venture capitalists, business incubators, advisors, top research universities. Business schools, entrepreneurship programs, etc.

Stages of startups:

Ideation

This is the initial stage in startup cycle. In this stage the entrepreneur has an idea in his mind and he tries to

bring that idea into existence. This stage is also called as 'pre-seed stage'.

Validation

This is the very next step where startup has a prototype ready. At this stage entrepreneur need to seek funding whether through crowdfunding or from angel investors, incubators, etc. This stage is also called as 'seed stage'.

Early Traction

This is the stage where startups launch their products in market, all about testing and research. At this stage, need to give more focus to products, customers, etc. This stage is also called as 'series A stage'.

Scaling

This stage in simple terms can be termed as growth stage, where revenues start's increasing. This is the stage where one can think to expand the business. This stage is also called as 'series B, C, D, and E stage'.

Exit options

This stage occurs when our product reaches to maturity, new entrants entered the market, etc. Then, one might think of exit the market through merger and acquisitions, selling shares, buyback of shares or through IPO (Initial Public Offer).

Worldwide Scenario

Startups boost the economy, making it possible for the country to grow. Furthermore, it is maximising the profits by using technology innovation. Eventually, that will increase the economy’s GDP and transfer money to its customers. Startups are the answers to society’s problem. Not only in North America or India but, there is a boom in global startup ecosystem too. The technology startups making live life easier day by day. Around 50% of unicorn companies are located in USA.

Karnataka – 7846
Delhi – 7666

41% startups are concentrated in the above top 3 States.

As per states startup ranking 2021, Gujrat and Karnataka are the best states in supporting startup ecosystem.

[Data as on 30th November, 2022]

In the Startup Genome project ranking for 2019, Bangalore has been ranked among 20 most promising entrepreneurial cities worldwide. The city is one of the world’s five most promising startup cities.

In particular, there have been increase in number of women entrepreneurs to 14 % from 10 % and 11 % in the previous two years.

The no. of startups are increasing rapidly, refer figure given below:

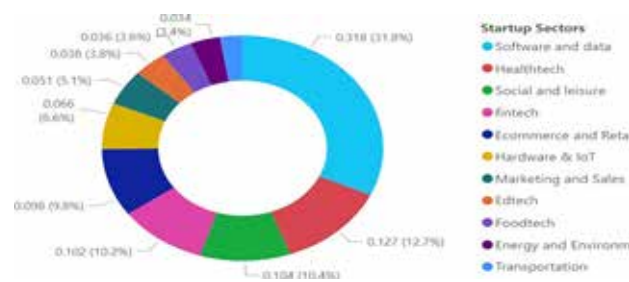
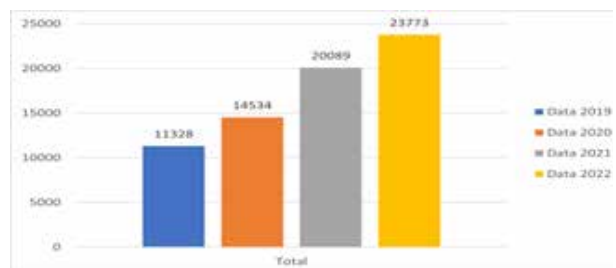


Fig. 1: Startup Sectors – Global Ecosystem 2022



Indian Scenario

Today India stands at the 3rd position in the startup ecosystem and has the rapidly growing base of startups worldwide. India is home to over 85000 startups and more than 100 unicorn companies worth 30 billion dollars that can only be achieved through the contribution of India’s youth.

The technology startup has the highest share with 50% roughly, this includes AI technology, Education technology, Retail technology, etc. There is no accurate data of industry distribution but modern startups are moving towards internet and digital technologies, AI, etc, and it is incredible as they are making life easier to survive in the real technological world.

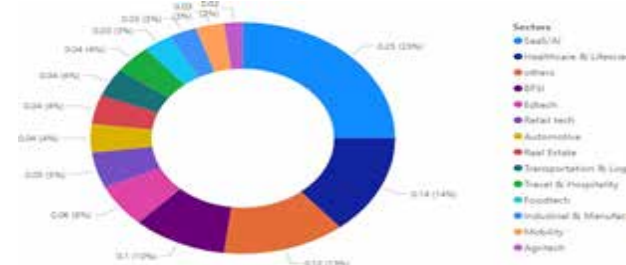


Fig 2: Startup Sectors – Indian Ecosystem 2022

Startup India Initiative

The Prime Minister, Shri Narendra Modi, announced the launch of a flagship initiative called Startup India in August 2015, which has been designed to encourage and support young entrepreneurs. The initiative’s goal was to make India a country of entrepreneurs rather than job seekers.

There are some schemes and initiatives launched by Government of India to support startups in India, these are:

- Startup India Seed Fund 

Top States in no. of startups are:
Maharashtra – 12831

- Pradhan Mantri Mudra Yojana (PMMY)
- ATAL Innovation Mission
- The Venture Capital Assistance Scheme (VCA)
- Startup India

Role of Startups in Indian Economic Growth

- Employment Creation

India had become the 3rd largest startup ecosystem in the world, with more than 80000 DPIIT recognised startups spread out across 565 recognised districts. These new businesses are also helping to create more employment in a given sector. This should help to tackle the problem of unemployment in emerging countries such as India.

Research and Development

Students and researchers are encouraged to translate their ideas into practical application through collaboration with startups thereby contributing significantly to the development of new sources of economic growth.

- Better GDP

GDP (Gross Domestic Products) plays a significant role in accelerating the economic growth of a country. It is practicable to generate further startups by supporting and encouraging them. In the Indian economy, more domestic revenues will flow.

COVID -19

The COVID-19 pandemic is a global pandemic of coronavirus disease 2019. The pandemic, which included the world's worst economic downturn since the Great Depression, has caused considerable societal and economic disruption around the globe. The global economy has suffered a devastating blow from the pandemic. The slowdown in economic growth, increased unemployment, diminished gross domestic product, etc. has been a major influence on India's economy.

LITERATURE REVIEW

Sneha CJ, Vignesh B, Dr. J. Krithika, Indian startups have made their mark on a global stage. This paper mainly focused on the impact of startups on GDP of Indian economy in 2022 specifically. This paper also states the startup funds raised, highest funding startups,

how government supports Indian startups, what initiatives were taken by them to boost start-ups and it clearly indicated how India reaches to 3rd position in the World in startup initiatives.

Saloni Jain, This paper shows the relationship between emerging start-ups to the Indian economy. It gives details about how the start-up culture is emerging rapidly and creating a strong impact on the GDP growth rate of India. The data shows descriptive and inferential statistical analysis for finding the impact of start ups on the economy of the nation over 10 years. Given the primary industry the main contribution to economic growth, the government should focus on encouraging new startups in agriculture.

Mona Girnara, This paper is based on how startup impacts on various variables of Indian economy after successful launch of Startup India initiative by Government of India. It also states that how Government should support and encourage startups as it plays a vital role in boosting economic growth as well as GDP. This research paper has analysed the of impact of startups, analysis of ecosystem of startups and its impact on various variables of Indian economy such as GDP.

Arihant Jain, The paper has shown how the Startupindia program is a step towards development and building an innovative and effective ecosystem and compared India with different nations to state that how Indian ecosystem is growing rapidly in recent couple of years in comparison to other nations. An analysis of different countries policies carried out by the Ministry of Commerce and Industry is included in a section of the research paper, and gives the significant point of interest to put current startup ecosystem to discover the positive and innovative startup ecosystem. Also, it focuses on whether GDP will revive back or not?

Pankaj Chaudhary, This paper gives insight into the start-up ecosystem in India. It discusses how start-ups work and the start-up model in India. The various financing sources like government initiatives are discussed here. It also defines certain challenges in the way of building a successful start-up. The challenges for the growing start-ups in India are also discussed in the paper. Various emerging fields that have the potential to benefit society and the nation are also suggested by the author.

OBJECTIVES OF THE STUDY

The objective of the study is to study the impact of startups on Indian economic variables such as GDP, Import, Export, Balance of Payment, GNI, etc, pre and post covid-19.

RESEARCH METHODOLOGY

Problem Statement

The problem statement is “What is the impact of startups on Indian Economy pre and post covid-19”.

Research Design

For the study, I used descriptive research design

Sources of Data

For the study, I used Secondary Data.

Data Collection Tools

I used press releases by Ministry of Commerce and Industry, RBI Reports, newspapers, research publications, etc.

Population

All year’s data of Indian economic variables and no. of Startups recognised.

Sample Size

I have taken 4 years sample size from 2019 to 2022 (both inclusive). I used economic variables data from RBI reports and publications and total no. of registered startups data from Press release by Ministry of Commerce and Industry (recognised by DPIIT) and I used recognized startups for analysis.

Dependent and Independent Variables:
Startups

Dependent Variables: GNI, GDP, Balance of Payments, Import, Export, Per capita GDP, Foreign exchange reserve.

DATA ANALYSIS AND INTERPRETATION

Impact of Startups on GDP at current price

Year	No. of Startups recognised by DPIIT	GDP at current price (Rs. In crore)
2019	11328	18899668
2020	14534	20074856

2021	20089	19800914
2022	23773	23664637

Result

Correlation between Startups and GDP at current price = 0.834128499
Correlation between startups and GDP at current price in 2020-2021 = -1

Interpretations

From the above result, it shows positive relation between GDP at current price and no. of startups. It means startup helps in increasing GDP of India. But in the year 2020-2021, GDP slightly declined due to COVID-19. Hence, it shows negative correlation in that period.

2. Impact of Startups on Exports

Year	No. of Startups recognised by DPIIT	Export (Rs. In crore)
2019	11328	2307726
2020	14534	2219854
2021	20089	2159043
2022	23773	3147021

Result

Correlation between Startups and Exports = 0.670190128
Correlation between startups and Exports in 2020 2021 = -1

Interpretations

From the above result, it shows positive relation between Exports and no. of Startups. It means exports are increasing with increase in startups. But in the year 2020-2021, Exports slightly declined due to COVID-19. Hence, it shows negative correlation in that period.

3. Impact of Startups on Imports

Year	No. of Startups recognised by DPIIT	Import (Rs. In crore)
2019	11328	3594675
2020	14534	3360954
2021	20089	2915958
2022	23773	4572775

Result

Correlation between Startups and Imports = 0.434190515
Correlation between startups and Imports in 2020-2021 = -1

Interpretations

From the above result, it shows positive relation between Imports and no. of Startups. It is not good for the economy that startups increasing the import. But in the year 2020-2021, Exports slightly declined due to COVID-19. Hence, it shows negative correlation in that period and is good for economy that import declines.

4. Impact of Startups on Balance of Payment

Year	No. of Startups recognised by DPIIT	Balance of Payment
(Rs. In crore)		
2019	11328	-20204
2020	14534	423206
2021	20089	649681
2022	23773	349119

Result

Correlation between Startups and Balance of Payment = 0.610990032
Correlation between startups and Balance of Payment in 2020-2021 = 1

Interpretations

From the above result, it shows positive relation between Balance of Payment and no. of Startups. It means startups helps in improving the Balance of Payment of Indian economy. During 2020-2021 also there is positive relation between startups and Balance of Payments. It means there is no negative impact of COVID-19 on Balance of Payment.

5. Impact of Startups on GNI at current price

Year	No. of Startups recognised by DPIIT	GNI at current price (Rs. In crore)
2019	11328	18697344
2020	14534	19881742
2021	20089	19534226
2022	23773	23296345

Result

Correlation between Startups and GNI at current price = 0.827129139
Correlation between startups and GNI at current price in 2020-2021 = -1

Interpretations

From the above result, it shows positive relation between GNI at current price and no. of Startups. It means startup helps in increasing the GNI at current price. But in the year 2020-2021, GNI at current price slightly declined due to COVID-19. Hence, it shows negative correlation in that period.

6. Impact of Startups on Per Capita GDP

Year	No. of Startups recognised by DPIIT	Per Capita GDP
(Rs. In crore)		
2019	11328	142424
2020	14534	149701
2021	20089	146087
2022	23773	172913

Result

Correlation between Startups and per capita GDP = 0.793057617
Correlation between startups and per capita GDP in 2020-2021 = -1

Interpretations

From the above result, it shows positive relation between Per capita GDP and no. of Startups. It means startup helps in increasing the per capita GDP. But in the year 2020-2021, per capita GDP slightly declined due to COVID-19. Hence, it shows negative correlation in that period. But, startup helps in improving overall GDP.

7. Impact of Startups on Foreign Exchange Reserve

Year	No. of Startups recognised by DPIIT	Foreign Exchange Reserve
(Rs. In crore)		
2019	11328	2855882
2020	14534	3602155

2021	20089	4218953
2022	23773	4598819

Result

Correlation between Startups and Foreign Exchange Reserve = 0.983435959
 Correlation between startups and Foreign Exchange Reserve in 2020-2021 = 1

Interpretations

From the above result, it shows positive relation between Foreign Exchange Reserve and no. of Startups. It means startup helps in increasing the Foreign Exchange Reserve. In the year 2020-2021 also, Foreign Exchange Reserve increased even during covid-19, it means startups has a positive impact on foreign exchange reserves.

FINDINGS

1. Correlation between Indian economic variables and no. of Startups

Indian Economic Variable	Co-Relation	Result	Impact
GDP at current price	0.834	Positive Co-relation	Positive
Export	0.670	Positive Co-relation	Positive
Import	0.434	Positive Co-relation	Negative
Balance of Payment	0.610	Positive Co-relation	Positive
GNI at current price	0.827	Positive Co-relation	Positive
Per capita GDP	0.793	Positive Co-relation	Positive
Foreign Exchange Reserve	0.983	Positive Co-relation	Positive

From the above findings, it is found that overall there is a positive impact of startups on GDP, GNI, per capita GDP, Balance of Payment and Export, but a negative impact on Import and Foreign Exchange Reserve. Though startups are increasing but, imports are also increasing which is not good for economy. Therefore,

government should encourage more for startups to reduce imports and increase exports.

2. Correlation between Indian economic variables and no. of Startups during Covid-19

Indian Economic Variable	Co-Relation	Result	Impact
GDP at current price	-1	Negative Co-relation	Negative
Export	-1	Negative Co-relation	Negative
Import	-1	Negative Co-relation	Positive
Balance of Payment	1	Positive Co-relation	Positive
GNI at current price	-1	Negative Co-relation	Negative
Per capita GDP	-1	Negative Co-relation	Negative
Foreign Exchange Reserve	1	Positive Co-relation	Positive

From the above findings, it found that there is positive impact of startups on Imports, balance of payment, and foreign exchange reserves, but a negative impact on GDP, GNI, export, and per capita GDP. It is concluded that during covid-19, startups decreases import, but overall, there was a negative impact on Indian economy. Most of the startups has seen decline in supply and demand except those startups which provides essentials services or products. Overall startups has an adverse impact on Indian Economy during COVID-19.

CONCLUSION

Startups have the power to make a difference, and there will be an increase of businesses that do so in the coming years. Both male and female entrepreneurs are launching new ventures. In the case of a country's economic development, when startup numbers are rising and contributing more to GDP, they play an important role. A small idea might also be capable of a great innovation. Develop an idea for a business, and contribute to the growth of our country. It could lead to job creation, reducing unemployment and contributing to preventing a brain drain from the country. In order

to ensure a favourable environment for startups, the Government is also supporting. Also, there are certain challenges which need to be resolved. With the advancement of technology, the opportunity for start-ups in the future is also increasing. Government should encourage more; it will definitely increase GDP in upcoming decade. So, concluding that startups are positively affecting Indian economy.

SUGGESTIONS AND FUTURE SCOPE

- Government should provide tax benefits and exemptions to new startups.
- Encourage entrepreneurship education among students to know about scope of opportunities available.
- Help people to be aware of the startup initiative.
- Government should provide more incentive for startups.
- Support those startups that are exporting their product to a different country.
- Support those startups which are providing more employment opportunities.

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An Analysis of Artificial Intelligence of Human Resources Management in IT Sector

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ABSTRACT

This essay examines artificial intelligence's (AI) function in information technology (IT) human resource management (HRM). The analysis focuses on the benefits, challenges, and future prospects of AI in human resource management. The benefits of artificial intelligence in HRM include improved hiring processes, personalized employee training and development programs, and real-time performance management feedback. However, challenges such as bias and job displacement must be addressed. The future prospects for AI in HRM are promising, with the development of more advanced algorithms and integration with other technologies such as virtual and augmented reality. It is crucial for HR professionals to stay up-to-date on AI developments and work collaboratively with IT experts to ensure ethical and responsible use of AI in human resource management. Artificial intelligence, human resource administration, IT sector, recruitment, employee engagement, performance management, bias, job displacement, virtual reality, augmented reality.

All things considered, this research offers insightful information about the possible advantages and difficulties of AI in HRM, and highlights the need for a collaborative and responsible approach to its implementation.

KEYWORDS: *IT industry, Artificial intelligence, and human resource management recruitment, Employee engagement, Performance management, Bias, Job displacement, Virtual reality, Augmented reality.*

INTRODUCTION

The uses of AI in HRM has numerous benefits, including improved recruitment processes, personalized employee training and development programs, and real-time performance management feedback. But there are additional difficulties with AI in HRM. Such as bias and job displacement. To address these challenges, HR professionals must work collaboratively with IT experts to ensure ethical and responsible use of AI in HRM. The Indian IT sector faces obstacles such as implementation costs, privacy and security, bias and discrimination and data quality and availability while integrating AI in HR management. A balanced approach that emphasizes responsible AI development and deployment is required to address these challenges. Overall, the possibility for revolutionizing HRM with the application of AI

workplace, but it must be implemented carefully and responsibly to avoid negative consequences.

Because AI offers cutting-edge tools and technology to automate a variety of HR procedures, it has completely transformed the field of human resources management in the IT industry. Among other things, artificial intelligence (AI) in HR can be applied to hiring, employee engagement, performance management, training, and development. HR experts may work in a completely new way thanks to this technology, which would increase productivity and efficiency.

In HR management, hiring is one of the main uses of AI. Resume screening, first interviews, and evaluating individuals' qualifications and skills can all be aided by AI-powered technologies. For HR specialists, this guarantees a more impartial selection procedure in

addition to saving time. Moreover, AI can examine data from multiple sources to spot trends and patterns in worker behavior, which benefits companies.

Furthermore, by evaluating employee data to pinpoint problem areas and give workers immediate feedback, AI can help with performance management. This

may result in a staff that is more motivated and effective. In order to free up HR personnel to concentrate on strategic projects, AI may also automate repetitive HR processes like payroll processing, scheduling, and benefits administration.

All things considered, efficiency, productivity, and employee happiness might all significantly increase with the use of AI in human resources management in the IT industry. Businesses that use AI in HR will have a competitive edge in luring and keeping top people in the quick-paced IT sector as technology develops further.

LITERATURE REVIEW

Author Gupta & Kumar

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The paper “Human Resource Management with Artificial Intelligence Challenges and Opportunities” highlights the difficulties that companies encounter when integrating AI into HR management, such as inadequate data quality, bias and discrimination, security and privacy concerns, high implementation expenses, and reluctance to change. The authors also examine the potential advantages of AI in HR Management, such as better decision-making, increased employee engagement, and improved productivity.

Barbara van Pay’s

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According to study “How AI is Reinventing HRA growing number of businesses are utilizing AI technologies. Needs, although many are hesitant to let non-human entities handle their procedures. AI can streamline the recruitment process by screening multiple candidates, gathering data, and ranking them based on factors such as experience and skill set. Additionally, AI tools such as Mya and Hike Vue are in use. More frequently, reducing the recruitment timeline and making it easier to find the right candidates for specific roles.

Ruchi Singh & Pratiksha Sharma (2019)

Singh and Sharma’s paper “The Challenges of Implementing Artificial Intelligence in Human Resource Management” discusses the obstacles that organizations encounter when integrating AI into HR management. These difficulties include issues with data accuracy and availability, prejudice and unfairness, worries about privacy and security, and opposition to change. The authors recommend that companies establish a well- defined plan for incorporating AI into HR management and provide proper training to their staff on how to utilize these systems.

Sujatha Rani &

K. S. Rao (2020)

In their paper titled “Artificial Intelligence in HR: A Critical Review of its Impact on Human Resource Management,” Rani and Rao provide an analysis of the effects of AI on HR management in India. The authors discuss the difficulties associated with implementing AI, including the requirement for accurate and reliable data, the possibility of biases and discrimination, and concerns regarding privacy and security. The paper also examines the potential advantages of AI in HR management, such as improved recruitment procedures and better employee experiences. The authors suggest that while there are significant challenges to overcome when integrating AI into

HR management practices, the potential benefits make it a worthwhile endeavor. They recommend that organizations establish proper guidelines and procedures for AI implementation, including training employees on how to use these systems effectively and ensuring that they are designed to be fair and unbiased.

Ankit Khandelwal Shweta Singh (2021)

The paper “Artificial Intelligence in Human Resource Management: Opportunities and Challenges” examines the advantages and difficulties associated with integrating AI into HR management. The authors stress the importance of using accurate and reliable data to train AI systems effectively and address concerns regarding potential biases and discrimination. The paper also discusses the potential benefits of AI in improving employee engagement, retention, and productivity.

However, the authors acknowledge the challenges of implementing AI, including the need for appropriate guidelines and procedures, training employees to use these systems effectively, and ensuring that they are fair and unbiased.

Ritu Sharma & Renu Bala (2020)

In their paper, “Artificial Intelligence in HR Management: Opportunities and Challenges,” discuss the obstacles organizations encounter when integrating AI into HR management. These challenges include issues with data accuracy and accessibility, biases and discrimination, privacy and security worries, and resistance to change. The authors recommend that organizations gain a comprehensive understanding of the advantages and drawbacks of adopting AI in HR management and provide sufficient training for employees to effectively utilize these systems. Additionally, the paper delves into the potential effects of AI on employee engagement and productivity.

Marler, J. H. Boudreau, J. W. (2017)

An Empirical Assessment of HR Analytics. This study sheds light on the application of AI in HR analytics within the human resources management domain. It goes into how AI can be used to enhance decision-making procedures related to attracting and retaining people. In the IT industry, it addresses the advantages and difficulties of implementing AI in HRM.

Sheldon, A. Kochan, T. (2016)

Embarking on evidence-based change to restore trust in HR the usage of AI in HRM is one of the topics covered in this article along with the significance of evidence-based HR procedures. It focuses on how AI helps companies become more credible and trustworthy. They draw attention to the advantages, difficulties, and recommended procedures related to using AI technologies to streamline HR procedures and promote corporate success.

OBJECTIVES

1. To Researching artificial intelligences effect on HR Management
2. To investigating the difficulties associated with employing AI in human resources.

3. To determine how hiring the top personnel from the business is facilitated by AI based technologies.

RESEARCH METHODOLOGY

Two kinds of methods exist for gathering data: Primary Data

Secondary Data

Primary Data: was obtained by means of standardized questionnaires that were used to communicate with the respondents. Using main data from the questionnaire, the study was conducted.

Secondary Data: Sources of secondary data included papers, journals, and PDFs. After primary and secondary data were interpreted and analyzed, a logical conclusion was made evidence.

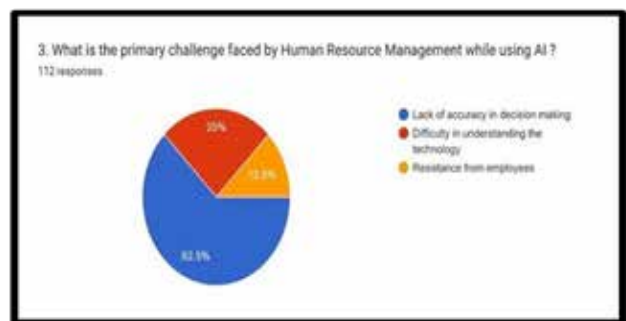
The Study Methodology: Survey Approach

The Research Tools: Questionnaire

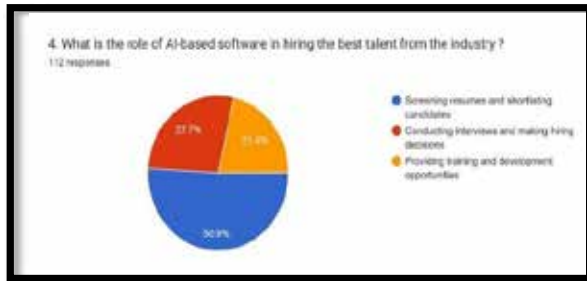
The Respondents: Hr. & Salaried Employee of IT Sector & Industry.

Sources of Secondary data: Literature review, google scholar journal.

DATA INTERPRETATION

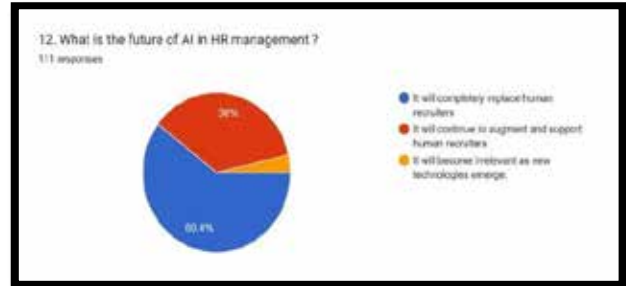


These results underline how crucial it is to solve issues with comprehension, accuracy, and employee buy-in when integrating AI into HR management. To foster trust and involvement, this may entail offering AI technology training and instruction, guaranteeing accountability and openness in decision-making procedures, and incorporating staff members in the development and deployment of AI systems.

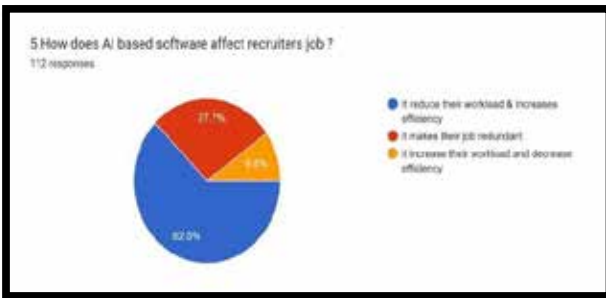


The data indicates that AI-powered software is predominantly utilized for resume screening and candidate selection, streamlining the initial stages of recruitment. Additionally, it is employed for conducting interviews and making hiring decisions, as well as providing personalized training and development opportunities. It is crucial to prioritize accuracy, reliability, and transparency in these systems to established trust among HR manager & employee.

and development options for individual employees and offering immediate feedback and acknowledgment. This approach can result in a more engaged and motivated workforce, potentially leading to enhanced performance and productivity.



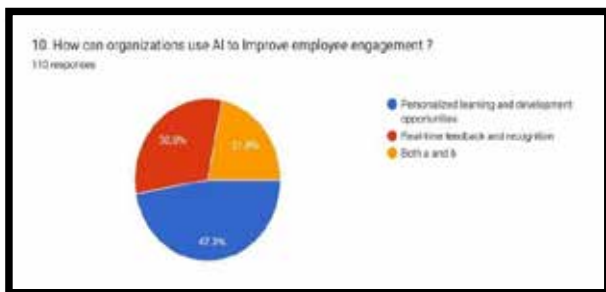
AI in HR management is expected to undergo a substantial transition in the future; perspectives range from the total replacement of human recruiters to an ongoing partnership between AI and human knowledge. The result will probably rely on organizational tactics, technological advancements, and the capacity to strike the ideal mix between automation and human interaction in HR procedures.



All things considered, these results draw attention to the possible advantages and difficulties of utilizing AI-based software in hiring. It's vital to guarantee the use of these technologies in a way that enhances and supplements the function of recruiters rather than completely replacing them, even though they can help decrease workload and increase efficiency.

CONCLUSION & RESULT

The successful integration of AI in HRM within the Indian IT sector ultimately requires a balanced approach that utilizes AI's potential while upholding moral standards, fostering a culture of learning, ensuring inclusivity and transparency, and safeguarding ethical considerations. By taking these considerations into account, organizations may maximize AI's potential to stimulate innovation, productivity, and long-term growth while promoting a positive relationship between technology and human resources. Without a doubt, increasing applicant productivity within the firm is more significantly impacted by integrating AI-based HR operations. These potent AI-powered HR tools might be able to foresee, identify, assess, and perform much more even while they lack human emotional or cognitive abilities. They work well as tools for all kinds of businesses. The way HR duties are carried out could be drastically altered by the use of AI in HR procedures. Artificial Mind has the potential to improve productivity, precision, and decision-making in the areas of hiring, personnel management, training, performance management, and workplace security.



The data suggests that organizations can leverage AI to enhance employee engagement by customizing learning

SOLUTION

Keep up with the latest developments in technology, perform routine technology evaluations, and be ready to modify HR tactics as necessary. Make backup preparations in case the rapidly advancing AI causes disruptions to the workforce.

All things considered, there are many advantages to integrating AI with HRM in the IT industry, but doing so calls for a thoughtful and moral approach. To optimize AI's benefits and manage its drawbacks, open communication, frequent training, and ongoing monitoring are essential. Instead of replacing human abilities, organizations should see AI as a tool that enhances them, encouraging a creative and cooperative work environment.

The study's conclusions have led the researchers to recommend that businesses create an easy-to-implement organizational plan for incorporating AI into the recruiting process. The suggestion from academics is that recruiters replace mundane and repetitive jobs with

sophisticated AI technology, freeing up HR managers and recruiters to focus more on strategic work.

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Adapting to the Digital Age: A Study on Local Retailers' Digital Marketing Practices

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ABSTRACT

The research used a mixed-methods approach, integrating both qualitative interviews and quantitative surveys to provide a thorough understanding of the digital marketing practices of local merchants. The study looks at things like social media presence, e-commerce acceptance, and online presence in order to find trends and differences in digital marketing strategies among various local retail industries.

By examining the difficulties local shops encounter in the digital sphere such as financial limitations and technical impediments the study seeks to provide actionable suggestions for improving the efficacy of digital marketing tactics locally. In the end, this study advances our knowledge of the complexities at play when local retail and digital marketing collide, providing useful information to academics, entrepreneurs, and politicians alike

KEYWORDS: Retailers, Digital marketing, E-commerce, social media.

INTRODUCTION

The quick development of digital technology has changed the way companies interact with their clients and promote their goods. Local businesses are negotiating this changing terrain to create their presence in the digital sphere since they are important members of their communities. Given the ongoing impact of digital marketing on customer behaviour and purchase decisions, it is becoming more and more important to comprehend local shops' actions in this regard. This study aims to shed light on local retailers' strategies, challenges, and adaptations in the digital domain by delving into the complex dynamics of their behavior in the field of digital marketing.

Local merchants encounter distinct opportunities and problems in a world where internet platforms and e-commerce behemoths have become increasingly prominent. Although worldwide this examination explores the cultural, economic, and social fabric that shapes local retailers' decisions, going beyond a simple study of methods and measurements. We may

gain important insights to guide best practices and recommendations that improve their digital presence while staying true to their local essence by learning how digital marketing speaks to their identities and goals.

This study aims to provide a road map for success in the constantly changing digital world in addition to a glimpse into the techniques used through a thorough analysis of the behavior of local shops in digital marketing. This research seeks to advance our knowledge of the symbiotic relationship between local businesses and digital engagement while bridging the gap between local identity and the latter.

LITERATURE REVIEW

Smith, J. et.al (2020)

This study looks into what motivates neighborhood merchants to use digital marketing techniques. Results point to the importance of the retailer's size and the type of service or product being offered in the adoption process. Using a mixed-methods approach, the study combined interviews and surveys with neighborhood

shopkeepers from a range of industries. The study's thorough data analysis allowed for the identification of important factors that have a major influence on local shops' propensity to embrace digital marketing strategies, including perceived benefits, digital literacy, and resource availability. The findings offer insightful information to practitioners and policymakers that aim to increase the adoption rates of digital marketing in local retail ecosystems.

Anderson, M. et. at(2018)

This study investigates the effects of perceived advantages, perceived obstacles, and competitive pressure on the adoption of digital marketing by looking at the adoption trends of local merchants. The research offers valuable insights into the complex decision-making procedures that local shops use when deciding to adopt digital platforms. Through the use of a qualitative research design that includes surveys and in-depth interviews with local shops from a variety of industries, the study reveals the intricate interactions between variables that affect the adoption of digital marketing tactics. The results of Anderson et al.'s study highlight how crucial it is for local shops to have a comprehensive grasp of the competitive environment, as well as perceived advantages and obstacles, when determining how to use digital marketing.

Taylor, R. et. Al (2019)

This study investigates the relationship between online interaction and offline sales, with a particular focus on the impact of digital marketing strategies implemented by local merchants on consumer behavior. The results clarified the connection between customer purchase decisions and digital marketing initiatives. Using a combination of quantitative and qualitative techniques, including as questionnaires, social media analytics, and in-store inspections, Taylor et al. carried out a longitudinal study. The study highlights the significance of individualized digital engagement in shaping offline purchase behavior by illuminating the complex dynamics of online-offline consumer journeys. For local merchants looking to maximize their digital marketing tactics in order to achieve measurable in-store sales results, the report offers insightful information.

OBJECTIVES

- 1) To Determine the primary objective of this study is to gain a comprehensive understanding of how local retailers adopt and integrate digital marketing strategies into their business models.
- 2) To compare the digital marketing strategies of local retailers with those of non-local competitors or larger retailers.
- 3) To explore how local retailers adapt to changes in the digital landscape and incorporate innovative approaches.

RESEARCH METHODOLOGY

Size: In our study, we assumed 100– 110 responses and we got 86 responses from the respondents.

Sample Technique: Random Sampling Technique, we have taken responses from the random local retailers and shopkeepers.

Data Collection Method: Data has been collected with the help of surveys and interviews of the local retailers.

DATA ANALYSIS

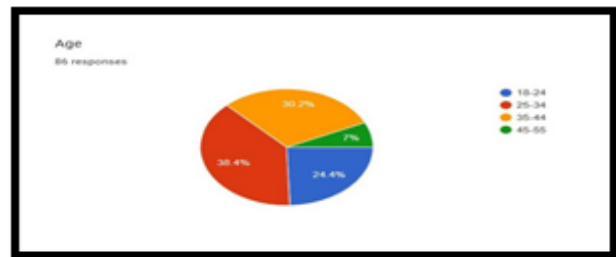


Figure 1

1: We inquired about age since people of all ages have varying perspectives about many topics, according to the question that floated on the questioner. Ages 25 to 34 and 30 make up 38.4% of the group. 2% of respondents are in the 35–44 age range, 24.4% are in the 18–24 age range, and 7% are in the 45–55 age range.

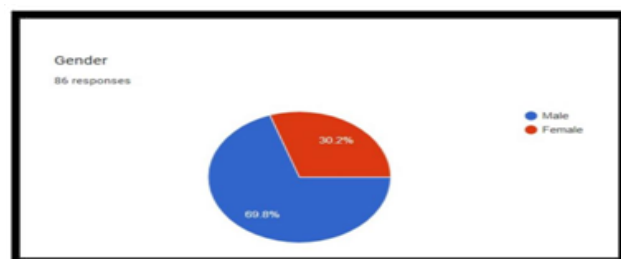


Figure 2

2: As per the Question Floated on Questioner, we inquired about gender because each gender has varying perspectives on certain matters. There were 30.2% females and 69.8%males.

years of experience, 36% had six to ten years, and 17.4% had less than a year.

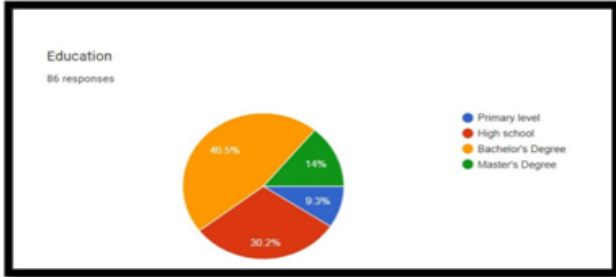


Figure 3

3: We discovered that 46.5% of persons have a bachelor's degree, 30.2% have a high school diploma, 14% have a master's degree, and 9.3% have a primary level certification based on the Question Floated on Questioner.



Figure 6

6: The Question Floated on Questioner revealed that 48.8% of respondents occasionally adopted digital marketing tactics, 44.2% of respondents implemented digital marketing strategies, and 7% of respondents did not adopt any digital marketing strategies.

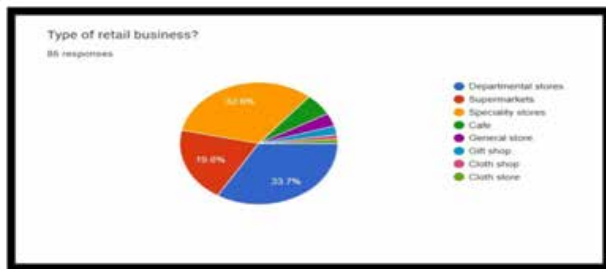


Figure 4

4: Based on the Question Floated on Questioner, we discovered that 33.7% of people own department stores, 32.6% own specialty stores, and 19.8% own supermarkets.

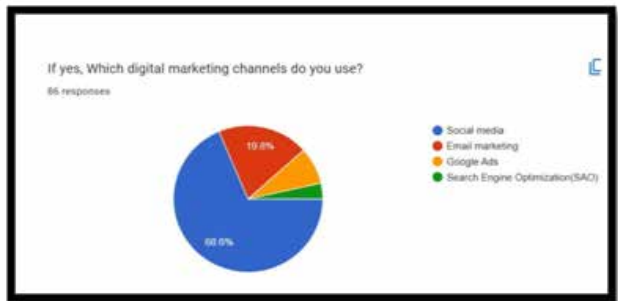


Figure 7

7: We discovered that 19.8% of individuals use email marketing, and 68.6% of people use social media channels, based on the Question Floated on Questioner.

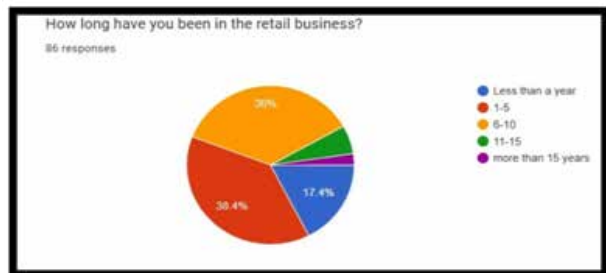


Figure 5

5: Based on the Question Floated on Questioner, we discovered that 38.4% of respondents had one to five

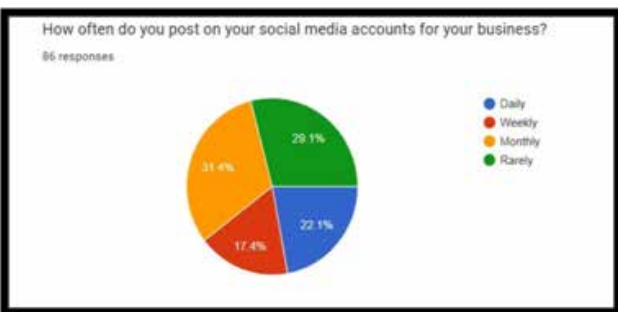


Figure 8

8: We discovered that, in accordance with the Question Floated on Questioner, 31.4% of people post on social

media accounts on a monthly basis, 29.1% on a rare basis, 22.1% on a daily basis, and 17.4% on a weekly basis.

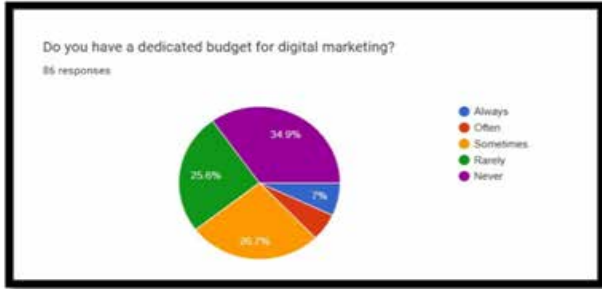


Figure 9

9: We discovered that 34.9% of respondents do not have a budget for digital marketing, 26.7% have one occasionally, 25.6% have one seldom, and 7% always have one. These findings are based on the Question Floated on Questioner.

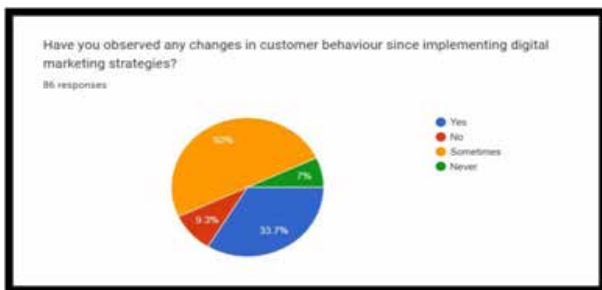


Figure 10

10: The Question Floated on Questioner revealed that 50% of respondents had occasionally noticed changes in customer behavior, 33.7% had noticed changes in customer behavior, 9.3% had not noticed changes in customer behavior, and 7% had never noticed changes in customer behavior.

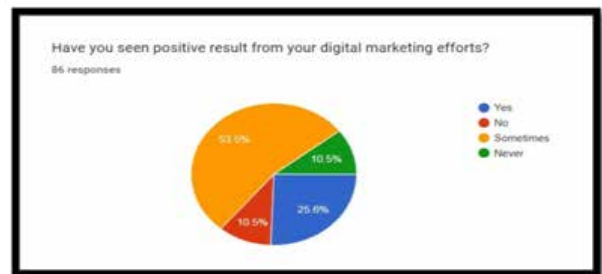


Figure11

11: Based on the Question Floated on Questioner, we discovered that: 10.5% of respondents have never experienced a positive outcome; 25.6% have seen positive results most of the time; and 53.5% have seen positive results occasionally.

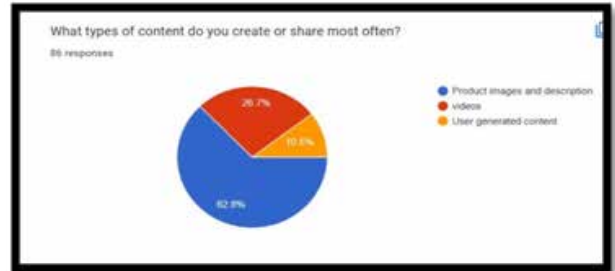


Figure 12

12: We have discovered that 62.8% of individuals share product images and descriptions, 26.7% share videos, and 10.5% share user-generated content, as per the Question Floated on Questioner.

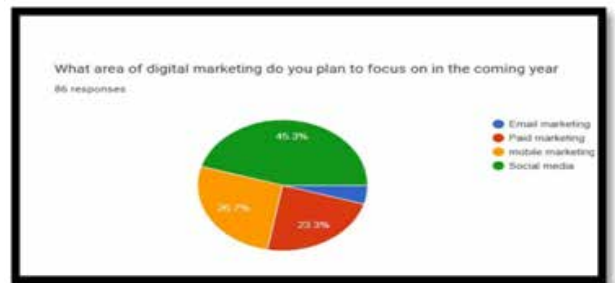


Figure 13

13: Based on the Question Floated on Questioner, we have determined that 45.3% of respondents choose to concentrate on social networking platforms, 26.7% choose mobile marketing, and 23.3% choose paid marketing.

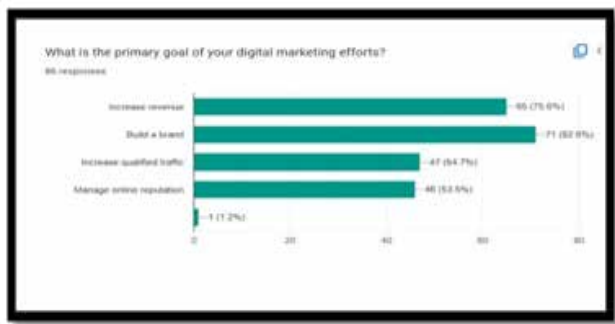


Figure 14

14: Based on the Question Floated on Questioner, we discovered that 82.6% of people need to establish their brand, 75.6% need to boost income, 54.7% need to increase quality traffic, and 53.5% need to maintain their online reputation.

FINDINGS

- local retailers may struggle to create and execute engaging social media strategies that resonate with their target audience.
- Local retailers may find it challenging to integrate digital marketing efforts with their existing offline marketing strategies and operations.
- Local retailers may face difficulties in accurately measuring the return on investment (ROI) of their digital marketing initiatives.
- Staying updated on the rapidly evolving digital marketing landscape can be challenging for local retailers.

Managing customer reviews and maintaining a positive online reputation can be challenging for local retailers.

CONCLUSION

Analyzing the digital marketing practices of neighborhood merchants might provide insightful information. In conclusion, it is evident that local retailers' success is greatly influenced by digital marketing. Their use of internet tactics like SEO, email marketing, and social media can directly affect sales and customer engagement. To remain competitive and adjust to the changing retail scene, it is imperative to comprehend their behavior. Local merchants use digital marketing in a variety of ways, but their success in the digital age depends on their capacity to adjust, interact with consumers, and use data-driven insights. The study also emphasizes how local businesses must adopt

data-driven decision-making and use analytics tools to gauge the success of their campaigns. Cooperation initiatives, such joint ventures with nearby companies or influencers, may increase brand awareness. In general, for local shops to succeed in the digital age, a comprehensive strategy that blends best practices for digital marketing with a thorough comprehension of the characteristics of the local market is necessary.

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Challenges and Opportunities of Chartered Accountants to Adapt to the Digital Transformation in Finance Industries

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ABSTRACT

The landscape of the finance industry has been dramatically reshaped by the wave of digital transformation. This abstract explores the challenges and opportunities confronting chartered accountants amidst this paradigm shift. The integration of advanced technologies, including artificial intelligence, machine learning, blockchain, and data analytics, has revolutionized financial processes, posing a dual mandate for professionals in the field.

The challenges faced by chartered accountants in adapting to this digital evolution are multifaceted. They encompass technological integration, expertise gaps, data security concerns, and the imperative for continuous upskilling. Moreover, ethical dilemmas and regulatory complexities emerge as critical issues in this digitally driven environment.

Contrarily, this digital transformation presents a myriad of opportunities for chartered accountants. It offers enhanced efficiency through automation, provides deeper insights via data analytics, fosters the evolution of advisory services, and enables global collaboration and connectivity.

This abstract aims to highlight the intricate balance between challenges and opportunities as chartered accountants navigate the dynamic terrain of digital transformation in the finance industry. It emphasizes the imperative for professionals to embrace ongoing learning, adaptability, and innovation to leverage the potential offered by digital tools and technologies. Ultimately, chartered accountants positioned to overcome challenges while harnessing the vast opportunities are poised to redefine their roles and drive value in an ever-evolving financial landscape.

KEYWORDS: *Challenges, Opportunities, Digital transformation, Finance, Industry, Technological advancements, Artificial intelligence.*

INTRODUCTION

The finance industry is undergoing a profound transformation fueled by rapid technological advancements and digital innovation. Within this evolving landscape, chartered accountants, esteemed professionals known for their expertise in financial analysis, auditing, and compliance, face a paradigm shift in their roles and responsibilities. The emergence of digital transformation has presented both challenges and a multitude of opportunities for these professionals as they navigate the dynamic contours of the finance industry.

This introduction delves into the intricate interplay between the challenges and opportunities confronting chartered accountants amid this era of digital transformation within finance. It explores the profound impact of technology integration on traditional financial practices, the need for upskilling, and the complexities surrounding data management and security.

The challenges encountered by chartered accountants in adapting to digital transformation encompass a broad spectrum. The integration of cutting-edge technologies such as artificial intelligence, blockchain, and advanced analytics demands a rapid acquisition of new skill

sets. This technology expertise gap poses a significant hurdle for accountants seeking to leverage these tools effectively in their financial processes. Additionally, amidst the digital revolution, ensuring robust data security and compliance with stringent regulations remain paramount concerns, especially when dealing with sensitive financial information.

Conversely, intertwined with these challenges lie a myriad of opportunities for chartered accountants. The digital transformation heralds enhanced efficiency and accuracy through automation, allowing accountants to focus on strategic analysis and decision-making. Furthermore, the utilization of advanced data analytics offers a gateway to derive actionable insights from vast pools of financial data, empowering informed decision-making and proactive financial management.

REVIEW OF LITERATURE

The literature surrounding the challenges and opportunities for chartered accountants in adapting to digital transformation within the finance industry is extensive, offering insights into the dynamic changes impacting this profession. Key themes explored in this literature review include:

Technology Integration and Expertise Gap

Numerous studies emphasize the significant shift necessitating the integration of technology into financial processes. They highlight the challenges faced by chartered accountants in acquiring and applying expertise in emerging technologies like artificial intelligence, machine learning, robotic process automation, and blockchain. The literature underscores the urgency for accountants to bridge the technology expertise gap to effectively utilize these tools in financial operations.

Data Security and Compliance

A prevalent concern highlighted in literature revolves around data security and compliance. As digital transformation amplifies the collection and utilization of vast amounts of financial data, studies emphasize the critical importance of robust cybersecurity measures and compliance frameworks. Chartered accountants are tasked with safeguarding sensitive financial information while ensuring adherence to evolving data protection regulations.

Reskilling and Continuous Learning

The literature underscores the necessity for ongoing learning and upskilling among chartered accountants. With technological advancements rapidly changing the financial landscape, research emphasizes the need for professionals to engage in continuous education programs, certifications, and training to remain relevant and adept at utilizing digital tools effectively.

OBJECTIVES

The objectives of exploring the topic “Challenges and Opportunities for Chartered Accountants in Adapting to Digital Transformation in the Finance Industry” encompass a range of focused goals aimed at understanding the nuances of this evolving landscape. These objectives include:

1. **Identifying Technological Challenges:** To pinpoint the specific technological hurdles that chartered accountants encounter in the realm of digital transformation. This includes assessing the gaps in technological expertise, understanding the complexities of adopting new tools and systems, and exploring the challenges associated with integrating these technologies into financial processes.
2. **Assessing Regulatory and Compliance Challenges:** To examine the regulatory and compliance-related challenges posed by the digital transformation. This involves understanding the evolving regulatory frameworks, data protection laws, and ethical considerations in utilizing technology while ensuring compliance with industry standards.
3. **Analyzing Opportunities for Efficiency and Innovation:** To explore the opportunities presented by digital transformation in terms of efficiency gains, automation, and innovation in financial operations. This objective includes examining how emerging technologies can enhance productivity, streamline processes, and foster innovative approaches to financial management.
4. **Evaluating the Impact on Advisory Services:** To assess the impact of digital transformation on the role of chartered accountants as advisors. This involves studying how technological advancements

enable accountants to offer more proactive and value-added advisory services, leveraging data analytics, and strategic insights to guide clients.

5. **Understanding the Need for Continuous Learning:** To highlight the imperative for continuous learning and upskilling among chartered accountants. This objective focuses on recognizing the necessity for professionals to adapt to technological changes through ongoing education, training programs, and skill development initiatives.

RESEARCH METHOD

Research methodology refers to the systematic procedures used to identify, select, process, and analyze information in a study. It is the blueprint of a research project, guiding the collection and interpretation of data.

Definition and Purpose

Research methodology is the systematic method for resolving research problems, involving data gathering, interpretation, and drawing conclusions.

It serves as a guideline and roadmap for the research process.

Types of Research

Primary Research vs. Secondary Research:

Primary research involves gathering firsthand information through methods like questionnaires and interviews.

Secondary research uses existing data collected by others, such as journal articles or reports.

Basic/Fundamental Research vs. Applied Research:

Basic research aims to expand knowledge, while applied research uses this knowledge to solve specific business problems.

Qualitative Research vs. Quantitative Research

Qualitative research provides descriptive findings, often in words.

Quantitative research deals with numbers, quantities, and statistics.

Data Collection

Primary Data

Original data collected for the first time by the researcher.

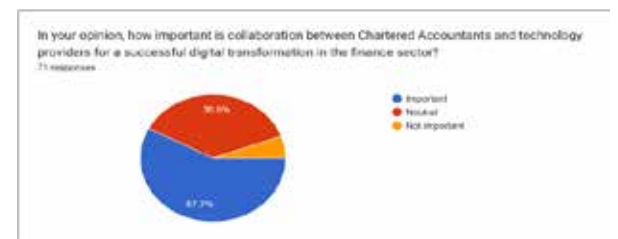
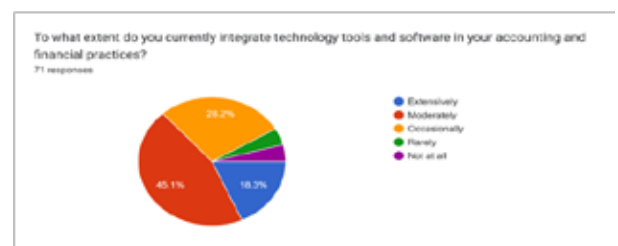
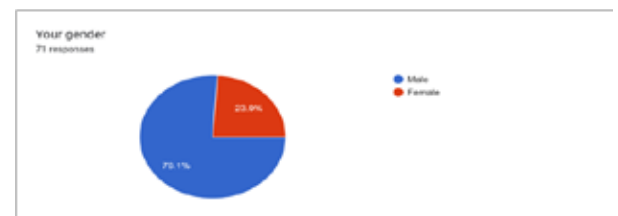
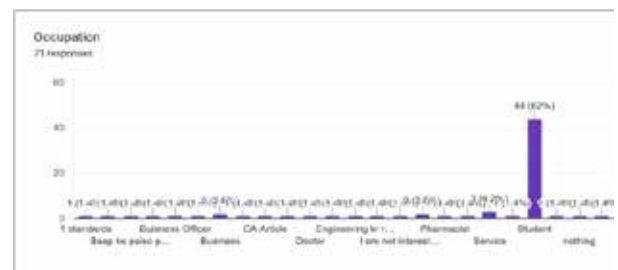
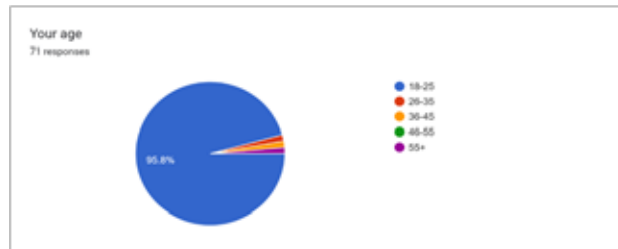
Methods include observation, interviews, questionnaires, and experiments.

Secondary Data

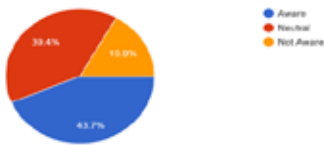
Data collected by others for different purposes.

Sources include books, websites, and journals.

DATA ANALYSIS AND INTERPRETATION



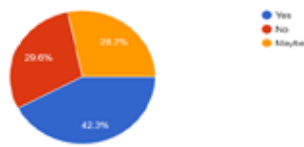
How aware are you of the ongoing digital transformation trends in the finance industry?
71 responses



To what extent do you currently integrate technology tools and software in your accounting and financial practices?
71 responses



Do you believe there are sufficient resources and support available to Chartered Accountants for adopting digital technologies in their practices?
71 responses



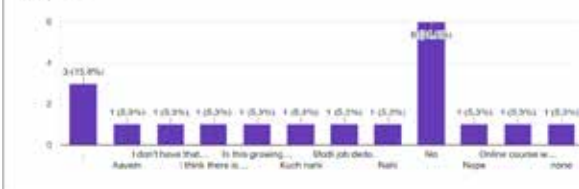
How would you describe the level of demand from clients for more technologically advanced financial services?
71 responses



What type of training format do you find most effective for learning about digital tools and technologies?
71 responses



Any Suggestions?
78 responses



CONCLUSION

In conclusion, the digital transformation within the finance industry brings forth a myriad of challenges and opportunities for chartered accountants. As the industry undergoes rapid technological advancements, accountants must navigate these changes to remain relevant and valuable in their roles.

The challenges posed by this digital shift include the necessity for continuous upskilling in technology, ensuring data security and privacy amidst increasing cyber threats, adapting to evolving roles and responsibilities, and overcoming resistance to change within the profession.

However, amidst these challenges lie promising opportunities. Embracing technology allows for increased efficiency through automation, granting accountants the ability to focus on higher-value tasks. The abundance of data presents an opportunity to harness advanced analytical capabilities, enabling deeper insights, improved decision-making, and strategic advice provision. Moreover, the digital landscape fosters global connectivity, enabling accountants to broaden their client base and offer personalized, client-centric services.

Ultimately, to thrive in this era of digital transformation, chartered accountants must embrace a proactive mindset towards technological advancements, continuously enhance their skill set, and adapt to evolving client needs and industry trends. By doing so, they can leverage the opportunities presented by digitalization to deliver enhanced value to their clients and organizations while mitigating the challenges posed by this transformative shift in the finance industry.

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Beyond Conventional Routes: Evaluating Social Media and Job Portal Effects on Talent Acquisition - A Case Study of Vflyorions Technology's

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ABSTRACT

The case study focuses on the use of job portals and social media in the talent acquisition process. The study is being carried out under the supervision of Ms. Sana Khandait HR and Mr. Samuel Titus, the director of Vflyorions Technologies. Social networking and job portals have revolutionized the talent acquisition process. Job websites are vital channels of communication between employers and candidates, helping to match qualifications with requirements. Simultaneously, “social recruiting” looks via social media platforms for potential applicants based on their online presence. This strategy offers a quick and affordable way to choose the best candidates by broadening the pool of candidates. Hashing hashtags like #hiring helps you reach more potential candidates. Employers utilize these platforms to brand employment opportunities and reach a global audience at a reasonable cost. The benefits include competency testing, application review, and simplified candidate communication. Using social media for recruiting presents challenges. Achieving a balance between data security, privacy, and applicant profile accuracy is crucial. Social media and job portals are nevertheless useful resources for finding talent, developing a brand, and connecting with a variety of qualified applicants, even in spite of these challenges. They are an essential component of modern hiring practices.

KEYWORDS: *Social media, Job portals, Talent acquisition.*

INTRODUCTION

The case study is about the Talent Acquisition process using social media and job portals.

Job portals are online platforms or websites that are expressly made to make it easier to post and search for job openings. They are often referred to as job boards or employment websites. These portals function as a single, central location where recruiters and companies may post job openings, and job seekers, can look through and apply for these openings. To make the job search process easier, job portals often have tools like search filters, resume uploading, and application submission. They are an easy way for companies and job seekers to interact and meet their employment needs because they cover a broad range of sectors and job types.

Social Media or social networking sites and online communities as a means of identifying, enticing, and interacting with job seekers, refers to a social media platform for recruitment. Utilizing social media sites like Facebook, Twitter, LinkedIn, and others to engage with job searchers, present job openings, and cultivate connections with possible employees are all part of it. Social networking is a useful tool for recruiters and employers to reach a wider talent pool, communicate with passive prospects, and create a more intimate and dynamic hiring process. Posting job advertisements, networking with industry experts, investigating candidates, and assessing and interacting with possible hires through the many capabilities of social media are some examples of this strategy.

Talent acquisition is the process of identifying, attracting, and acquiring competent people to fill open positions and accommodate future growth in an organization's workforce. It entails using a strategic method to find, screen, and hire people for particular positions inside an organization. By concentrating on long-term human capital requirements and coordinating recruiting practices with overarching corporate objectives, talent acquisition surpasses typical recruitment.

Talent retention refers to the strategies and practices that organizations use to retain their employees and prevent them from leaving the company. Retaining talented and experienced employees is essential for maintaining institutional knowledge, sustaining productivity, and avoiding the costs associated with recruitment and training of new staff.

Organization Introduction:- The study is being carried out under the supervision of Ms. Sana Khandait and Mr. Samuel Titus, the director of Vflyorions Technologies. One of the top IT companies is Vflyorions Technologies Pvt Ltd, which is located in Ward Number 3, Parsodi, Trimurtee Nagar, Nagpur, Maharashtra 440022, opposite Bank of Baroda. Since 2012, Vflyorions has assisted both domestic and foreign clients in meeting their specific needs. We always act with professionalism to guarantee our clients receive the best possible service and the outcomes they want. VFlyorions registered as a Pvt Ltd firm in 2018. Subsequently, Vflyorions Technologies Pvt Ltd was its name. Vflyorions specializes in offering voice processing, data mining, lead generation, demand generation, sales, and lead processing to businesses engaged in a variety of activities.

Goals of human resource management systems in the organization.

The recruitment, motivation, and retention of talented personnel are the main objectives of the HR system in organizations. The employee is an essential asset from the point of view of an organization. According to research on HR strategy, employees are more crucial than ever in today's service and knowledge organizations. Because businesses compete based on the abilities and skills of their staff. To accomplish these objectives, HR systems must be created to meet many essential goals. For example, they want to employ efficient hiring procedures to entice highly qualified

candidates. Additionally, they must employ selection processes to hire the best candidates and guarantee a match between workers' positions and organizational objectives. Additionally, as employment requirements change, they must provide opportunities for training and development. Finally, they should improve employee retention by implementing efficient selection and remuneration procedures. This implies that hiring and replacement processes are ongoing within organizations.

Use of Social Media and Job Portals for Talent Acquisition: Organizational Perspective

A job portal is a platform where job seekers and recruiters may communicate their requirements. When hiring, employers seek out candidates with the best qualifications, experiences, and other attributes; job seekers search for opportunities based on their skills, knowledge, and other qualities. An internet application called a job portal links employers and job seekers.

The process of choosing possible hires from social media platforms like Facebook, Instagram, and LinkedIn based on their blogs, profiles, and other online presence is known as "social recruiting." We can now connect with a vast pool of job seekers online and quickly, affordably, and effectively select the best candidates for Our company.

Social media platforms are constantly evolving into a more convenient and affordable means of establishing global connections. We can now post job opportunities and target a large pool of potential candidates without having to spend a lot of time or money thanks to social networking platforms and Job Portals. One of the greatest ways to promote a business, job openings, and the things that make it an attractive place to work is through social media presence and attractive job posts on Job Portals. We can use social media platforms and Job Portals to locate and contact potential candidates, examine applications and portfolios, and assess the qualifications and skills of each.

It is more affordable as well as efficient. Hiring through social media and job portals can access a large candidate pool and expedite the selection process. This enhances the hiring process' efficacy and efficiency. By using popular hashtags for social media posts we can target more candidates like #hiring #employment #vacancy.

Social media recruitment can now assist a business in disseminating information about itself, raising awareness of its job openings, and presenting employers to candidates they may not have found through more conventional hiring techniques. Using social media sites for recruiting allows us to look through a candidate's profile and learn about their interests, both personal and professional, and it helps the recruitment team select the right candidate for the right position. Screening and shortlisting candidates is done easily with the help of Social Media and job Portals.

From the perspective of the recruitment team within this organization, social media and job portals aid in developing their brand and drawing in new talent. To attract talent they create and share content that showcases the organization's mission, vision, goals, achievements, and employee success stories.

However, there are a lot of challenges involved with using social media and job portals for work. One of the main challenges is ensuring that social media use throughout the hiring process conforms with data security regulations. The amount of private information that candidates are able to share on social media platforms may inadvertently cause bias throughout the employment process. The difficulty of confirming the veracity of candidate information on social media sites is another obstacle. It might be difficult to fairly assess a candidate's aptitude for a position. Despite these difficulties, social media and job portals are still essential resources for recruiters to find and source qualified applicants, cultivate connections, and advertise their companies to a larger audience.

Steps followed by organization-

The hiring process that the organization follows for social media hiring is detailed below:

Profile Creation: Create and optimize the organization's profiles on relevant social media sites, such as LinkedIn, Facebook, and Instagram.

Target Audience: Determine the work roles, skill sets, and geographic location of the target audience.

Content Strategy: Create a content strategy to pique the interest of possible applicants. Post job openings, staff biographies, and company culture.

Job Posts: Post job openings with eye-catching images and concise descriptions. Make use of pertinent hashtags and terms.

Networking: Make connections with experts in relevant fields and become a member of pertinent organizations and communities.

Engagement: Answer questions, emails, and comments as soon as possible. Interact with followers to establish bonds.

Paid Advertising: To reach a more focused and sizable audience, think about utilizing paid social media advertisements.

Employee Advocacy: Encourage staff members to post employment opportunities and corporate news on their personal profiles.

Compliance: Make sure that your social media hiring procedures abide by the law and your non-discrimination guidelines.

The hiring process that the organization follows for job portal hiring is detailed below:

Job Posting: Make thorough job postings and publish them on well-known Job Portals like Indeed, Hirect, Naukari.com, Apna, and Work India, Placement India.

Optimize Job Descriptions: Provide precise, readable, and accurate job descriptions that include all the information that is necessary to understand the position, requirements, duties, and benefits.

Screening: Examine incoming applications and resumes, eliminating applicants who don't fit the prerequisites.

Applicant Tracking: Check the Previous experience and skills of an applicant.

Interviews: Interview candidates over the phone or via video conference to determine their suitability for the culture.

Walk-in interview: To further determine each applicant's fit for the position and the corporate culture, schedule in-person interviews with the best prospects.

Offer: Give the selected applicant a job offer that includes information on the expected salary, benefits, and work environment.

Onboarding: Start the onboarding process as soon as the offer is accepted. This entails completing paperwork, providing training, and assimilating the new recruit into the team.

Feedback: Maintaining a positive employer brand, providing rejected candidates feedback.

Pros and cons of the use of social media and job portals for talent acquisition

Pros of Use of social media and job portals for talent acquisition

Wider Reach: Social media and job portals provide access to a larger and more diverse pool of candidates compared to traditional methods. This broader reach increases the chances of finding the right talent.

Cost-Effectiveness: Online platforms can be more cost-effective than traditional methods such as newspaper ads or physical recruitment events. Many social media platforms and job portals offer affordable or even free options for posting job openings.

Real-time Interaction: Social media allows for real-time communication and interaction with potential candidates. Recruiters can engage with applicants, answer questions, and provide updates instantly, speeding up the hiring process.

Data Analytics: Online platforms provide data and analytics tools that allow recruiters to measure the effectiveness of their recruitment strategies. This data can be used to refine and improve future hiring efforts.

Targeted Advertising: Social media and job portals enable targeted advertising, allowing recruiters to reach specific demographics or individuals with particular skills. This precision targeting increases the likelihood of attracting qualified candidates.

24/7 Accessibility: Job portals and social media are accessible around the clock, providing flexibility for both recruiters and job seekers. This is particularly beneficial for reaching candidates in different time zones or those with non-traditional working hours.

Cons of Using Social Media and Job Portals in Talent Acquisition

Information Overload: The vast amount of information available on social media and job portals can be

overwhelming. Recruiters may need to sift through large volumes of data to identify suitable candidates, which can be time-consuming.

Quality of Candidates: While the online platforms offer a wide reach, the quality of candidates can vary. Recruiters may need to invest more time in screening and evaluating applicants to ensure they meet the organization's requirements.

Privacy Concerns: Social media involves personal information, and there are concerns about privacy. Recruiters must navigate ethical considerations and legal regulations to ensure compliance with privacy laws.

Negative Publicity: Online platforms make negative reviews or comments about the company more visible. Managing online reputation becomes crucial, as negative publicity can deter potential candidates.

Dependency on Technology: Relying heavily on online platforms makes talent acquisition processes dependent on technology. Technical issues or platform outages could disrupt recruitment activities.

OBJECTIVES

1. To determine how effective social media and job portals were in attracting and hiring qualified candidates compared to traditional methods.
2. To analyze whether candidates sourced from social media and job portals possess the required skills and qualifications for the job positions.
3. To measure the time taken to identify, interview, and hire candidates through these platforms in comparison to other recruitment methods.

RESEARCH METHODOLOGY

Research Design: Qualitative Research

Types of Research: Exploratory Study

Sample area: Vflyorion Technology Pvt Ltd

Collection of Data: 1. Primary data: company employment data

2. Secondary data: Company website, Published case studies

Statistical tools: Content analysis, Thematic analysis

CONCLUSION

Recruiters have access to a wide pool of talented candidates through social media and job portals, which they might not have without their social media contacts. By establishing a presence on social media, a business can also tell prospective employees a lot about it and give an appearance that it is interested in connecting with them. They may visit the company website for more information even if they are not hired, boosting the company's popularity with them. Therefore, social media and job portals can now be used by recruiters as productive tools for hiring and it is more affordable as well as efficient.

Teaching Note:

Introduction: The case study is about the Talent Acquisition process using social media and job portals. Mr. Samuel Titus, Director of Vflyorions Technologies, and this study is conducted under the guidance of Ms. Sana Khandait. Talent acquisition has been revolutionized by social media and job portals. Job websites serve as essential venues for communication between recruiters and job seekers, facilitating qualification and requirement alignment. Concurrently, "social recruiting" searches social media sites for possible candidates depending on their online presence. By expanding the candidate pool, this approach

provides a cost-effective and timely way to choose the most qualified applicants. Reaching more prospective hires is facilitated by the use of hashtags like #hiring. Companies use these channels to advertise job openings and affordably reach a worldwide audience. Simplified candidate communication, application evaluation, and competence assessment are all included in the perks. There are difficulties in recruiting with social media. It is imperative to strike a balance between applicant profile accuracy, data security, and privacy. However, despite these obstacles, social media and job portals remain valuable tools for recruiting talent, building a brand, and reaching a wide range of competent candidates. They play a crucial part in contemporary recruitment techniques.

Teaching Objective: Understand the importance of social media and job portals in talent acquisition.

Discussion Point

1. Introduce the concept of the use of social media and job portals in talent acquisition.
2. Investigate the possible reasons that promote the use of job portals and social media in the recruitment process.
3. Impact of social media and job portals to attract a wide range of candidates.

Impact of Digital Marketing on Customer Purchase Decision in Nagpur City

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ABSTRACT

This study investigates into how important digital marketing is in influencing Nagpur City consumers' decisions to buy. Businesses are depending more and more on different online marketing techniques to engage and convert prospects due to the growing power of digital platforms. The aim of this research is to examine the intricate relationships between the purchasing behaviors of individuals in Nagpur and digital marketing initiatives such as email marketing, internet advertising, social media campaigns, and search engine optimization (SEO). Applying a mixed-methods strategy comprising data analysis, surveys, and interviews, the study explores how consumers respond to digital marketing strategies and what their preferences are. In addition, sociocultural effects and democratic variables are looked at to give a thorough grasp of consumer behavior in Nagpur's digital environment.

KEYWORDS: *Digital Marketing, Customer, Purchase decision, Nagpur city.*

INTRODUCTION

The importance of digital marketing on customer purchasing decisions has become a vital component of the shifting economic scene in Nagpur, where tradition meets contemporary. Understanding the drivers of this transition in Nagpur is critical as digital channels continue to reshape, how businesses connect with their customers. This study aims to investigate how digital marketing strategies affect consumers' decisions about purchasing products in Nagpur as well as the interaction between traditional and digital marketing channels. This study aims to uncover hidden factors driving the purchasing behavior of Nagpur's broad and dynamic consumer base through empirical analysis and insights from both consumers and companies.

Digital marketing is the process of promoting products or services through digital technology, such as the Internet, mobile phones, display adverts, and other platforms the online media. The way businesses and organizations use technology for marketing has changed from the 1990s and 2000s due to the evolution

of digital marketing. As more consumers use digital devices instead of physical storefronts and as digital platforms become more integrated into marketing tactics and everyday life, digital marketing initiatives are becoming more widespread and successful.

“ Advertising online, whether through websites or otherwise,” is what is meant to be understood by the terms digital marketing, electronic marketing, digital marketing, and e-marketing. Digital marketing techniques that are becoming more and more popular as technology advances include product promotion through marketing, influencer marketing, content automation, campaign marketing, data-driven marketing, e-commerce marketing, social media marketing, social media optimization, e-mail direct marketing, display advertising, e-books, optical disks, and games (Chaffey & Smith, 2008) and Waghmare (2012) e commerce highlighted. Digital marketing actually refers to non-Internet methods that deliver digital media, such as mobile phone ring tones for callback, SMS, and on-hold messages.

LITERATURE REVIEW

P. Ranjith / Mrs. K.R. Mahalaxmi (March 2016): The study showed that regardless of educational background, people are aware of digital channels and that consumers prefer using them to buy any desired product. When a person decides to buy a product online, their monthly income has no bearing on the choice. The majority of individuals like to shop and use technology. Items to buy through digital channels, and the poll found that consumers are increasingly purchasing convenience goods through digital channels. Convenience product marketing's excellent reach will increase digital platform sales. Positively, consumers are happy with the items they bought via digital channels, which influences their purchase decisions. Based on the study's conclusions, Digital media are going to influence consumer attitudes toward purchasing products, even though they aren't doing so now. Content marketing, search engine marketing, and search engine optimization

In addition to enabling businesses to advertise their goods and services, it also offers 24/7 online customer support to help clients feel encouraged and appreciated. Through social media contact, brands may find out which media platforms work best for them and get feedback from their customers, both favourable and bad. Consequently, the significance of digital marketing has increased.

Kotler and Armstrong (2001) classified consumer purchasing behaviour as the routines that families and individuals follow when making purchases of goods and services for their own use. Global consumers vary widely in terms of age, income, education, and hobbies, all of which can have an impact on the products and services they choose to buy. This conduct then affects how various consumer marketplaces are offered goods and services. Numerous factors, including psychological, social, cultural, and personal ones, have an impact on consumer behaviour.

Anjali (June 2017): In accordance to research, people with higher levels of education are more aware of digital media and prefer to make purchases through these channels.

The investigation's conclusions indicate that a person's monthly income has a significant impact on the kinds of

things they choose to buy online. Ads on websites and blogs might be seen as increased power over individuals. Internet channels A larger degree of transition has occurred in the attitudes of customers about purchasing decisions. Most of the time, customers are happy with the items they purchase online. The majority of people favor shopping things, and the number of convenience goods purchased online is rising. This research is being done in a specific field. Subsequent plans for the research will examine how customers' purchasing decisions are influenced by digital channels.

Sadia Afzal and Colleagues (January 2015): The results of this study indicate that, while traditional and online advertising have no direct effect on consumers' decisions to buy branded clothing, they do have a significant indirect effect because of consumer attitudes and advertising characteristics, which act as mediators and play a major mediating role. Ad characteristics and attitude both directly influence the buying decisions of consumers. Based on statistical analysis, consumer attitudes indicate that, among the three dimensions of attitude (loyalty, past purchasing history, and word-of-mouth) of consumer.

Two important factors influencing consumer purchase behaviour are loyalty and prior purchasing history.

Nizar Alam Hamdani (2021) Examining how internet marketing affects consumers' choices for the Aerostreet shoe brand is the aim of this study. Techniques With 58 participants, this study employed a quantitative methodology. The data were subjected to a basic regression analysis using the SPSS 25 program. The results show that consumers' decisions regarding the Aerostreet shoe brand are significantly influenced by internet marketing. This explains why customers use technology to make purchases in their places of business. This study promotes an applied theory that asserts digital promotion and marketing methods have an impact on customer purchase decisions in the fashion industry, particularly shoe sales.

Ramesh M. (March 2020) The study's objective is to ascertain how digital marketing influences online consumer purchasing behaviour in Vellore, Tamil Nadu. For this study, an analytical research design has been used. According to the survey, customer perception has a big impact on digital marketing,

OBJECTIVES

1. To evaluate Nagpur City’s extent of digital marketing awareness.
2. To research how digital marketing affects consumers’ decisions to buy.
3. To determine the influence of digital marketing promotions on judgments about what to buy and how effective they are.

RESEARCH METHODOLOGY

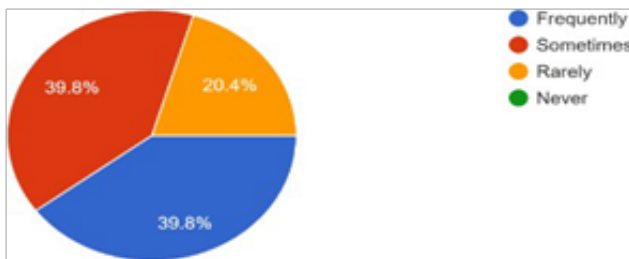
Design: In order to fully investigate the research subject, the study should be designed to gather both qualitative and quantitative data.

Data collected by

1. Primary Data 2. Secondary Data
3. Sampling: For the study, 103 respondents were chosen as a sample. The researcher has utilized a basic random sample methodology to gather information from the participants.
4. Data source: Both primary and secondary data are used in this study.
 - a. Primary data is the respondents’ interview schedules were used to gather primary data.
 - b. Secondary data is found in a variety of literary sources, including books, journals, websites, and published articles.

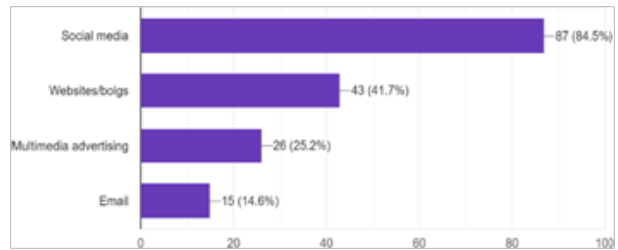
DATA ANALYSIS

1. How frequently do you make purchases online?



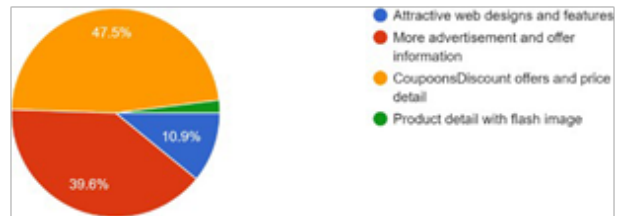
As shown in the chart above, 39.8% of all respondents frequently purchase goods online, and 39.8% of respondents actually purchase goods. Occasionally, 20.4% of people rarely purchase goods, whereas 0% of people never option chosen.

2. Which digital channel or medium promotes you to purchase more?



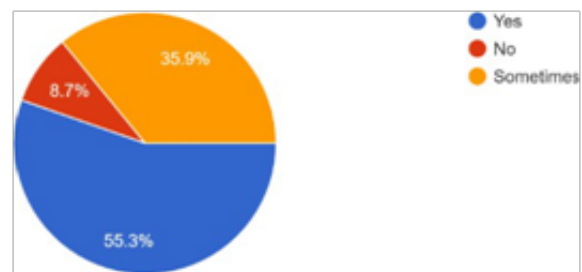
According to the chart above, 84.5% of all respondents said that social media, websites, multimedia advertising, and email impact their decision to make a larger purchase.

3. What factors influence your decision to make a purchase through digital marketing?



According to the chart above, 47.5% of all respondents believe that coupons, discounts, and price details influence their decision to buy, 39.6% believe that more advertisements and offer information do, 10.9% believe that attractive web designs and features do, and the remaining 12.7% believe that product details with flash images influence their decision to buy.

4. How satisfied are you with the product you purchased online?



According to the chart, 55.3% of respondents said they are always happy with the products they buy online. 35.9% are occasionally satisfied, and 8.7% are not satisfied with the product.

FUTURE SCOPE

Nagpur may adopt the following solutions in reaction to the findings:

1. Social Media Participation
2. Improved Digital presence
3. Localized and cultural significance
4. Optimization for Mobile Devices

The study shows that when people see more digital ads they tend to buy more for every

extra exposure to these ads, there's a noticeable increase in how much they buy. This confirms that online ads have a real impact on convincing people to make purchases. However, while these ads are important, there are other things not considered in this study that also affect what people decide to buy. About 22% of why people buy things can be explained by online ads, but there's still a lot more about 78% that's influenced by other stuff we didn't look here.

SOLUTION & RESULT

As the investigation on the impact of digital marketing on customer purchase decisions in Nagpur progresses, it is critical to suggest feasible solutions that businesses can use to improve their digital marketing strategies and, as a result, positively affect consumer behavior.

CONCLUSION

According to the above study no matter their educational attainment, consumers are aware of digital channels. The majority of people regularly use the internet, and social media has a greater influence on their purchasing decisions. A lot of consumers check the costs of goods across several internet retailers.

Utilizing an eye-catching website aid in increasing sales. The majority of potential clients are drawn in by coupons, discounts, and incentives. Furthermore, the majority of consumers are happy with the goods they purchased online.

Due to a small sample size of respondents, the study's scope is restricted to the specific region of Nagpur city. Therefore, similar studies must be carried out in wider regions or with a bigger number of respondents in order to gain more reliable results for future research. More

time can be set aside for the collection of data in order to improve its significance and accuracy.

Corporate entities in India are importing new technologies and doing in-depth customer mentality analyses in this era of rising digitization.

FINDINGS

As can be seen from the above chart, 39.8% of all respondents said they regularly buy things online, while 39.8% of respondents said they really buy things. Occasionally, 20–4% Seldom buy products, whereas 0% Never buy anything online.

As illustrated in the above chart, 84.5% of all respondents claimed that websites, email, social media, and multimedia advertising influence their choice to make a larger purchase.

The study shows that, overall, 47.5% of respondents think that discounts, coupons, and pricing information influence their decision to purchase, while 39.6% think that increased advertising has a greater impact. 84.5% of respondents stated that websites, email, social media, and multimedia advertising affect their decision to make a larger purchase, as shown in the above chart.

According to the research, overall, 47.5% of respondents believe that pricing, coupons, and discounts have an impact on their decision to buy, while 39.6% believe that increased advertising has a higher influence.

SUGGESTIONS

Nagpur should focus on enhancing their social media presence to effectively engage with customers and Allocate resources to targeted advertising campaigns that resonate with the specific preferences and Demographics of the Nagpur audience.

suggestions from study, you strengthen the credibility of your recommendations and provide businesses in Nagpur with actionable insights to enhance their digital marketing strategies and positively impact customer purchase decisions.

Collaborate with local influencers or brand ambassadors in Nagpur to amplify the reach and credibility of digital marketing efforts.

Tailor digital marketing content to incorporate local cultural elements, language, and preferences that resonate with the people of Nagpur.

Nagpur with actionable insights to enhance their digital marketing strategies and positively impact customer purchase decisions.

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A Study of Mapping the Employability Landscape: An Investigation into Employers' Demands, Skill Readiness, and Educational Preparedness

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ABSTRACT

The differences between the three E'S- employer requirements, employability skills, and education are examined and analyzed in this study. The goal of the research is to improve our comprehension of the changing dynamics in the labour market by examining these gaps. It is anticipated that the results would provide insightful information to educational institutions, decision-makers, and individuals who are trying to close the gap and match education with the constantly shifting needs of employers.

KEYWORDS: *Employer specifications, Education and employability skills, Vacancies, The dynamics of the labour market investigate, Needs that change, Academic establishments, Corresponding skills, Understanding, Filling the void, Changing requirements, Insightful data research.*

INTRODUCTION

In the current age of globalization and technological disruption, employability

Skills are essential. Companies lament that their employees lack sufficient expertise. In this situation, the openness of countries worldwide to the trade of goods, services, and labour migration poses a significant challenge for the community in the era of disruption and globalization.

Additionally, they have significantly altered social culture, finance, industry, transportation, and even education. Then, it was considered crucial to be able to adapt to the changes in the times. More inventive new company models are sparked by disruption. In response, the traditional methods are dropped in favour of technology and digitalization. Among the many issues it has brought about is high unemployment.

The high rate of unemployment frequently linked to the educational system's inability to competitive and

equipped with employable skills. Job seeker's lack of experience is the root of the rising unemployment rate. This study has been selected to identify and analyze the employability skills of a job seeker due to the significance of employability skills, which are necessary in the job market. There was use of both primary and secondary data.

REVIEW OF LITERATURE

On a broader discussion, Butler (2019) remarked that the shift of education institutions into a more a mechanical mode of knowledge production hub and human as capital, almost resistant to rust or subject to wear and tear. Such an approach necessitates the need to identify and develop important competencies and inculcate and groom it in graduates through reengineered and tailored to fit the job market. The important objective of an education programme is to prepare students by indoctrinating and coaching them in developing generic and specific skill sets for the work place (Rainsbury, Hodges, Burchell & Lay 2020).

An individual's knowledge, aptitude, skills, and attitude all work together to give them the confidence to complete a task. Put another way, a candidate with the ideal balance of behavioural and cognitive skills becomes an invaluable member of the team.

Chiara Succi & Magali Canovi (2019) conducted a study in different European countries to survey and compare students' and employers' perception of the importance of soft skills. The survey highlights that 86% of the participants remarked about the importance and relevance of soft skills and identified 20 skills that needed to be imparted to students during the programme.

Bhatia, S. M., & Panneer, S (2020) highlights the need of integrating the emotional intelligence (EI) as a key behavioural skill in the management education framework. Fraser, C. J, Duignan, G, Stewart, D, & Rodrigues,

A (2019) came up with a model selecting ten core attributes like positive attitude, communication, teamwork, self-management, willingness to learn, thinking skills, resilience, innovation, entrepreneurship and cultural competence as essential traits or skills that make a graduate employable.

Employability skills are essential skills i.e., personal qualities and values that enable Employees to thrive in any workplace. There are several definitions of 'employability'. The one adopted from Yorke (2021) is as follows: a collection of accomplishments- skills, knowledge, and character traits- that increase graduates chances of landing a job and succeeding in their chosen fields, which helps the workforce, the economy, and the community. Academic reading and soft skills that help workers adjust to a continuously changing work environment help student become more employable. Wherever employees are in their career trajectories, having a solid understanding of fundamental hard and soft skills is crucial to their competitiveness and employability as graduate students, university students, and workers. The knowledge on skills needed and the development of choice identification procedures reveal the distinctions in acceptable jobs transition options. Employers view issues solving through the prism of cross-functional skills development, which are widespread, non-specialized abilities.

G. Gowsalya and M. Ashok Kumar (2020) conducted a study among 500 students, identified 14 major skill areas and highlighted a few skills like effective communication, listening and learning, problem identification and problem solving and time management that need to be addressed immediately.

OBJECTIVES

To Identify Key Industry-Specific Skill Demands:

- Investigate and document the specific skills, qualifications, and attributes that employers in various industries and regions are seeking in job candidates.
- Examine how employers' demands may vary across different sectors, job roles, and organizational sizes.

To Assess Skill Readiness of Job Seekers/Graduates (primary Data):

- Evaluate the skill sets, competencies, and preparedness of recent graduates or job seekers in relation to the skills demanded by employers.
- Identify any gaps or disparities between the skills possessed by job seekers and the skills required by employers.

To Examine Educational Preparedness:

- Investigate the curricula and training programs offered by educational institutions, vocational centers, and online learning platforms.
- Determine how well educational programs align with the skill needs of the job market and whether they adequately prepare students for employment.

RESEARCH METHODOLOGY

Research Design

Research Approach

- These studies will employ a mixed – methods research approach, combining both quantitative and qualitative data collection and analysis.

Research Population

- The study will target three main groups: employers, job seekers, and educational institutions.
- Employers will represent a diverse range of industries.
- Job seekers will include recent graduates and individuals, colleges, and technical/vocational schools.

Sampling

- Employers: Use satisfied random sampling to ensure representation from various industries.
- Job Seekers: Employ convenience sampling through online platform, career centres, and job fairs.
- Educational Institutions: Select a purposive sample of intuitions known for diverse program and collaboration with industries.

Data Collection Method

- Employers: Administer an online questionnaire to assess skill demands, hiring criteria, and industry certifications.
- Job Seekers: Distribute online questionnaire to gather data on skill readiness, job search method, and perceptions of educational preparedness.
- Educational Institutions: Conduct interviews and surveys with faculty and administrators to understand curriculum alignment and partnerships with industries.

Data Collection Instruments

- Design structured questionnaires for employers, educational institutions, and job seekers.

Data Analysis:

- Utilize thematic analysis for open-ended responses and qualitative data from interviews.

FINDINGS

Below is a summary of the conclusion that can be made from each question using my own secondary and primary data:

51% of people are job seekers, and 50% of employers.

- While some people don't have technical abilities, the majority do and are getting better at them.
- While some people believe the program is effective, the majority of people believe the orientation program to be the most effective.
- While some believe it is ineffective, the, majority of employers believe working with educational institutions is improving.

DATA ANALYSIS

Employer's Demand

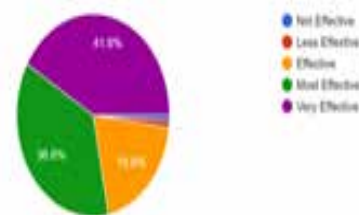
- Industry Collaboration and Internships

The overwhelming majority of responses indicate that the institution does collaborate with industry partners to provide practical experience and internship opportunities for students.

- Employability Skills Training

Collaboration with Industry Partners	Count
Yes	109
No	9

Please rate the effectiveness of these programs in enhancing students' employability skills. 101 responses



The data suggests that the majority of respondents affirm that their institution does provide specific employability skills training programs or courses as part of the curriculum.

Does your institution collaborate with industry partners to provide students with practical experience and internship opportunities? 101 responses



The overwhelming majority of responses indicate that the institution does collaborate with industry partners to provide practical experience and internship opportunities for students.

- Employability Skills Training

Employability Skills Training Programs	Count
Yes	94
No	10

Does your institution offer specific employability skills training programs or courses as part of the curriculum?
101 responses



The data suggests that the majority of respondents affirm that their institution does provide specific employability skills training programs or courses as part of the curriculum.

The predominant responses indicate positive perceptions of the effectiveness of the programs, with a focus on “Most Effective” and “Very Effective.” The inclusion of various effectiveness levels allows for a nuanced understanding of respondents’ opinions regarding the impact of these programs on students’ employability skills.

- Job Seeker’s
- Job Search and Skill Readiness

How long have you been actively searching for a job	Count
6 to 12 months	34
3 to 6 months	57
Over 12 months	27
Less than 3 months	31

How long have you been actively searching for a job?
102 responses



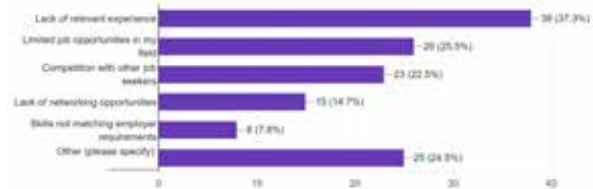
This table summarizes the duration for which individuals have been actively searching for a job. The majority fall within the 3 to 6 months range, followed by those in the 6 to 12 months range. There are also individuals who have been searching for over 12 months and a smaller group who have been searching for less than 3 months.

Challenges and Barriers

Challenges/Barriers	Count
Lack of relevant experience	44

Limited job opportunities in my field	38
Competition with other job seekers	36
Lack of networking opportunities	19
Skills not matching employer requirements	8
Other (please specify)	20

What do you consider as the most significant challenges or barriers in your job search? (Select up to three)
102 responses



The table shows the count of respondents who selected each challenge or barrier. The most commonly mentioned challenges include a lack of relevant experience, limited job opportunities in their field, and competition with other job seekers. Additionally, some respondents provided specific challenges under the “Other” category.

Employer’s Survey

Industry Sector	Count
Finance	19
Healthcare	8
Manufacturing	22
Technology	26
Education	3
Other	24

Industry Sector (Select one):
102 responses

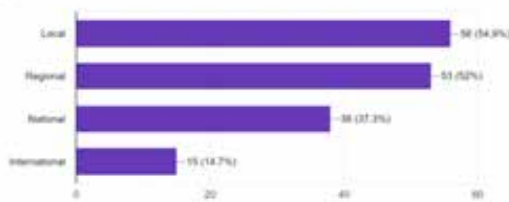


Shows that the majority of responses are concentrated in Finance, Healthcare, Manufacturing, Technology, and Education. Additionally, there are multiple instances

where respondents have provided their own industry specifications under Other.

Location(s) of operations	Count
Local	56
Regional	53
National	38
International	15

Location(s) of Operations (Select all that apply):
102 responses



The dataset reflects a diverse range of operational scopes, with some entities operating primarily at a local or regional level, while others have a national or international presence. The variety of combinations suggests a range of organizational structures and scales of operation.

Hiring Practices and expectations

How often does your company hire new employees in a year	Count
Annually	28
Quarterly or more often	61
Semi-annually	16
Less frequently than annually	11

How often does your company hire new employees in a year?
102 responses



Shows that the majority of responses indicate that companies hire new employees at least annually, with a notable frequency of companies hiring quarterly or more often. This suggests a dynamic and active hiring process for many of the surveyed companies.

CONCLUSION

After conducting study successfully, we can draw the following conclusion:

While some respondents are already content with their current jobs, a sizable portion of respondents are interested in issues pertaining to their jobs. The report also shows that most respondents think highly of the institutions efforts to maintain its curriculum current and in line with industry demands. This implies that the organization is performing admirably in this area.

It’s also encouraging if the employer’s institutions refresh its curriculum every year to reflect changes in employability and industry demands. It shows a dedication to equipping students for the workforce and adjusting to the ever-changing demands of business. Positively, the program’s impact on job seeker’s employability and skill sets is substantial. This shows that the curriculum and programs offered by the organization are significantly influencing the growth of skills relevant to the workplace.

When it comes to program efficacy and curriculum alignment, the institution is doing well in terms of enhancing the employability and skill sets of job seekers.

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Detection of Adulteration in Food Products: A Review

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ABSTRACT

Food is the elementary need of life and is very crucial for human sustenance. Foods is affected by adding different adulterants which are the substances that will reduce the vitality of food. Food Adulteration causes many health hazards like stomach disorder, brain damage, cancer, anaemia, paralysis, etc. Now-a-days Food Adulteration is a major issue directly related to the health of a whole nation. In Indian Society cow milk ghee is considered as divine and used to perform many rituals. It is also used in various ayurvedic medicines due to its nutritional values. Consumption of cow milk ghee helps to increase immunity, strength of bones, adds nutrition to eye, brain, etc. In the proposed work cow milk ghee is taken into consideration for detection of adulteration as it is very expensive and more prone to adulteration. Ghee Samples are deliberately adulterated by mixing Sunflower oil & Dalda in different proportions. Ghee samples are heated which will generate the volatiles. The volatiles are sensed by different gas sensors as it will change its conductance levels. The classifier can be used to classify the samples according to percentage of adulteration. IOT can be used further to enhanced the system.

KEYWORDS: *IoT (Internet of Things), Adulteration, High fructose corn syrup (HFCS).*

INTRODUCTION

In today's society, the adulteration of food is a widely used practice among store owners who are looking to generate extra rapid profits. Foods like mangoes are allowed to mature artificially, chalk powder is added to turmeric, starch is blended into curry powder, and papaya seeds are blended with black pepper. These are all examples of adulteration [1]. In India, the consumption of fluid cow milk is around 77.68 million metric tons per year. Indians ranked first in the world for cow milk consumption in December 2019 [2]. Lactose, fat, proteins, minerals, and vitamins all contribute to a healthier human diet in significant amounts found in milk [3].

The most basic kind of food adulteration is the explicit addition or transfer of banned ingredients. Financial gain and a lack of suitable sanitary conditions during processing, storage, transportation, and sale are all possible motivations for the intentional introduction of contaminants or adulterants into food. One of the most

essential dairy products in India, ghee is often made with either cow milk or buffalo milk depending on the specific recipe. Ghee that is made from cow's milk has a large consumer base across the nation and is referenced in numerous ayurvedic literature as an ingredient that is used in the creation of various formulations and additives [3]. There are a lot of food manufacturers in the market, and a lot of food is imported, so it's easy for them to mislead and deceive the buyer.

It may be quite difficult to tell the difference between producers that follow the law and those who engage in food adulteration. There is a direct correlation between the moral degradation and the prevalence of food adulteration (Ankleshwaria and Shah, 1999). People's knowledge plays a crucial part in preventing food contamination. Consumers' health might be jeopardized by companies' lack of transparency and unethical business practices, and being misled could lead to illness. Therefore, the general public has to be familiar with simple screening tests (Vasanthakalaam, 1996) [4].

India is both the greatest producer and consumer of milk worldwide. Ministry of Agriculture, Government of India's Department of Animal Husbandry, Dairying & Fisheries estimated in 2012–13 that India's total milk production was 132.4 million metric tons. About 3.67 percent, or 4.8 million metric tons, came from West Bengal. Approximately 70% of all milk produced is consumed in its unprocessed form. Growing milk production is highly related to the ever-increasing demand for processed dairy products. Unfortunately, a minority of milk merchants have begun adulterating their products to meet the rising demand [5]. Adulteration of milk occurs when a product's quality is compromised on purpose, either by the addition of harmful components, the use of cheaper substitutes, or the elimination of beneficial ones. Milk adulteration can be deliberate for financial gain or unintentional owing to sloppy or careless manufacture and handling. The most common method of adulteration is the deliberate accumulation of water to milk, which can introduce hazardous bacteria, viruses, and chemicals. The adding of water to increase volume is the most typical kind of adulteration in India. When the milk has been diluted, a thickener such as cane sugar, starch, fat ammonium sulphate, or reconstituted milk powder is added.

The use of honey as a food source dates back to prehistoric times. Honey's widespread acclaim stems from the fact that it contains a number of chemicals that are both advantageous to one's health and beneficial to nutrition. In accordance with FSSAI standards, it may only contain honey and honey derivatives. During the 2018-2019 fiscal year, India exported pure natural honey totaling 61,333.88 MT for a total value of Rs. 732.16 Crore. By 2024, the market is expected to be worth Rs. 2805.7 Crore, expanding at a CAGR of 10.2% from 2019 to 2024. However, as pollution levels rise in India, the honey bee population has declined, causing economic hardship for the country's honey producers. Contrarily, honey adulteration has been on the rise due to the market's rising demand. Common direct adulterants include Sugar syrups produced from carrot, cane, etc., glucose syrup, rice syrup, invert sugar syrups, and high-fructose corn syrup (HFCS). Due to the fact that these additives can be adjusted to mirror the honey's natural ingredients (such as sucrose, glucose,

fructose, etc.) profile, they are exceedingly difficult to spot in laboratory tests [6].

The natural constitution of honey is 80% carbohydrates and 20% water. Honey has 35 g of glucose per 100 g, 40 g of fructose per 100 g, and 5 g of sucrose per 100 g. Both the trade and the wellness of a population depend heavily on honey's authenticity. Honey is one of the most popular sweeteners, but it can be hard to tell if it's pure because it's so simple to mix with cheaper sweeteners like sugar to increase earnings in the commercial sector. Sweetening can be achieved by combining high fructose corn syrup, glucose syrup, or saccharose syrup with the product at any stage of production or processing. Honey's quality and safety are compromised by the practice of adulteration. Consumers are put at risk if honey is tainted with substances that have no therapeutic benefit but are added to it.

Multiple modern analytical methods [6], including Thin Layer Chromatography (TLC) and High Performance Thin Layer Chromatography (HPLC) can now be used to detect honey adulteration. Various spectroscopic techniques, such as Gas Chromatography (GC) and Near-Infrared Spectroscopy (NIR), etc. Chromatography-based measurements are notably destructive (the material being tested cannot be reused), chemical-intensive, and time-consuming. For this reason, it would appear that infrared spectroscopy combined with chemometrics based multivariate data analysis (qualitative/quantitative) is a promising approach to detecting honey adulteration. In fact, over the past twenty years, infrared (IR) spectroscopy has surpassed other analytical techniques in popularity in the food industry. This is largely due to IR's many advantages over them, including its low cost, fast scanning, portability, and the capacity to spontaneously record spectra for both solid and liquid samples.

Diseases can be avoided by ensuring that the milk people drink is not contaminated in any way this is especially important because milk contains many different nutrients, vitamins, and minerals. Herein is detailed an approach to milk analysis that differs from the standard practices currently in use it makes use of Matlab Classification Learner and the sophisticated unsupervised algorithm, and it achieves a success rate

of 95.4% [7]. The Figure 1 shows the % of adulteration in food product with the help of Pie chart below:

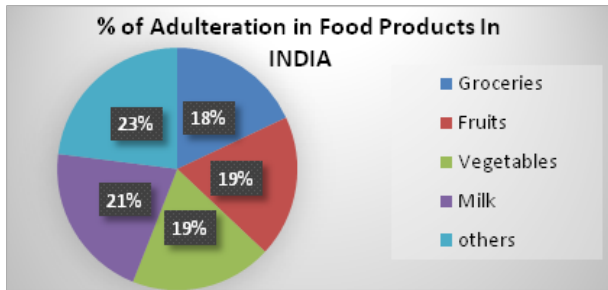


Fig. 1 % of adulteration in food product

RELATED WORK

Milk adulteration is a frequent practice undertaken for financial benefit, despite the potential for devastating consequences for human health. One of the most effective methods for identifying potentially harmful substances in milk and other foods is the qualitative spectroscopic method [1]. This type of detection in a laboratory setting is time-consuming and costly, making it prohibitive for the average person to pursue. To address this challenge, this study focuses on creating a low-cost, portable, multispectral, AI-based, non-destructive spectroscopic sensor system capable of detecting the milk adulterant in real-time. In order to maximize detection precision, the developed sensor system employs a spectroscopic approach using wavelengths in the (410-940nm) range, wraps the ultraviolet (UV), visible, and infrared (IR) regions of the spectrum [2]. The challenge of detecting adulterants is addressed as a classification issue, and it is resolved using the machine learning techniques such as support vector machine, decision tree and linear discriminant analysis [3].

Turmeric powder is often adulterated with substances like metanil yellow (an artificial color) to increase its intensity. To cut costs and increase profits in an increasingly competitive market, sometimes, adulterants like chalk powder, brick powder, and toxic substances are introduced. Anemia, paralysis, brain damage, stomach diseases, and cancer are just some of the illnesses that can be brought on by these adulterants. Contamination of spices is possible due to their cultivation and harvesting environments. Some food-borne diseases and spoilage have been linked to tainted spices [4].

This opportunity has been seized by a few avaricious and dishonest milk merchants who are now adulterating milk in an effort to flood the market with it. Common milk adulterants include water, skim milk powder, cane sugar (sucrose), starch, fat, ammonium sulphate, etc. [5].

Today, many other analytical methods [6] can be used to determine whether honey has been tampered with, including Thin Layer Chromatography (TLC) and High Performance nuclear magnetic resonance (NMR), etc. Chromatography-based measurements are usually chemical-intensive, time-consuming, and destructive, meaning that the material being tested can only be used once. Milk includes a variety of vitamins, minerals, and other elements that are good for humans, thus it is essential that we know whether or not milk has been contaminated. In this work [7] we describe an innovative process to milk analysis that achieves a good accuracy rate using Matlab Classification Learner and a tweaked version of the K-Nearest Neighbors (KNN) algorithm.

In this context [8], the Optimized Electronic Nose System (OENS) is proposed in this research as a means of detecting pork adulteration in beef with greater precision. OENS possesses a number of benefits, including appropriate noise filtering, an optimized sensor array, and optimum support vector machine (SVM) settings, among others. Cross-validation with a variety of mother wavelets, such as Haar, dmey, coiet, and symlet, is utilized in the process of noise filtering. Dimension reduction and principal component analysis were utilized to achieve optimization of the sensor array (PCA). A method for the optimization of the SVM parameters is presented in the form of an algorithm.

Human infants, in particular, rely heavily on the nutrient content of cow's milk [9]. Impedance spectroscopy is used in an effort to determine how much urea is added to cow's milk. The experimental assessment of impedance and phase angle of the output signal enables the identification and quantification of urea in cow's milk. The system's sensors and signal conditioning circuit are quite modest, yet it can detect urea concentrations as high as 70mg per 100ml of milk. Within 45 seconds, a modern device can estimate the level of adulteration in milk. This delay is necessary because the addition of urea raises the milk's temperature. Once urea has been

added, the temperature's influence may be investigated further. The experiments show that the ideal frequency range for researching milk adulteration is about 100 kHz, where the input voltage is often measured.

New methods were used in this study to verify the grittiness of honeybees. X-Ray Diffraction was used to distinguish between pure honey and honey that had been tampered with (XRD). Sugar adulterants (glucose) were mixed with pure honey to create the adulterated honey. 2% and 4% adulteration are used to determine the concentration of adulterants, with 0% adulteration serving as the standard against which pure honey may be judged. The author had applied ultraviolet-visible (UV-vis) spectroscopy to determine the absorbance of honey in various solvents. To further the development of a portable test kit, more study is required to evaluate different combinations of procedures to enhance accuracy and the capacity to concurrently identify a wide variety of adulterants [10].

Protein, fat, carbohydrate, vitamin, mineral, and essential amino acid-rich, near-neutral pH, and high water activity make these milks fertile ground for the development of a wide variety of microbes. These microorganisms enter milk from various sources and can facilitate dairy fermentations cause spoilage (*Pseudomonas*, *Bacillus* and other spore-forming), promote health (*Lactobacilli* and *Bifidobacteria*), or cause disease (e.g. *Listeria*, *Salmonella*, *Campylobacter* and mycotoxin-producing fungi) [11].

Since the early days of civilization, people have worried about food adulteration and the negative consequences it has on human health. Value estimation and user protection against fraudulent operations necessitate authentic testing of food and adulterant detection of diverse food items. In this study [12], we hope to assemble the many food adulterations that can be committed, the potential health hazards associated with them, and the existing detection tools. The need to identify adulterants in food has led to the development of a number of different methods, including physical, biochemical/ immunological, and molecular methods. It is generally accepted that molecular approaches are superior for detecting biological adulterants in food, whereas physical and biochemical methods are superior for detecting other types of adulterants. In the domain

of spectroscopy, infrared-based techniques like nuclear magnetic resonance (NMR) and micro-infrared (MIR) are favored. Hyphenated methods such as LC-MS, GC-MS, and CE-MS, which combine spectroscopy with separation, are now the gold standard in many sectors [13].

The paper in the subsequent sections is organized as follows. Section 2 covers the review methods used to conduct the investigation. The materials and methods are discussed in Sect. 3. The preliminaries of food adulteration detection system are discussed in Sect. 4. Section 5 deals with the summary of exhaustive review findings identified in the surveys and the conclusion of the paper.

MATERIALS AND METHODS

Data Acquisition of Samples

Samples of fresh, unpasteurized cow milk were obtained from dairy farms and milk distributors and stored in pre-sterilized, labelled, screw-capped glass bottles. In the 2014-2015 school year, The Author visited [5] various dairy stores in Kolkata and its environs to collect pasteurized, homogenized, and packaged milk samples. The samples were maintained cold between 4 and 8 degrees Celsius while being transported to the lab.

Finding of Adulterants in Milk

The Search for Ammonium Sulphate

To a test tube containing 2 ml of milk, 2% NaOH, 2% sodium hypochlorite, and 5% phenol were added. For 20 seconds, the mixture was heated in a water bath at a rolling boil. Since pure milk is a salmon pink tint that gradually evolves to bluish after 2 hours, the addition of ammonium sulphate in the milk sample is immediately apparent as a bluish color that turns deep blue subsequently.

The Search for Benzoic Acid

Drop by drop, 3-4 drops of concentrated sulphuric acid and 0.5% ferric chloride solution were added to around 5 ml of milk sample in a test tube, and the contents were thoroughly combined. The formation of a buff hue suggested the presence of benzoic acid in the milk sample.

The Search for Carbonates

In a test tube, 5 ml of milk was mixed with 5 ml of alcohol and a few drops of rosolic acid dissolved in alcohol (1% w/v). If the milk sample turned a pinkish red tint, carbonates were present.

The Search for Detergent

Each milk sample was 5 ml in a test tube and 0.1 ml of bromocresol purple solution (0.5%) was added. Detergent was present in the milk if it became violet.

The Search for Glucose

Each sample of milk had 1 ml of Barfoed reagent added to it, boiled in a boiling water bath for 3 minutes, and then cooled under running tap water for 2 minutes. Then 1 ml of phosphomolybdic acid was added and the mixture was thoroughly stirred. When the milk turned a vibrant blue, it was because to the presence of glucose.

The Search for Hydrogen Peroxide

Two drops of paraphenylenediamine solution (2% w/v) were added to around 2 ml of milk in a test tube. The presence of hydrogen peroxide was identified by the appearance of a blue color [21].

The Search for Skimmed Milk Powder (SMP)

Taking a sample of milk (5ml) in a test tube, 10 drops of pure nitric acid were administered to each sample. Milk that becomes orange is thought to have a healthy SMP, while milk that turns yellow is thought to have a harmful SMP.

The Search for Sodium Chloride

Two millilitres of the milk sample were mixed with tenths of a millilitre of a 5% potassium dichromate solution and a millilitre of a 0.1 N silver nitrate solution. The presence of sodium chloride was detected by the presence of a yellow precipitate.

PROPOSED METHODOLOGY

The proposed work is a prototype and it is tested for more than a few check instances.

Test case-1: Acquiring inputs from sensor

Test case-2: Processing data

Test case-3: Display of gases present in LCD.

The Designed system consist of following procedure and

Components as shown in below figure.

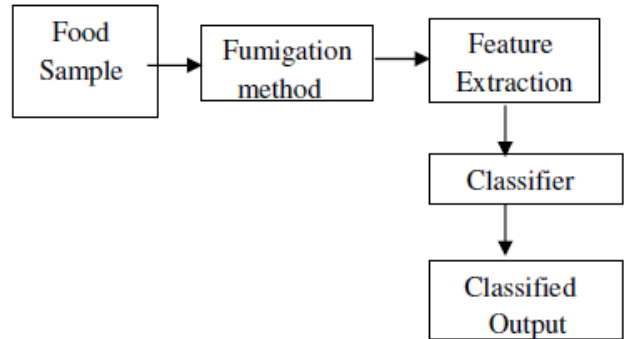


Fig. 2. Block diagram of proposed system

The Food Product named ghee is taken into consideration for detection of adulteration. The Method used to detect adulteration in ghee is Fumigation method. The Proposed block diagram is shown below. The adulterated ghee samples are arranged by adding different proportion of dalda to ghee. The pure as well as adulterated ghee samples are used for the experimentation. First of all the ghee samples are heated to generate the volatiles which contains different proportion of gases. The Gas is sensed by the Sensor. Thus the feature extracted by the above proposed method is then given to classifier which will give classification result to show that the sample is highly, medium or low adulterated.

CONCLUSION

On as similar ground as mentioned above and as per exhaustive literature Fumigation method will be used to detect adulteration in liquid food products. Further Machine Learning Algorithm can be used to detect the adulteration with efficiency. This method is useful for detection of adulteration in liquid food products. Furthermore methods can be used to detect the adulteration in solid food products as well.

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An Analytical Study of Applied Psychology in Occupational Health and Risk Management

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ABSTRACT

Psychology is solicitous with the sketch and disposition of human attribute and behaviour, the traits, characteristics, perception, personality, attitudes, values, belief and motif of one-on-one. As a science psychology endeavour to reference point, vindicate and at times even alter the behaviour of human beings and other animals. Psychology, when associated with organizational behaviour also has contribution from industrial and organizational psychologist, counsellor (psychologist), personality theorists and learning theorists. More recently industrial and organizational psychologists are actively involved in helping organizations to understand the various factors such as learning, perception, emotions, training, leadership, motives, job design, stress at work etc., can affect the individual's performance at work.

KEYWORDS: *Psychology, Organizational behaviour, Organizational psychologist, Personality theorists.*

INTRODUCTION

Industrial organizational psychology has two accusative first to department research in an exertion to alteration our cognition and inclination of human work behavior and second to pertain that knowledge to meliorate the work conduct the work surroundings and the psychological hazard. Workers those industrial organizational psychologists are skilled to be both scientific discipline and professional in what is advert to as the scientist. Professional hypothesis although some industrial organizational psychologists may control chiefly as either scientist or practitioners. Most industrial organizational psychologists I conceive that the top-grade practitioner are strongly based in the science of industrial organizational psychology. The applied accusative of industrial organizational psychology involve the application of psychological principles and of knowledge harvest from psychological investigation to work action as a practitioner. Industrial structure psychologist maybe titled on to trade with peculiar work accompanying difficulty or fin for instance an industrial

organizational psychologist might valuate an worker scrutiny thought or behavior an employee cognition sketch or some type of employee grooming system.

OBJECTIVES

1. To review the areas of concern related to employee's Physical & Mental health.
2. To assess the need of safety and review the safety programs.
3. To utilize principles and practices of applied psychology to enhance occupational health, safety risk within the workplace environment.
4. To identifying the need of training and development.
5. To train management also how to manage employee's behavior

HYPOTHESIS

H₀ Organization is using psychological approach for promoting employee's prosperity, productivity and organizational success.

H1 Organization is not using psychological approach for promoting employee's prosperity, productivity and organizational success.

RESEARCH METHODOLOGY

“The manipulation of things, concepts or symbols for the purpose of generalizing to extend, correct or verify knowledge, whether that knowledge aids in construction of theory or in the practice of an art.

Type of Research

In this paper researcher have selected Analytical & Qualitative research. In analytical research, the researcher has to use facts or information already available, and analyze these to make a critical evaluation of the material. Qualitative research is especially important in the behavioral sciences where the aim is to discover the underlying motives of human behavior.

Population: The term universe for the population of the study, have been selected by research from various organization, industry & offices which include top management, supervisor employees & labors.

Sample units:- 100 respondents

Sample Techniques:- Convenience sampling (Non-probability) was used in the study.

Types of data collection

Researcher have collected data from both the sources (Primary & Secondary Data)

Data collection instruments:- Research have used questionnaire method to collect data & from published pervious papers.

Limitations of the Study:- The study was limited to Nagpur region only & for certain duration only. Nature and Scope of Applied Psychology Industrial psychology is the postulation and postponement of psychological reality and value to the problems concerning human beings employed in industrialized, enterprise, services and investigation organizations. Thus industrial psychology may be full term as applied psychology, as it is chiefly solicitous with the applications of the realness and law of psychology to the behaviour of serviceman operative in industry. Psychology can be defined as the study of man and his behaviour with the aid of scientific

methodology. It uses many scientific methods to collect facts about human behaviour.

Scope of applied psychology :-

- Personnel Selection
- Personnel development
- Productivity study
- Developing bureaucratic

Fields of applied Psychology

1. Personnel Psychology :- it concern with the application of psychology to the selection, training, and supervision of people. It is also concerned with the improving communication, counselling.
2. Managerial Psychology :- It concerns with the problems of management.
3. Human Engineering Psychology :- It is known as ergonomics, and dealt at length in the book.
4. Consumer psychology :- it deals with the relationship between the organization providing goods or services and the consumers.
5. Organizational psychology :- it deals with the complete functioning of a company, and is concerned with work group dynamics, motivation, leadership, communication, design of organization structure.

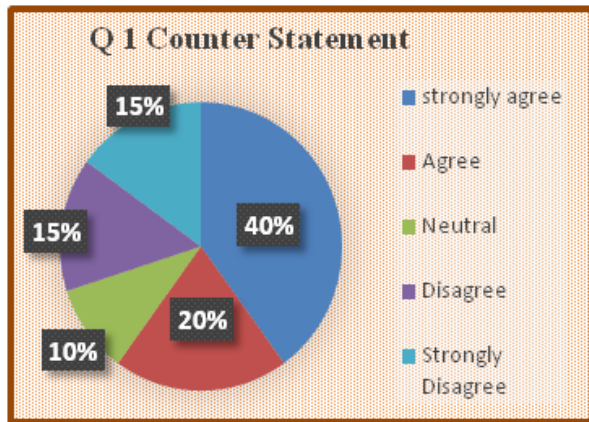
Benefits of Occupational Health

Benefits of occupational health and safety is serving trim geographical point sacred and extenuate the risk. “ A stitch in time saves nine” should be one of the main motto of a safety manager.

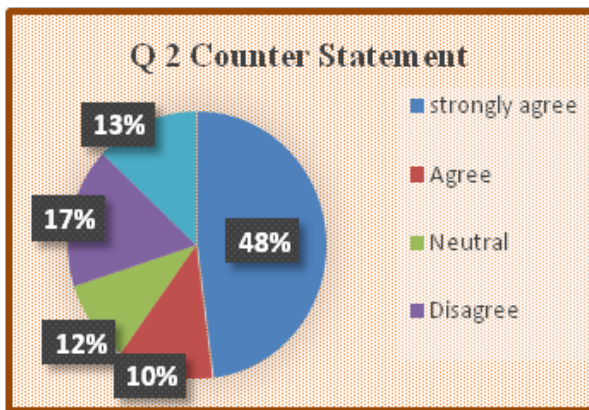
1. Reduced expenses.
2. Worker's compensation.
3. Safety.
4. Prevention.

Interpretation & Analysis

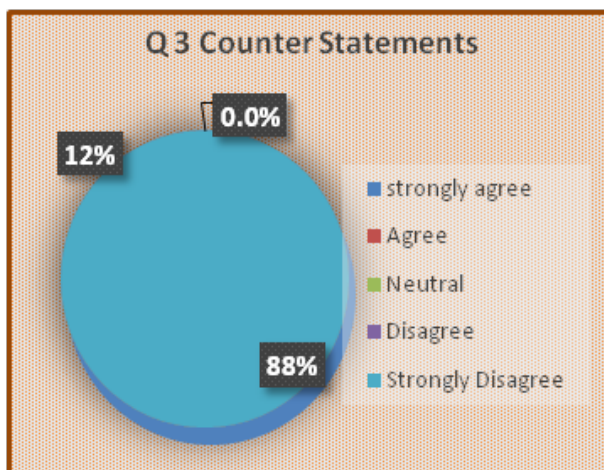
1. Do you feel safe during the working hours?



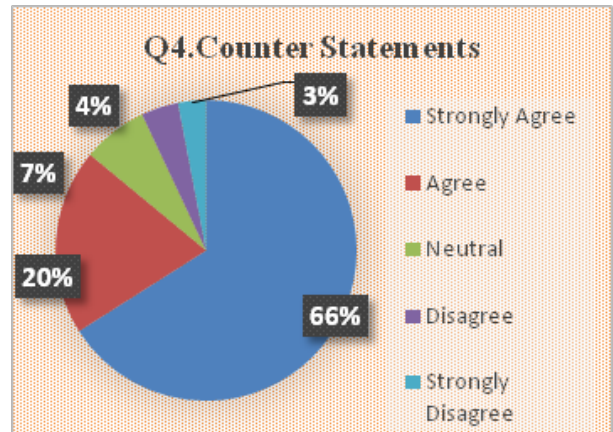
2. My employer gives priority to my physical and psychological health.



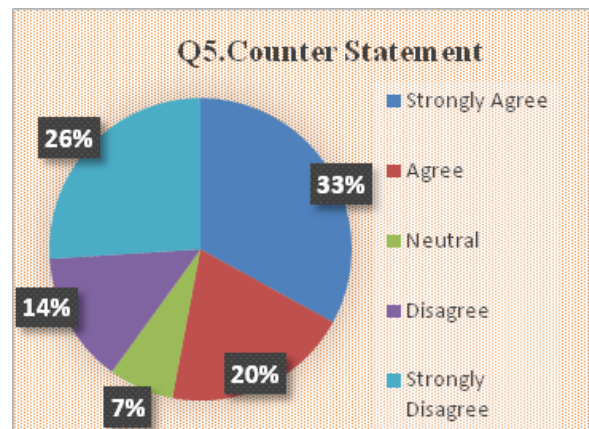
3. I am aware about my own health and safety during the working hours at my workplace.



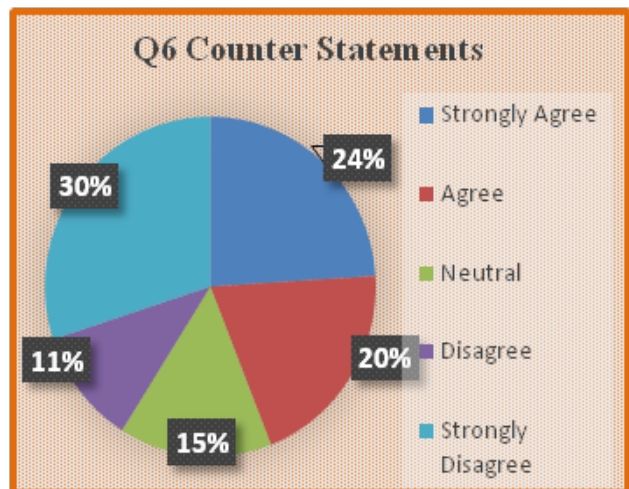
4. Employer provides us safety mock-drill practice.



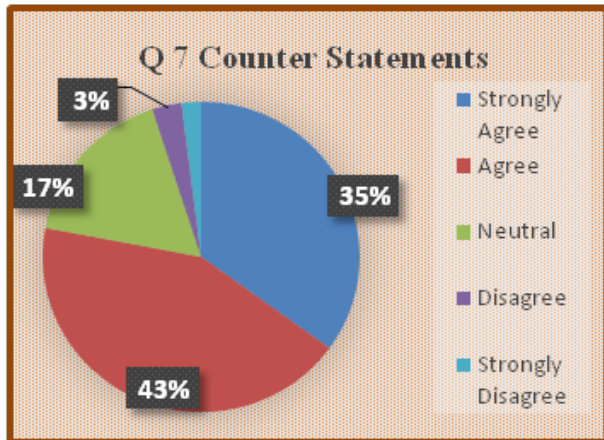
5. During the emergency at my workplace I know how to handle the situation effectively.



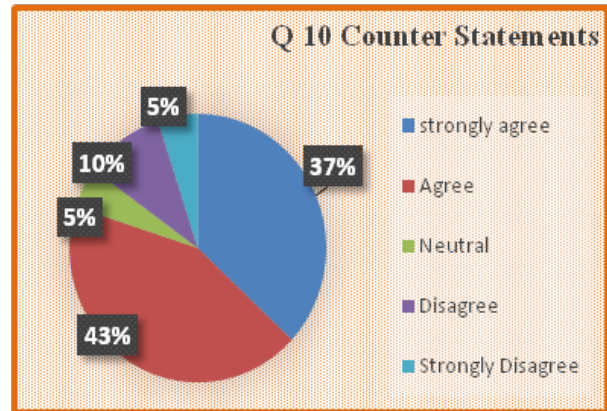
6. All incidents are investigated in a timely matter in order to improve safety in the workplace.



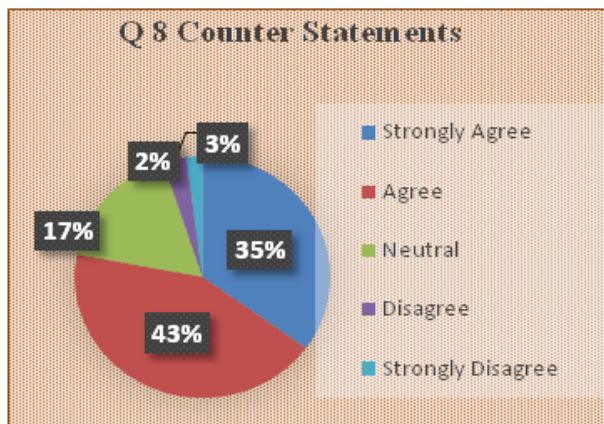
7. Management frequently communicate with Employee on danger fin.



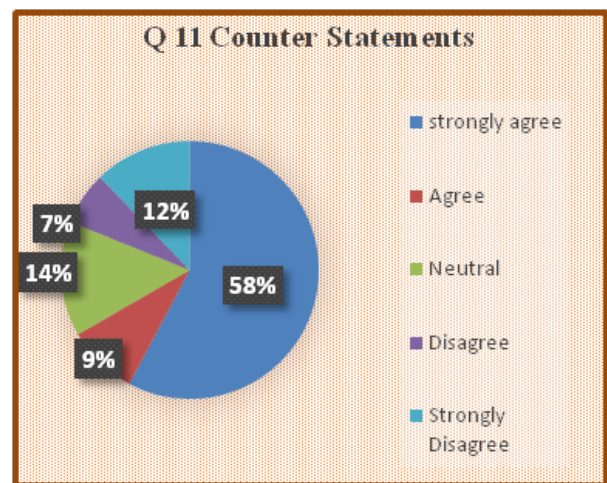
10. Health and safety is equally important like production and quality on workplace.



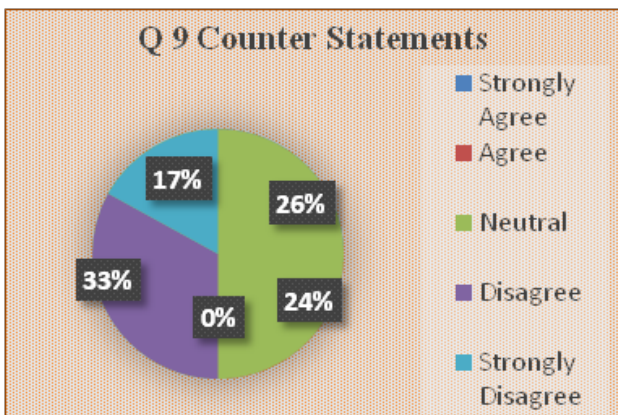
8. There is sufficient time period to complete my work harmlessly.



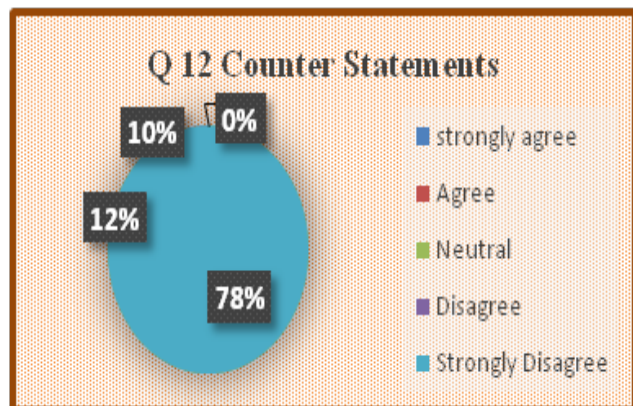
11. A proactive health and safety committee for worker's health and safety.



9. Management provide all necessary safety device and training programs in obtrusive and for doing dynamic job or victimizing fresh techniques.



12. I am aware about the all important care I must take on the job.



RESULT

H0 Organization is using psychological approach for promoting employee's prosperity, productivity and organizational success.

CONCLUSION

Companies are dedicating to change the working environment for employees to keep them safe & protected. Employers want to minimum possibility of risks and improve their healthy environment in work place. Effectuate this definite quantity and the careful circumstance of an activity safety system.

Employer are gives priority to employee's physical and psychological health. Employer and employees are aware about their health and safety during the working hours at their workplace. Employer provides/ conducts various safety mock-drill practices for employees to make aware about risk & safety environment.

During the emergency employees/ workers know how to handle the situation effectively. Up-rise Welfare aid workers, employers & firms check intellectually and physically flourishing.

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Transformative Trends: Exploring the Impact of Artificial Intelligence (AI) in Banking for Enhanced Customer Experience and Operational Efficiency

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ABSTRACT

This research article investigates the profound impact of Artificial Intelligence (AI) on the banking industry, focusing on its transformative trends that contribute to enhanced customer experience and operational efficiency. As financial institutions increasingly adopt AI technologies, the study explores the various applications and benefits of AI in banking. Through a comprehensive review of literature, case studies, and industry reports, the research delves into the ways AI is reshaping customer interactions, streamlining processes, and optimizing overall performance. Employing sophisticated algorithms and machine learning, banks leverage AI to personalize services, predict customer preferences, and offer tailor-made solutions, thereby enhancing overall customer satisfaction. The article also addresses the challenges and ethical considerations associated with the implementation of AI in banking. By examining real-world examples and emerging best practices, this research provides valuable insights for industry professionals, policymakers, and researchers seeking to understand and leverage the potential of AI for a more efficient and customer-centric banking landscape.

KEYWORDS: *Artificial Intelligence, Banking, Customer Experience, Operational Efficiency, Machine Learning.*

INTRODUCTION

The banking industry is undergoing a transformative revolution with the integration of Artificial Intelligence (AI), a technological force that is reshaping traditional practices and unlocking unprecedented potential. As financial institutions navigate an increasingly digital landscape, the profound impact of AI on both customer experience and operational efficiency has become a focal point of exploration.

In the realm of customer experience, AI's application extends beyond mere automation to the realm of predictive personalization. Advanced algorithms and machine learning models empower banks to understand and anticipate individual customer needs, delivering tailor-made solutions and services. This not only

augments customer satisfaction but also establishes a competitive edge in an era where personalized experiences are paramount.

Simultaneously, AI is driving a paradigm shift in operational efficiency within banking institutions. Automation of routine tasks, robust fraud detection mechanisms, and sophisticated risk management algorithms are revolutionizing traditional processes. The result is a leaner, more agile operational framework, reducing costs and mitigating risks.

This research article aims to comprehensively explore these transformative trends, shedding light on specific use cases, success stories, and challenges associated with the widespread adoption of AI in banking. By delving into the intricate interplay between enhanced

customer experiences and operational efficiency, this study seeks to provide valuable insights that will guide the banking industry towards a future where AI is not just a tool but also a cornerstone for sustainable growth and innovation.

Objectives

- To evaluate the impact on customer experience.
- To analyze operational efficiency improvements.
- To identify key use cases and success stories.
- To address ethical and regulatory considerations.
- To forecast future trends and challenges.

LITERATURE REVIEW

Li, X., Liang, C., & Lu, Q. (2019): In this case study, the utilization of artificial intelligence (AI) by Ant Financial in the financial industry is investigated. The focus is on how AI is employed to augment both customer experiences and operational efficiency within the sector. Valuable insights are provided, shedding light on the successful integration of AI by Ant Financial.

Liang, H., Saraf, N., Hu, Q., & Xue, Y. (2020): This study centers around AI-driven enterprise systems and their impact on operational efficiency and decision-making processes within banking institutions. By examining the assimilation of these systems, the research explores the mediating role of top management amidst institutional pressures.

Zhang, Y., Zheng, D., & Yang, T. (2021): A comprehensive review is presented in this article, delving into various applications of AI in the banking industry. Special emphasis is given to areas such as fraud detection, risk management, and customer-centric approaches, providing a thorough understanding of AI's diverse roles in banking.

Liu, J., Lu, Y., Lu, Y., & Duan, Y. (2020): This research investigates the impact of AI-driven Customer Relationship Management (CRM) systems on customer satisfaction and loyalty within the banking sector. By examining evidence from the industry, the study contributes valuable insights into the influence of AI on customer relationship dynamics.

Wang, D., Wan, J., Zhang, D., & Zhang, Y. (2022):

Providing a comprehensive overview, this study addresses various aspects of the rise of AI in finance, encompassing drivers, applications, risks, and regulatory considerations. The research offers a holistic perspective on the evolving landscape of AI within the finance and banking sector.

Brown, M., & Rajgopal, S. (2019): Offering a critical examination, this article assesses the current state of AI, its limitations, and the potential challenges in realizing transformative impacts, extending its analysis across various industries, including banking.

Chen, M., Hao, Y., & Zhang, Y. (2020): This review investigates the role of AI and data-driven approaches in reshaping banking operations, risk management, and customer interactions. The research explores how these technologies contribute to the evolving landscape of the banking industry.

Sinha, A., & Mehta, S. (2021): Addressing various AI applications in banking, this comprehensive review discusses challenges and proposes future trajectories for the industry. The research contributes to a deeper understanding of the multifaceted roles AI plays in the banking sector.

Lu, C., Wu, D., Wang, J., & Li, X. (2018): This study proposes a framework for intelligent finance, incorporating AI to provide personalized financial services. By focusing on intelligent finance, the research explores how AI contributes to an enhanced customer experience within the banking sector.

Kaur, G., & Wasan, S. K. (2019): Conducting a systematic review, this research synthesizes existing literature on the roles played by AI in the banking sector. The study highlights trends, challenges, and potential areas for further exploration, offering a comprehensive overview of AI in banking.

Choudhary, A., & Kaur, P. (2021): Addressing various AI applications in banking, this comprehensive review outlines challenges and proposes potential avenues for future research and implementation. The research contributes to a deeper understanding of AI's applications and implications in the banking sector.

Nguyen, Q. H., & Nguyen, P. (2020): Investigating how AI contributes to improving customer experience in

banking services, this study emphasizes the importance of technology-driven enhancements. The research sheds light on the role of AI in shaping customer experiences within the banking sector.

Chen, M., & Lin, Y. (2018): Examining the integration of data mining techniques in customer relationship management within the banking sector, this study showcases how AI-driven analytics can lead to better customer engagement.

Kapoor, K. K., Tamilmani, K., Rana, N. P., Patil, P., Dwivedi, Y. K., & Nerur, S. (2018): Although not specifically banking-focused, this review discusses the broader impacts of AI and data analytics on customer engagement, providing insights relevant to the banking sector.

Bhuiyan, M. Z. A., Al Mamun, A., & Mahmud, A. S. M. M. (2021): Offering a scoping review, this research provides an overview of AI applications in banking, summarizing key findings and identifying gaps for future research.

Ahmed, M., & Liu, Y. (2020): Discussing the challenges and opportunities associated with AI adoption in the banking sector, this paper sheds light on the complex dynamics of implementation.

Fernández, A., & Soler, E. (2020): Systematically reviewing literature, this study focuses on the impact of AI on the lending practices of banks, providing insights into the evolving landscape of credit decisions.

Gupta, A., Agrawal, R. K., & Yammiyavar, P. (2020): Offering a comprehensive review of literature, this study examines the applications and implications of AI in financial services, shedding light on the multifaceted impacts.

Huang, L., & Rust, R. T. (2018): Although not exclusive to banking, this article discusses AI's broader role in service industries, providing insights into its potential transformative effects on customer-centric operations.

Kim, H., Kim, H. W., & Kim, T. Y. (2019): Exploring the intersection of big data analytics and AI, this review addresses the digital divide and its implications in the context of banking, highlighting challenges and opportunities for equitable AI adoption.

SUGGESTIONS AND CONCLUSION

The literature review provides a comprehensive understanding of the transformative impact of artificial intelligence (AI) in the banking sector, focusing on enhancing customer experience and operational efficiency. Through the exploration of various studies and analyses, several key conclusions can be drawn.

Firstly, AI has revolutionized customer experience in banking by enabling personalized services, leveraging advanced algorithms to analyze customer data and preferences. This personalization not only enhances customer satisfaction but also fosters stronger customer loyalty, driving revenue growth for banks.

Secondly, AI-driven virtual assistants and chatbots have emerged as essential tools for improving customer service and engagement. These intelligent systems offer real-time support, automate routine inquiries, and streamline communication channels, leading to faster resolution times and higher customer retention rates.

Moreover, AI plays a crucial role in bolstering security measures within the banking industry. By employing machine learning algorithms for fraud detection and cybersecurity, banks can effectively mitigate risks and safeguard sensitive customer information, thereby building trust and confidence among customers.

On the operational front, AI facilitates automation of routine processes, reducing manual efforts and operational costs for banks. From document processing to risk assessment, AI-powered solutions optimize efficiency and drive operational excellence, enabling banks to allocate resources more strategically and focus on value-added tasks.

Furthermore, AI enhances decision-making processes through advanced data analytics and predictive modeling. By leveraging big data and machine learning, banks can gain valuable insights into customer behavior, market trends, and risk factors, enabling more informed and data-driven decisions.

In conclusion, the integration of AI technologies in banking has brought about transformative trends that significantly enhance both customer experience and operational efficiency. However, challenges such as data privacy concerns, regulatory compliance, and the

need for skilled talent remain pertinent. Looking ahead, continued innovation and collaboration between banks, technology providers, and regulators will be essential to maximize the benefits of AI while mitigating associated risks, ultimately shaping the future of banking for the digital age.

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Transforming Operations: Integrating Computer Vision and Machine Learning for Automated Business Processes

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ABSTRACT

The mutually beneficial link between computer vision and machine learning in real-time business applications is examined in this review paper in a variety of industries, including manufacturing, transportation, healthcare, retail, and security. It emphasizes these technologies' important contributions to data analysis, pattern recognition, and decision support systems, as well as how much of an influence they have on productivity and decision-making. Through an analysis of current developments and obstacles, the study provides insightful information for companies, enabling practitioners and decision-makers to efficiently streamline operations. With this thorough understanding, companies may use computer vision and machine learning to improve productivity, innovate, and streamline processes in the fast-paced commercial world of today.

KEYWORDS: *Computer vision, Machine learning, Real time business application.*

INTRODUCTION

The domains of computer vision (CV) and machine learning (ML) are two areas of technology that are developing quickly. The process of giving computers the ability to read and comprehend digital photos and videos is known as CV. However, machine learning (ML) is the process of teaching computers to make judgments based on data rather than explicit programming. Recent years have seen a rise in the combination of these two domains because of their potential to completely transform real-time applications. Computers can replicate human visual talents by combining the powers of CV and ML to make decisions based on visual data. The accuracy and effectiveness of real-time applications in a variety of sectors, including as manufacturing, transportation, and healthcare, could be enhanced by this integration. In real-time applications where prompt and precise choices are required, the integration of CV and ML is especially crucial. Systems that process data and deliver results instantly are known as real-time applications. These applications demand quick and precise decision-making, which can be accomplished by processing visual input in real.

Applications, for instance, can be used in the healthcare sector to monitor patients and identify abnormalities in their vital signs. Better patient outcomes can result from healthcare workers making judgments more quickly and accurately when CV and ML are integrated. Sports analytics, transportation, manufacturing, and other industries all have real-time applications that make use of the combination of CV and ML. Real-time software can be utilized in the manufacturing sector to identify product flaws and guarantee quality control. Real-time applications can be used in the transportation sector to identify and stop accidents (Ridhani, 2023). Real-time applications in sports analytics can be used to monitor player movements and evaluate performance. Integration of CV with ML in real-time systems has a wide range of possible uses, which makes it an intriguing and quickly developing field of technology.

TECHNIQUES

Three Main Techniques used in CV and ML

Supervised learning is one of the most often used methods for combining machine learning and computer vision in real-time applications (Ayush Khan, 2021). With this method, a model is trained to identify

particular patterns or objects inside an image using labeled training data. job-driven learning, or supervised learning, involves training a model to do a particular job, like item identification or image classification. Applications like face recognition and self-driving cars, where the model must precisely recognize and classify objects in real-time, frequently use this technique.

Using unsupervised learning techniques is another way to combine computer vision and machine learning in real-time applications (Yao, 2023). Unsupervised learning is a data-driven technique that looks for patterns and relationships in unlabeled datasets. This method is frequently applied in scenarios when the model needs to find patterns in the data without knowing what it is looking for, including anomaly detection and clustering. When labeled training data is hard to come by for real-time applications, unsupervised learning approaches can be especially helpful. A compromise between supervised and unsupervised learning is provided by semi-supervised learning strategies (Ayush Khan, 2021). In this method, a model is trained utilizing both labeled and unlabeled data. When labeled training data is hard to come by or prohibitively expensive, semi-supervised learning can be very helpful in real-time applications. Semi-supervised learning techniques can enhance the precision and efficacy of computer vision and machine learning models in real-time applications by utilizing both labeled and unlabeled data. All things considered, the combination of machine learning and computer vision in real-time applications can significantly improve these systems' capabilities, offering more precise and effective solutions for a variety of applications.



Fig. 1. Supervised vs Unsupervised vs Semi Supervised

Use of CNN

Convolutional Neural Networks (CNNs), in particular, are deep learning models that have shown exceptional performance in computer vision applications. These models can be trained to detect objects, find characteristics, or carry out real-time segmentation operations.

CNNs represent a subclass of deep neural networks that have exceptional efficiency in image recognition tasks. Their layers, which are made up of convolutional filters that extract features from the input image, are modeled after the visual cortex of creatures (Mahdevkar, 2022). At different degrees of abstraction, these filters are able to capture a variety of patterns, including edges, textures, and forms. Object recognition, in which the network recognizes and categorizes items inside a picture, is one of CNN's key uses. In a number of industries, including augmented reality, autonomous driving, and surveillance, real-time object detection is vital.

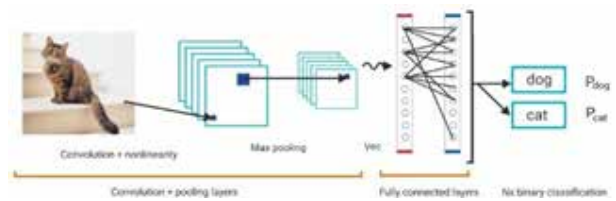


Fig. 2. CNN Real Time Architecture

Use of Deep Learning

Deep learning models can function effectively in real-time settings by having their computational complexity lowered through the use of strategies like model quantization, pruning, and distillation (Das S, Dey, 2015). Weights and activations in deep learning models usually have representations using 32-bit floating-point integers (FP32), which demand a large amount of memory and processing power. The goal of quantization is to transform these parameters into binary representations (binary neural networks) or lower bit representations (integers of 8 bits, or INT8). Pruning is the process of discarding neurons or weights from a trained deep learning model that aren't necessary without noticeably affecting the model's performance. Neural networks have a tendency to form redundant connections during training, which have little

bearing on the model's overall accuracy. (Das S, Dey, 2015). Model distillation is the process of converting knowledge from a larger, more complex model (the instructor model) to a smaller, more simple model (the student model). Instead of learning from the ground truth labels, the student model is trained to duplicate the behavior of the teacher model by using its soft goals, such as logits or probabilities.

Hardware which is used in CV and ML

Real-time processing can be achieved by using specialized hardware, such as Field Programmable Gate Arrays (FPGAs), Tensor Processing Units (TPUs)[20], and Graphics Processing Units (GPUs) [19], which may significantly decrease the inference time for deep learning models (Naik, 2022). Real-time computer vision systems may handle numerous tasks at once by increasing their throughput by using parallel processing techniques like multi-threading and distributed computing. The ability to run several threads simultaneously within a single process is known as multi-threading. Multi-threading can be used in computer vision systems to manage several activities at once or to parallelize various image processing pipeline stages. Distributed computing can be used in computer vision systems to split up the workload of handling computationally demanding tasks or processing huge datasets among several GPUs or computers.

APPLICATIONS

Autonomous Vehicle

The topic of autonomous vehicles and transportation is one of the most promising uses of computer vision and machine learning integration in real-time systems (Sinha, 2018). Vehicles can now see and understand their environment in ways that were previously unthinkable because to the integration of AI and learning algorithms. Thanks to its ability to increase efficiency, decrease traffic, and improve safety, this technology has the potential to completely transform the transportation sector. Autonomous vehicles can identify and react to barriers, traffic signals, and other vehicles on the road by utilizing computer vision and machine learning algorithms (Jhaveri, 2022). This enhances the safety and dependability of transportation. This review paper surveys the intersection of machine learning and

computer vision in the domain of transportation. One of the studies outlines an advanced control system for the ABB IRB 140 robotic manipulator, showcasing the integration of these technologies to enhance object manipulation. Another paper delves into real-time road lane detection using Python to improve pedestrian safety in autonomous vehicles. A comprehensive examination of computer vision and machine learning techniques for automated road surface defect and distress detection is presented in a third paper, offering insights for enhanced road maintenance systems (Neem, 2023). The final contribution reviews applications of these technologies in analyzing heat transfer and fluid flow in complex structural microchannels, providing valuable perspectives for intricate system design. Together, these papers offer a holistic view of the evolving landscape in the convergence of machine learning, computer vision, and transportation technologies.

Surveillance and Security System

Surveillance and security systems are another domain with substantial potential for integrating computer vision and machine learning (Sarker, 2021). These systems can automatically identify and react to possible threats by analyzing video feeds using sophisticated algorithms, thereby enhancing overall security and safety. To improve community safety, for instance, AI enabled smart video surveillance (SVS) can identify suspicious activities and notify the appropriate authorities (Chai, 2021). In order to spot trends and possible security issues, machine learning algorithms can also be employed to evaluate data from security cameras and other sources.

This review delves into recent advancements in fire alarm detection by integrating computer vision and machine learning (Kumbhar, 2021). The exploration surveys existing research to discern breakthroughs and innovative approaches, showcasing the collaborative power of computer vision and machine learning in enhancing the efficacy of fire alarm systems. The insights gathered aim to contribute to the application segment of surveillance systems, offering valuable perspectives on the evolving landscape of fire detection technologies. Additionally, the paper examines the application of computer vision, rooted in deep learning concepts, to reinforce the security of ATM machines

(Bhatt, 2021). By investigating current research and practical implementations, this review elucidates how deep learning-driven computer vision contributes to establishing a multi-layered security framework for ATM machines (S. Kalmani, 2022). The synthesis of findings serves to enhance the discussion within the application domain of surveillance systems, providing insights into advanced strategies for securing financial infrastructure through cutting-edge computer vision techniques.

Healthcare and Medical System

Another field where integrating computer vision and machine learning has the potential to greatly enhance results is healthcare and medical applications (Khan, 2020). Machine learning algorithms can assist in disease diagnosis, outcome prediction, and the creation of individualized treatment programs by evaluating medical imaging and patient health records (M and Adwad, 2022). Furthermore, real-time patient monitoring using computer vision and machine learning algorithms can notify medical practitioners of any problems and facilitate early intervention. Such intelligent systems are made possible by current advancements in sensor technology, computer vision, and machine learning, which open the door to more effective and efficient healthcare delivery.

This comprehensive review investigates the manifold applications of computer vision and machine learning in healthcare, spanning diverse areas such as tea industry optimization and support for individuals with specific needs (Fung, 2008). The examination encompasses innovations like real-time pose detection for elderly activities and Workout Mentor, a system that improves exercise posture through computer vision. Additionally, the review explores advanced techniques aiding the visually impaired in object recognition and navigation (Civit-Masot, 2019). Together, these findings offer a nuanced understanding of how these technologies enhance healthcare processes and patient well-being.

In the realm of healthcare applications, this review scrutinizes the integration of computer vision and machine learning across sectors. From optimizing tea industry processes to supporting specific healthcare needs, the exploration encompasses real-time pose detection for elderly activities, posture improvement

during exercise routines, and advanced techniques aiding the visually impaired in object recognition and navigation (Chen, 2019). This synthesis underscores the versatile impact of computer vision and machine learning technologies on healthcare, offering valuable insights for the continual advancement of healthcare systems.

AR and VR

In the ever-evolving landscape of Augmented Reality (AR) and Virtual Reality (VR), groundbreaking advancements are continuously unfolding through the strategic integration of Computer Vision (CV) and Machine Learning (ML) techniques (V. Pikalov, 2023). As AR and VR technologies rapidly progress, the marriage of CV and ML contributes dynamically to their transformative capabilities. These cutting-edge technologies empower AR and VR systems to interpret and respond to real-world environments, enhancing user experiences with intelligent interactions and immersive content. From object recognition and tracking to the generation of personalized, adaptive content, the fusion of computer vision and machine learning in AR and VR heralds a new era of innovation, promising unprecedented levels of realism, interactivity, and personalization in virtual environments. As these technologies burgeon, the synergistic application of CV and ML stands poised to redefine the boundaries of what AR and VR can achieve, ushering in a new paradigm of intelligent, responsive, and seamlessly integrated virtual experiences.

This review explores the expansive applications of Augmented Reality (AR) and Virtual Reality (VR), addressing security concerns, innovative design, education, and industrial applications. A case study investigates privacy threats in AR, suggesting strategies for safeguarding user data (S. Joy, 2022). The paper also delves into VR, examining the design of a mobile platform and game user behavior monitoring system, incorporating deep learning for enhanced user experiences. It further analyzes recent eye-tracking research, providing insights into user engagement and interaction trends. Additionally, the review explores AR's educational potential through drama-based popular science education and practical applications in industrial settings using computer vision for manual

assembly guidance. Overall, these insights contribute to a holistic understanding of AR and VR applications, covering security, design, education, and industrial contexts.

In the AR and VR application domain, this review offers a comprehensive exploration of security, design, education, and industry. Starting with a case study on AR security, the paper suggests solutions for potential threats (S.R. Kothuri, 2023). In the VR realm, it delves into deep learning-based design for a mobile platform and game user behavior monitoring. The analysis extends to recent trends in eye-tracking research, shedding light on user engagement patterns. Furthermore, the review showcases AR's educational versatility with drama-based popular science education and practical applications in industrial settings using computer vision for manual assembly guidance. Collectively, these findings provide a succinct overview of the varied applications of AR and VR, contributing insights into security, design, education, and industrial implementations.

Agriculture

In the dynamic realm of agriculture, the seamless integration of Computer Vision (CV) and Machine Learning (ML) has emerged as a transformative force, redefining conventional farming practices and paving the way for precision agriculture (Gupta, 2021). This synergy of technologies offers a sophisticated lens into the agricultural landscape, empowering farmers with actionable insights and data-driven decision-making capabilities. From crop monitoring and disease detection to yield prediction and resource optimization, the application of CV and ML in agriculture holds immense potential to revolutionize the industry's efficiency, sustainability, and overall productivity (Othanan, 2022). As farmers navigate the complexities of modern agriculture, the fusion of CV and ML stands as a beacon of innovation, offering tailored solutions to address challenges and cultivate a more sustainable and technologically advanced future for the global farming community.

This review paper explores the transformative applications of Computer Vision (CV) and Machine Learning (ML) in agriculture. 'SmartMeter' introduces an automatic water metering system using CV and

ARIMA-based ML for efficient water resource management (Parekh, 2022). The integration of real-time deep learning in surveillance aids in pest and bacterial disease detection in maize and tomato crops, while CV and ML contribute to optimizing poultry farming practices and enhancing paddy disease identification and classification. These findings collectively highlight the versatile role of CV and ML in addressing key challenges and improving various aspects of agricultural processes.

In agriculture, this review emphasizes the diverse applications of Computer Vision (CV) and Machine Learning (ML). The 'SmartMeter' system showcases efficient water resource management, while real-time deep learning enhances pest and disease surveillance in crops. CV and ML contribute to optimizing poultry farming practices and revolutionizing paddy disease identification and classification.

BUSINESS MANAGEMENT

One intriguing business management idea stemming from the integration of computer vision and machine learning in real-time applications, particularly in the realm of healthcare, revolves around the development of personalized healthcare solutions. Leveraging advanced algorithms capable of analyzing medical imaging data in real-time, a business could create a platform that offers tailored diagnosis and treatment recommendations for individual patients. By incorporating computer vision to interpret imaging results and machine learning to analyze vast amounts of patient data, such a platform could provide medical practitioners with invaluable insights, aiding in more accurate diagnoses and personalized treatment plans. Furthermore, integrating remote patient monitoring capabilities using computer vision and machine learning algorithms could enable healthcare providers to track patients' health metrics in real-time, facilitating early intervention and proactive healthcare management (Ullah, 2023). This business idea not only addresses the growing demand for personalized healthcare services but also contributes to improved patient outcomes and overall healthcare efficiency.

Another compelling business management idea arises from the integration of computer vision and machine learning in the agricultural sector, specifically in

precision agriculture. A business could develop a comprehensive agricultural management platform that utilizes real-time data captured through computer vision technologies to optimize farming practices. By deploying drones or other unmanned aerial vehicles equipped with cameras and machine learning algorithms, farmers could receive up-to-date insights into crop health, pest infestations, and soil conditions (A.A. Kuba, 2020). This platform could provide farmers with actionable recommendations for precise irrigation scheduling, targeted pesticide application, and optimal harvesting times, ultimately maximizing crop yields and resource efficiency. Additionally, by offering subscription-based services or tiered pricing models for access to advanced features and analytics, such a business could generate recurring revenue streams while empowering farmers with cutting-edge agricultural management tools. This business idea not only addresses the need for sustainable farming practices but also taps into the

FUTURE SCOPE

Future developments in computer vision for real-time applications have a great deal of promise for a wide range of sectors. Real-time computer vision systems will play a critical role in the field of autonomous vehicles by allowing them to sense and comprehend their environment, which will guarantee safe navigation by recognizing objects, pedestrians, and traffic signals. Similar to this, computer vision will advance in surveillance and security, strengthening security protocols in public areas and vital infrastructure by improving threat identification and object tracking in real-time settings. Computer vision has the potential to revolutionize illness diagnosis and therapeutic interventions based on visual data in the healthcare industry by enabling real-time medical imaging analysis, remote patient monitoring, and surgical help. Real-time object detection and geographical mapping will also help with augmented reality (AR) and virtual reality (VR) experiences, providing immersive gaming and instructional simulations.

CONCLUSION

The fusion of machine learning (ML) with computer vision (CV) has become a dynamic, quickly developing discipline that has the potential to revolutionize a number

of industries. This combination makes it possible for computers to simulate human vision, which helps with quick and accurate decision-making in real-time applications. This integration has the potential to greatly assist the healthcare industry by improving patient outcomes through faster and more accurate diagnostics. Furthermore, real-time applications powered by CV and ML are used by industrial, transportation, and sports analytics sectors to improve performance analysis, reduce accidents, and improve quality control.

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A Comprehensive Study on The Macro-Economic Impact of Tourism in India

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ABSTRACT

Tourism in India has emerged as a critical driver of economic growth and development, exerting macroeconomic impacts across various sectors. This paper undertakes a comprehensive analysis of the macro-economic ramifications of tourism in India, shedding light on its contributions to GDP growth, employment generation and foreign exchange earnings. For the analysis of ten years statistical data on the contribution of tourism towards India's economy was collected and systematically analyzed using various statistical tools. The findings of the study suggested positive and negative impacts of tourism economic impact in India. The study concluded that the research variables such as Turnover and FEE contribution have increased during the ten years, though statistically it's revealed that tourism turnover has a significant impact on the tourism profit. It surprisingly revealed that local people's participation plays a significant role in the systematic development and long-term sustainability of tourism destinations in India.

KEYWORDS: *Tourism, Macro-economic impact, FEE, GDP, Employment, India.*

INTRODUCTION

Tourism is a rapidly growing industry worldwide, recognized as a powerful driver for comprehensive socio-economic development. Its impact extends beyond mere economic contributions, encompassing cultural exchange, infrastructure development, and employment opportunities. In the context of India, tourism plays a pivotal role in shaping the nation's economy and fostering global interactions. In recent decades, India has experienced a remarkable surge in tourism, becoming one of the world's leading destinations for travellers seeking diverse cultural experiences, historical landmarks, and natural wonders. This paper embarks on a comprehensive examination of the macroeconomic impact of tourism in India, delving into its multifaceted impacts on various sectors, employment dynamics, income distribution, and overall economic growth. India's tourism landscape is characterized by its rich heritage, diverse geography, and cultural vibrancy, attracting millions of domestic and

international tourists annually. From the snow-capped peaks of the Himalayas to the beaches of Goa, from the intricately adorned temples of South India to the bustling markets of Delhi, the country offers a tapestry of experiences that cater to a wide array of traveller interests. Such diversity positions India as a compelling destination for leisure, religious, adventure, and medical tourism, among others. The economic significance of tourism in India extends beyond its direct contributions to GDP. While quantifying the direct economic impact of tourism is relatively straightforward, understanding its broader macro-economic implications necessitates a nuanced analysis of its interconnections with other sectors of the economy. Tourism acts as a catalyst for growth, fostering linkages with transportation, hospitality, retail, infrastructure, and various ancillary services. The exponential growth of tourism in India has been facilitated by various factors, including policy reforms, infrastructural development, promotional campaigns, and technological advancements. Initiatives

such as “Incredible India” and the easing of visa regulations have bolstered India’s image as a tourist-friendly destination, attracting a diverse influx of visitors from across the globe. Furthermore, investments in transportation networks, accommodation facilities, and tourist attractions have enhanced accessibility and convenience for travellers, augmenting the sector’s growth potential. However, alongside its transformative benefits, tourism also presents a set of challenges and vulnerabilities that warrant careful consideration. The sector is susceptible to fluctuations in global economic conditions, geopolitical tensions, natural disasters, public health crises, and environmental degradation. Issues related to sustainability, cultural preservation, congestion management, and socio-economic inequality necessitate a balanced approach towards tourism development, ensuring that its benefits are equitably distributed and its adverse effects mitigated.

LITERATURE REVIEW

Rajender. (2022), The present study “Impact of tourism industry on the Indian economy: a multidimensional analysis” the results showed improvement in GDP and revenues from tourism. It concluded that there is a positive relationship between the economy and the tourism industry.

Tejee ish. (2023), The present study “The Impact of Tourism on Local Communities: A Literature Review of Socio- Economic Factors” it’s a comprehensive analysis of the socio-economic impacts of tourism on local communities, discussing both positive and negative consequences.

Pailwal & sharma. (2022), The present study “Tourism and Economic Development: Literature Review with reference to India” study provides a conceptual model explaining the interrelation between tourism, economic growth, and current policies, highlighting the significant role of tourism in economic development.

Sarkar. (2022), The present study “Impact of tourism on economic development in India” discusses the contribution of tourism to India’s GDP and its effects on the financial, social, political, and environmental aspects of the country.

Balaram. (2020), The present study “Socio-economic Aspect of Tourism Development and its impact on

Residents in Vellore District of Tamilnadu” focuses on the socio-economic impact and studies the perceptions of local communities towards the development of the tourism industry. Suggested that local people need awareness and education programs to maximize positive benefits and minimize the negative ones.

Rana. (2019), The present study “A review of the economic impact of the tourism industry on growth of Indian economy” An exposition of the economic viability of the Indian tourism industry using secondary data from various sources.

Dash. (2018), The present study “Tourism and Economic Growth in India: An Empirical Analysis” it studied the economic impact of tourism from 1973 to 2013. Results showed a positive impact of tourism on economic development.

Ramphul. (2017), The present study “Tourism Economic Growth in India” investigates the tourism impact on economic growth in India. Results showed a cointegrated relationship between economic development and the tourism sector. It suggested improving policies to attract visitors around the world.

Himanshu. (2016), The present study “Socio economic impact of tourism in India: an empirical analysis” suggested that the tourism sector can contribute to the long-run development of macroeconomic conditions of the country. It concluded that FEE and tourist spending are the main aspects of tourism economic growth.

Ahmed. (2014), The present study “An economic evaluation of indian tourism industry” discusses the economic viability of the Indian tourism industry with a focus on growth and development. Explained the importance of the tourism industry in Indian economic development.

RESEARCH GAP

There are various studies on the economic impact of the tourism industry in India; however, there are no specific studies on the macroeconomic impact of tourism in India for the given time period, i.e., 2014 to 2023. This study aims to fill the gap by examining the impact of macroeconomic variables of the tourism industry on the Indian economy.

SIGNIFICANCE OF THE STUDY

- I. **Economic Growth:** Over the years, tourism has become an integral part of India's economy. It's significantly contributed to India's GDP accounting for 6.8% in 2023.
- II. **Unity in Diversity:** India's rich cultural heritage, diverse landscapes, and historical landmarks attract both domestic and international travellers. Tourism exposes visitors to India's philosophy of unity in diversity, promoting cross-cultural understanding.
- III. **Employment Generation:** The tourism industry directly and indirectly employs millions of people. From hospitality services to transportation, artisans, and guides, it generates livelihoods across various sectors.
- IV. **Infrastructure Development:** The growth of tourism necessitates infrastructure improvements. Investments in transportation, accommodation, and amenities benefit not only tourists but also local communities.
- V. **Research Framework:** To measure the tourism macro-economic impact on India, four variables such as foreign exchange earnings, GDP, employment and turnover are taken up for the study. All necessary statistical data is collected from the Ministry of Tourism Govt. of India's official web sites. For the analysis of data various statistical tools were used such

Research question: How does the tourism sector impact the contribution of India's GDP, employment and foreign exchange earnings?

Objective of the study: This study aims to analyze the macroeconomic impact of tourism in India. By examining the key indicator, the study enables us to understand how tourism contributes towards GDP, employment, and foreign exchange. Along with it, both positive and negative impacts on the social environment and local community aspects are studied.

Research Hypothesis: The following hypotheses are framed for the research study:

1.H0: There is no significant impact of turnover on tourism profit.

2.H0: There is no significant impact of foreign exchange earnings on tourism profit.

Research Methodology: The following research methodology was followed for the present study,

Methodology of the study: The present study is descriptive.

Type of data: The research study was based on the secondary data.

Tools for data collection: Data is collected from the annual reports and statistical reports of the Ministry of Tourism Government of India's official website.

Statistical tools: For the analysis of data various statistical tools are adopted such as time series analysis, moving averages and a multiple regression analysis was utilised.

Analysis Framework: To assess the trend of domestic and foreign tourist arrivals a time series analysis was adopted. To assess the GDP contribution of the tourism sector and the annual growth of the overall sector Descriptive statistics were adopted. To assess the impact of tourism turnover and foreign exchange earnings on tourism profit a regression analysis was utilised.

Software tools: For the analysis of data Microsoft Excel and SPSS software were utilised.

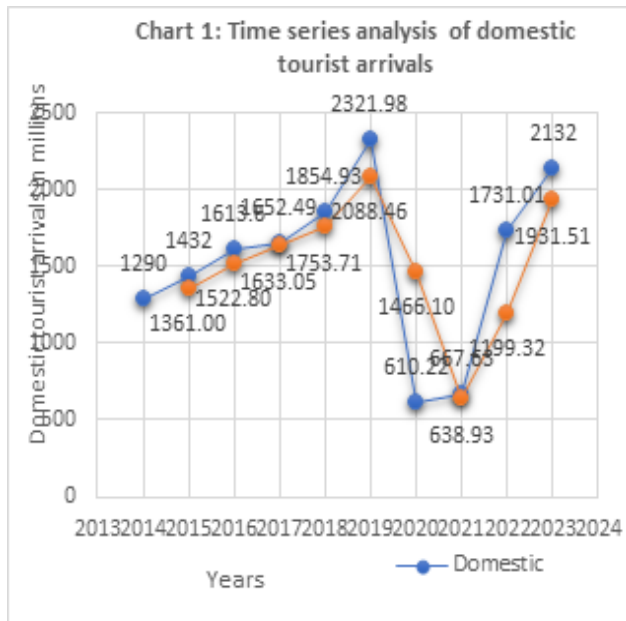
Period of the study: The necessary secondary data was collected for the previous ten years, i.e., from 2014 to 2023.

Scope of the study: The present study focused on the period for which data is collected and geographical limits are up to India only.

DATA ANALYSIS

For the analysis of time series data, the two years moving average technique was adopted. Chart 1 indicates an upward trend in domestic tourist arrivals from 2014 to 2019, with an annual average growth rate of 12.70%. The highest number of tourist arrivals was recorded in 2019, with 2,321.98 million, while the lowest was in 2020, with 610 million. Initially, there was an upward trend; however, due to the impact of the COVID-19 pandemic, there was a sharp decline of 73.72% in domestic tourist arrivals from 2019 to

2020. In 2021, a modest growth rate of 9.41% was observed, accounting for 667.63 million. Subsequently, a significant growth rate of 159.28% was noted in 2022, with 1,731.01 million domestic tourist arrivals, resulting in a “V-shaped” recovery curve. Furthermore, in 2023, a growth rate of 23.17% in domestic tourist arrivals was recorded, with 2,132 million visitors. The two-year moving average curve revealed that, except for 2020, domestic arrivals for all other years, namely 2014-2019 and 2021-2023, exceeded the average domestic tourist arrivals.



arrivals and a “V-shaped” recovery curve. In 2023, the growth rate increased by 16.96%, amounting to 7.24 million visitors. The two-year moving average curve indicated that, apart from 2020 and 2021, foreign tourist arrivals for all other years, specifically 2014-2019 and 2022-2023, surpassed the average foreign tourist arrivals.

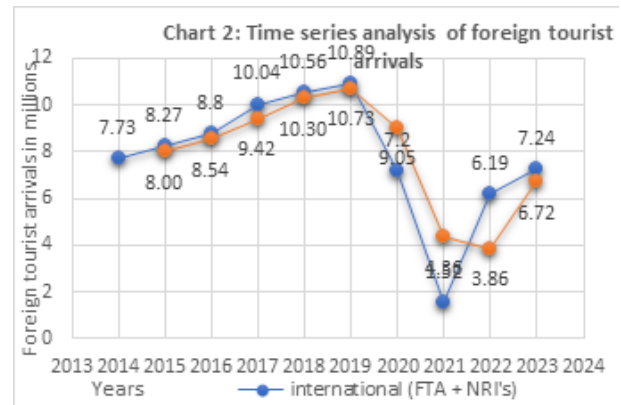


Chart 2 illustrates an upward trend in foreign tourist arrivals from 2014 to 2019, with an annual average growth rate of 11.90%. The highest number of foreign tourist arrivals was recorded in 2019, with 10.89 million, while the lowest was in 2021, with 1.52 million. The COVID-19 pandemic led to a decline of 33.88% in foreign tourist arrivals from 2019 to 2020, followed by a significant decrease of 78.89% in 2021. However, 2022 marked a substantial recovery with a growth rate of 307.24%, resulting in 6.19 million foreign tourist

Table 1 provides a year-wise detailed explanation from 2014 to 2023 of India’s GDP (in billion US dollars), the service sector’s contribution to India’s GDP, and the tourism sector’s contribution to the service sector. India’s GDP experienced significant growth from 2014 to 2023, with an increase of 83.03%. It was also observed that during this period, the service sector contributed more than 50% to India’s GDP. The average annual growth rate of the service sector was 53.73%. Within the service sector, tourism contributed an average of 18.026%, while the remaining services accounted for 35.71%. The tourism sector recorded negative annual growth rates of 2.15%, 2.13%, 0.54%, and 15.85% in 2015, 2018, 2019, and 2021, respectively. Conversely, positive growth rates of 1.10%, 2.17%, 9.47%, and 12.19% were observed in 2016, 2017, 2022, and 2023. Notably, 2023 marked a significant positive annual growth rate of 12.19%, while 2021 experienced a substantial negative growth rate of 15.85%. A growth rate of 0.00% was recorded in 2020.

Table 1: Year-wise Tourism share in India from 2014 – 2023

Year	GDP (in billion U.S. dollars)	Service sector contribution (%)	Tourism contribution (%)	Annual growth rate	Employment (in millions)	Turn-over	FEE	Profit after tax
2014	2039.13	51.3	18.6		67.2	504.19	123820	34.37

2015	2103.59	53	18.2	-2.15	69.6	465.69	135193	22.55
2016	2294.8	52.9	18.4	1.10	72.3	356.11	154146	11.43
2017	2651.47	53.8	18.8	2.17	75.9	366.42	180379	17.71
2018	2702.93	55.2	18.4	-2.13	81.1	371.72	194892	42.15
2019	2835.61	54.3	18.3	-0.54	75.85	357.49	210981	22.48
2020	2671.6	55.3	18.3	0.00	79.86	197.22	50136	-27.2
2021	3150.31	54.3	15.4	-15.85	68.07	300.52	65070	4.38
2022	3385.09	53	16.9	9.74	71.57	458.08	134543	60.33
2023	3732.22	54.2	18.96	12.19	75.2	534.06	195000	100.79

Source: Statistical reports of Ministry of Tourism of India

Hypothesis Testing: To examine the impact of turnover and foreign exchange earnings on tourism profit, a multiple regression analysis was conducted. According to Table 2, the model was appropriately fitted when these two variables were regressed against tourism profit. A strong correlation between the variables was observed, with an R-value of 0.872. The variation in tourism profit explained by turnover and foreign exchange earnings is $R^2 = 0.760$, indicating that these independent variables account for 76% of the variance in the dependent variable. However, to accurately predict the impact of the independent variables on the dependent variable, we prefer to the adjusted R-square value, which is 0.691. This suggests that the independent variables explain 69.1% of the variation in the dependent variable, while the remaining 29.9% of the variation is attributed to other factors not included in the study.

Table 2: Overall strength between variables

R	R-square	Adj. R- square
0.872	0.760	0.691

Source: Data analysis

Table 3 revealed a significant relationship between the independent and dependent variables. i.e., the p-value is 0.007, which is less than the table value of 0.05 and the F value is 11.070.

Table 3: Relationship between the variables

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	8070.333	2	4035.167	11.070	0.007
Residual	2551.564	7	364.509		
Total	10621.897	9			

Source: Data analysis

From Table 4, it is observed that all independent variables positively affect the dependent variable. Among these, one variable significantly impacts tourism profit, namely Tourism Turnover ($B = 0.245$; $\beta = 0.723$; $p = 0.01$), whereas foreign exchange earnings (FEE) do not significantly affect tourism profit ($B = 0.016$; $\beta = 0.246$; $p = 0.286$). The analysis led to the rejection of the first hypothesis, which posited no significant effect of turnover on tourism profit, because the p-value of 0.01 is less than the significance level of 0.05, indicating a significant impact of turnover on tourism profit. Conversely, the second hypothesis, suggesting no significant effect of foreign exchange earnings on tourism profit, was accepted because the p-value is 0.286, which is greater than 0.05, leading to the acceptance of the null hypothesis.

Table 4: Regression Analysis Results

Model	B	BETA (β)	t-value	p-value
Constant	-89.426		-3.456	0.01
Turnover	0.245	0.723	3.392	0.01
FEE	0.016	0.246	1.156	0.286

Source: Secondary data analysis

Findings

The highest tourism turnover was recorded in 2023, amounting to ₹534.06 crores, while the lowest was in 2020, with ₹197.22 crores. The year 2020 saw negative profits of -₹27.2 crores, the lowest profit was in 2021 at ₹4.38 crores, and the highest profit was in 2023, reaching ₹90.79 crores. The peak level of foreign exchange earnings occurred in 2023, totalling ₹195,000 crores, with the lowest in 2020, at ₹50,136 crores. According to Table 2, the highest contribution to Tourism GDP was in

2023, at 18.96%, and there was a negative contribution in 2021, at 15.85%. The most significant employment was generated in 2018, accounting for 81.1 million jobs, while the lowest was in 2014, with 67.2 million jobs. Regarding the hypotheses, it was observed that turnover had a more substantial effect on tourism profit ($t=3.392$) compared to foreign exchange earnings ($t=1.156$), with only one hypothesis showing a significant impact on tourism profit.

Regression equation is: Profit = $-89.426 + 0.245(\text{turnover}) + 0.016(\text{FEE}) + \text{Error}$.

CONCLUSION AND RECOMMENDATIONS

The present study of the macroeconomics of tourism in India revealed that tourism contributes significantly to GDP, employment, and foreign exchange earnings.

1. Tourism has significantly contributed to the economic growth of India. The positive impacts are as follows:

- i). Tourism turnover increased by 6%, i.e., from 504.19 crore rupees in 2014 to 534.06 crore rupees in 2023.
- ii). Profit share also significantly increased from 34.37 crore rupees in 2014 to 90.79 crore rupees in 2023.
- iii). Though FEE doesn't have any significant impact on tourism profit. though the contribution of foreign exchange earnings also saw a significant improvement, from 1,23,820 crore rupees in 2013 to 1,95,000 crore rupees in 2023.
- iv). The tourism sector's contribution to India's GDP increased from 5.68% in 2013 to 6.8% in 2023.
- v). The tourism employment share also increased, from 67.2 million in 2013 to 75.2 million in 2023.

2. There is a significant correlation between turnover and tourism profit $R=0.845$, it indicates that whenever turnover was increasing along with it the tourism profit was also increasing.

- i). The need to accommodate tourists during the destination's infrastructure development benefited the local community and enhanced their overall living standards.
- ii). Tourism creates demand for locally made products and services.

iii). It's also observed that tourism promotes cultural exchange and preservation. Tourists are aware of India's rich heritage, traditions, and diverse cultural practices.

The negative impacts of tourism on the economy are as follows:

1. Loss of potential economic benefit to locals because it's observed that most of the facilities like transportation, accommodation, food and beverage, and other services are brought and maintained by external entities like the government or private persons, which will have a negative impact on potential economic benefit to locals.
2. Uneven income distribution between people who are working in tourism and low-income people may cause tensions.
3. The cost of living will increase in tourism-developed areas, which may affect low-income groups.
4. The tourism industry is often seasonal, resulting in underemployment and unemployment during off-seasons. This will affect job stability.
5. Due to overcrowding, tourism will negatively affect the environment, vegetation, and air quality and may disturb wildlife in core and buffer areas.
6. The tourism industry is most affected by internal and external environments, which will result in a lower contribution towards GDP, foreign exchange earnings, employment and tourism turnover.

Limitations and Future Research: Data collected for the research is limited in time and scope is limited to only India. Future research should be focused on comparison between different countries. A few more factors should be identified for more in-depth research study.

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Algorithmic Trading – An Emotion & Sentiment Free Trading Approach

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ABSTRACT

Stock Market is very dynamic. It changes sentiments of investors and traders. It remains unpredictable each & every movement. View of the market plays a very important role. The market may sometime move in favor or sometimes against the view of investor or trader. Here comes the Emotional part of the investor. Because everything is unpredictable in both the situations, we will try to find out the probable reasons behind emotional behavior & sentiment with reference to Algorithmic Trading. This study aims to investigate the influence of psychological elements and emotional aspects on investors' decision-making. Additionally, it will look at the connection among investors' risk-taking behaviour and their attitude towards risk.

The second angle of this paper is to find out how Algorithmic Trading can help to avoid emotion and sentiment in trading and investment. With the use of Algorithmic Trading will reduce the direct involvement in the of traders and investors which might help to reduce the losses also.

There is always presence of emotion in the stock market. There is no discrimination when it comes to feeling and emotions among an inexperienced and a professionally skilled investor. Even though some people are more experienced when compared to others in keeping their sentiments in checked while making financial choices. How Algorithmic Trading can help to bridge the important gap for profit maximization.

Such extremes in emotion can lead to illogical decision-making that costs investors money, though happiness can sometimes be advantageous for a stock while making profit.

It can be avoided through Algorithmic Trading. Investors may continue to retain losing stocks out of feeling and fear due to the emotional suffering that comes with a monetary loss. Again the emotion and sentimental investing is not only restricted to the small time investors, here even the people who trade professionally are often mindful of their limitations and take required steps to help them control their distress of financial loss through Algorithmic Trading.

We all know that Investing in stocks is risky by nature. This indicates that the stock which demonstrate rapid price fluctuations that unnerve investor. And this is again a proven fact that the market volatility causes investors to take the wrong time, emotional trading choices in its place of using logic, thereby leading to inadequate results. Algorithmic Trading can help in taking informed decision and execute multiple trades in one go.

Keeping the emotional quotient aside, the investors must realize that the stock market will give better profits when the company is picked basis its financial fundamentals than their feelings. So they have to observe the market sentiments also.

The aspiration of the paper is to comprehend whether to what an extent the emotional aspects concern investors' & trader's decisions in different circumstances basis on levels of uncertainty. With the use of algorithmic trading,

one also addresses determining the elements that motivate the investment decision-making procedure and the part that emotions and feelings play in these choices. The study has considered theoretical viewpoints, but it skips out on the empirical specifics.

KEYWORDS: *Algorithmic trading, Emotions & sentiment, Investment decision making, Psychology of Investor.*

INTRODUCTION

Human being is a social animal and has intelligence also. Human has some different qualities which are very unique as decision making. His behavior is sometime full of excitement & emotion. Sometimes his emotion carries his decision making powers which can be reduced by Algorithmic Trading. The stock exchange is a platform where bonds and equities, such as shares, are purchased and sold. Individuals invest or trade in stock market because there are chances to get better returns than traditional investment tools like FDs. Some time it may be reason to invest for becoming a part of a growing economy like India by investing in it. When we talk about stock market, emotion & sentiment considered to be very significant in either making profits or bearing losses. Reason may be the attachment of the money which is in the making while in profit trades or losses in when trends goes against the position taken by trader or investor. There can be many factors affecting the emotion and sentiment. Age, education, income, investment the portfolio, among other demographic factors could be involved. Sometimes individuals do not make rational decisions, many times it is influenced by behavioral elements such as anchorage, algorithms, mental valuation, hunger and dread and mental dissonance. So these dynamics can be considered as a change when situations in the market emotion of the trader or investor has to change. And Algorithmic Trading can play very important role here. When an investor or trader enter in a position there is always a risk attached to it. The newest factor to be considered when developing investing strategies is behavioral concerns, which aim to instill investor confidence in the stock market. Algorithmic trading is also quite beneficial.

It is all about investor's view angle when market is in the favor or against Because the stock market and the economy have a positive link, the growth of the stock market will be beneficial to the economic and the other way around. It is always beneficial for investors

to recognize the emotional reasons that persuade their results from which they use better justifications for their responses of profits or losses made by them. An investor must thoroughly examine the outcome of the stocks of the firms that trade on the stock market, their values, the market trend, and other relevant details before making an investment or dealing in the stock market as a whole but to manage emotion & sentiment will always be a very important part of it and here Algorithmic Trading comes into picture.

REVIEW OF LITERATURE

(Bagate et al., 2023) A unique type of trading known as "algorithmic trading" involves computer programmes that follow predetermined instructions in order to make money. The most difficult issue for algorithmic trading is analysing the noisy and volatile nature of the stock to obtain insights from the final result. Real-time stock predictions utilising a variety of algorithms and machine learning techniques have increased exponentially in recent years. Because to the unpredictable nature of the market, these predictions are likely to underperform in many situations.

(Nan et al., 2020) Because of its very nature, algorithmic trading is a challenging problem to solve. Trustworthy algorithms for automated stock trading are nearly hard to develop since real-world scenarios involve too many variables. Attempts to use supervised learning to provide accurate forecasts have been hampered by the absence of trustworthy labelled data that takes into account physiological and physical elements that influence market fluctuations. Authors develop a reinforcement learning strategy that leverages knowledge graphs to take advantage of news about implicit linkages, while utilising traditional time series stock price data and combining it with sentiments from news headlines to establish an optimal trading policy. Models can also predict outcomes or sequences when the data are time series. People have naturally tried using machine learning to forecast how the stock market would perform,

but it has proven to be exceedingly challenging because there are numerous variables involved in the projection, some of which appear unreasonable.

(Torres et al., 2020) In order to create our Stock-Emotion dataset, the authors suggest an emotion elicitation technique. This involves gathering the electroencephalogram (EEG) signals of participants who paper-traded using actual stock market data, fake money, and emotionally charged outcomes. Using this dataset, an emotion recognition system was tested. They found

- 1) the proposed emotional induction method is useful for inducing commercial affective states,
- 2) the proposed on-selection process improved the classification performance of our emotion detection system, and
- 3) the system's classifier can detect commercial emotions and its results are comparable with contemporary studies and a similar number of result categories.

(Borch & Lange, 2017) In this article, Author look at the recent change in financial markets to high frequency trading (HFT). This turnaround is justified by how algorithms are claimed to compared to human traders, be less likely to make emotionally driven selections and more logical and productive.

Author argued that though HFT do not trivialize human being, the ultimate trading object and the human-machine interaction are both reconfigured as a result. Based on conversations and ethnographical thoughts of high-frequency traders, such as HFT "how-to" books, author examine the prejudice and self-technique of the high-frequency trader. Author shows that these traders are challenged to avoid emotional interfering in their algorithms and they use various self-disciplining techniques to limit the importance of emotional involvement.

(Cohen, 2022) Lately, artificial intelligence (AI) has come to be acknowledged as a vital instrument for human traders. The benefit of AI techniques over human traders is that they can analyze large amounts of statistics from different informants in a small amount of time and implement true high-frequency trading (HFT), which has capacity to exploit price discrepancies and

abnormalities in the market. The paper addresses the topic if these approaches may be applied to effectively trading complicated financial markets by analyzing the most significant recent papers that employ cutting edge techniques to forecast patterns in financial assets. All systems investigate subtle relationships and occurrences that impact the likelihood of trading success through the application of deep learning (DL) and machine learning (ML) protocols.

Their forecasts are based on linear or non-linear models, frequently paired with recognition of patterns or leaders of opinion in online investments. The majority of the reviewed publications exhibited the created the system's effective trading performance in financial markets.

(Al-Sulaiman, 2024) Financial trading has undergone significant technological development and automation is central to the fact that approximately 80% of trades in the US market are conducted via computer systems, mostly by large financial institutions. The growth of algorithmic trading, which is willing to include smaller entities, international markets and individual traders, drives this article research in this area. Provides a comprehensive overview, describes the evolution of trading practices and defines algorithmic trading as a computerized tool for investment decisions. Author details the stages of algorithmic trading, including opportunity identification, quantitative research, implementation, testing stages, and continuous monitoring. Common programming languages and open-source platforms that facilitate algorithm development are also explored. Focusing on trading frequencies among financial instruments, it treats high-frequency trading as a subset, with techniques such as technical and fundamental analysis, time series analysis, options trading strategies and machine learning techniques used to create algorithms. Categorized by trading frequency, analytical approaches, financial instruments involved and analytical objectives, the articles provide an overview of the diverse landscape and methods of algorithmic trading and provide valuable perspectives for practitioners and researchers in the field.

RESEARCH OBJECTIVES

1. To understand the role of emotion and sentiments in making choices in the stock market.

2. To identify the prospects of Algorithmic Trading.
3. To identify the challenges involved in Algorithmic Trading.

RESEARCH METHODOLOGY

Research Methodology is a very important part of any research paper so as this paper also. In this paper we have used descriptive research methodology to find out more about the topic and analyze the data. We have used secondary data for the analysis. Secondary data used from various news articles and information available online on various informative websites.

DISCUSSIONS

The Impact of Emotions on Financial Decision-Making

((27) The Impact Of Emotions On Financial Decision-Making | LinkedIn, n.d.) Emotions can often interfere with our ability to make sound financial choices, leading to poor outcomes. Therefore, understanding the impact of emotion on judgement is essential for long-term financial success. Emotions can affect our cognitive processes such as attention, memory and reasoning, leading to different decision-making outcomes. Making financial decisions can often leave one feeling a little bit confused, nervous, or enthusiastic, especially when it comes to major purchases like real estate or investments. However, in order to make better decisions, it's critical to identify and control these emotions. We can make more intelligent financial choices that satisfy our wants and aspirations when we take the effort to comprehend and control our emotions. This is particularly crucial for making financial choices that have the potential to have a big impact on a person's future financial security and well-being.

The psychology of risk: Emotions and decision-making in trading

(The Psychology of Risk: Emotions and Decision-Making in Trading - The Economic Times, n.d.) A trader experiences a wide range of emotions throughout a trading period, but desire and fear are the two main ones that predominate. However, overexposure to risk due to an inclination to overstate a person's abilities can cause greed to take control of a trader's thinking. In this instance, an individual's desire to maximize his capital

as soon as feasible is driven by desire. Additionally, it might persuade them to borrow funds or engage in currency exchange without fully comprehending the risk. However, an overabundance of evaluation of risks might result in aversion to loss, meaning the desire to prevent loss regardless of cost. Here, the trader may abandon the market too soon since they are driven by fear and may be more sensitive to losses than gains. Therefore, finding a balance between the two is very important for business people.

How Sentiment Analysis is Used in Algo Trading

(How Sentiment Analysis Enhances Algo Trading, n.d.) Traditional trading methods focus primarily on numbers such as volume, price patterns and historical data. But they often ignore human psychology. Financial markets don't just move by numbers. Breaking news, popular opinion and human behavior also play a big role. Sentiment analysis allows marketers to add qualitative data to their quantitative models. This gives them a deeper understanding of market sentiment and helps them predict price movements. Sentiment analysis allows traders to see if the market is overly optimistic, leading to large purchases. It can also predict market declines by monitoring negative sentiment. Incorporating sentiment analysis into trading patterns helps traders leverage psychology-based behavior. This can lead to smarter decisions and better profits.

What Is Algorithmic Trading?

(Basics of Algorithmic Trading: Concepts and Examples, n.d.) Algorithmic trading (also called automated trading, black box trading or algorithmic trading) a deal is carried out by a computer programme that adheres to a predetermined set of guidelines, or an algorithm as it is known.

Theoretically, trading can provide gains faster and more frequently than a trader could ever achieve. Defined sets of orders can be determined by any model of mathematics, a period of time price, or volume. In besides providing the trader with gain chances, beginning trading increases market liquidity and improves trading efficiency by reducing the impact of human feelings. Automated trading uses the stock market and programming languages to conduct trades at specific times. Algorithmic trading tries to remove emotion

from trades, ensure the most efficient trade execution, send orders immediately and can reduce trading costs. Trend-following tactics, arbitrage possibilities, and index fund rebalancing are examples of common trading methods. To start algorithmic trading, you need access to a computer, Internet connection, knowledge of financial markets and coding skills.

4 Big Risks of Algorithmic High-Frequency Trading

(4 Big Risks of Algorithmic High-Frequency Trading, n.d.) In algorithmic trading, trades are made according to established standards and are divided into smaller amounts in order to minimize the impact on the price of the asset. The primary benefits of algorithmic trading are that it reduces the human factor, resulting in “best efficiency” for transactions, and it is capable of trading multiple markets and assets far more quickly than an actual trader. High frequency trading, or HFT, as the name implies, entails placing hundreds of trades at lightning-fast rates.

While there is no denying that algorithmic and high-frequency trading have increased market liquidity and stock price constancy, their application has additionally brought up significant hazards, most notably the potential to increase systemic risk.

How Algorithmic trading can revolutionize stock market trading in India

(How Sentiment Analysis Enhances Algo Trading, n.d.) Algorithmic trading is not a new trend in India, but it is just emerging. Algos accounts for 70-80% of the total global market and has various complex structures, regulations and players, while Algo in India still accounts for only 50-60% of the total and is rather straightforward and poorly understood. In India, algorithmic trading first became popular in 2010 and was initially restricted to broker and institutions. However, the retail market now has unrestricted opportunity for algorithm development thanks to the rise of digital discount brokers and API solutions, and the opportunities are unlimited! Algorithmic traders are increasing and understanding, and education is cumulative. Nonetheless, when compared to the worldwide market, Algo prevalence within India has increased significantly. In addition to offering the trader the possibility to make money, algorithmic trading is

revolutionary in that it removes the impact of human error and emotions on commercial dealings. It also makes the market more effective and liquid. Algorithmic trading is replacing human trading mostly due to its rapidity, precision, and cost-effectiveness. Algo finds models besides spare parts in moments – faster than a human can detect, and if the machine follows the given instructions, accuracy and precision are the advantage. In addition, algo constantly checks your orders without your supervision, as a result of which trading time and transaction costs are significantly reduced.

CONCLUSION

The use of Algorithmic Trading is increasing day by day. Algorithmic Trading helps to better manage the trade and investments as it uses the wide database and analyzes it. It works and helps to better manage the trades as it follows the instructions already given in advance. By using Algorithmic Trading as a tool, it can help to manage trades better. It is also very useful to manage most importantly emotion and sentiment of the individuals because Algorithmic Trading uses various tools that help to curb on emotions as everything is pre decided which help trader and investor to make informed decisions. And helps keep emotion and sentiment apart from human beings.

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The Study of UPI use in the Mumbai Western Suburban Region

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ABSTRACT

One of the great inventions in e-payments is Unified Payment Interface, UPI introduced by the National Payment Corporation of India. In terms of cost, ease of use for consumers, settlement times and security, UPI is an advanced and significant payment system. It has made it easier for a large number of people to become involved in the digital economy. This is a type of payment system that allows any customer's holding bank account to send and receive money via an UPI Based App. Individuals saw the value of paying online rather than carrying cash with them when demonetization took place. There has been a sharp increase in electronic transactions following the demonetization and Prime Minister Narendra Modi's Digital India initiative. A large portion of financial transaction issues, e.g. hard money or digital transactions, would soon be resolved with the introduction of Unified Payments Interface in India in 2016. The main challenge was its awareness among citizens and their promotion of the same. However, the Demonetization of 2016 and the COVID 19 pandemic, which has been acting as a catalyst or the reason why citizens have chosen UPI more or less, have quickly resolved the problem. And no prizes for guesses, today, our world revolves on UPI, almost 95% of the time in terms of petty to mid-size financial transactions. Though, even UPI too has a certain limit to be followed, a quick reality check must be done if despite UPI's existence, are cash payments either a punishment or a saving grace or both, when it comes to paying our rickshaw and taxi drivers, particularly the ones riding the iconic Kaali-Peelis. This Research aims to understand the mindset and practices of financial transactions among the residents of Mumbai Western suburbs.

KEYWORDS: UPI, COVID-19, Electronic transactions, Mumbai western suburbs, DPS (Digital payment system).

INTRODUCTION

Digital Payment system

One of the great inventions in the field of electronic payments is the Unified Payment Interface, UPI, which was introduced by the National Payment Corporation of India, NPCI. The Indian government launched a program called "Digital India" in order to convert the country into digitalized. In this program, the main objective is to carry out bank transactions in a country that are invisible, paperless, and free of charge. The digital payment system became more important after the demonetization. The Government has introduced a Unified Payment Interface UPI, which is an app-based approach to payment multiple banks. Dr. Raghuram G Rajan, Governor of the Reserve Bank of India, first

launched the United Planet Initiative in India On 11 April 2016 at Mumbai. A digital payment system is an electronic transaction carried out at the moment The sale of services and products via the Internet or mobile banking with smart Payment by phone or a credit card.

Customer Experience and Unified Payments Interface

The following are the elements of Customer experience in UPI includes: 2.1) Customer Satisfaction Numerous elements of the customer experience, such as security, convenience, usefulness, safety, confidence, dependability, speed, accuracy, and confidence, have an impact on customer satisfaction. 2.2) Customers' perceptions of UPI Consumer experiences with UPI's features and advantages shape their opinions of the

service. 2.3) Solving problems or avoiding risks It's impractical to anticipate flawless customer interactions, so having a knowledgeable customer support staff on hand to address any problems that may come up is essential. In order to improve the overall customer experience and address any points of friction, effective communication is essential. 2.4) Benefits Use of UPI has time- and money-saving benefits as well as offers, incentives, and rewards.

Growing Adoption of DPS and UPI



Fig 1: Surge in DPS usage

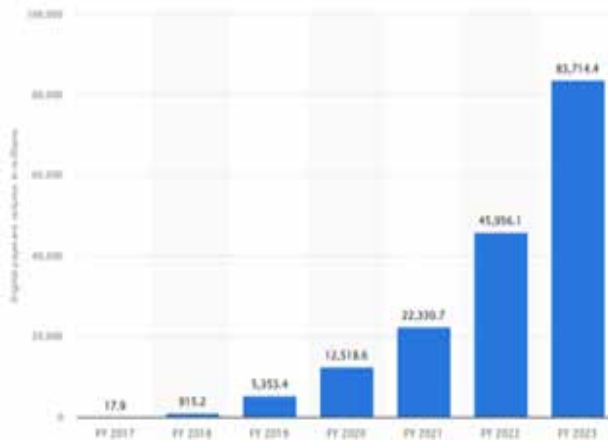


Fig 2: No of UPI Transactions from FY17 to FY23 (Source: NPCI)

OBJECTIVES

- To Study the association between demographic factors and positive customer experience in using UPI (Unified Payments Interface) w.r.t variables like age, income slab, and occupation.
- To study the correlation between the growing adoption of UPI (Unified Payments Interface) and various influencing factors such as technological advancements, ease of use, awareness campaigns, government policies, etc.
- To assess and compare the customer experience among various modes of UPI.
- To study and analyse the usage patterns between the utilization of UPI (Unified Payments Interface) and cash transactions.
- To identify and assess the challenges faced by users while utilizing UPI (Unified Payments Interface).

RESEARCH HYPOTHESES

Research Hypotheses: The following hypothesis has been developed to answer the research questions respectively:

Objective 1:

H0: There is no association of Demographic factors and positive customer experience in using UPI

H1: There is association of Demographic factors and positive customer experience in using UPI

Objective 2:

H0: There is no association of growing adoption of UPI

H1: There is association of growing adoption of UPI

Objective 3:

H0: There is no significant difference in customer experience between various modes of UPI

H1: There is significant difference in customer experience between various modes of UPI

Objective 4:

H0: There is no significant difference in usage between use of UPI and use of cash

H1: There is significant difference in usage between use of UPI and use of cash

Objective 5:

H0: There are no remarkable hurdles or issues encountered while using UPI

H1: There is remarkable hurdles or issues encountered while using UPI

LIMITATIONS

This particular Research will be involving certain new areas for exploring the following things:

1. The increasing UPI adoption trend and its underlying causes will be discussed.
2. A study of customer experience, including perception, comprehension, and satisfaction, will be conducted in connection with UPI.
3. Recommendations for actions regarding the difficulties with using UPI and safety regulations.

LITERATURE REVIEW

Makrani F.A.H. & Dr. Sharma K. S., (2023) discusses the factors customers take into consideration when selecting a service provider, such as cost, comfort, convenience, service quality, and customer care received, and how satisfied they are with call taxi services. The study discovered that male customers were more satisfied with aspects like lighting and ventilation, taxi travel time, driver assistance, cleanliness, and knowledge of the route and destination. India underwent a digitization process to become digital.

Aparna Bhat, (2012) discusses the plans for the Western Mumbai suburbs auto rickshaw industry to carry out additional research and put the partial deregulation measures into practice. Nonetheless, this study highlights the issues that regulation has brought about in the business world, necessitating more investigation into deregulation strategies. One solution would be to swap out the current three-seater auto rickshaws for bigger models, which can promote group travel.

Amogh Das and Ashish Das, (2022) discusses UPI and how it operates before going into detail to explain the monthly transactions and the country's increasing daily number of UPI transactions. A UPI transaction is a P2P or P2M transaction, and it also demonstrates the increasing volume of P2P and P2M transactions.

Roshna Thomas, Dr. Abhijeet Chatterjee (2017) Their research suggests that UPI is a useful tool that could help users transact money easily and affordably, but it is impossible to ignore the issues. Strong Aadhar (UID) platform combined with national statistics on increased financial inclusion, smartphone adoption, and telecom subscriptions suggest that UPI has good prospects. However, the scope of this innovative payment tool may be limited by competition from mobile wallets and potential instances of banks failing to overcome technical errors, particularly those related to the front-end platform that they designed.

Daravath Vikas Nayak (2020) carried out research on how mobile wallets are making India's economy cashless. The study concentrated on how crucial digital payment methods are to India's transition to a cashless economy. It primarily concentrated on Google Pay, a single digital payment app. The study also revealed that Google Pay is the mobile wallet that is used the most effectively worldwide. There were 386 respondents in all, 232 of whom were men and 152 of whom were women. The study's conclusion showed a strong correlation between the three variables—cost-benefit services, feasible facilities, and customer friendliness.

Ming-Yen Teoh, Choy Chong, Lin, and Wei Chua (2013) conducted a research to determine the factors influencing the opinions of Malaysian consumers regarding electronic payments. The self-reporting questionnaire selected and distributed by the Page 10 researcher was given to 200 respondents. Following the receipt of 183 valid responses, these were also considered for further statistical analysis. The results show that the methods available from banks, at home, and at work are used by all individuals who make electronic payments. The proportion of people who regularly use these digital payments at school is extremely low. They definitely take advantage of the ease of digital payments.

RESEARCH METHODOLOGY

The Western Suburban area of Mumbai was selected for the research due to its abundance of financial data and large population. The current study examines the growing uptake of related technologies and the customer experience of UPI users. This field study is descriptive in nature. So, the researcher created a model using both primary and secondary data.

Research Design: Our study will be descriptive in nature, analysing the growing trend and investigating factors influencing these customers’ experiences with digital payment systems. Our research design will be both descriptive and exploratory.

Nature, Scope and Population of the study: This study aims to survey users of UPI to learn more about their adoption and experiences with the payment method. The 242.7 square kilometre western suburbs of Mumbai are made up of 9 wards.

Sampling

A research technique gives a study credibility and yields results that are supported by science. It also has a well-defined plan that helps researchers stay on course, resulting in a smooth, efficient, and controllable process. In this study, a questionnaire was made and distributed via social media sites like Facebook and Instagram as well as messaging apps like Telegram and WhatsApp. Data was gathered using these forms, which were created using Google Forms. The same form would be filled out by conducting in-person interviews with those who are not tech-savvy. Even though some of the 200 rickshaw and taxi drivers present at the Rickshaw/Taxi Stands are tech-aware, a series of questions was posed to them individually. Additionally, about 300 small-stall owners and shopkeepers were questioned. For the UPI questionnaire, a sample size of 500 individuals included both males and females. Encyclopedias, government statistics, corporate reports, mass media products, and websites are examples of secondary data sources that were used.

DATA ANALYSIS AND FINDINGS

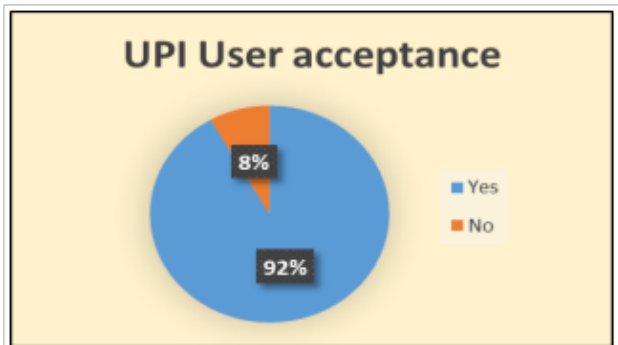


Fig 1: Number of respondents using UPI

Figure 1- Not surprisingly, 92% of respondents said they would use at least one UPI application. This suggests that new inventions are being fully utilized over time.

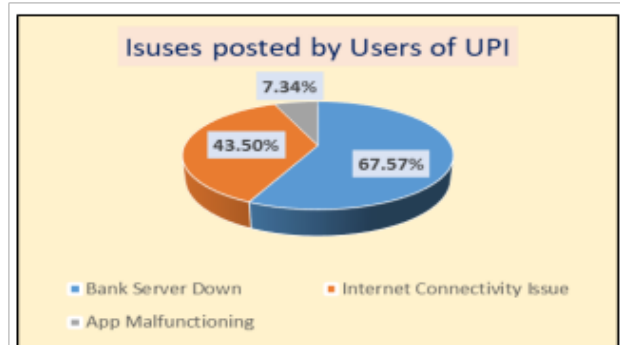


Fig 2: Problems faced by Users while using UPI

Figure 2- In the course of this survey, we inquired about the drivers’ and shop owners’ use of multiple apps or just one UPI payment method. In response, 57.2 % of respondents said they only used one app, whereas 23.80%, 11.40%, and 7.6% of respondents said they used two, three, or more apps.

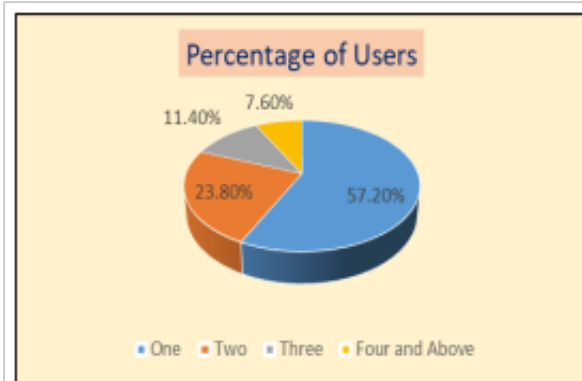


Fig 3: Users using various number of UPI modes

Figure 3- Bank Server Outage was ranked 1 by the majority of respondents (67.5%) as a significant obstacle when completing a UPI transaction. 43.5% of respondents then stated that difficulties completing a UPI transaction have been caused by internet connectivity issues. Merely 7.3% of the participants reported that they were unable to complete a UPI transaction due to app malfunctions.

Figure 4- To find out how often customers pay with cash and UPI for the goods they purchase or services they receive, we solicited feedback from our drivers

and shopkeepers. In response, they stated that roughly 75.77 percent of clients and travelers use UPI to make payments, while a significantly smaller percentage—roughly 24.2%—pay with cash.

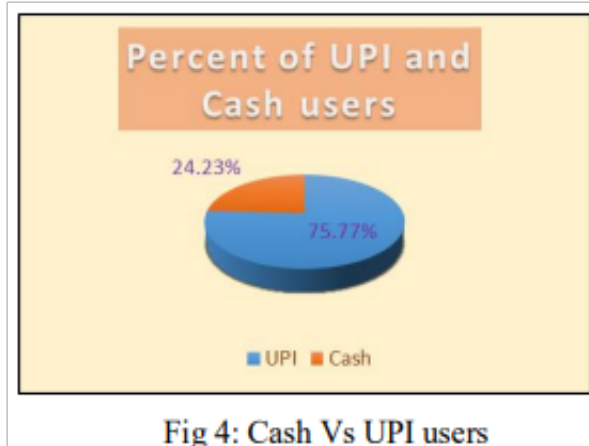


Fig 4: Cash Vs UPI users

SUGGESTIONS AND RECOMMENDATIONS

Investigate all of the potential solutions to deal with payment difficulties, whether they involve cash or UPI, until we are entirely dependent on the digitalization of payments. This is never discussed unless we concentrate on this issue. Being ready in advance is essential, even if it has only rarely occurred for any reason.

Issues like decreased income, daily spending that exceeds budget, and a lower CIBIL score hinder people from taking the necessary actions to meet their needs, which call for a significant amount of money. Some users of fleeting services like OLA Uber have benefited from increased revenue, which has enabled them to fulfill their needs and goals. Drivers or shopkeepers without UPI must be well-informed about the advantages and mechanisms of this payment method, as well as the drawbacks of digital payments, in order to facilitate the purchase of a forward-thinking solution.

Together, they can devise a plan of action that will enable the drivers to meet their daily budget targets and other requirements. The government should devise complex plans to ease the rickshaw and taxi drivers' lives, as this will raise their morale. In addition to working with the Finance Ministry, they should independently verify and update the UPI services on a regular basis to ensure that no citizen is left out of its advantages.

CONCLUSION

It is evident that the utilization of UPI applications is highly prevalent among respondents, with approximately 92% expressing their willingness to use at least one UPI application. This indicates a significant adoption of new payment methods over time. Regarding the use of multiple UPI applications, the survey revealed that a majority of respondents (57.2%) prefer to use only one app, while smaller proportions opt for two (23.80%), three (11.40%), or more (7.6%) apps. This suggests a varied approach to app usage among respondents. The survey identified several obstacles encountered by users during UPI transactions. Bank server outage emerged as the most significant hurdle, reported by 67.5% of respondents, followed by internet connectivity issues (43.5%). App malfunctions were cited as a barrier by only 7.3% of participants. These findings highlight the importance of addressing technical issues to ensure smoother UPI transactions. In terms of payment preferences, a significant majority of customers and travelers (approximately 75.77%) utilize UPI for payments, while a smaller percentage (approximately 24.2%) still opt for cash transactions. This underscores the growing acceptance and adoption of UPI as a preferred payment method in comparison to traditional cash transactions. Overall, the observations indicate a high level of acceptance and usage of UPI applications among respondents, despite encountering some technical challenges. Additionally, there is a clear preference for UPI over cash for making payments, reflecting the evolving landscape of digital payments in the surveyed population.

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A Study on Indian Bank IndOASIS App with Reference to Awareness, Adoption and Satisfaction

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ABSTRACT

The Indian banking sector has developed a range of financial reorganizations to better serve its customers. These reorganizations will lead to the digitalization of all traditional banking services. Mobile banking is rapidly expanding in India because users find it to be a more convenient and user-friendly way to conduct financial transactions. The first digital banking and lifestyle app is allegedly the Indian Bank IndOASIS App. With the help of the user-friendly and secure mobile banking app IndOASIS, users can conduct a variety of banking operations using their smartphones. You will be able to pay for everything with IndOASIS, including travel, medical care, entertainment, and eating out. It can be used by clients to apply for loans and handle banking operations. Indian Bank provides its clients with a vast array of services these days. It is imperative to ascertain whether the app is known to all banking clients, particularly those holding accounts with Indian banks. The study's objectives are to ascertain the degree of satisfaction among users of Indian Bank's IndOASIS and the level of awareness among Indian bank account holders.

KEYWORDS: *Customer satisfaction, Awareness, Indian bank, IndOASIS, E-banking, Mobile banking.*

INTRODUCTION

Founded in 1907, Indian Bank is a public sector bank in India with its main office located in Chennai. With 4,929 ATMs and cash deposit machines spread across 5,814 branches and 41,645 employees, it caters to more than 100 million customers. As of March 23rd, 2023, the bank's total business had reached ₹1,094,752 crores, or US\$140 billion. People's lives have been drastically altered by mobile devices. It appears that there is still a lot of work to meet human expectations. These days, people use their smartphones to manage their bank accounts in addition to using them for chat. Customers now prefer mobile banking over ATMs and online banking as an efficient and secure channel. Along with Internet banking and ATMs, mobile banking is quickly taking the place of traditional banking channels as the quality of services offered by banks continues to improve. The primary reason is that customers can conduct "Anywhere Anytime Banking" thanks to

mobile banking. IndOASIS provides customer service through multiple channels to ensure that users can get their queries resolved quickly and easily.



Fig 1: IndOASIS m-Banking Cover

Here are some of the customer service channels available on IndOASIS like Chatbot, Phone support, Email support, social media support and Branch support. Indian Bank IndOASIS has had a significant impact on the business of the Indian Bank since its launch.

BENEFITS

Benefits of this technology include, no location restrictions, anytime, anywhere; it saves consumers time and energy; it eliminates the need to physically travel to different locations; it's simple to compare prices, offers, and rewards; it offers attractive coupons and deals; and it's the safest, fastest, and most secure method of making digital payments. Nowadays, people carry digital cash. Financial transactions are now simple and convenient thanks to the widely used feature of increased mobility and instant access.

NEED OF THE STUDY

India is now the world's second-largest smartphone market, behind China. Particularly since declaring its demonetization, the government has been adamantly pushing payments through digital platforms. The government has been pressuring people about the significance of utilizing m-banking and has advised consumers to conduct financial transactions via their mobile devices. The government started promoting the benefits of digital transactions as a result of the rise in digital business. M-banking is now the ideal way to accelerate financial inclusion. M-banking transactions are more cost-effective than traditional banking, so there is a strong need to promote these services for financial gain. A review of the literature revealed that awareness is still required in all areas.

OBJECTIVES

- To investigate the level of awareness among Indian Bank customers regarding the Indian Bank IndOASIS app, and to determine whether significant awareness exists among the target population.
- To assess the frequency of usage of the IndOASIS app among Indian Bank customers and determine whether the observed usage frequency aligns with what is considered appropriate by the target population.
- To evaluate the user experience with the IndOASIS

app by identifying and assessing any encountered hurdles or issues, and to determine whether significant difficulties exist, leading to a perception of difficulty in usage among users.

SCOPE OF THE STUDY

The study only included Indian bank account holders. The goal of this study was to explain to customers the uses and benefits of using the Indian Bank IndOASIS App.

LITERATURE REVIEW

1. In India M- Banking now is becoming popular in financial services. Greater than 43.7 million mobile users used M-banking services in one form or the other. Demographically it is said that 60% of m-banking users are from 1-5 Lakh income group. (Desai, 2014) (Times, 2011)
2. The report stated on first March 2017 that the govt. has told to the all banks to offer m banking facility to their customers by 31 March 2017 to boost digital transactions and also asked to banks to make a campaign about this. So that customer can be enabled for m-banking transactions. The secretary of E & IT Aruna Sundaranjan reported that this step would support in enhancement of the digital payment system. (BGR, 2017)
3. Pandey and Choubey (2021) This study conducted a review of the literature on online banking. The authors found that online banking has become increasingly popular in recent years, as more people are using the internet for financial transactions. They identified several benefits of online banking, including convenience, accessibility, and cost-effectiveness. Online banking also allows customers to view their account balances, transfer funds, and pay bills from anywhere with an Internet connection.
4. Kumar and Sharma (2021) This study reviewed the literature on online banking in order to examine the state of the field, identify important trends, and highlight obstacles. Trust and security are important when it comes to online banking. Numerous researchers have looked into the different kinds of security risks and weaknesses that can occur in

online banking systems, as well as the tactics and tools that can be employed to lessen these dangers.

- Kundu and Datta (2018) discovered that elements like security, ease of use, and highquality services all have a positive impact on customer satisfaction. An important factor influencing the adoption and ongoing use of online banking in India is trust and security. Numerous research studies have emphasized the significance of security and trust in online banking, as well as the necessity for banks to continuously enhance their security protocols in order to foster customer trust.

RESEARCH METHODOLOGY

This research paper is written with the help of secondary data and the primary data is collected through a structured questionnaire from 450 respondents. The respondents were from areas like Kandivali, Malad, Goregaon, Vile Parle, Versova and Dadar. The secondary data comes from online and offline libraries, articles, newspapers, internet websites, magazines, and journals.

RESEARCH HYPOTHESES

Research Hypotheses: The following hypothesis has been developed to answer the research questions respectively:

Objective 1:

- H0: There is no awareness amongst the Indian Bank Customers regarding the Indian Bank IndOASIS app.
- H1: There is awareness amongst the Indian Bank Customers regarding the Indian Bank IndOASIS app.

Objective 2:

- H0: There is no appropriate frequency of usage of the IndOASIS app by the Indian Bank customers.
- H1: There is an appropriate frequency of usage of the IndOASIS app by the Indian Bank customers.

Objective 3:

- H0: There are no remarkable hurdles or issues encountered while using the IndOASIS app, thus users find it easy to use.
- H1: There are remarkable hurdles or issues encountered while using the IndOASIS app, thus users find it difficult to use.

DATA ANALYSIS AND INTERPRETATION

Data is gathered from respondents in various age groups. 68.89% of respondents are 40 years of age or older, followed by 17.33% of respondents who are 25–39 years old and 13.78% of respondents who are under 24 years old. According to the data, 37.11% of people are women and 62.89% of men. Among all responders in total the majority have a background in services, accounting for about 90.22% of the total; very few, or 2% of the total, are students; and a small minority, or 7.78%, run their own businesses.

Usage frequency of the respondents						
Usage frequency per month	< 3 times		4 – 8 times		> 8 times	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Branch Banking	184	40.89%	253	56.22%	13	2.89%
Internet Banking	8	1.78%	66	14.67%	376	83.56%
ATM Banking	28	6.22%	192	42.67%	230	51.11%
Mobile Banking	25	5.56%	38	8.44%	387	86.00%

Table1.1: Usage frequency of the respondents

Factors	Scores (ratings)				
	1	2	3	4	5
Factor 1: Time-effective					
The current software enables m-banking smoothly	1	4	10	292	143
Login process is fast	7	23	37	248	135
Bill payment can be done in less time	9	8	37	87	319
Service charges are reasonable	3	29	234	176	8
Clearing services are fast	93	87	238	19	13
Factor 2: Convenience					
Prepaid mobile recharge can be done easily	18	47	69	129	187
Transaction Status can be known easily	14	15	20	122	279
Secure transactions	1	3	13	68	365
Factor 3: Safety					
Bill payments is secure	2	10	59	236	143
Account to account transfer is secure	1	1	9	168	271
Statement request can done easily	8	9	14	143	276
Disallows third party tampering	8	14	56	238	134
Factor 4: Operational simplicity					
SMS alerts about specific information	4	11	49	174	212
Fast responses	26	59	139	162	64
Simple steps in processing	3	11	34	268	134
Less possibilities of hacking	5	15	76	189	165
Factor 5: Ease of navigation					
Less waiting time	3	17	278	130	22
Login/signoff are easy	2	5	59	97	287

Table1.2: Primary data collected through questionnaire

Factor 1

Factor 1 represents the efficiency component of the user experience with the IndOASIS app. Sub-factors encompass aspects such as overall processing speed, login duration, bill payment process, speed of clearing services, etc. Analysis of the weighted average for Factor 1 yields a notable value of 338.44, indicating a positive perception of time effectiveness among users of the Indian Bank’s IndOASIS app.

Factor 2

Factor 2 delineates the convenience aspect aimed at facilitating a seamless user experience, particularly catering to individuals less proficient in technology. It encompasses critical sub-factors such as secure

transactions, transaction status updates, and recharge processes. The weighted average for Factor 2 approaches the threshold of 400, indicating a highly satisfactory user experience in terms of convenience.

Factor 3

Factor 3 encompasses safety considerations, which are deemed crucial and indispensable. This factor is particularly concerned with safeguarding against tampering by third parties. Customer feedback collectively indicates a high level of confidence in this aspect, as evidenced by the weighted average score for Safety (Factor 3), which closely mirrors that of Factor 2, with a precise value of 388.05.

Factor 4 & Factor 5

Factor 4 and 5 pertain to general operational functionality and navigational aspects of the app. Regarding operational tasks, users generally perceive them as straightforward and well-defined within the application. However, some users express feedback regarding the potential for improvement in app responsiveness to enhance user experience.

CONCLUSION

The showcase for portable phones, particularly the savvy phones is expecting incredible statures and the banks need to ride on this development by advertising versatile managing an account as an elective channel of giving administrations. Be that as it may, customers are attentive of the modern innovation and writing is loaded with papers which examine the introductory resistance displayed by customers towards mechanical advancements. As a matter of truth, the utilization design uncovers that individuals visit ATMs more than utilizing web managing an account or portable managing an account. In light of this, the current ponder offers bits of knowledge on the recognitions of versatile managing an account client and tries to uncover the components which may impact more individuals into embracing versatile managing an account. The components brought out from the think about are named as Time-effective, Security, Comfort, Operational effortlessness and Ease of route. Also, it was uncovered that clients who were females, locked in in private division, had a place to tall wage course, and were hitched expressed time-effectiveness to be a basic figure for impacting the utilization of

m-banking. Respondents holding accounts in private banks may relate to all the components as being vital for appropriation of m-banking. Additionally, visit clients of versatile managing an account may too recognize with the above-mentioned components and concurred that these can be the driving forces for expanding the reach of m-banking within the locale. Consequently, spreading mindfulness approximately m-banking based on these components would certainly offer assistance the banks.

SUGGESTIONS AND RECOMMENDATION

- The application's response time should be improved.
- Beneficial activation ought to be accelerated.
- There should be more IndOasis CASH-enabled ATMs, and customers should be more aware of them.
- The response time should be less. This could help customers navigate the app more easily and access the features they need more quickly and Improving the app's performance could help prevent frustration and delays for customers
- Add more financial management tools: While the app does offer some financial management tools, such as expense tracking and budgeting, adding more tools could help customers better manage their finances
- Provide better customer support: Customers have reported issues with getting timely and helpful support from the app's customer service team. Improving customer support could help resolve issues more quickly and improve overall customer satisfaction.

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Human-AI Collaboration in Supply Chain Management: Optimizing Operations for Future Success

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ABSTRACT

Supply Chain Management (SCM) is undergoing a significant transformation with the integration of Artificial Intelligence (AI) technologies, which offer opportunities to enhance efficiency, optimize decision-making, and adapt to dynamic market conditions. Amidst this evolution, the role of human workers remains paramount, as they possess domain knowledge, creativity, and contextual understanding essential for effective SCM operations. Therefore, there is a pressing need to understand how humans and AI can collaborate synergistically in SCM processes. This research paper explores the dynamics of Human-AI collaboration in SCM, examining its benefits, challenges, and implications for organizational success. By leveraging AI technologies, organizations can enhance decision-making, increase efficiency, and improve problem-solving capabilities in SCM. However, technical limitations such as data quality issues and algorithmic bias, as well as human factors like resistance to change and skill gaps, can hinder effective implementation. Understanding these challenges is crucial for devising strategies to unlock the full potential of Human-AI collaboration, which can drive organizational success by fostering competitiveness, innovation, and long-term sustainability. Through a combination of case studies and theoretical analysis, this paper provides actionable insights into optimizing SCM operations through effective Human-AI collaboration strategies, positioning organizations for success in an increasingly AI-driven supply chain landscape.

KEYWORDS: *Artificial intelligence (AI), Supply chain management (SCM), Human resources, Human-AI collaboration.*

INTRODUCTION

Artificial intelligence (AI) is rapidly reshaping supply chain management, offering new opportunities for operational excellence. This paper explores the importance of human-AI collaboration and its potential to revolutionize supply chain operations.

AI as Augmentation

AI enhances human decision-making, processing vast datasets and offering insights beyond human capacity. Supply chain professionals can delegate tasks, focusing on strategic activities demanding critical thinking.

Facilitating Strategic Planning

AI enables better resource allocation for strategic

planning by analyzing historical data, market trends, and customer preferences. It empowers decision-makers to identify growth opportunities and align strategies with market dynamics.

Enhancing Relationship Management

AI analyzes extensive datasets to improve relationship management with suppliers, manufacturers, and customers. It fosters collaboration, negotiation, and efficiency, enhancing customer satisfaction.

Promoting Continuous Improvement

AI-driven analytics identify operational inefficiencies, enabling proactive optimization and quality control. Human-AI collaboration fosters a culture of continual learning and improvement.

Developing Skills and Expertise

Organizations must invest in upskilling and reskilling to harness human-AI collaboration effectively. Supply chain professionals need foundational AI knowledge and a culture of learning.

Addressing Ethical Considerations

Clear guidelines are essential to ensure ethical AI use, maintaining fairness, privacy, and accountability in decision-making processes.

LITERATURE REVIEW

The exploration of Human-AI collaboration in Supply Chain Management (SCM) is crucial for unlocking the transformative capabilities of integrating Artificial Intelligence (AI) with human expertise. Since 2012, AI has evolved significantly, offering opportunities to revolutionize SCM processes (Scholten et al., 2014). Understanding effective collaboration between humans and AI in SCM is essential for optimizing decision-making and resource allocation (Fosso Wamba & Akter, 2019), especially highlighted by the COVID-19 pandemic's impact on supply chain resilience (Jabbour et al., 2020). "Expert systems," a subset of AI, play a vital role in SCM tasks, emphasizing the need to comprehend how AI enhances human intelligence formally (Pournader et al., 2021). Additionally, applying AI techniques to model and simulate SCM systems enhances decision-making and operational insights (Chen et al., 2022).

As businesses adapt to globalization, they must proactively enhance their supply chains to remain competitive (Giannakis & Papadopoulos, 2016). AI emerges as a technology capable of driving SCM transformation, yet its integration into SCM processes is still evolving (Min, 2010). Despite AI's increasing attention, systematic reviews focusing on its SCM applications are limited, leaving gaps in understanding its full potential (Ngai et al., 2014). Notably, scholarly investigations into AI's role in SCM often prioritize managerial perspectives, overlooking comprehensive analyses of its broader process-oriented impacts (Min, 2010). Addressing these gaps is crucial for understanding the nuanced interactions between AI and SCM processes and unlocking the potential of Human-AI collaboration in SCM. The research underscores the

necessity for comprehensive studies to bridge these gaps and fully explore the implications of AI integration and Human-AI collaboration in SCM, guiding future research endeavors and practical implementations.

RESEARCH OBJECTIVES

This paper aims to provide a comprehensive analysis of the role of Human-AI Collaboration in Supply Chain Management (SCM), with the following specific objectives:

1. Explore how human-AI collaboration currently functions in supply chain management processes.
2. Investigate emerging technologies like IoT, machine learning, and robotic process automation, and their impact on enhancing SCM operations through human-AI collaboration.
3. Examine ethical considerations and potential risks associated with integrating AI into SCM, including issues like algorithmic bias and data privacy.
4. Provide practical insights and recommendations for SCM practitioners to leverage human-AI collaboration effectively in improving supply chain performance and resilience.

RESEARCH METHODOLOGY

For investigating "Human-AI Collaboration in Supply Chain Management: Optimizing Operations for Future Success," the research methodology entails gathering data from secondary sources through rigorous keyword searches to identify relevant literature discussing the concept and relationship between human-AI collaboration and SCM. An exhaustive review of academic journals, conference proceedings, industry reports, and pertinent publications is conducted to comprehensively explore the use of AI in supply chain management. The gathered information is analysed to identify trends, patterns, and emerging themes regarding the application of human-AI collaboration in SCM. Additionally, leading business case studies and industry examples are included to illustrate practical applications and outcomes of AI in SCM operations. The findings are synthesized to provide a thorough understanding of the current state and potential of human-AI collaboration in optimizing SCM operations, addressing research objectives and offering insights for future research and practice in the field of SCM.

HUMAN-AI'S ROLE IN SUPPLY CHAIN MANAGEMENT

The integration of Artificial Intelligence (AI) with human expertise has ushered in a new era of efficiency and adaptability in supply chain management. Through collaborative endeavors, AI empowers supply chain professionals to navigate complexities and refine processes across various domains. From collaborative planning and optimization to intelligent warehouse automation and smart transportation logistics, AI augments human decision-making by analyzing vast datasets and generating insights that optimize operations for future success. By combining human ingenuity with AI-driven analytics, organizations gain enhanced visibility and tracking capabilities, enabling real-time monitoring of goods and streamlined logistics operations. Furthermore, AI facilitates adaptive demand and supply matching, strategic supplier management, and proactive risk management, strengthening supply chain resilience and mitigating disruptions. In addition to operational enhancements, human-AI collaboration enhances customer service through personalized support and assistance. AI-powered chatbots and virtual assistants provide tailored solutions, address inquiries, and improve order tracking, thereby fostering greater customer satisfaction and loyalty. Moreover, continuous improvement efforts are propelled by collaborative data analysis and optimization initiatives, ensuring that organizations remain agile and responsive to evolving market dynamics. By embracing the synergistic relationship between human expertise and AI capabilities, supply chain management transcends traditional boundaries, paving the way for innovation, efficiency, and sustainable growth in the competitive global landscape.

AI-DRIVEN DECISION MAKING AND INTEGRATION IN SUPPLY CHAINS

In optimizing operations, the symbiotic relationship between human expertise and artificial intelligence (AI) enhances supply chain efficiency and readiness for future challenges. AI-driven decision-making processes and collaborative platforms empower supply chain stakeholders, offering informed recommendations based on combined human insight and AI-driven analysis. By integrating human expertise with AI algorithms,

predictive analytics anticipates future outcomes and identifies potential scenarios within supply chains, enabling proactive decision-making and strategic planning.

Moreover, Human-AI Collaboration optimizes demand and supply matching, effectively balancing supply and demand, minimizing stockouts, and enhancing customer satisfaction. AI-powered collaborative platforms facilitate seamless information sharing, communication, and decision-making among supply chain stakeholders, enhancing visibility and efficiency. This collaborative approach fosters synergy between human expertise and AI capabilities, empowering organizations to gain a competitive advantage, improve operational efficiency, and navigate modern supply chain complexities effectively.

ETHICAL CONSIDERATIONS IN HUMAN-AI COLLABORATION FOR SUPPLY CHAIN MANAGEMENT

The integration of artificial intelligence (AI) in supply chain management raises critical ethical concerns, particularly regarding the collaboration between humans and AI systems. As organizations deploy AI technologies to optimize supply chain operations, it is imperative to address various ethical considerations within the context of Human-AI Collaboration. These considerations encompass data privacy and security, algorithmic bias and fairness, transparency and explainability, human-machine collaboration, social and environmental impact, accountability and responsibility, bias in supplier selection and sourcing, and compliance with regulations. Collaborative efforts must prioritize ethical principles and establish transparent governance structures to ensure responsible and trustworthy AI-driven decision-making processes in supply chain management.

By proactively addressing these ethical considerations, organizations can cultivate a culture of responsible and ethical supply chain management practices. Through collaborative governance, transparency, and accountability, Human-AI Collaboration can enhance decision-making processes while upholding ethical standards and fostering trust among stakeholders. It is essential to prioritize the development of AI systems that

promote fairness, transparency, and compliance with regulations to ensure ethical supply chain management practices and mitigate potential risks associated with AI integration.

CASE STUDIES AND INDUSTRY EXAMPLES OF HUMAN-AI INTEGRATION IN SUPPLY CHAIN MANAGEMENT

Real-world case studies and industry examples demonstrate the practical applications of human-AI integration in optimizing supply chain management:

Walmart: The global retail giant employs human-AI integration to enhance inventory management and demand forecasting. By collaborating with AI-based systems, Walmart utilizes AI algorithms to analyze past sales data and regional events, improving supply chain efficiency.

Amazon: Leveraging AI algorithms, Amazon integrates human expertise with AI-powered systems to streamline warehouse operations and order fulfillment processes. This ensures seamless coordination, leading to enhanced operational efficiency and customer satisfaction.

United Parcel Service, Inc. (UPS): UPS incorporates human-AI collaboration for delivery planning and route optimization, utilizing AI algorithms in its On-Road Integrated Optimization and Navigation (ORION) technology. This collaborative effort results in significant fuel savings and improved delivery effectiveness.

Maersk: The global shipping company integrates human expertise with AI technologies like computer vision and machine learning to track containers and optimize vessel operations. This ensures accurate decision-making and efficient supply chain operations.

Zara: The fashion retailer leverages human-AI integration to improve demand forecasting and inventory management. Collaborating with AI algorithms, Zara predicts fashion trends and adjusts production accordingly, minimizing costs and improving product delivery.

Nestle: Harnessing human-AI integration, Nestle enhances inventory visibility and demand forecasting through AI systems like "FuturMaster." This

collaboration optimizes inventory levels, reduces waste, and improves supply chain efficiency.

These case studies highlight the effectiveness of human-AI integration in optimizing supply chain management, achieving greater efficiency, cost savings, and customer satisfaction.

CONCLUSION

In conclusion, integrating AI technologies into Supply Chain Management (SCM) offers organizations a significant opportunity to enhance efficiency, optimize decision-making, and adapt to dynamic market conditions. While AI contributes valuable insights, the indispensable role of human workers, with their domain knowledge and creativity, remains essential for effective SCM operations. This paper has explored the dynamics of Human-AI collaboration in SCM, outlining its benefits, challenges, and implications for organizational success.

By leveraging AI technologies, organizations can augment decision-making processes, increase operational efficiency, and improve problem-solving capabilities within SCM. However, addressing technical limitations like data quality issues and algorithmic bias, alongside human factors such as resistance to change and skill gaps, is imperative for successful implementation. Understanding these challenges is vital for unlocking the full potential of Human-AI collaboration in SCM, driving competitiveness, innovation, and long-term sustainability in an increasingly AI-driven supply chain landscape.

Through case studies and theoretical analysis, this paper has provided actionable insights into optimizing SCM operations through effective Human-AI collaboration strategies. Embracing this approach positions organizations for success in the ever-evolving and AI-driven supply chain environment, ensuring they remain agile, competitive, and resilient in the face of future challenges.

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Revolutionizing Decision-Making: The Fusion of IoT and AI in Business Support Systems

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ABSTRACT

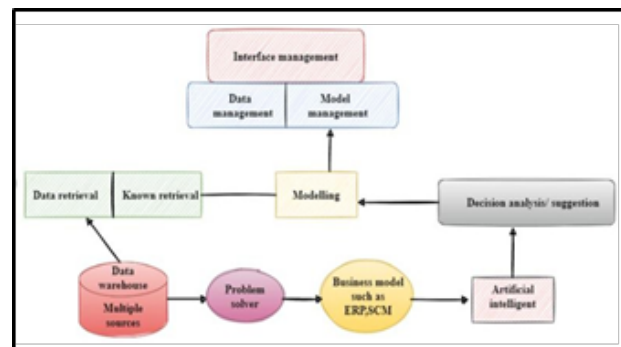
This article centers around the parts of the choice an emotionally supportive network for the AI intelligence determination in large information mining advancement. The paper incorporates the aftereffects of the investigation of the issue of scholarly handling and examination of large information. It portrays proposition approaches to involving metadata as a reason for the development of an insightful rating for assessing AI techniques. The paper presents the consequences of planning and utilizing a choice emotionally supportive network for assessing AI intelligence for taking care of information mining issues. The created choice emotionally supportive network permits us to decrease the examination season of reasonable techniques for tackling AI issues by an information science expert, considering the points of interest of the info information clusters, their volumes, structure, and other metadata. In the present unique business scene, viable navigation is vital for keeping up with seriousness and maintainability. This paper investigates the joining of Web of Things (IoT) advances and AI calculations into business choice emotionally supportive networks (DSS) to improve dynamic cycles. IoT gadgets create tremendous measures of continuous information from different sources like sensors, machines, and gadgets. This information gives important experiences in business tasks, client conduct, and market patterns

KEYWORDS: *Decision support system(DSS), Web of Things(IoT), Artificial intelligence and machine learning, Predictive insights, Strategic navigation.*

INTRODUCTION

Choice emotionally supportive network (DSS) depends on the information of everyday business handling framework, utilizing numerical or insightful techniques to break down the information and completely foresee future business patterns. The profound learning model in light of brain network design can successfully process and dissect huge information. This paper develops a business DSS in view of profound learning and upgrades it. In the center stage, computer-based intelligence and profound learning innovation are utilized to show and foresee business retail powerfully. A convolutional brain organization (CNN) model in light of organization execution assessment is proposed, which successfully works on the powerful execution of CNN and further develops its expectation capacity. The

framework test results show that the joining of CNN expectation capability into conventional DSS keeps up with the attributes of customary DSS, yet in addition, has the qualities of brain organization, takes full advantage of regularizing information and exact information, and works on the savvy level of customary DSS.



OBJECTIVE OF STUDY: MACHINE LEARNING IN BUSINESS DECISION SUPPORT SYSTEMS

Researching Flow Practices Investigate how organizations right now use AI in choice emotionally supportive networks. Recognize ventures and areas where AI is noticeably applied. Comprehend the kinds of AI calculations and procedures usually utilized. Surveying Effect on Direction Assess the adequacy of AI in further developing dynamic cycles. Investigate how AI upgrades the quality and practicality of choices. Measure the effect on business execution measurements like proficiency, benefit, and consumer loyalty. Investigating use cases and applications Identify explicit use cases and utilizations of AI in various business areas, analyze effective executions and contextual analyses to grasp the pragmatic advantages and difficulties. Examining difficulties and restrictions distinguish specialized, authoritative, and moral difficulties related to incorporating AI into choice emotionally supportive networks. Survey constraints like information quality, model interpretability, and adaptability. Proposing best practices and rules Combine discoveries to propose best practices and rules for really coordinating AI into business choice emotionally supportive networks. Give suggestions to conquering normal difficulties and amplifying the worth of AI ventures.

Future Bearings and Open Doors Expect future patterns and advancements in the crossing point of AI and the choice of emotionally supportive networks. Distinguish arising advancements, strategies, and applications with the possibility to additional upgrade dynamic capacities. Suggestions for Business Procedure Offer bits of knowledge for business pioneers and leaders on utilizing AI to acquire an upper hand. Feature key contemplations for associations looking to take on or grow their utilization of AI in choice emotionally supportive networks.

DESCRIPTION OF PROBLEM

The ideas that are set down in this approach permit information mining experts to lead an exhaustive staged Huge Information examination and handling, successively executing the fundamental cycles, including conveyed organizing of heterogeneous information,

their solidification, conglomeration, cleaning and pre-handling, killing irregularities, exclusions, blunders side qualities. One of the critical elements to give a fruitful and brief arrangement of an objective issue by an examiner is his involvement with building ML models, business issues vision profundity and product devices, innovations, and library information. This can prompt subjectivity of the investigation results and influence the precision and summing up capacity of the shaped ML models. Simultaneously, the computational expenses of the PC hardware utilized in the information examination process are likewise critical, which influences the absolute expense of creating ML models. An unexpected difficulty is the relationship, assessment, and required ML technique or their mixed choice cycles for the compelling arrangement of the information mining presented issue without extensive computational trials. This issue turns out to be particularly important in situations where the Enormous Information test size surpasses the passable measure of plate space in the pre-owned information distribution centers.

DECISION SUPPORT SYSTEMS: DRIVE BETTER DECISION-MAKING WITH DATA

A choice emotionally supportive network (DSS) is an intuitive data framework that examines huge volumes of information to illuminate business choices. A DSS upholds the administration, tasks, and arranging levels of an association in settling on better choices by surveying the meaning of vulnerabilities and the tradeoffs engaged with pursuing one choice over another. A DSS uses a mix of crude information, records, individual information, as well as plans of action to assist clients with simply deciding. The information sources utilized by a DSS could incorporate social information sources, shapes, information distribution centers, electronic wellbeing records (EHRs), income projections, and deals projections, and that’s just the beginning.

TOP 6 MACHINE LEARNING USE CASES

Recommendation engines

Information Assortment: Suggestion motors gather information from different sources like client collaborations, inclinations, buy history, evaluations, and socioeconomics. Information Preprocessing

Highlight Extraction Important elements, for example, client inclinations, thing credits, and context-oriented data are removed from the information to construct a portrayal of clients and things. Calculation Determination Suggestion calculations are picked in light of the attributes of the information and the particular necessities of the application. Normal calculations incorporate cooperative separating, content-based sifting, and half breed draws near. Model Preparation The chose calculation is prepared on the preprocessed information to learn examples and connections among clients and things. Suggestion Age In light of the learned examples, the proposal motor creates customized proposals for clients. These proposals can be as item ideas, content suggestions, or customized playlists. Evaluate the execution of the suggestion motor is assessed utilizing measurements like precision, variety, curiosity, and luck.



Dynamic pricing

AI likewise allows organizations to change the costs they charge for items and administrations in close constant in light of changing economic situations, a training known. as powerful estimating. “ You check out at shopper conduct and purchasing behaviors to move your estimating all over; it’s an entirely important utilization of AI for organizations,” said Vikas Agarwal, a monetary administrations risk and administrative pioneer at proficient administrations firm PwC. AI frameworks regularly utilize various informational collections, like full-scale financial and virtual entertainment information, to set and reset costs. This is generally finished for carrier tickets, lodging rates, and ride-sharing admissions. Uber’s flood estimating, where costs increment when a request goes up, is a conspicuous illustration of how organizations use ML calculations to change costs as conditions change.

Optimization

Another utilization case that cuts across ventures and business capabilities is the utilization of explicit AI calculations to improve processes. Organizations can have the calculations break down information and run reenactments to decide ideal or close ideal arrangements, or they can utilize calculations to propose next best activities - - expectations and proposals the innovation has decided will prompt the best outcome. The board counsels said they see ML for streamlining utilized across all areas of big business activities, from money to programming improvement, with the innovation accelerating work and decreasing human blunder. They further noticed that its utilization in strategies, assembling and store network has conveyed especially huge advantages. “ AI and diagram AI intelligence explicitly have been displayed to work on those organizations all in all emphatically. They streamline activities while additionally expanding strength,” Gross said.

Decision Support

Associations additionally use AI to assist them with settling on better choices. For its study, Rackspace asked respondents what benefits they hope to see from their computer-based intelligence and ML drives. Further developed dynamic positioned fourth after better advancement, diminished costs, and improved execution. Specialists noticed that a choice emotionally supportive network (DSS) can likewise assist with reducing expenses and upgrade execution by guaranteeing laborers pursue the most ideal choices. To help direction, ML calculations are prepared on verifiable and other pertinent informational collections, empowering them to then investigate new data and go through various potential situations at a scale and speed unthinkable for people to coordinate. The calculations then, at that point, propose suggestions on the best game plan to take. In business tasks, a DSS can help supervisory groups expect patterns, recognize issues, and accelerate choices.

Monitoring and Quality Assurance

AI’s ability to comprehend and recognize designs in information at a scale, speed, and level unrivaled by people makes the innovation especially helpful for

checking needs and quality confirmation, said Nicolas Avila, CTO for North America at IT benefits firm Globant. For instance, he highlighted the utilization of AI to screen production network activities, with the innovation ceaselessly dissecting examples to distinguish whatever redirects from typical boundaries and, in this way, could demonstrate an issue that needs consideration. “ It’s ready to feature whatever is not exactly right,” Avila said. In the meantime, ML innovation types, for example, profound learning, brain organizations, and PC vision can be utilized to all the more actually and effectively screen creation lines and other work environment results to guarantee items satisfy laid-out quality guidelines.

Information Extraction

Data recovery and data extraction frameworks - - constructed utilizing ML advances like NLP, optical person acknowledgment, and savvy character acknowledgment - - naturally recognize key bits of organized information from reports regardless of whether the data is held in unstructured or semi-structured designs. The innovation can likewise be utilized with voice-to-message processes, Fontecilla said. This utilization of AI carries expanded proficiency and further developed exactness to documentation handling.

AI (ML) procedures offer a few likely advantages for choice emotionally supportive networks (DSS) in different spaces. ML can remove, classify, and mine huge and various datasets, including ongoing information, to give exact expectations and dynamic stages. Generally, ML in DSS offers the potential for further developed precision, productivity, and customized choice help in different areas.

DIFFERENCE BETWEEN DECISION SUPPORT SYSTEM AND MACHINE LEARNING?

Choice Emotionally supportive networks (DSSs) are dedicated to the administration of enormous volumes of information. Its principal objective is to mimic dynamic methods that really reproduce some knowledge. This is the reason Wikipedia sees DSSs as very much connected with business processes as they are, for sure. AI (ML) is utilized to deduce or get new information from existing

ones typically communicated as static information and alternatively, as powerful information or rules. The new information is likewise communicated in one or two structures. As a general rule, DSSs and ML are different in their extension. ML isn’t supposed to effectively take choices however a few components produce new information in such a structure that a suggestion becomes clear. ML isn’t just responsible for making choices but in addition to overseeing information, human-machine communication, and some extra modules, for example, a logical module that gives extra proof of the choices taken. None of these cycles exist in ML: don’t bother overseeing information in a specific manner no specific connection point is typically expected since the fascinating item is the new information which is written for the most part in a similar configuration than the information; don’t bother creating clarifications of the learnt information

MACHINE LEARNING TO MODEL MANAGEMENT IN DECISION SUPPORT SYSTEMS

Model administration frameworks have become progressively significant in taking care of convoluted choice issues in choice emotionally supportive networks (DSS). Targeting conquering the shortcomings of right now utilized model administration situation, we present another structure of model administration framework that is fit for performing model control all the more successfully. The new methodology consolidates AI to secure model control information, put it away as schemata, and to refine these gained schemata. Furthermore, we additionally address two issues that have so far been neglected in the DSS writing:

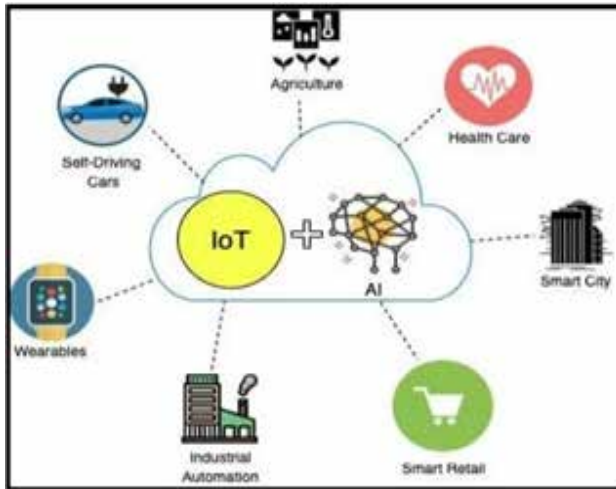
- (1) to refine existing model portrayals as additional encounters are collected and
- (2) to make model choice heuristics versatile to the DSS climate.

IOT AND MACHINE LEARNING IN BUSINESS DECISION SUPPORT SYSTEM

IoT (Web of Things) and AI assume critical parts in improving business choice emotionally supportive networks (DSS). This is the way they contribute:

Information Assortment and Reconciliation: IoT gadgets

create tremendous measures of continuous information from different sources like sensors, machines, and gadgets. This information can give significant bits of knowledge into business activities, client conduct, and market patterns. AI calculations can incorporate and dissect this information to remove significant examples and relationships.



Predictive Analytics: AI models can utilize authentic IoT information to make forecasts about future occasions, for example, gear disappointments, client interest, or market patterns. These forecasts empower organizations to expect changes and pursue proactive choices to moderate dangers or gain by open doors.

Optimization: IoT sensors can screen and control different parts of business activities, for example, stock levels, energy utilization, or creation processes. AI calculations can break down this information progressively to advance cycles, decrease costs, and further develop proficiency.

Personalization: IoT gadgets catch individual client inclinations and ways of behaving, permitting organizations to customize their items and administrations. AI calculations can dissect this information to make designated advertising efforts, suggest items, or redo client encounters.

Decision Automation: AI calculations can computerize routine dynamic cycles by examining information and recognizing the best strategy. This opens up HR to zero in on additional essential errands and empowers quicker dynamic in unique business conditions.

Risk Management: IoT sensors can distinguish irregularities and expected gambles progressively, for example, security breaks, gear breakdowns, or inventory network disturbances. AI calculations can break down these inconsistencies to distinguish designs demonstrative of expected dangers and propose suitable gamble alleviation procedures.

Continuous Improvement: AI calculations can gain from new information and criticism to work on their exactness and execution ceaselessly. This iterative cycle empowers organizations to adjust to changing economic situations and improve their dynamic techniques after some time.

SUMMARY

The mix of Web of Things (IoT) advances and AI (ML) in business choice emotionally supportive networks (DSS) presents a groundbreaking way to deal with utilizing information for vital navigation. Information Procurement and Combination IoT gadgets produce immense measures of constant information from different sources like sensors, machines, and gadgets. By coordinating IoT information streams with ML calculations, organizations get close enough to an abundance of significant bits of knowledge that drive informed direction. Ongoing Examination and Prescient Experiences ML calculations dissect IoT information progressively to distinguish examples, patterns, and abnormalities. This empowers organizations to settle on proactive choices in view of prescient bits of knowledge, for example, anticipating hardware disappointments, improving creation processes, or expecting changes in client interest. IoT sensors screen and control different parts of business tasks, from stock administration to energy utilization and store network operations. ML calculations investigate IoT information to enhance processes, decrease costs, and further develop effectiveness, prompting functional greatness and upper hand. Personalization and Client Experience IoT gadgets catch individual client inclinations and ways of behaving, empowering organizations to customize items, administrations, and encounters. ML calculations dissect IoT-produced information to make designated showcasing efforts, suggest items, and improve consumer loyalty and unwaveringness. From prescient upkeep to take a chance with the executives,

ML-fueled choice emotionally supportive networks empower associations to make quicker, more exact choices, driving functional proficiency and nimbleness.

CONCLUSIONS

The combination of IoT (Internet of Things) with AI has changed business activities. These innovations, with their capacity to gather and dissect enormous volumes of information, can possibly significantly affect various components of corporate tasks. AI utilizes past ways of behaving to distinguish examples and constructs models that assist with foreseeing future ways of behaving and occasions. By interconnecting gadgets and empowering consistent correspondence, IoT has made an organization of sensors and gadgets that persistently produce significant information. This overflow of information presents new open doors for associations to acquire significant experiences and pursue information-driven choices. In light of the fact that IoT gadgets are outfitted with sensors to gather ongoing information from the general climate, the computer-based intelligence part has the exact approaching information it necessities to remove important bits of knowledge to then settle on shrewd choices, all through its high-level calculations First, by associating gadgets and frameworks, organizations

can robotize cycles and diminishing physical work prerequisites, bringing about superior effectiveness and lower work costs. For instance, a maker can utilize IoT sensors to screen creation line execution, recognize regions for development, and diminish personal time.

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A Study on Portfolio Management in HDFC Bank

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ABSTRACT

Managing a person's investments, such as bonds, stocks, cash, mutual funds, etc., to ensure he makes the most money possible within the allotted time is known as portfolio management. Through portfolio management, people receive the best possible investment plan according to their age, income, spending capacity, and risk tolerance. Portfolio management gives portfolio managers the ability to provide clients individualized investment solutions based on their demands and specifications. Through the help of a research team, knowledgeable portfolio managers and experts in the stock market oversee the equity portfolio of their clients through HDFC's Portfolio Management Service (PMS), a professional financial service.

In their Demat Account, many investors have equity portfolios, but managing them can be difficult. The purpose of the analysis is to compile data and determine client satisfaction levels with regard to HDFC portfolio management. In order to do this, a sample of 187 respondents was gathered, and it was determined through analysis that the clients are happy with the caliber of services that HDFC offers.

KEYWORDS: *Portfolio management, HDFC bank, Technology, Investment.*

INTRODUCTION

The process of choosing which assets to include in one's portfolio, how many shares of each asset should be held by the investor, the expected risks and returns of each individual asset, and how each asset group in the portfolio is correlated with the other is known as portfolio management. Investing in assets that allow an investor to maximize profits while minimizing risk is the goal of portfolio management, which helps investors reach their financial goals. A strong portfolio should have several goals with a solid balance between them. It is not appropriate to prioritize one goal over another at the expense of another. The main goal of portfolio management is to increase capital value. A corpus should develop from the invested principal faster than inflation. Some investors choose to receive a greater maturity corpus in the form of capital appreciation, while others may prefer to receive regular income in the form of dividends. It is not appropriate to prioritize one goal over another at the expense of another. The main

goal of portfolio management is to increase capital value. A corpus should develop from the invested principal faster than inflation. Some investors choose to receive a greater maturity corpus in the form of capital appreciation, while others may prefer to receive regular income in the form of dividends.

Purchasing a well-balanced combination of public and unlisted shares is a remarkable move, as the former have greater traceability than the latter. There is never a completely safe situation. Put differently, zero risk, zero reward. Therefore, the only approach to maximize returns is to reduce risk, which diversity can help with.

Process of Portfolio Management

Step 1: Evaluate the Present Circumstance

Understanding one's current position in respect to one's desired future state is crucial for making future plans. This necessitates a careful evaluation of present assets, liabilities, cash flow, and investments in relation to the primary objectives of the investor. Objectives must be precisely stated and quantified.

Step 2: Define Your Investment Goals

Forming a portfolio strategy that can generate the desired returns with an acceptable degree of risk requires knowing how much volatility an investor can tolerate and how much risk they are willing and able to handle.

Step 3: Decide on Asset Allocation

An investor can create an asset allocation plan using the risk-return profile. The investor can allocate assets in a way that targets projected returns while achieving optimal diversity by choosing from a variety of asset classes and investment choices.

Step 4: Choose Your Investments

The asset allocation strategy's criteria are taken into consideration while choosing individual investments. Whether an investor prefers active or passive management greatly influences the particular investment type that is chosen.

Step 5: Track, Quantify, and Adjust

The management process starts when a portfolio plan is put into action. This entails keeping an eye on the investments and calculating how well the portfolio performed in comparison to the benchmarks. Regular reporting of investment performance is required, usually on a quarterly basis, as is an annual review of the portfolio strategy.

OBJECTIVES

1. To understand the relation between demographics and investment patterns.
2. To analyze the relation between income and investment preferences.
3. To understand the level of customer satisfaction with regards to the services offered by HDFC Bank.

STUDY'S SCOPE

Since the survey only includes 187 respondents, all of whom are residents of Mumbai, its scope is constrained. A sufficient amount of information should be given to clients in order to draw them in and persuade them to increase their investments in their portfolios, as few investors are ignorant of the different investment

possibilities that are accessible. Clients will profit more quickly and in the long run if they receive a better rate of return than they would from a savings account. Better returns are produced when the portfolio is professionally managed. The profits can be utilized to finance important financial objectives like buying a house, a car, launching a business, or paying for your kids' college tuition.

LITERATURE REVIEW

Priyanka Zanvar and Sarang Shankar Bhola, (2016), has conducted an empirical study on Pune's individual investors' investment patterns. The purpose of the study was to find out more about Pune's investors' investing practices. A standardized questionnaire was used to collect data from 770 Pune residents from a range of socioeconomic backgrounds. According to the study, there is a significant difference between riskier and safer investment strategies. The data was analyzed using One Way ANOVA. According to this survey, bank savings and insurance are the most popular investment options. High yields, tax advantages, and protection were the main determinants of investment selections.

Anurag Shukla, (2017), An investment is a current allocation of funds with the expectation of a positive rate of return in the future. An investor is faced with a plethora of investment options. The study's key motivation is to see how variables such as profits, the state of the economy, and the risk-taking capacity of investors influence investors' investment decisions. This paper examines investor expectations as well as the various factors that influence investor behavior through various investment avenues.

Amit Kapoor, (2017), explains how in recent years, India's household investment habits have undergone major structural changes. Historically, Indian households have been risk averse and wary of investing their investments in risky assets.

Bhavik Umakant Swadia, (2017), This study's primary goal was to investigate the investing practices of middle-class investors in Ahmedabad. The selected premise posits that policymakers, economists, and market analysts have turned their attention to the middle class in the country due to the substantial unrealized potential within this income bracket. In addition to learning about

the different investment goals of Ahmedabad's middle-class investors and determining whether or not their savings have increased, the research aimed to address a few important questions regarding the investment patterns and behavior of this class of investors.

Yuvika Singh and Sarabjit Kaur, (2018), This study aims to determine how individual investors in Mohali behave with respect to the many investment options found in the Indian financial markets, as well as the specific investment vehicles they opt for, such as shares, mutual funds, equities, fixed deposits, post office, insurance policies, and so on. In summary, the bulk of Mohali investors often make low-risk, short- to medium-term investments in the public sector.

Sanket Charkha and Jagdeesh Lanjekar, (2018), Investment choices abound and include bank accounts, gold, real estate, mutual funds, post services, and a host of other options. Money is invested for a number of purposes and objectives, such as appreciation, profit, security, and steady income. The researcher examined the many forms and opportunities for investment, as well as the factors that need to be taken into account when making an investment decision, using a sample size of sixty salaried employees. When making regular investments, paid workers prioritize safety and a strong return on investment, according to the report.

MC Vaijyanthi, (2019), The New Indian Express, through the survey explains us how out of 100% only 33% of women's take investment decisions on their own due to the encouragement of their husbands and 24% from their parents. In the survey, the researcher mentions about how a banker-turned financial advisor explains that the number of Investor's, investment in mutual funds and pension plans are going up but women are still forced to take advice of male members or financial advisor and it's not at all shocking for them as same results came up through surveys a couple years ago.

Dr. Bhumija Chouhan, Sheenam Gojia, (2020), Finding out about the views, behaviors, and investing tendencies of Indian investors—particularly those in the country's north and west—may be aided by the results of this study. This research delves into the investment practices

of investors in the northern and western areas of India in the current economic climate, along with the elements that influence their decision-making. The research will help identify the investment alternatives that investors in these locations prefer in the current market climate and will also help financial institutions create strategies that will allow them to turn a profit.

Arpita Gurbaxani and Rajani Gupte, (2021), has conducted research to determine how the COVID-19 epidemic has affected people's financial and investment decisions in small towns in underdeveloped countries like India. A review of the literature was done regarding COVID-19 and the government's reaction to the outbreak. A sample survey was carried out in Madhya Pradesh (MP) to evaluate the impact of COVID-19 on specific financial activities.

RESEARCH METHODOLOGY

A systematic approach used to conduct studies, investigate problems, and gather data and information with a specific goal in mind is known as research methodology. An excellent portfolio is a well-rounded collection of various assets, with money distributed based on the investor's risk tolerance and personal preferences. The work doesn't stop with creating a portfolio. When it comes to maximizing returns and lowering risk, active management is superior to passive management. Essentially, the questions posed by the researchers are designed to extract information that will be useful for their investigation. Researchers use surveys, interviews, and first hand observations to gather data on their own. A questionnaire has been created, and data collection has been accomplished with the use of Google Forms. Secondary data from sources including the internet, libraries, reports, and research papers has also been used by the researcher. For the study, a sample size of 187 respondents has been taken into consideration. 52 respondents are female and 135 replies are male. Techniques for convenient sampling will be employed to select a sample. The researchers' method of convenience sampling involves gathering market research data from a convenient sample of respondents.

DATA ANALYSIS AND FINDINGS

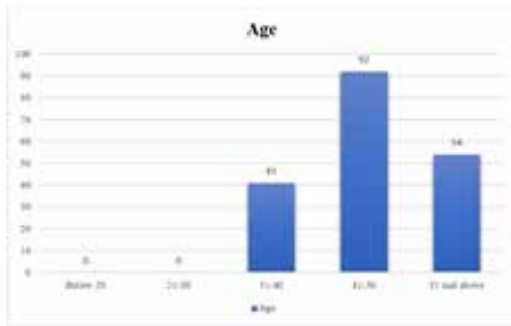


Figure 1: Age of the client

Figure 1: Of the 187 responders in the sample as a whole, none are older than thirty. 41 responders, or 21.93% of the total, fall into the 31–40 year age group; 92 responders, or 49.19%, fall into the 41–50 year age group; and 54 responders, or 28.88%, fall into the over-50 year age group. It is evident from this data that respondents over 40 have a higher level of financial literacy, which suggests that their investment patterns are more consistent.

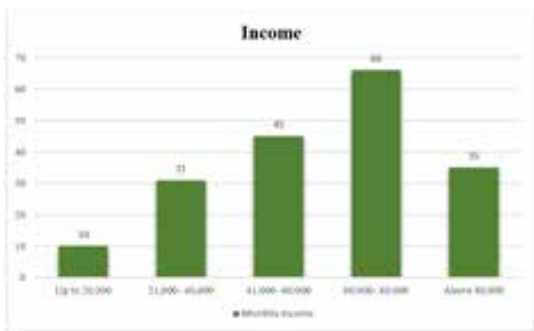


Figure 2: Income per month

Figure 2: The majority of responders are from the Rs. 60,000 and higher income bracket. Ten responders, or 5.34% of the sample, have monthly incomes of up to Rs. 20,000. Thirteen responders, or 16.57%, fall into the monthly income range of Rs. 20,000 to Rs. 40,000. A total of 45 respondents, or 24.06%, come from the monthly income range of Rs. 41,000–Rs. 60,000. Thirty-six responders, or 35.29%, fall into the monthly income range of Rs. 60,000–Rs. 80,000. The remaining 35 respondents, or 18.71% of the total, came from the income bracket of more than Rs 80,000 per month. The majority of responders also have an HDFC bank salary account.



Figure 3: Investment Preference

Figure 3: From the various investment alternatives available 4 respondents that is 2.14% would prefer investing in Banking products like fixed deposits and recurring deposits. 31 respondents that is 16.58% would prefer investing in shares directly. 32 respondents that is 17.11% would prefer investing in insurance products. The maximum number of respondents which is 96 respondents that is 51.33% would prefer investing in mutual fund. 17 respondents that is 9.09% would prefer investing in National Pension Scheme. 2 respondents that is 1.06% would prefer investing in gold and 5 respondents that is 2.26% would not prefer any of the above options as their first choice.

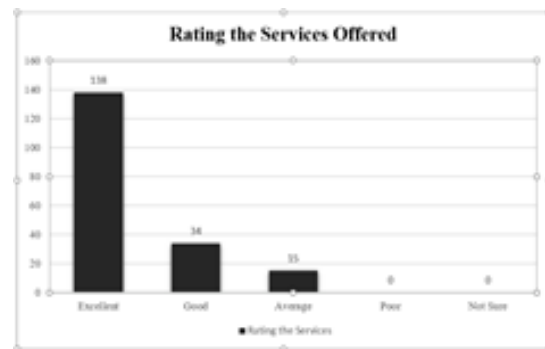


Figure 4: Rating for the Services offered

Figure 4: The clients of HDFC portfolio management services are happy and satisfied with the services offered by them. 138 respondents that is 73.79% have given it an excellent rating. 34 respondents that is 18.18% have given a rating as good and 15 respondents that is 8.02% have given it an average rating. The various reasons why the clients are happy is because it is professional managed, various investment options, diversification in portfolio, specialized services, systematic reports and good return on investment.

BEST PRACTICES AND SUGGESTIONS

- Diversified portfolios are the best option for investors looking to minimize risk and optimize profit.
- Prioritizing and choosing the appropriate needs and financial objectives is essential. Every objective has a different level of urgency. Therefore, it's critical to understand the hierarchy that determines their relative value.
- People should be educated on various investments so the rate of investment in the economy can increase, the bank can focus more on advertisement and promoting the benefits of investing and diversifying the portfolio.
- The concept of greater the risk, greater the reward should be embedded in the people.
- Rather than relying on the opinions of the people around it's better that people take professional help and guidance for their investments in order to maximize their existing returns.
- The introduction of derivatives with the availability of options and futures is another important development in the sphere of investment management. The new investment trends ought to be communicated to the investors.
- The process itself needs to be firmly established, and the portfolio manager needs to prioritize it consistently.
- Micro monitoring the investments is essential since it will focus on significant indicators and entail the right amount of effort. Knowing the distinction between interference and attentiveness is crucial if you want to be prepared to act only when called upon.
- An important factor in investing is the technology that the portfolio manager uses. It is essential to deploy a portfolio management software in order to save time. By centralizing data and enhancing communication, it would facilitate easier execution and monitoring.

CONCLUSION

Investing is necessary to accomplish objectives. There is no other way to improve the future than this. Investing helps you save money and build a corpus for a rainy day. In addition, investing consistently encourages you to set aside money, which over time helps you develop a sense of financial discipline. It is advisable for everyone to begin investing as soon as possible. You will receive higher returns on your assets the earlier you begin and the longer you continue to invest. Finding the ideal investment to suit your goals and profile should be the first step in any investment planning process.

It is clear from the foregoing that a portfolio is an assortment of different securities. Asset upgrades are the highest predicted return, followed by investments in office skyscrapers, retail stores, land lots, shopping malls, dry ports, flats, shop houses, apartments, property and portfolio management, residential homes, hospitality services, and infrastructure. Investment management places a strong emphasis on the value of portfolio diversification.

Recession in the near term is too close to call. For the upcoming several years, however, slower growth and lower inflation seem extremely likely. Short-term bond investors can benefit from higher yields while preserving a high-quality credit preference and adding length as a hedge against market volatility. The area of finance known as investment analysis and portfolio management is expanding.

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A Study on Customer Perception on Online Banking Security Measures with Reference to ICICI Bank

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ABSTRACT

Online technology has advanced to a great degree of performance in the twenty-first century and is widely used by all. Even though online banking is being used increasingly frequently, cybercrime in the banking industry has been rising over time. According to reports, 50% of cybercrimes include debit cards, ATMs, and online banking. Cyberattacks affect the banking industry more frequently than any other industry. This essay attempts to analyze how ICICI Bank's customers see cyber security. To find out how respondents felt about the security of internet banking, 115 samples of replies were gathered and examined. In the banking sector, internet security is crucial since most consumers and organizations transact business online, increasing the daily risk of a data breach. For this reason, a bigger focus is being placed on analyzing how security measures function inside banking procedures.

KEYWORDS: *ICICI bank, Technology, Online banking, E-banking, Safety, Difficulties.*

INTRODUCTION

The term "internet banking" or "net banking" is increasingly frequently used to describe electronic banking. This electronic payment system is backed by a website that provides a range of electronically operative bank products and services, including deposits, transfers, payments, and more. Online banking services are accessible seven days a week, twenty-four hours a day. With a dependable internet connection, you may conveniently access account information and related services from the comfort of your home. These services are also made to be secure against internet scammers.

A component of the information security framework, security in e-banking is specifically applied to the elements that impact e-banking, such as data security and computer security. High security components are necessary for e-banking, as they impact the end user through regular payment interactions with businesses. A secure and effective system needs a solid architecture and infrastructure. Protection and security are major problems for electronic technology these days. M-commerce, or mobile commerce, for instance, shares security concerns with other e-commerce-related associations.

Attacks on electronic banking systems include:

- **Social Media Fraud:** It consists of deceiving clients into divulging their hidden identities to online criminals. They use text messages, phone calls, or in-person requests for consumers' private banking information to trick and exploit their victims.
- **Port Scanners:** By utilizing port scanners to identify a client's point of access into a system, attackers can obtain customer information through a variety of methods.
- **Password Cracking:** In order to crack users' usernames and passwords for a particular website, vulnerability decrypting techniques were used to scan hundreds of common keywords, words, activities, and names until a combination of them was allowed access to a server.
- **Trojans:** Malware that sneaks into a computer in the appearance of an official application is known as a Trojan Horse Virus.
- **Denial of Service Attacks:** These attacks overwhelm servers, leaving them open to user vulnerability.

- Server defects: With millions of web servers in operation worldwide, server defects are utilized to trick the server intrusion detection system and provide attackers the chance to create threads.

Cybercriminals are using the Internet to carry out a variety of illegal activities. Nowadays, there are many different groups and categories of cybercriminals, such as professional hackers, organized hackers, children and teenagers between the ages of 6 and 18, insiders, scammers, phishers, malware authors, spammers, and other forms of cybercriminals.

ICICI Bank's online banking

ICICI Bank, one of the biggest private sector banks in India, is dedicated to giving clients a secure banking environment. The following actions have been taken by ICICI Bank to ensure cyber security: Several security levels, fraud monitoring, two-factor authentication, routine security audits, and client guidance.

ICICI Bank implements cutting edge security methods like 128-bit SSL encryption to protect online transactions. It also provides two-factor authentication for some transactions, which requires the user to input an OTP that is delivered to their registered mobile number in order to finish the transaction. Furthermore, ICICI Bank has a committed team of experts that monitor online transactions and search for any indications of fraudulent activity. In addition, the bank provides a 24/7 customer care helpline to address any inquiries clients may have regarding online transactions.

OBJECTIVES

1. To understand the perception of customers on online banking security measures of ICICI Bank.
2. To analyse the customer's satisfaction level with regards to the security measures used by ICICI Bank.

SCOPE OF THE STUDY

The banking industry makes a substantial contribution to both the GDP and the expansion of the Indian economy. One of the main reasons for its rise has been the aggressive use of technology by Indian banks since the late 1980s. However, this has raised serious worries about safeguarding and maintaining the privacy

of information assets, putting banks and clients at danger. The necessity and prerequisites for a thorough examination of risks and cyber security concerns in banking have been underlined by several studies conducted all over the world. In contrast to Western banks, Indian banks are massive, with many branches and human resources.

Therefore, it is difficult to control security risks in these larger banks and calls for a strong risk management system. As a result, the current research on security risks in Indian banks is extremely pertinent to the contemporary corporate landscape.

LITERATURE REVIEW

Al-alawi (2020), The study conducted by the researchers highlights the significance and advantages of incorporating security measures into an organization's systems, specifically focusing on the banking industry. This research also aims to encourage the use of cyber security to protect data and effectively manage risk. Thus, a number of inquiries were made in order to gauge these banks' understanding of and proficiency with cyber security.

Alghazo, Kazmi, & Latif (2018), examined according to the survey, internet banking—also referred to as electronic banking (E-banking), online banking, and virtual banking—is widely promoted as a practical alternative to traditional banking. Internet banking has shown to be an efficient and successful banking approach in the banking industry. The process of acquiring information and developing a set of beliefs that will help the user decide whether to accept or reject technology is the foundation for its adoption. According to the technology acceptance model (TAM), two factors—ease of use and utility—have an impact on users' acceptance of technology.

Jaafar Alghazo (2017), The researcher conducted a thorough analysis of the cyber security of online banking in developing nations before putting out a cutting-edge approach to lower the danger of cyberattack and close the gap between consumers and banks. The findings bolster the claim that a discrepancy is beginning to emerge between what banks anticipate and what customers do when using online banking. By considering users' IT literacy and their hardware and software, the suggested

model closes this gap and places more onus on banks to lower customers' cyber security risks.

In this paper, Cassandra Cross et al. (2016) have provided an analysis of in-depth interviews conducted with 80 Australians who filed complaints about internet fraud in the past, including losses totaling at least \$10,000. This study involved conducting in-depth interviews with a group of people who had reported being victimized to the ACCC's Scamwatch website in order to better understand the reporting experiences of victims of online fraud and their support requirements. They also document the challenges they faced in reporting these instances.

Hasan and others, (2015), They found that female students are more aware of frauds than male students when they ran a survey to look into Malaysian awareness of them.

Singh and Mehta (2013), The researchers conducted a survey to investigate the level of awareness of cyber laws in Indian society. He discovered that male and female internet service users had significantly different levels of awareness. When compared to female internet users, male users are more aware of cyber laws.

Florencio & Herley (2011), the researcher states that because the banking sector's defence system has a lot of holes in it, it's important to look into ways to make people more aware of the measures that can be taken to stop frauds. However, very few studies have been done in this area in the past to suggest ways to reduce the risks and combat such criminal activity.

Clayton, T. R (2009), the researcher focused on online criminal activity. The majority of online crimes are committed by amateur hackers. Numerous issues and data on online crime are examined in this paper. Banks and police face difficulties in controlling conventional law enforcement. According to the findings of this paper, it is possible to make significant advancements in the manner in which online fraud is dealt with. Additionally, it is recommended that understanding the economic context of online crime be understood when studying the subject.

RESEARCH METHODOLOGY

The questionnaire method is used to gather primary data. Google Forms was used to collect data from a

sample of 115 respondents, 48 of whom were female and 67 of whom were male, for the study. One method of gathering data was convenience sampling. The mix of material from the internet and books on the subject is the primary source of secondary data.

DATA ANALYSIS AND FINDINGS

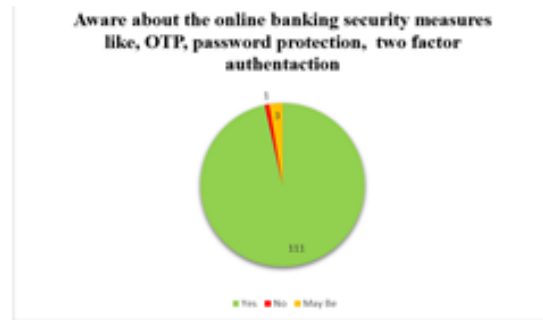


Figure 1: Awareness on online banking security measures

Figure 1- The above figure shows that the maximum number of respondents that is 111 out of 115 that is 96.52% are aware about the security issues that concern the banking system. 3 respondents that is 2.60% of the respondents have selected the option of may be knowing the issues the bank and customers face in terms of security. The various security measures taken by the bank are password-protect all banking access, choose strong and unique password, enable two-factor authentication, logging out when you finish banking, avoid public Wi-Fi, signing up for banking alerts.

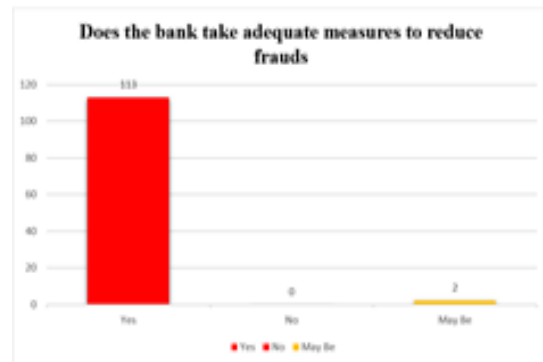


Figure 2: Bank taking measures to reduce frauds

Figure 2- 113 out of 115 respondents feel that the bank is taking adequate measures to reduce frauds. Only 2 respondents that is 1.74% feel that may be bank is taking adequate measures to reduce frauds. Customers trust the bank to safeguard their money and privacy. Banks look

at the best KYC techniques to reduce financial crime in the banking industry.

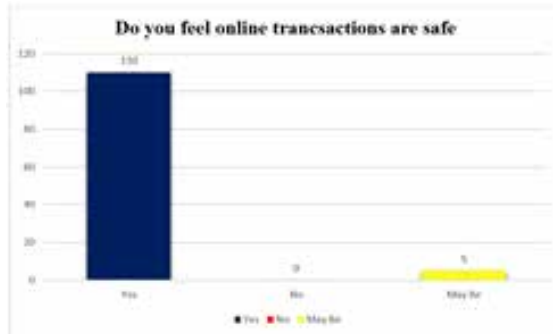


Figure 3: Safety while transacting

Figure 3- Of the 110 respondents, or 95.65% of the total, said that they felt comfortable doing business online. Only 5 respondents, or 4.35% of the total, indicated that they occasionally feel secure making purchases online. Consumers are aware that every transaction they conduct is conducted over an extremely secure and encrypted channel that uses cutting-edge digital technology to guarantee that no data is compromised as it travels from its starting point—the consumer point—to its destination.

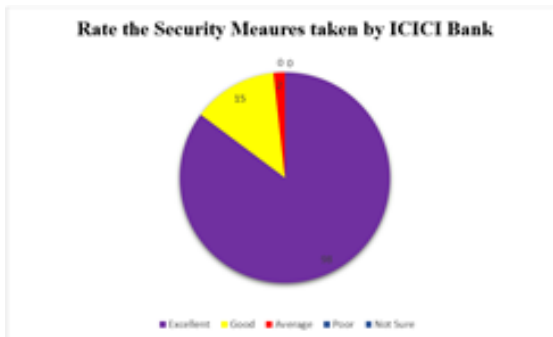


Figure 4: Rating the Security measures

Figure 4- On rating the security measures used by ICICI bank 98 respondents that is 85.21% have given a rating of Excellent, 15 respondents that is 13.04% have given a rating of very good, 2 respondents that is 1.75% have said the services provided are good. Which clearly indicates that the customers are satisfied and happy with the system that the bank is using.

SUGGESTIONS

- Multiple authentication methods: Multi-factor authentication can help prevent unauthorized

access to accounts by asking users to present two or more forms of identity before logging in.

- Updating software frequently: Keeping all software and operating systems up to date can stop hackers from taking advantage of vulnerabilities.
- Educating the user: Users can avoid downloading malware or falling prey to social engineering attacks by being educated about safe browsing practices and phishing scams.
- Protection by a firewall: By controlling and monitoring both incoming and outgoing traffic, a firewall can help prevent unauthorized access to a network.
- Encryption of data: Hackers may find it more difficult to gain access to and steal sensitive data if it is encrypted.
- Continual backups: In the event of a cyberattack or a system failure, backing up data on a regular basis can help ensure that important information does not get lost.
- Plan for handling the incident: A strategy for dealing with cyber security incidents can help lessen the impact of an attack and reduce downtime.
- A security system can include a variety of additional basic safeguards, such as these. Additional measures may also be required, depending on your organization’s particular requirements.
- The technology of block chain: Block chain technology can also be used by banks to protect data and transactions. Because it makes use of a decentralized ledger that is difficult to alter, this technology is a more secure method for transferring and storing data
- Regular training for employees: Employees should receive regular security best practices training from banks. Human error, which is a frequent cause of security breaches, can be prevented with this assistance.
- The banks should give staff members the necessary guidance and support on using online banking to both employees and customers. Despite their significant investments in IT, banks cannot fully

utilize all of the services available to them unless they set up client demonstration programs and provide them with adequate training.

CONCLUSION

Critical transactions are being conducted through networks as the globe grows more interconnected. Because of this, computer security is a broad subject that is getting bigger. The most recent and disruptive technologies, as well as the brand-new cyber tools and threats that surface every day, present banks with challenges not only in terms of how they secure their infrastructure, but also in terms of how they require new platforms and intelligence to do so. Although there isn't a single, effective way to stop fraud, we should try all in our power to lessen it in order to guarantee a secure online future.

Financial institutions are seeing an increased demand to respond promptly to the ever-growing array of risks. Organizations have been compelled to develop a vulnerability management life cycle since attackers have been employing an attack life cycle. The goal of the vulnerability management life cycle is to quickly and effectively thwart the attackers' efforts.

Users must also be aware of security risks and behaviours that compromise the security of electronic banking. The researchers anticipate that the problems associated with electronic banking fraud would have vanished if these security measures had been implemented.

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Financial Innovation Through Legal Reform: Questions of Trading Life Insurance as Property in India

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ABSTRACT

This paper aims to analyse the regulatory issues in legalizing the innovative management practice of trading life insurance policy in secondary market as a financial instrument i.e. freely transferable property. Researcher analyses the jurisprudence of life insurance, considering it a tradable asset and he systematically examining the legal factors affecting the transferability (alienability) of life insurance policies. The research explores the consistency of treating life insurance as property akin to freely transferable assets (“res”) in India, taking reference from already established financial markets like the US and UK. Primary investigation revealed that a functional secondary market for life insurance holds the potential to create new investment opportunities, enhance market liquidity, and potentially lead to the development of novel financial products. However, regulatory challenges exist, particularly regarding “moral hazard” and ambiguous legal concepts like “public policy” and “insurable interest” in the Indian context. The paper analyses legal arguments around consideration of life insurance as property, because every financial instrument is a property of the holder. Once life insurance is considered as property there will be a world of opportunity for market and financial innovations. The research ignites the debate by analysing the legal embargo on prospect of financial innovation and further encourages the research in the area of trading in life insurance from financial and economic point of views.

KEYWORDS: *Life insurance, Trading in life insurance, Financial innovation, Life settlements, Insurable interest.*

INTRODUCTION

Life insurance sprouted as an instrument of social security but with time it evolved as a kind of ‘property’ of policyholder (Chaudhary 2018). From its inception as social security instrument to its acceptance as collateral security against loans transformed the legal landscape of regulating life insurance (Botes and Kloppers 2018). Now the life insurance is evolving as a property of insured. In such times, Indian government has increased the FDI limit in Insurance business to 74% in 2021 (Anon 2023). As per IRDAI, India is on worldwide 10th rank in terms of life insurance penetration. Thus, India cannot remain isolated from the effect of innovative market instruments in insurance industry and shall legislate vigilantly to keep up with the market advancements.

In contrast to that, the growth of the life insurance industry is often obstructed by regulatory issues and bias in India. It is noteworthy that in USA and UK, policyholders can sell their policies in secondary markets for cash during financial hardships whereas Indian policyholders have limited options, receiving only meagre surrender values or facing policy lapses (Dutta 2007; Settlements 2021). This lack of a secondary market became pertinent issue during COVID-19 pandemic, for many faced financial crises, unable to afford premiums and medical bills, resulting in both financial and personal loss (Ghosh and Stowe 2021). Thus, establishment of a secondary market for life insurance trading (aka life settlements, viatical settlements) where insured can sell the policy in his/her life for a cash benefit is crucial for staying relevant in the rapid growing market of financial instruments.

But the regulatory divide on the issue of the regulation of life insurance as social security (traditional outlook) or acknowledging its ‘property-like nature’ (innovative outlook) hinders the progress (Nurnberg and Lackey 2010; Richmond 2012). While India accepts life insurance as security for loans, transferring it without insurable interest is prohibited(Anon n.d.). Thus, irony is that in India, law accepts life insurance as property on one hand but restricts its free transfer on the other hand. This paper investigates the jurisprudence insurance as ‘property’ and ‘freely transferable financial instrument’. It explores how life insurance has been considered as property in literature and opinio juris. Despite this, the grounds for denying trading, such as ‘public policy’ and ‘insurable interest’, remain contentious. This paper aims to examine the ‘property-like nature of life insurance’ to assess the validity of trading in life insurance as a business and investment portfolio.

UNDERSTANDING THE CONCEPT OF PROPERTY

Property, derived from the Latin ‘proprietas’, means a person’s rights to a thing and it is often associated with individual ownership(Underkuffler 1990). Property law discusses the legal relationships between individuals and corporeal or incorporeal assets, including life insurance, stocks, and bonds(Donahue and Alexander 2023). Prof. Holland defines ownership as comprising the rights to use, alienate, and dispose of a property(Underkuffler 1990). The right to alienate is not available in the case of life insurance in India as the assignee must have insurable interest in the life of policyholder/insured(Cwinya and Ongom 2008; Dutta 2007). Moreover, F. Pollack categorizes property into corporeal units, collections, intangible assets, elements of wealth, and reputations(Donahue and Alexander 2023). Again, the consideration of insurance as intangible asset is of limited scope in India. But, these two jurists highlights the idea of incorporeal rights as property, eg. copyrights and actionable claims and life insurance is a similar right and worthy of being considered as property. Further, various statues in India, mainly Benami Transaction Act, section 2(c), Sale of Goods Act section 2(11) etc includes movable or immovable, tangible or intangible assets under the purview of Property. Thus, the researcher is of the

opinion that the legislative embargo should be reviewed and appropriate statutory amendments shall be brought to allow free transfer of life insurance with minimal restrictions i.e. allow trading in life insurance policies.

These three major concepts highlight the characteristics of Life Insurance as property (See Figure 1)-

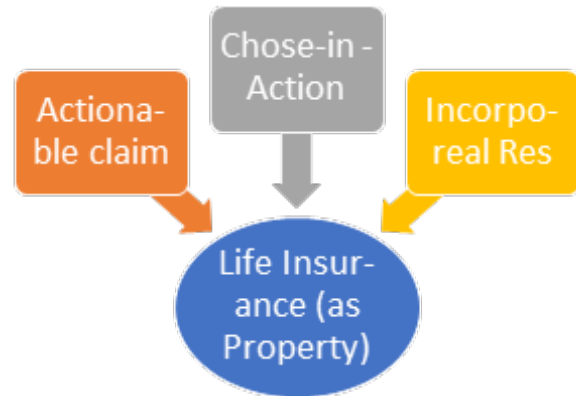


Figure 1

Figure 2 encompasses the major considerations that are vital for allowing trading of life insurance as a financial instrument (property). It is expedient to note that the term public policy is not defined anywhere in Indian laws. Thus, the scope of tempering laws on the name of public policy is high. Researcher opposes consideration of life insurance transfer without insurable interest as against public policy.

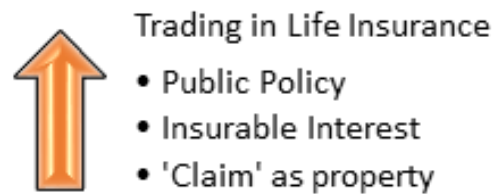


Figure 2

INSURANCE AS PROPERTY

Fundamental Right of ‘Right to Property’ in India was changed into a Constitutional Right under Article 300-A after the 44th Amendment, aiming to achieve balance between individual property rights vis a vis national socioeconomic goal. However, the status of life insurance as property has been debated, with key characteristics indicating its property-like nature. In the USA and the UK, life insurance is considered a private property, and policyholders are allowed to

alienate, and assign policies, without insurable interest, making the life insurance policy a market/financial instrument which is freely transferable with minimal restriction(Boyd 2020; Quinn 2008). In India, the saga of life insurance began with the establishment of Life Insurance Corporation (LIC) in 1956, aimed at providing social security (Chaudhary 2018). Over time, life insurance has been perceived as both an investment and an asset, leading to discussions on treating it as property.

IMPACT OF LAW ON MARKET INNOVATIONS

Transferability is a key feature of property(Donahue and Alexander 2023). Prior to 2015 there was no legislative embargo on assignment of life insurance policies to third parties without insurable interest(Varottil 2015). But a 2015 amendment barred trading in life insurance policies, leading to legal disputes. The Bombay High Court, in the IPPS vs. LIC case, held that insurance policies are tradable assets, but the amendment to the Insurance Act, section 38(2), effectively prohibited trading for profit in India and the doors for a ground-breaking market innovation and financial asset class were closed(Dutta 2007; Varottil 2015).

Tracing the evolution of life settlements aka trading in life insurance we find that life insurance policies were regarded as assets in the UK and the USA, with a thriving Life Settlements market in the USA emerging during the HIV/AIDS epidemic(Quinn 2008). Life settlements offered policyholders the option to trade/sell their life policies for a lump sum, providing financial relief during terminal illnesses or financial crises. These settlements significantly improve the quality of life for seniors facing financial hardship(Becker 2019; Settlements 2021).

Thus, the researcher presents an argument that allowing trading in life insurance can help individuals cover unexpected healthcare expenses and provide financial relief. In the time of international unrest and environmental crisis many people face financial hardships, making it difficult to pay for medical treatment. Allowing life settlements in India will provide liquidity to policyholders in such scenarios. However, India's hesitation to permit life settlements

contrasts with developed countries like the USA and UK, where policyholders can sell their policies in secondary markets for up to 70% of the death benefit. This legislative gap highlights the need for India to reevaluate its public policy and amend relevant statutes to align with evolving economic needs, allowing trading in life insurance and creating a lucrative investment portfolio.

This paper has set the stage by examining the importance of legal interpretations and its impact of financial advancement. Particularly it exposes the prospect of financial innovation if life insurance is accepted as property of policyholder and allowed to be traded with minimal regulation. Further research from market and financial angles is expected to follow.

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A Study of Factors Affecting on Customer Loyalty in the Telecom Sector with Respect to Jalgaon District

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ABSTRACT

The growth of telecom sector has significantly transformed in recent years. In this progress of telecom sector, customer loyalty emerges as crucial factor and one of the important determinants of success. This study explores into the factors influencing customer loyalty in the telecom sector, focusing specifically on Jalgaon District, India. The objective of this research is to provide telecom service providers in Jalgaon District with valuable insights to enhance their customer retention strategies.

To accomplish this, a comprehensive research framework was developed, incorporating both quantitative and qualitative research methods.

The findings of this study shed light on the multifaceted factors influencing customer loyalty in the telecom sector. Key determinants identified include service quality, pricing strategies, network coverage, customer support, and brand perception. Additionally, the study explores the impact of demographic variables such as age, income, and education level on customer loyalty.

KEYWORDS: 5G, Customer Loyalty, Customer churn.

INTRODUCTION

The telecommunications sector is an essential of the modern world, serving as the backbone for global connectivity and communication. As technology advances at an unprecedented rate and competition intensifies, the telecom sector finds itself at the intersection of innovation and consumer demand. In this dynamic environment, understanding the multifaceted factors that affect the industry is paramount for businesses striving to not only survive but thrive.

The telecom sector encompasses a broad spectrum of services, including fixed-line and mobile telephony, internet access, data transmission, and more recently,

advanced technologies like 5G and the Internet of Things (IoT). Its ubiquity in our daily lives is evident as we use smartphones, tablets, and other connected devices for work, entertainment, and personal communication. The sector's influence extends across industries, supporting businesses, governments, and individuals in various aspects of their operations and daily routines.

In essence, understanding the factors influencing the telecom sector is not merely an academic pursuit; it is essential for informed decision-making, strategic planning, and the pursuit of innovation.

Understanding the intricate web of factors that influence customer loyalty in the telecom sector is

crucial for telecom service providers seeking to thrive in this highly competitive arena. Customer loyalty not only translates into consistent revenue streams but also serves as a barometer of customer satisfaction and brand perception. Therefore, it is essential for telecom companies to proactively identify, analyze, and address the determinants of customer loyalty to secure their market share and sustain long-term growth.

Impact of Customer Loyalty on Telecom Sector: Customer loyalty has a profound impact on the telecom sector, shaping its success, profitability, and sustainability. In an industry characterized by intense competition, rapidly changing technology, and evolving customer expectations, the value of cultivating and maintaining customer loyalty cannot be overstated. Following are several key ways in which customer loyalty impacts the telecom sector:

- Loyal customers provide a stable source of revenue for telecom companies.
- Loyal customers are less likely to churn, reducing the need for telecom companies to spend resources on acquiring new customers to replace those lost.
- Loyal customers tend to stay with a telecom provider for longer periods, resulting in higher customer lifetime value (CLV).
- Loyal customers are more likely to recommend their telecom provider to friends and family.
- Loyal customers become brand advocates who actively promote the telecom company's services.
- Loyal customers provide valuable data and feedback that can be used to improve services, develop targeted marketing campaigns, and introduce new features or plans that cater to their preferences and needs.
- Loyal customers are more receptive to cross-selling and upselling efforts.
- Loyal customers may be more inclined to stay with their telecom providers during economic slowdown or crises.

Customer loyalty is a cornerstone of success in the telecom sector. Companies that prioritize building and maintaining loyal customer relationships benefit

from stable revenues, reduced costs, enhanced brand reputation, and a competitive edge in a rapidly changing industry. Therefore, telecom companies invest significant resources in strategies and initiatives aimed at fostering customer loyalty.

REVIEW OF LITERATURE

(Menon, 2014) investigated the several facets of customer behaviour, particularly satisfaction, and provided recommendations in the research paper entitled "Customer Perception towards A Public Sector Telecom Company (BSNL) in Mobile Services". For a company with public dealing and responsibilities to operate effectively, customer perception is absolutely necessary and unavoidable. It depends on a number of variables, including tangibility, dependability, assurance, superior service quality, empathy etc. The researcher highlighted that every organization's primary purpose is to satisfy its customers.

(Jaain & Madan, 2015) an exploratory study entitled "An Empirical Study on Variables Affecting Consumers Satisfaction and Behavioural Intentions with respect to Mobile Telecom Service Providers" looked into the myriad factors that influence consumer satisfaction in the telecom industry. They also investigated the link between customer satisfaction and telecom service users.

(Kuldeep, R.S., & Anurag, 2019) studied the telecom customers' loyalty and satisfaction level in their research paper entitled "Impact of Service Quality on Customer Satisfaction and Loyalty in the Sector of Telecom Service Provider in Delhi-NCR". India is the country with the fastest-growing telecom market, with more than 1.20 billion subscribers. The goal of the current study was to determine how customer happiness and loyalty at Indian telecom providers are impacted by service quality. The current study has identified and analysed five aspects of service quality: tangibility, dependability, responsiveness, assurance, and empathy.

RESEARCH OBJECTIVES

The present research is carried out with the following research objectives:

- To assess the level of customer loyalty in the telecom sector.

- To identify the key factors influencing customer loyalty.
- To develop recommendations for improving customer loyalty strategies.

technique to ensure representativeness. The sample size considered for data analysis by researcher is 150 telecom customers. The primary data was collected through surveys, interviews, or focus groups. Consider using a structured questionnaire to gather quantitative data on loyalty metrics and open-ended questions for qualitative insights. The secondary data consists of industry reports, customer complaints, and previous studies on customer loyalty in the telecom sector.

RESEARCH METHODOLOGY

The researcher has intended to collect the primary data from Jalgaon District by using Random Sampling

DISCUSSIONS AND INTERPRETATIONS

Table 1: Demographic and Socio-Economic Profile of Respondents

Category	Parameter	No. of Respondents
Gender	Male	91
	Female	59
Annual Income	Less than 250000	29
	250001 - 500000	29
	500001 - 750000	50
	750001 - 1000000	26
	More than 1000000	16
Occupation	Self Employed	44
	Private Service	40
	Public Service	31
	Profession	23
	Student	12
Preferred Telecom Service Provider	JIO	94
	Airtel	24
	BSNL	17
	Vodafone Idea	15
Experience with current telecom service provider (In Years)	Less than 1 year	6
	1 - 3 years	47
	3 - 5 years	31
	More than 5 years	66
Experience of Mobile Portability in the past	Yes	107
	No	43
Willing to do Mobile Portability in Future	Yes	56
	No	41
	Maybe	53

From the above-mentioned Table 1, the researcher has interpreted the following major findings:

- The overwhelming preference for JIO as the telecom service provider suggests strong brand loyalty or satisfaction with their services. Airtel follows, indicating another significant player in the market, while BSNL and Vodafone Idea have comparatively lower preference, possibly due to network coverage, service quality or any other factors.
- The experience with current service providers is extensive, particularly among respondents with over 5 years of tenure, indicating stability or satisfaction with their current provider. The significant number

of respondents who have undergone mobile portability in the past

- (107) suggests a willingness to switch providers based on certain factors such as pricing, service quality, or promotional offers.
- Looking at the future, a substantial portion of respondents (56) express willingness to consider mobile portability, indicating a dynamic market where providers may need to continuously innovate and improve to retain customers. However, a considerable number (41) are not willing, suggesting potential challenges in attracting certain segments or retaining existing clientele.

Table 2: Factors affecting customer loyalty in telecom sector

Factors	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Network Quality and Coverage	21	13	26	56	34
Customer Service	18	9	35	59	29
Price and Value for Money	20	18	32	50	30
Transparency in services	9	18	40	57	26
Innovative Product and Services	10	15	40	63	22
Convenient & User-Friendly Experience	18	7	30	65	30
Reward programs / schemes	12	21	43	55	19
Brand Image and Reputation	19	8	44	59	20
Personalization	14	15	35	64	22
Reliability in Services	20	7	34	68	21
Innovative Technologies	16	11	30	64	29

From the above-mentioned Table 2, the researcher has interpreted the various factors such as network quality and coverage, customer service, price and value for money, transparency in services, innovative products and services, convenient and user-friendly experience, reward programs / schemes, brand image and reputation, personalization, reliability in services and innovative technologies. The researcher has analysed these factors affecting on customer loyalty interpreted as follows:

- Network Quality and Coverage: A majority of respondents agree (37.3%) or strongly agree (22.7%) that network quality and coverage impact

customer loyalty, suggesting that these aspects are crucial for retaining customers.

- Customer Service: Similar to network quality, a significant portion of respondents agree (39.3%) or strongly agree (19.3%) that customer service plays a role in customer loyalty, indicating the importance of satisfactory interactions with the service provider.
- Price and Value for Money: Responses indicate a significant impact of pricing and value for money on customer loyalty, with a majority agreeing (33.3%) or strongly agreeing (20.0%) that it influences their

loyalty.

- **Transparency in Services:** A considerable number of respondents agree (38.0%) or strongly agree (17.3%) that transparency in services affects customer loyalty, highlighting the importance of clear and honest communication from telecom providers.
- **Innovative Products and Services:** The data suggests that innovative products and services are perceived positively by customers, with a significant portion agreeing (42.0%) or strongly agreeing (14.7%) that they contribute to customer loyalty.
- **Convenient and User-Friendly Experience:** A majority of respondents agree (43.3%) or strongly agree (20.0%) that a convenient and user-friendly experience influences their loyalty, emphasizing the significance of ease of use in telecom services.
- **Reward Programs/Schemes:** Many respondents agree (36.7%) or strongly agree (12.7%) that reward programs or schemes affect their loyalty, indicating the effectiveness of such incentives in retaining customers.
- **Brand Image and Reputation:** A substantial number of respondents agree (39.3%) or strongly agree (13.3%) that brand image and reputation impact customer loyalty, suggesting that a positive brand perception contributes to customer retention.
- **Personalization:** The data indicates that personalization plays a role in customer loyalty, with a majority agreeing (42.7%) or strongly agreeing (14.7%) that tailored experiences influence their loyalty.
- **Reliability in Services:** Respondents largely agree (45.3%) or strongly agree (14.0%) that reliability in services affects their loyalty, highlighting the importance of consistent service provision.
- **Innovative Technologies:** A significant portion of respondents agree (42.7%) or strongly agree (19.3%) that innovative technologies contribute to customer loyalty, indicating a preference for advanced offerings.

The researchers have concluded that customer loyalty in the telecom sector is influenced by a complex interplay of factors, including service quality, pricing, network coverage, customer service, and brand reputation.

CONCLUSION

In this comprehensive study, we have delved into the intricate landscape of customer loyalty within the dynamic and highly competitive telecom sector. Our findings reveal that customer loyalty in the telecom sector is a multifaceted phenomenon shaped by various determinants. While the quality of services, network performance, and customer support remain pivotal in retaining customers, price competitiveness, and the overall customer experience also play significant roles. Furthermore, the advent of emerging technologies, including 5G and IoT, has opened new avenues for enhancing customer loyalty through innovative services and personalized experiences.

In light of our research, we offer the following key takeaways for telecom companies seeking to bolster customer loyalty:

- **Invest in Service Quality:** Continuously improve network performance and customer service to build a foundation of trust and reliability.
- **Competitive Pricing:** Develop pricing strategies that align with customer expectations, ensuring value for money.
- **Customer-Centric Approach:** Prioritize the customer experience throughout all touchpoints, from acquisition to support and beyond.
- **Innovation and Technology:** Embrace emerging technologies to create innovative and personalized services that resonate with modern consumers.
- **Data-Driven Decision-Making:** Harness the power of data analytics and AI to gain actionable insights into customer behavior and preferences.

In conclusion, the telecom sector's competitive landscape is evolving, and customer loyalty remains a pivotal factor in a company's long-term success. To thrive in this environment, telecom companies must adapt and transform their strategies to meet the changing needs and expectations of their customers. As

the telecom sector continues to evolve, it is our hope that this research will serve as a valuable resource and a catalyst for ongoing efforts to enhance customer loyalty and create a more connected and customer-centric telecom ecosystem.

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Innovative Practices in Business of Urban Travel: A Case of Nagpur Metro Rail

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ABSTRACT

Urban travel has been a problem point for the fast growing cities like Nagpur undergoing the process of rapid urbanisation. Nagpur Metro Rail has evolved as a potential answer to this problem for Nagpur city. The research paper aims to collect data from secondary sources to put forward the researched text to explain the innovative business practices in the business of urban travel by taking Nagpur Metro Rail as a case. The research paper explains the use of integrated approach, use of advanced technology, environmental sustainability, data driven decision making etc. adopted in conceptualising, planning, designing, constructing and operating the project of Nagpur Metro Rail for its safety, security, quality management, budgeting, networking, marketing etc.

KEYWORDS: *Metro, Rail, Metro rail, Nagpur metro rail, Innovative business Practices, Urban travel.*

INTRODUCTION

Innovation is the key to adapt in changing times. Innovation in business can be defined as the ability of a business to ideate, develop and supply new line of products and/or services in a manner so as to overcome major limitations of the similar earlier products and/or services (McKinsey & Company, 2022). (Boyles, 2022) states in the website of Harvard Business School Online, that the word innovation can be often used as creativity synonymously. Innovation in processes of business shows a strong correlation with the business performance (Prajogo, 2006). Hence, innovation and the innovative practices in a business becomes crucial for the success and sustainability of the business.

LITERATURE REVIEW

The evolution of the urban travel will be characterised by the travel services that will be demand oriented, developed by an integrated approach, transportation equity and new rules and regulations (WANG Guangtao, 2020). This future need to the urban travel will require an innovative approach to urban travel.

Urban mass transit network face many challenges. Responses to such challenges proposed are implementing sustainable development practices, extensive use of information technology, enhancing operational capability of urban transit system by implementing innovative transport organization models, establishing service assessment systems to improve the quality of transportation service to name a few (Lin He, 2016).

Public transport technologies are emerging as innovative business practices in the field of urban travel. These innovative business practices are travel demand management systems, intellectual ticketing facility, single journey through inter-modality (Guido Di Pasquale, 2016).

Melbourne's advanced railway system was reviewed to determine its future perspective. Examination on the topic revealed that Melbourne's rail performance can be boosted through increase in satisfaction and safety of passengers, enhancing the reliability of the system, intensification in the frequency and capacity of the train, reducing cost of operations and making

an improvement in flexibility of operations (Koorosh Gharehbaghi, 2020).

Last-mile connectivity is identified as to be an important factor in facilitating better integration and accessibility for the mass transit networks in the urban cities with largest number of residents. To achieve an unbroken and sustainable urban mobility an innovation is required in multimodal integration (Chaitanya Kanuria, 2019).

Commuters' behaviour for the services of Delhi Metro Rail Corporation could be predicted by innovation performance framework, which could also

be done by organisational commitment. The factors that significantly contributed in influencing and motivating commuters' behaviour for the services of Delhi Metro Rail Corporation were identified as innovation performance and sustainable practices (Yogendra Pal Bharadwaj, 2023).

The base for development of the metro based transport mobility in India is achieved by establishment of a well-organized transport governance infrastructure and a legal empowering environment (Paulose N. Kuriakose, 2021).

Introduction of metro rail system in congested cities like Mumbai brings down the level of pollution. This innovation in urban travel in Mumbai has reduced the levels of carbon monoxide (CO) and hydrocarbon (HC). The result of the studied showed that the Mumbai Metro Rail isn't contributing in reduction of greenhouse gases (GHG). Nevertheless, as Mumbai Metro Rail sees the increase in the ridership volume, more harmful pollutants will decrease. Furthermore, savings of high value of travel duration was achieved after the introduction of the services of the Mumbai Metro Rail (Arti R. Soni, 2018).

For an intercity urban travel, sustainability can be achieved through the aspects like use of clean energy, service functionality and orientation, prioritising and addressing the need to the stakeholders, systematically extending benefits to the environment, developing the scale-up solutions of the mobility (João Valsecchi Ribeiro de Souza, 2019).

Delhi Metro Rail has been an example to the metro rail projects around the world. Through its effective

and innovative approach Delhi Metro Rail was able to complete its first phase well ahead of time, it could further achieve one of the lowest unit construction costs. Further is the first of its kind metro rail projects to be awarded ISO 14001 certification for its systems in Environmental Management. It is also the first metro rail project to earn carbon credit. All this can be achieved by implementation of innovative company structure, a work culture that is unique for the urban travel industry, lean and efficient organisational structure with great values, a process of making quick decisions, professional competence, adequate delegation of powers and punctuality (Ramachandran, 2011).

Cities have been reviving and innovating the urban rail projects in order to catch up to the local demand and to attain broader economic goals. The urban issues like congestion, increase in travelling time, pollutions, and unavailability of parking space can be relieved by strategic planning and implementation of integrated policies that are to be executed in unification with urban rail systems like development of active knowledge economy centres (which has already been done for London) (Rohit Sharma, 2016).

RESEARCH METHODOLOGY

The data for this research case is collected predominantly from secondary sources. Official website of the Nagpur Metro Rail has been the principal source of data collection for this research case, other sources as mentioned in the references sections are also used to collect the secondary data. The information is compiled in a systematic way for this research case.

The researcher himself is fond of the services offered by Nagpur Metro Rail and has been a regular user of the service. During the use of the service it was overwhelming to experience the service quality characterized by punctuality, promptness, courtesy, convenience, comfort, safety, economy, fast, cleanliness etc. This experience of the service quality characteristics upraised the instinct of curiosity of research to dig out more on the innovative business practices in urban travel adopted by Nagpur Metro Rail. Hence, by the technique of observation made during the journey by the researcher, data is compiled for this research case.

ABOUT NAGPUR METRO RAIL

Nagpur Metro Rail is the 13th metro system to be operational in India (Wikipedia, 2024). It has been operational since 7th March 2019. Nagpur Metro Rail is operated under a special purpose vehicle (SPV), MAHA-METRO is a 50:50 company jointly shared ownership of Government of Maharashtra and Government of India (Nagpur Metro Rail Project, NA). Nagpur Metro Rail covers a total distance of 38.125 kms with 36 stations and 2 corridors (Nagpur Metro Rail Project, NA). The alignment of the rail network is spread across North-South corridor (Orange Line) running between Automotive Square station in North to Khapri station in South for a length of 19.658 kms comprising of 18 stations and across East-West corridor (Aqua Line) running between Prajapati Nagar station in East to Lokmanya Nagar station in West for a length of 18.557 kms comprising

of 19 metro stations (Nagpur Metro Rail Project, NA). The average count of daily ridership of Nagpur Metro Rail is approximately 76,000 (Arya, 2024).

INNOVATIVE BUSINESS PRACTICES BY NAGPUR METRO RAIL

Integrated Public-Private Partnership – Afcons Infrastructure is a company of Shapoorji Pallonji Group that has built and erected India's lengthiest double decker viaduct and Sitabuldi Metro Station of the Nagpur Metro Rail project, which is the highest metro interchange station in India. Along with it Afcons Infrastructure has also build the first four level transport corridor in India for the project of Nagpur Metro Rail. In totality around 51% of the total of the civil work was undertaken by Afcons Infrastructure for both the corridors of Nagpur Metro Rail (Shapoorji Pallonji & Company, NA).

In addition of Afcon Infrastrutre, other major private palyers that were involved are, RITES- DMRC has provided feasibility study consultancy, Anandjiwala Consultants facilitated the geotechnical investigation, Siemens Ltd. has developed signalling and train control system, L&T provided telecommunicatoin system, Schindler India Pvt. Ltd. supplied and installed elevators and escalators to name a few (Singh, 2022). In totality 21 major contractors worked in tandem as a

cohesive team in an integrated manner to co-ordinate the complex infrastructure multi dimensional networks of tasks setting up an example of an integrated public-private partnership.

Adaption of Advanced Technology – MAHA-METRO procured latest and most innovative technology to develop the project of Nagpur Metro Rail. The technology is called as Five Dimensional (5D) Building Information Modelling (BIM) for project automation. Its feature makes a visualisation of replicated yet exact structure of a construction entity, before the commencement of the building work. The 5D BIM is efficiently capable of designing and drawing of the construction work, quality management, entire documentation, site activity, budgeting and bill approvals etc. Many metro projects internationally like London, Dubai and New York are making an extensive use of this technology. This innovative business practice has saved Rs. 800 crores to Nagpur Metro Rail (Raval, 2018).

Environmental & Sustainable Development – The innovative, sustainable and environmental friendly initiatives makes the operations of the Nagpur Metro rail greenest metro rail projects in India. Solar panels installed on the depot boundary walls and shed, stations, rooftop supplies a total of 65% of the power electricity needs of the project. The water used for the project and its operations is also completely recycled (Excelize, NA). Further, Nagpur Metro Rail has installed 3 Bio-Digester plants (patented by Defence Research and Development Organisation). These plants process the used water by recycling that recycles 900 litres of water per day per station, ensuring a big save of essential water (Nagpur Metro Rail, 2020).

Community Engagement – As mentioned in the official website of Nagpur Metro Rail, a metro train of 3 coach can be reserved specially for the events like pre wedding party, kitty parties, birthday parties and similar other events (Nagpur Metro Rail Project, n.d.). A number of other events like can be organised in the Nagpur Metro rail, one of which was the fashion show organised recently on August 28th 2023 (Timesofindia.com, 2023).

Social Responsibility – Nagpur Metro Rail had pledged to develop 200 vertical gardens in the city. These vertical

gardens will be erected parallel to and in support to the pillars support the rail track and stations (Roy, 2018). These vertical gardens will support the cause of air pollution in the city.

Data Driven Decision Making – RIB iTWO technology software in collaboration with other critical digital project management components have made execution of the activities in faster way thereby saving about 20% to 25% of the time and also saving almost 10% of the cost. The technology has made the entire life cycle of the project cost-effective (Dixit, 2021).

Integrated Mobility Solutions – As the earlier research suggest that integrated mobility approach improves the multimodal integration in order to make metro rail a more preferred and attractive option to alternate public travel services available (Rico Merkert, 2020). Nagpur Metro Rail is characterised by the facility of integrated mobility. Feeder services listed on the official website of Nagpur Metro states availability of e-shooter operated by M/s KHS Associates and can be accessed by a mobile application called as Switch E-Rides, e-rickshaw is operated by M/s ETO Motors Pvt. Ltd. currently available at 9 selected metro stations and connecting bus service by Nagpur Municipal Corporation (Nagpur Metro Rail Project, n.d.).

Safety & Security Measures & Women Friendly Initiatives – With an aim to improve women safety and provide them with more comfort travel Nagpur Metro Rail has reserved an entire coach out of 3 coach of the metro rail. That means 33% of the seating and space in Nagpur Metro Rail is reserved for women passengers. This coach is always attached and available at the last of the rail coach in the direction of travel. This coach has been officially named as Nari Shakti Coach (Nagpur Metro Rail Project, n.d.). Other important supportive initiatives like baby care room, CCTV surveillance, QRTs (Quick Response Teams) have been been deployed (Nagpur Metro Rail Project, n.d.).

Innovative Revenue Generation Avenues – The revenue model of Nagpur Metro Rail can be classified into two, viz. fare revenue and non-fare revenue. For the financial years 2020-21, 2021-22 and 2022-23 the fare collection revenue for was Rs. 1.52 crore, Rs. 4.94 crore and Rs. 22.56 crore respectively. For the same financial years the revenue collection from non-fare collection

was Rs. 17.54 crore, Rs. 14.40 crore, Rs. 75.17 crore respectively. The non-fare revenue avenues for Nagpur Metro Rail has been advertisement, rent and lease, FSI – grant, share in stamp duty (Staff Reporter, 2023).

FUTURE PLAN FOR NAGPUR METRO RAIL

The phase 2 work for 43.8 kms of Nagpur Metro Rail has already commenced in the month of November 2023. By the mid of year 2027 the work of phase 2 has been targeted for completion. Phase 2 will be executed to further stretch the length of the rail network viz., Kanhan River towards North, Hingna and Butibori in South and Transport Nagar in East. The estimated cost of the phase 2 is ₹6,000 crore. Rail Vikas Nigam Limited (RVNL), a Navratna Central Public Sector Enterprises (CPSE) under the Ministry of Railways, Government of India has been awarded with the contract of the phase 2 of Nagpur Metro Rail (Arya, Metro Phase-2 to kick off next week, 2023).

CONCLUSION

High grade service quality characteristics can only be achieved by practicing efficient operations, integrated approach and execution excellence. The practices of efficient operations, integrated approach and execution excellence can be implemented by a way of innovative business practices that are integrated, adaptive, engaging, customer driven, data driven, environmental friendly and sustainable.

Nagpur Metro Rail has been an example of the above mentioned specialties of the innovative business practices in its planning, designing, construction, execution and operations.

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Optimizing Connectivity: Exploring Infrastructure and Telecom Integration for Sustainable Development

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ABSTRACT

This study investigates the connection between telecom connectivity and socio-economic sustainability. The researcher has collected primary data from 125 respondents through a structured survey, the research explores various dimensions of infrastructure and telecommunications integration and its implications for socio-economic development.

The findings of the study explore the views on the quality of infrastructure and internet connectivity. It also highlights dimensions such as availability and affordability of telecommunications services across urban and rural areas. In addition, the present study assesses the awareness of government initiatives, efforts of Telecom Regulatory Authority of India, effectiveness of policy frameworks and impact of socio-economic dimension for better connectivity.

The present study emphasizes the essential role of telecom connectivity in shaping India's sustainable development. It also highlights the need for comprehensive strategies that address infrastructural gaps, promote digital inclusion and foster collaborative governance.

KEYWORDS: *Telecom, Infrastructure, Digital, TRAI, Connectivity.*

INTRODUCTION

In the vibrant tapestry of India's socio-economic landscape, the optimization of connectivity stands as a paramount imperative for driving inclusive and sustainable development. With its vast geographical expanse and diverse demographics, India grapples with unique challenges and opportunities in harnessing the transformative power of infrastructure and telecommunications integration. As we embark on this exploration of "Optimizing Connectivity: Exploring Infrastructure and Telecom Integration for Sustainable Development" within the Indian context, it becomes essential to navigate the intricate interplay between

tradition and innovation, diversity and unity, and aspirations and realities.

India's journey towards optimizing connectivity is deeply rooted in its rich tapestry of physical infrastructure, spanning from ancient trade routes to modern transportation networks. Roads, railways, ports, and airports serve as the lifeblood of the nation, facilitating the movement of goods, services, and people across vast distances.

Telecommunications, encompassing mobile networks, broadband internet, and digital technologies, has emerged as a powerful enabler of socio-economic

progress in India. With one of the world's largest and fastest-growing digital populations, India has witnessed a digital revolution that transcends urban-rural divides, empowering citizens with access to information, services, and opportunities. From e-governance initiatives to digital payment platforms, telecommunications bridge the digital divide, fostering inclusivity and empowering marginalized communities.

Public-private partnerships (PPPs) emerge as a cornerstone for effective implementation, leveraging the complementary strengths of government institutions, industry stakeholders, and civil society actors. Collaborative initiatives such as the Smart Cities Mission and the National Digital Health Mission exemplify India's efforts to harness the synergies between infrastructure and telecommunications to address pressing socio-economic challenges.

As India embarks on its journey towards optimizing connectivity for sustainable development, the stakes are high, but so too are the opportunities. Through concerted efforts at the policy, partnership, and technological fronts, India can pave the way towards a future where connectivity serves as a catalyst for positive change and human flourishing, echoing the spirit of "Sabka Saath, Sabka Vikas" (Collective Effort, Inclusive Growth).

REVIEW OF LITERATURE

(Aswal, 2020), discussed the quality infrastructure in his article entitled "Quality Infrastructure of India and Its Importance for Inclusive National Growth". The researcher highlighted the need of quality infrastructure demanded by various stakeholders. The researcher explained the term quality infrastructure and mentioned that quality infrastructure is an invisibly drives the goals of various stakeholders.

(Ndubuis, Otioma, & Tetteh, 2021) identified the gap of digital infrastructure on services sector. The researcher has studied various macro-economic conditions such as inflation, education and quality of institution to understand the effects of digital infrastructure on employment in services sector. The findings of the study contributed significantly in increase in employment in services sector. The researcher has suggested through findings that, the Information and Communication Technology tools having an scope to improve digital inclusion and decrease the inequality.

(Singh, Mishra, & Farooq, 2020) in their article entitled "An assessment of user's awareness about Indian telecom industry and their assessment of affordability of telecom services in India" mentioned that the Indian telecom sector ranked 2nd largest telecom sector and developed considerably after implementation of National Telecom Policy 1994. The researcher has found differences in perceptions of affordability as 85% of respondents said telecom services were reasonable. The researcher has analysed the data with regression analysis and revealed that respondent's views of affordability are meaningfully influenced by awareness.

(Ezeigweneme, Umoh, Ilojiana, & Adegbite, 2024) has mentioned the upcoming challenges faced by the telecom industry worldwide due to the increase in the data traffic and the environmental issues arising out of this infrastructure. The paper focuses on strategies for sustainable development in this sector. The study emphasizes the benefits of adopting a comprehensive strategy for telecom energy efficiency, which might involve deploying energy-efficient hardware, utilizing green data centers with cutting-edge power management tools, putting in place intelligent power management systems, and streamlining network traffic.

RESEARCH OBJECTIVES

The present research is carried out with the following research objectives:

- To study the quality of transportation & telecommunication infrastructure
- To study the accessibility of transportation & telecommunication Services
- To assess the effectiveness of government initiatives and policies in increasing the connectivity of rural areas
- To study the socio-economic impact of the enhanced connectivity on sustainable development

RESEARCH METHODOLOGY

The present research is based on primary and secondary data. Researcher has collected data from various articles, reports, periodicals, magazines, news paper and websites of telecom service providers. The researcher has analyzed the available secondary data and interpreted accordingly.

DISCUSSIONS AND ANALYSIS

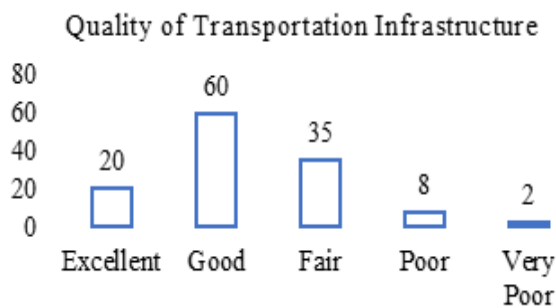
Demographic Profile of Respondents

Table 1: Details of Demographic Profile of Respondents

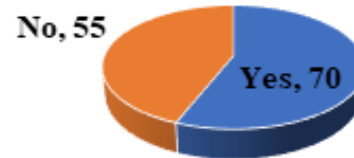
Demographic Category	Parameter	No. of Respondents
Age	18 – 30 years	45
	31 – 50 years	55
	Above 50 years	25
Gender	Male	72
	Female	53
Location	Urban	80
	Rural	45

The demographic profile of respondents presents a diverse range of representation in the sample. While the majority fall within the 31-50 years' age range, indicating a significant presence of working professionals, there's also a considerable representation of younger individuals aged 18-30 years. The researcher has observed that a blend of perspectives encompassing both digital natives and those with more traditional experiences. Moreover, the gender distribution shows a slight skew towards male respondents as compared to female respondents, highlighting the need for ensuring gender-inclusive approaches in connectivity and sustainable development initiatives. Largely, these demographic insights highlight the significance of considering diverse perspectives and needs when formulating policies and interventions aimed at improving connectivity and promoting sustainable development. (Table 1)

Infrastructure

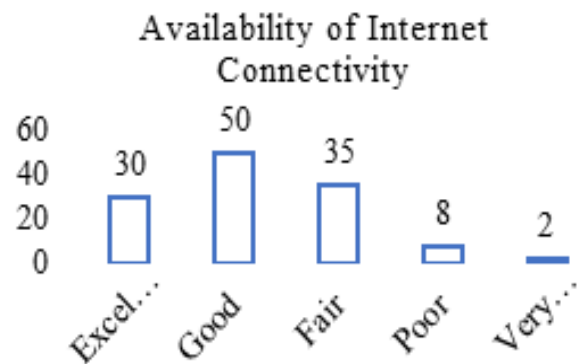


Access to Reliable Public Transportation Services



The researcher has found that the assessment of transportation infrastructure quality among respondents reflects a mixed perception, with a majority rating it as “good.” However, significant proportions also perceive it as “fair” or below, indicating room for improvement. Despite this, a majority report access to reliable public transportation services, suggesting a nuanced relationship between perceived infrastructure quality and actual service availability. These findings underscore the need for targeted interventions to enhance both infrastructure quality and service accessibility, ensuring equitable access to reliable transportation for all individuals across different regions and communities.

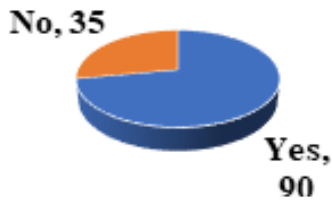
Telecommunications



Access to Affordable Telecommunication Services



Improvements in Telecom Infrastructure



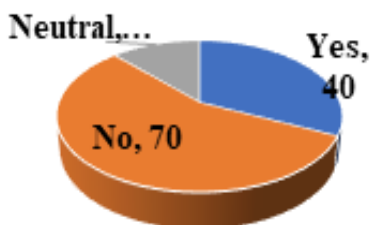
The telecommunications-related responses highlight varying perceptions and experiences among respondents. While a significant number rated the availability of internet connectivity positively, with a considerable portion indicating it as “good” or “excellent,” there were still concerns raised, with a notable minority rating it as “fair,” “poor,” or “very poor.” Moreover, the overwhelmingly positive response regarding improvements in telecommunications infrastructure (90 respondents) suggests a general acknowledgment of progress in this area, although a substantial minority (35 respondents) still perceives room for enhancement. Overall, these findings underscore the importance of continued efforts to address connectivity challenges and ensure equitable access to reliable and affordable telecommunications services for all.

Policy and Governance

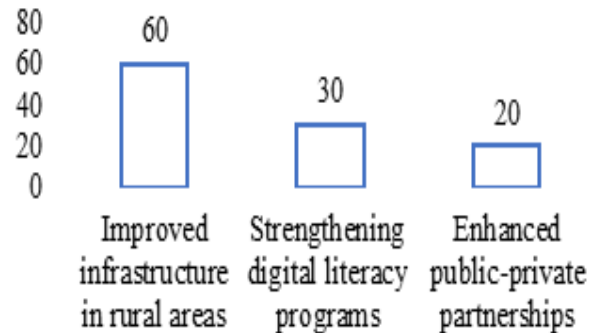
Awareness of Government Initiatives



Effectiveness of Government Policies for Rural Areas



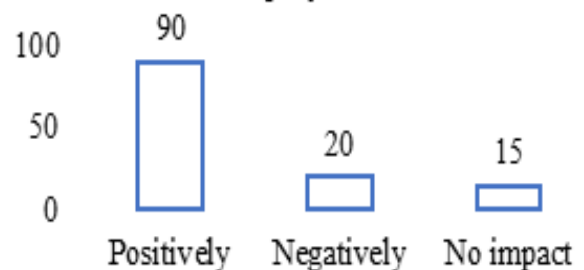
Suggestions for Policymakers

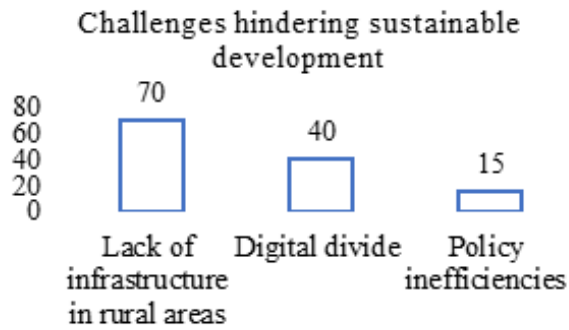


The responses pertaining to policy and governance highlight a nuanced perspective among respondents. While a majority demonstrated awareness of government initiatives aimed at improving connectivity and development, a significant proportion expressed skepticism regarding the effectiveness of these policies, particularly in addressing the connectivity needs of rural areas. The suggestions provided by respondents for policymakers underscored the importance of targeted interventions, with a predominant emphasis on improving infrastructure in rural areas, strengthening digital literacy programs, and enhancing public-private partnerships. These findings indicate a recognition of the need for more focused and inclusive policy measures to address the infrastructural and socio-economic disparities between urban and rural areas, ultimately fostering more equitable and sustainable development across regions.

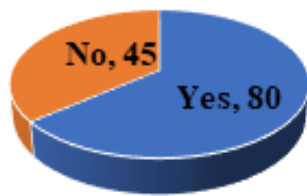
Socio-Economic Impact

Effect of improved connectivity on access to education and employment





Observations of socio-economic benefits



The socio-economic impact-related responses provide insights into the perceived benefits and challenges associated with improved connectivity. The overwhelming majority of respondents acknowledged the positive effect of enhanced connectivity on access to education and employment opportunities, indicating its transformative potential in empowering individuals and fostering socio-economic advancement. Additionally, a significant proportion observed socio-economic benefits resulting from improved connectivity, highlighting its role in driving inclusive growth and development. However, respondents also identified persistent challenges hindering sustainable development, including the lack of infrastructure in rural areas, the digital divide, and policy inefficiencies. These findings underscore the importance of addressing infrastructural gaps, promoting digital inclusion, and enhancing policy frameworks to ensure equitable access to the socio-economic opportunities enabled by connectivity.

CONCLUSION

In conclusion, the findings of this study underscore the critical importance of connectivity in driving sustainable development within the socio-economic landscape of India. Through the exploration of infrastructure

and telecommunications integration, we have gained valuable insights into the multifaceted dimensions of connectivity and its implications for socio-economic progress.

The study reveals a nuanced understanding of the state of connectivity in India, highlighting both achievements and challenges. While there have been notable improvements in transportation infrastructure and telecommunications services, disparities persist between urban and rural areas, exacerbating the digital divide and hindering inclusive development.

Furthermore, the research sheds light on the role of government policies, public-private partnerships, and technological innovations in shaping connectivity outcomes. While government initiatives such as Digital India have contributed to advancements in telecommunications infrastructure, there remains a need for more targeted interventions to address infrastructural gaps and promote digital literacy in underserved communities.

The socio-economic impacts of enhanced connectivity are evident, with positive outcomes observed in terms of improved access to education, employment opportunities, and socio-economic empowerment. However, persistent challenges such as policy inefficiencies and infrastructural constraints underscore the importance of comprehensive strategies that prioritize inclusivity, equity, and sustainability.

Moving forward, it is imperative for policymakers, practitioners, and stakeholders to collaborate effectively in harnessing the transformative power of connectivity for sustainable development. This entails bridging infrastructural gaps, promoting digital inclusion, and fostering an enabling environment for innovation and collaboration. By prioritizing connectivity as a fundamental pillar of development, India can unlock new pathways to inclusive growth, social equity, and environmental sustainability.

In conclusion, this study contributes to a deeper understanding of connectivity dynamics in the Indian context and provides actionable insights for driving progress towards a future where connectivity serves as a catalyst for positive change and human flourishing.

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A Study of Sales Promotion and Advertisement Strategy on Buying Behavior of Customer

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ABSTRACT

The Paper aims to focus on the sales promotion activities by marketer and advertisements impact on the customers mind and their switching on brands due to promotion and advertisement.

Sales promotion is done by marketer to grab the attention of customer and use to promote short term sales where advertisement is featured to build image of product and influence the customer to buy the product. The analysis is done in the paper by primary data collection in Wardha city using Supermarkets sales promotion activity.

The study relates with showing how the sales promotion is helpful in generation of revenues, using tactics in promotion sales tools like discounts, coupons, offs, etc. Sales promotion is an important factor of any firm inclusion of advertising, marketing strategies, personal selling etc.

This work also highlights the advertisement strategies used in market now a days which is a descriptive type.

KEYWORDS: Sales promotion, Advertising, Purchase behavior, Revenue.

INTRODUCTION

Sales promotion and Advertisement are done to attract the customers and bring the traffic of sales for the products and services offered by marketers in the business.

The sales promotion and advertisements are the terms which have same purpose of generating the revenues from the customers.

Though the Advertising is a long-term strategy as when marketer creates an advertisement with support of advertisement company it helps keep it for a long time. While sales promotion is a short-term strategic approach which last only a few days.

The descriptive study of Advertisement focuses on the current trends of marketing Strategies used by the marketers online to generate the traffic is described in the paper.

OBJECTIVES

- To know how sales promotion works in concern with its tactics of marketers and its effect on customers.
- To study the buying behavior of customers in concern with sales promotion and advertisement.
- To know the sales promotion and advertisement strategies of marketers.
- To find the effect of advertisement in the minds of customers in acquiring and brand switching.
- To know how Sales promotions build brand attributes in the minds of customers.

STUDY AREA

Overview of Sales promotion

The one element of promotional mix is sales promotion and others are advertisement, direct marketing public relation marketing etc. In Sales promotion the promotion

is for short time and which increases customers in very short time and demands are found to be risen in very short time thereby increasing the revenue for the product.

Some examples of sales promotion are creating contests, sale on products, free items on product purchase, extra addition on quantity wise, etc.

Scope of sales Promotion: -

- The working of sales promotion is as per as the directions of firms to customers done by sales people or distribution channels.
- When the customers are targeted through sales promotion is called as consumer sales promotion and when retailers and wholesalers are targeted is known as trade sales promotion.
- It doesn't use single techniques it uses a set of techniques like discounts, discounts, coupons, event marketing, price packs, contests, samples, etc.

Objectives of sales Promotion: -

- It creates market for the product which is new in the market by establishing a brand in full of competitors.
- It remains competitive in the market because companies get the momentum by using temporary sales promotion.
- It increases brand awareness to the customers getting incentives provided by marketer therefore more chances of being known to customers.
- During the off season of the products sales peak gets lowered and, in such cases, providing the sales campaign of lowering the products brings the traffic of customers increasing the sales.

Advertisement Strategies-

The marketer uses many strategies for advertising his products and advertising products online bring sales because right audience at right platform strategy works in online advertisement. Also, it is said that "a little budget can go a long way" therefore a marketer should use different strategic measures to boost up the sales in market as follows;

Content Marketing: -

Here the sales are promoted by creating blogs, webinars which are valuable and informative to connect the audience for your brand.

Social Media Marketing: -

Advertise your product where you find the audience so, it is the platform where we can target the customer who are on Facebook, Instagram, twitter, etc. To aware, make traffic, generate leads and insights of your customers.

Search engine optimization: -

SEO it is a platform where we have to put keyword of the required products it will bring the number of websites and information you are searching for.

E-mail marketing: - E-mail marketing is the type of marketing is used extensively for any product for sales promotion and advertisements. E-mails are forwarded to customers about the product details, discounts, promotion links to bring the sales and generate revenues.

Influencer Marketing: - The marketing in which the products are marketed on the of an influencer whom people follow and where you find the traffic of customers. The individuals who have a devoted social following and are observed as experts within their niche.

Affiliate marketing: -

The marketing in which the marketing of products is done on other platforms like social media, websites or blogs.

Landing pages: -

It is a type of strategy in which the templates are designed for advertising the products.

Online advertising: -

It is very effective way of advertising a product online which target, track and measure efforts.

Retargeting: -

The marketing where the customers are targeted who have already seen your products and shown some kind of interest. It helps to generate leads, increase brand awareness, and drives sales.

LITERATURE REVIEW

1. Blattberg, Peacock and Sen 1976 define the purchasing as according to the patterns of customers in their buying seeing their brand loyalty, deals mentioned, susceptibility of customers, etc. And according to author by observing the customers response on buying behavior can help the marketer to develop different promotional programs on customer behavior understandings.
2. Wilson, Newman, and Hastak 1979 finds that promotion is allied with the purchase hastening of customers and hence if promotions are increased automatically the purchase gets increased. And as soon as the promotion gets decreased the sluggishness of products are observed.

 Researchers are analyzing that the brand choice of customers are associated with the promotional activities of managers.
3. Davidson et al, 1984, finds that sometimes the purchase decisions are taken on the emotional objects of customers however not by the seller or customer mind.
4. Blattberg and Neslin, 1990 the sales promotion is the target -focused marketing which impacts on the behavioral patterns of customers. Among the three main sales promotion like retailer promotion, trade promotions and consumer promotion the consumer promotion are offered directly by manufacture to retailers. Whereas the trade promotions provide offering by manufacturer to retailers.

Hypothesis

H01: The customers of Wardha district do not gets biased by Sales Promotion

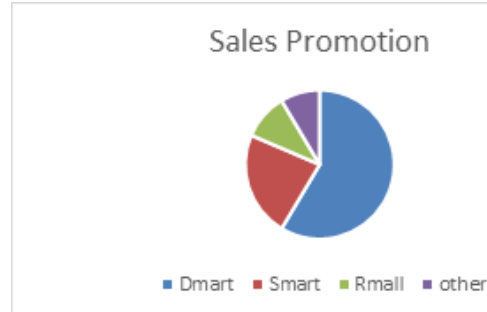
H02: The customers of Wardha gets biased by Sales Promotion.

Data Interpretation

Table 1. Shows the data which is being taken from the customers of Wardha who visits supermarket and gets attracted by the sales promotion strategies and the way revenues being generated by customers.

Table 1. Data of customers

Supermarket	Sales promotion Percentage
DMART	50%
SMART	20%
RMALL	20%
OTHERS	10%



The pie chart showing the percentage of customers attracted by the strategy of sales promotion by supermarkets.

Hence, it is proved from the above chart that the customers of Wardha are attracted by the sales promotion activities by the supermarkets in Wardha.

CONCLUSION

Paper attempts to aim the Analytical as well as Descriptive data to research paper about the Sales promotion and Advertisement Strategy used by marketer; concludes to the various strategies by marketers are positive and customers have impact of sales promotion and Advertisements in their minds. And Online Advertisement have generated a huge traffic to the sales promotion of the different brands which are advertised.

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Investor's Perception of Engagement and Technological Advancement on the Option Trading Platforms

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ABSTRACT

This study delves into the investor's perception of engagement and technological advancement on option trading platforms in the context of the Vidarbha region of India. Utilizing primary data collected through a structured questionnaire distributed via Google Forms and secondary data obtained through a literature review, the research examines the relationship between age groups and their engagement in option trading, as well as their satisfaction with the technological features of trading platforms. With a sample size of 352 respondents primarily from Nagpur city and its environs, the findings indicate a predominance of young traders aged 18 to 34 years, suggesting a growing accessibility to trading platforms due to technological advancements. Statistical analysis, including chi-square tests, supports the acceptance of hypotheses related to both engagement on option trading platforms and satisfaction with technological features, highlighting significant relationships between age groups and these variables. The study underscores the necessity of education in the option trading segment despite the educational qualifications of the respondents. Moreover, it sheds light on the preference for specific trading platforms, with "Grow" being a notable choice among respondents. Additionally, insights into the support for extending trading hours for index futures are discussed. These findings contribute to understanding investor behaviour and preferences in the realm of option trading, thereby informing strategies for market participation and platform development.

KEYWORDS: *Option trading platforms, Investor engagement, Technological advancement, Investment, Trading hours, Age groups.*

INTRODUCTION

In recent years, the landscape of investment strategies has undergone a profound transformation, particularly in emerging markets like India. Amidst this evolution, option trading has emerged as a dynamic and increasingly popular avenue for investors seeking to navigate the complexities of financial markets. This research endeavors to delve into the multifaceted dimensions of the option trading revolution in India, with a particular focus on understanding the cultural influences, technological advancements, and trends shaping this dynamic landscape.

Buying and selling options contracts, which grant the holder the right but not the duty to purchase or sell an underlying asset at a predefined price within a given

time frame, is the basis of the financial technique known as option trading. It's an attractive means for investors to make money, hedge against risk and speculate on market fluctuations. A derivative gets its value from an underlying asset.

Investor perceptions of risk and return on investment differ from one another. Investments with high returns are always preferred by investors. Investors are more engaged in the derivatives market in recent years in comparison to government bonds, fixed deposits, real estate, etc. The primary cause of the low number of investors in the derivatives market is knowledge about the market. Each person may have a different capacity for taking risks. The volatility that exists in the financial market is well-known.

Furthermore, this research delves into the adoption and impact of technology in option trading within the Indian context. The advent of advanced trading platforms, algorithmic strategies, and high-frequency trading has revolutionized the way investors engage with options. Through a comprehensive literature review and empirical data collection, we aim to elucidate the extent to which technological innovations have permeated the option trading landscape in India. Moreover, we seek to assess the ramifications of these advancements on market liquidity, trading efficiency, transaction costs, and the accessibility of options trading to retail investors.

According to a CNBC survey [14], 39 million options contracts have traded on a daily average this year, up 35% from 2020. Currently, almost 25% of trading activity is contributed by up of retail investors. But when compared to more advanced strategies like options spreads, the majority of these beginners are purchasing the most basic call and put options, which have a substantially lower probability of success.

LITERATURE REVIEW

Manjushri Kadam and Dr. Shabana A Memon (2021) [1]; A Memon underscores the significance of investment in securing one's financial future. It emphasizes the importance of saving and selecting the most suitable investment options to attain financial stability and good returns. While the abstract outlines the intention to create awareness about investment choices and decision-making processes, a detailed literature review would likely explore existing research on investment strategies, risk management, and the role of various financial instruments in achieving investment goals.

S. Umamaheswari, Abijhit Anand, N. Nithya, (2022) [2]; The study addresses the evolving landscape of investor preferences in India, particularly focusing on futures and options trading. The paper traces the shift from traditional investment avenues like fixed deposits to more dynamic options such as mutual funds and ultimately to the stock market. It highlights the increasing risk appetite among investors seeking higher returns, leading to the exploration of derivatives like options and futures. Despite varying levels of knowledge and reliance on external sources for decision-making, the study emphasizes the importance of understanding

demographic profiles, risk perceptions, awareness levels, and key influencing factors in shaping investors' engagement with F & O trading in the Indian stock market.

Pinkal Shah, (2019) [3]; The author's study focuses on employing the Commodity Channel Index (CCI) as a technical analysis tool for options trading in the NSE's NIFTY index in India. It acknowledges the complexity of option pricing, particularly in the context of increasing trading volumes. The research aims to identify periods of heightened volatility using CCI momentum indicators to capitalize on potential price movements in options. By back testing historical data and assessing risk-return metrics, the study suggests positive outcomes for aggressive traders utilizing CCI-based strategies, particularly emphasizing short-term trading opportunities with a two-week timeframe.

Prof. Shalini H S, Dr. R. Duraipandian, (2014) [4]; This analysis delves into the role of option trading strategies as a pivotal component of financial engineering. Financial engineering, leveraging mathematical techniques, spans various sectors and employs interdisciplinary tools to tackle financial challenges and innovate new products. The paper contextualizes the proliferation of derivative trading since the inception of the Chicago Board Options Exchange in 1973 and the pioneering work of Fischer Black and Myron Scholes in option pricing models. Through examining diverse option trading strategies, the study underscores their efficacy in managing risk across bullish and bearish markets, thus elucidating their significance within the realm of financial engineering.

Sujoy Kumar Dhar, (2013) [5]; Sujoy Kumar Dhar's paper offers a comprehensive examination of derivative trading in India with a focus on risk management. It underscores the significance of derivatives in financial risk management, highlighting their widespread usage by various entities including financial institutions, corporate treasurers, and fund managers. The study aims to identify and analyze hedging, speculation, and arbitrage strategies using derivative contracts, particularly focusing on managing portfolios of retail investors, HNIs, and QIBs. Utilizing secondary information and real-life experiences, the paper contributes a novel perspective on integrating

derivative instruments into enterprise risk management, banking risk management, and investor portfolio risk management.

Hemraj Kawadkar, Tushar Kadu, (2022) [6]; This paper offers a comprehensive guide to options trading strategies targeted at new investors. It elucidates various aspects of option trading with clarity, emphasizing downside risk assessment, a crucial aspect often overlooked by traders. The study presents both theoretical and practical frameworks of option trading strategies, encompassing combinations of short and long positions for call and put option. Its aim is to disseminate awareness among options traders, underscoring the significance of options as a vital investment and trading tool in the derivatives market.

Dr. Vinay Kandpal, Mr. Rajat Mehrotra, (2020) [7]; The study explores the application of behavioral finance to investment decision-making, with an emphasis on Indian investment behavior. Through a survey of faculty members in Uttarakhand, the research analyzes factors influencing investment decisions, emphasizing the significance of investor behaviour. The study highlights the multifaceted considerations involved in investment decision-making, including personal goals, spending habits, perception towards investments, risk tolerance, and expected returns. It underscores the importance of understanding individual behavioural traits and financial circumstances in making informed investment choices, shedding light on the complexities of investment behaviour in the Indian context.

Ashima Saxena, Bhavesh Prakash Joshi, (2020) [8]; With a focus on the National Capital Region in Delhi, the study investigates the connection between investors' demographic characteristics and their inclination to save. It acknowledges the impact of advancements in financial and capital markets, along with awareness programs facilitated by regulatory bodies like SEBI, in enhancing investor confidence and participation. By analyzing various saving options in the Indian markets, the research unveils gender-specific preferences, highlighting mutual funds among males and gold among females. Moreover, it identifies significant associations between saving preferences and demographic factors such as occupation, academic qualification, income, and marital status, offering valuable insights into investor behaviour in the region.

Keming Li, (2021) [9]; The study hypothesizes that active option markets mitigate information asymmetry and lower the cost of capital, thereby encouraging firms to engage in more investment and financing activities. Analyzing U.S. public data, the paper finds that increased option trading volume correlates with heightened corporate financing and investment, alongside reduced cash holdings and payouts. These findings persist across various controls and measures, particularly benefiting firms facing greater information asymmetry challenges. Additionally, the results contradict the "quiet life" and catering hypotheses, providing valuable insights into the dynamics of option trading in corporate decision-making.

Mr. Thjhamoetharan. A, Dr. G. Prabakaran, (2013) [10]; The study examines investors' perceptions of the derivatives market in India, focusing on Dharmapuri district. Derivatives trading presents complexity, posing challenges for Indian investors seeking to comprehend and profit from it. Utilizing systematic sampling, the research gathers data from 150 respondents. Key findings highlight age and educational qualifications as influential factors in investment decisions, with 118 variables utilized to gauge investors' perceptions. Notably, charges, liquidity, and investment attributes act as mediating factors, underscoring the importance of investment influences and benefits in shaping investor perceptions within the derivatives market.

Sonali Patil, Dr. Kalpana Nandawar, (2014) [11]; The study looks into the investing avenues that Pune, India's salaried population prefers. Identifying investment as a savings-related activity, the study looks at a range of choices, including bank deposits, mutual funds, gold and real estate. Conducted through personal interviews and structured questionnaires with 40 salaried employees, the study employs statistical analysis to determine factors influencing investment selection. Findings indicate a preference for safety and good returns among respondents, with awareness of available investment avenues, though female investors exhibit lesser awareness. This research contributes insights into the investment behaviour of salaried individuals in Pune, India.

Hypothesis Formulation

H01: Young group traders are not engaged in option trading as compared to older group traders.

H02: Young group traders are not satisfied with the technological features of option trading platforms as compared to older group traders.

RESEARCH METHODOLOGY

The study examined investors’ perceptions of technology advancement and involvement on Indian option trading platforms using primary and secondary data collection. The goal of the research is to offer a thorough grasp of the topic being studied, gaining valuable insights into its area of study.

Primary Data

Through survey method using a structured questionnaire. The data through the questionnaire was gathered through Google forms.

Secondary data

Literature review through J-gate online journals and website. Other relevant data through different websites.

Sample Size

352 samples were gathered.

Sampling frame

The sampling frames shall be individuals above 18 years of age and resides in the Vidarbha region.

Sampling technique:

Convenience Sampling.

ANALYSIS & OUTCOME

Data analysis was conducted using 352 fully completed responses acquired through an online questionnaire. There were 41.5% female and 58.5% male participants among the responses. Around 77.8% of the sample belonged to the 18 to 24 age group, whereas 17% was in the 25 to 34 age group. Among the respondents, 47.7% holds bachelor’s degree, and 50.6% holds Master’s degree. The questionnaire was administered in Nagpur city and its surrounding areas, collectively referred to as the Nagpur region.

Chi-square Test Statistics

H01: Young group traders are not engaged in option trading as compared to older group traders.

Table 1: Cross Tabulation for H01

Crosstab				
Count				
		Technological Feature		Total
		1	2	
Age	O	18	0	18
	Y	326	8	334
Total		344	8	352

Table 2: Chi-Square Tests for H01

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.285 ^a	1	.594		
Continuity Correction ^b	.070	1	.792		
Likelihood Ratio	.275	1	.600		
Fisher's Exact Test				.595	.383
N of Valid Cases	352				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.01.					
b. Computed only for a 2x2 table					

DISCUSSION

Pearson chi-square value is 0.285, as a significance value 0.594 > 0.05, thus, H01 is accepted. Now it proves young group traders are engaged in option trading as compared to older group traders.

H02: Young group traders are not satisfied with the technological features of option trading platforms as compared to older group traders.

Table 3: Cross Tabulation for H02

Crosstab				
Count				
		Engagement		Total
		1	2	
Age	O	6	12	18
	Y	92	242	334
Total		98	254	352

Table 4: Chi-Square Tests for H02

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.441 ^a	1	.507		
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.850	1	.357		
Fisher's Exact Test				1.000	.654
N of Valid Cases	352				
a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is .41.					
b. Computed only for a 2x2 table					

DISCUSSION

Pearson chi-square value is 0.441, as a significance value $0.507 > 0.05$, thus, H02 is accepted. Now it proves young group traders are satisfied with the technological features of option trading platforms as compared to older group traders.

HYPOTHESIS TESTING

Table 5: Hypothesis Result

	Hypothesis	Result
H01	Young group traders are not engaged in option trading as compared to older group traders	Accepted
H02	Young group traders are not satisfied with the technological features of option trading platforms as compared to older group traders	Accepted

Discussion

With a Pearson chi-square value of 0.285 and 0.441 and a significance value of 0.598 and 0.507 respectively, which is more than the conventional threshold of 0.05, both the hypothesis is accepted. This suggests that there exists a relationship between age group and engagement and technological factors respectively.

FINDINGS

The analysis of the data obtained from 352 respondents reveals significant insights into the relationship between age group and engagement on option trading platforms and the relationship between age group and technological advancements in option trading platforms. Firstly, the demographics of the respondents indicate a predominantly young population, with a majority falling in the age group of 18 to 34 years.

This demographic trend is in line with global patterns, highlighting the accessibility of option trading platforms due to increased technological advancements.

The chi-square test results demonstrate both the hypothesis accepted. Now it proves that there is a relationship between age group and engagement on option trading platforms and the relationship between age group and technological advancements in option trading platforms.

CONCLUSION

The findings of the study underscore the critical need for education in option trading segment. As a majority of the respondent should a bachelor’s degree and a master’s degree and still few are unaware of the option trading segment. From this “Grow” is the option trading platform which is used by the respondents. Around 27.9% engage in the option trading activities. Also, around 46% of the respondents are satisfied with the technological features and tools offered by the option trading platform.

According to a report, the idea to extend the trading hours for index futures has received in-principle support from the Association of National Exchange Members of India (ANMI). The study indicates that 47.7% of respondents are in favor of extending market trading hours past the current schedules.

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Circular Supply Chains: A Literature Review on Optimization Strategies and Performance Measurement Frameworks

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ABSTRACT

Circular supply chains (CSCs) are rising in popularity due to their emphasis on sustainability (Eltayeb et al., 2023). These models prioritize minimizing waste by extending product lifespans through reuse, refurbishment, and recycling (Ghisellini et al., 2016). To ensure their success, CSCs require optimization strategies and effective performance measurement. Optimization focuses on areas like designing products for disassembly and remanufacture, planning production around product lifecycles, and optimizing reverse logistics for used products. Additionally, managing remanufactured product inventory and designing networks for circular flows are crucial. Mathematical modeling, simulation, and other techniques can aid in achieving these goals. Measuring performance in CSCs is challenging because traditional metrics often overlook environmental and social impacts (Amini et al., 2021). Frameworks exist to evaluate circularity and consider the “triple bottom line” of economic, environmental, and social performance (Pedersen et al., 2021). By effectively optimizing operations and measuring performance, CSCs can achieve resource efficiency, reduce environmental impact, and contribute to a more sustainable future.

KEYWORDS: *Circular supply chains, Optimization strategies, Performance measurement frameworks.*

INTRODUCTION

Embracing Circularity in Supply Chains

Sustainability concerns are driving businesses to adopt circular supply chains (CSCs) that minimize waste and conserve resources. Unlike traditional linear models, CSCs are closed-loop systems where products are reused, refurbished, or recycled (Eltayeb et al., 2023). This cyclical approach benefits the environment by reducing reliance on virgin materials, waste generation, and greenhouse gas emissions (Adoma et al., 2020). Additionally, CSCs offer economic advantages like cost savings and new revenue streams (Jawahir et al., 2018).

However, implementing CSCs requires significant changes in supply chain management. Optimizing each stage, from product design to used product collection, is critical for success (Falagoutsas et al., 2019). Traditional optimization techniques need to be adapted to address the complexities of circular models, such as designing products for disassembly and remanufacture (Umeda et al., 2020). Efficient reverse logistics for used products also presents new challenges (Jawahir et al., 2018).

Measuring CSC performance requires a broader view than traditional models, which often focus solely on cost and revenue. Frameworks that consider the “triple

bottom line” of economic, environmental, and social impacts are needed (Amini et al., 2021; Pedersen et al., 2021). Developing robust performance measurement specific to circularity is essential to track progress and identify areas for improvement.

This review explores these two key areas: optimization strategies and performance measurement frameworks. By examining existing research, it aims to provide insights for businesses to optimize their CSCs and effectively measure their performance.

Objectives

- A. Analyze optimization strategies for circular supply chains (CSCs): This objective involves examining existing research on strategies specifically designed to optimize various stages within CSCs, such as product design, production planning, reverse logistics, and network design.
- B. Evaluate performance measurement frameworks for CSCs: This objective focuses on assessing existing frameworks used to measure the performance of circular supply chains. The review explore frameworks that address the “triple bottom line” (TBL) of economic, environmental, and social performance, identifying their strengths and limitations in capturing the unique aspects of circularity.
- C. Identify knowledge gaps and future research directions: By analyzing existing research on optimization and performance measurement for CSCs, this objective aims to identify areas where knowledge is limited or lacking.

Scope of Research

This literature review focus on academic research papers published within the past five years (2019-2024) that explore optimization strategies and performance measurement frameworks for circular supply chains. The review encompass research across various industries and product types, highlighting how optimization and performance measurement considerations may differ based on specific contexts.

Problem Statement

While the concept of circular supply chains presents a promising approach for achieving sustainability within

supply chain management, effectively implementing these models requires overcoming challenges related to optimization and performance measurement. Traditional optimization techniques and performance metrics may not be directly applicable to the complexities of circular models. This research aims to address this gap by examining existing literature on optimization strategies and performance measurement frameworks specifically designed for circular supply chains.

RESEARCH METHODOLOGY

This research employ a systematic literature review methodology. Relevant academic databases, such as Google Scholar, EBSCO, and ScienceDirect, be searched using keywords related to circular supply chains, optimization strategies, and performance measurement frameworks. The search be limited to English-language research papers published within the specified timeframe (2019-2024). After initial screening based on titles and abstracts, a more detailed selection of relevant research papers be chosen for full-text analysis.

LITERATURE REVIEW

Optimization Strategies for CSCs

This section examines key optimization strategies for CSCs (2018-2024 research). We explore design, production planning, reverse logistics, and network design, analyzing their effectiveness and the optimization techniques used.

Design for Disassembly and Remanufacture

CSCs thrive on products designed for disassembly and remanufacture (Umeda et al., 2020). This means building features that make taking them apart easier, allowing parts to be reused or remade later (lifecycle benefit).

Production Planning for Product Lifecycles

Unlike traditional models, CSC production plans need to handle both new and remanufactured parts (Falagoutsas et al., 2019).

Reverse Logistics Optimization

Reverse logistics in CSCs handle used products for reuse/ remanufacturing (Jawahir et al., 2018). Optimizing these networks is key (De Souza et al., 2023).

Network Design for Circular Flows

CSC networks need to handle both new materials and used products efficiently (Falagoutsas et al., 2019). Singh et al. (2022) address this challenge by proposing a network design model for remanufacturing that considers uncertainties in demand for remanufactured goods.

Optimization Techniques

Various optimization techniques are employed to achieve the strategies mentioned above. These techniques can be broadly categorized as:

- **Mathematical modeling:** This technique involves formulating mathematical models that represent the complex relationships within a CSC. These models can then be used to optimize decision-making regarding factors like production planning, inventory management, and network design (De Souza et al., 2023).
- **Simulation:** Simulation techniques allow for the creation of virtual models of a CSC to evaluate different optimization strategies and their impact on performance before real-world implementation (Adoma et al., 2020).
- **Heuristics:** Heuristics are problem-solving techniques that provide approximate solutions to complex optimization problems.

DISCUSSION AND ANALYSIS

The literature review on optimization strategies and performance measurement frameworks for circular supply chains (CSCs) reveals a dynamic field brimming with potential for achieving sustainability within supply networks (Eltayeb et al., 2023); (Adoma et al., 2020). This section synthesizes the key findings, analyzes potential synergies and trade-offs between optimization strategies, and explores how performance measurement frameworks can be used to assess their effectiveness.

Synthesis of Findings

Optimizing circular supply chains (CSCs) requires specific strategies throughout each stage. Designing products for disassembly and remanufacture (DfD) with Life Cycle Engineering (LCE) principles is crucial for maximizing product lifecycles and resource recovery

(Umeda et al., 2020; Jawahir et al., 2018). Production planning must account for both new and remanufactured parts, necessitating accurate forecasting for both types (Adoma et al., 2020). Optimizing reverse logistics networks for efficient collection of used products is essential. Mathematical modeling can be used to design efficient collection routes considering factors like frequency, vehicle capacity, and cost (De Souza et al., 2023). Finally, designing networks that handle both forward (virgin materials) and reverse (used products) flows is a challenge. Singh et al. (2022) propose a model for remanufacturing networks that considers uncertainties in demand for remanufactured goods.

Synergies and Trade-offs between Optimization Strategies

Implementing optimization strategies in CSCs often involves synergies and trade-offs. For instance, design for disassembly can simplify the disassembly process (reducing costs) as highlighted by Umeda et al. (2020), but might require additional upfront investment during the design phase. Optimizing production planning for remanufactured products, as explored by Adoma et al. (2020), can improve resource efficiency but may require adjustments to existing production lines, potentially leading to short-term disruptions. Effective collaboration between design, production planning, and reverse logistics teams is crucial to identify these synergies and mitigate trade-offs, ensuring a smooth flow of materials throughout the CSC.

Performance Measurement and Optimization

The chosen performance measurement frameworks can be used to assess the effectiveness of optimization strategies by providing a basis for evaluating their impact on the TBL bottom line. For example, implementing design for disassembly can be measured by tracking the reduction in disassembly time and cost within the CEIF framework, as outlined by the European Commission (2020). Similarly, the CMF's "material use" metric developed by the Ellen MacArthur Foundation (2019) can be used to evaluate the effectiveness of production planning strategies for remanufactured products by tracking the reduction in virgin material consumption. By aligning optimization strategies with relevant metrics within these frameworks, businesses can ensure their efforts contribute to a more circular and sustainable supply chain.

Additional Considerations

The discussion also highlights the need for further research to address existing gaps. Developing standardized metrics for circularity, as emphasized by Eltayeb et al. (2023), would facilitate comparisons between different CSC models. Additionally, exploring optimization techniques specifically designed for the unique challenges of CSCs, such as managing uncertainty in demand for remanufactured products as addressed by Singh et al. (2022), could further enhance efficiency.

By effectively applying optimization strategies and utilizing TBL-based performance measurement frameworks, businesses can create more efficient and sustainable.

THEMATIC ANALYSIS OF CIRCULAR SUPPLY CHAIN (CSC) RESEARCH

This research review on CSC optimization and performance measurement revealed several key themes:

Emphasis on Triple Bottom Line (TBL) Performance

- A strong focus exists on evaluating CSCs across economic, environmental, and social aspects (Amini et al., 2021; Pedersen et al., 2021). This reflects the growing recognition that a holistic view is necessary to assess the true sustainability impact of CSCs.
- TBL-based frameworks like the CEIF and CMF offer valuable tools for evaluating progress towards circularity within supply chains (European Commission, 2020; Ellen MacArthur Foundation, 2019).

Stage-Specific Optimization Strategies

- Research explores optimization tailored for various CSC stages: design for disassembly/remanufacture (Umeda et al., 2020), production planning for reused/remanufactured components (Adoma et al., 2020), reverse logistics network optimization (De Souza et al., 2023), and network design for accommodating both forward and reverse flows (Singh et al., 2022).
- This highlights the need for a comprehensive optimization approach across the entire CSC lifecycle.

Integration of Optimization Techniques:

- The review emphasizes the value of employing a combination of optimization techniques like mathematical modeling, simulation, and heuristics for different CSC applications (Umeda et al., 2020).
- The choice of technique should be tailored to the specific problem and CSC complexity.

CONCLUSION

The literature review on circular supply chains (CSCs) reveals a dynamic field brimming with potential for achieving sustainability within supply networks. This research emphasizes the critical role of both optimization strategies and performance measurement frameworks for the success of CSCs.

Key Findings and Importance of Optimization and Measurement

This review examines optimization strategies for CSC stages, promoting product lifecycles and efficient reverse logistics (De Souza et al., 2023). It highlights techniques like mathematical modeling to address CSC complexities. Traditional metrics fall short, so TBL frameworks like CEIF and CMF are crucial for measuring true impact (Amini et al., 2021; Pedersen et al., 2021). By optimizing and using these frameworks, businesses can ensure a more circular and sustainable supply chain.

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Dynamics of the Real Estate Sector in India: Influences, Challenges and Future Trends

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ABSTRACT

The real estate sector in India wields a profound influence on the economy, spanning GDP contribution, extensive employment generation, and ancillary industry growth. It serves as a cornerstone for wealth creation, impacting government revenue through taxes and entwining closely with the financial sector. The sector also propels infrastructure development, fostering urbanization and modernization. It significantly bolsters the retail and commercial sectors, augmenting economic activities. Real estate ownership fosters economic stability and societal wellbeing. The study identifies challenges faced by the sector, including economic uncertainties due to the pandemic, high costs, and liquidity crunches. Regulatory reforms, interest rate reductions, and liquidity infusion emerge as potential strategies for revitalizing the real estate market and stimulating the economy. Emerging trends encompass sustainable construction, smart technology integration, and adaptable space utilization.

KEYWORDS: *Real estate sector, Economic impact, Affordable housing, Economic stimulus.*

INTRODUCTION

Real estate plays a significant role in the Indian economy and has a far-reaching impact on various sectors. Here are some key ways in which the real estate sector influences the Indian economy: (Giglio et al., 2021) In India, the real estate business has a significant impact on the economy, contributing to the GDP, creating a large number of jobs, and driving the expansion of auxiliary industries. It is the foundation for building wealth, having an influence on tax collection for the government, and being directly related to the financial industry. Additionally, the industry promotes infrastructural growth, promoting urbanization and modernisation. The retail and commercial sectors are greatly strengthened, which boosts economic activity.

Owning real estate promotes communal well-being and economic stability. The analysis addresses issues that the industry is facing, such as financial constraints, high expenses, and economic uncertainty brought on by the epidemic (Paul, Rathi, Ponnampalani, & Singh, 2023).

IMPORTANT WAYS THAT THE REAL ESTATE INDUSTRY AFFECTS THE INDIAN ECONOMY

1. Contribution to GDP: Real estate and construction collectively make up a sizeable component of India's Gross Domestic Product (GDP). Infrastructure development and real estate, both residential and commercial, are included in this industry.

2. Employment Creation: Real estate is a labour-

intensive sector that employs both skilled and unskilled individuals in significant numbers. Construction workers, architects, engineers, interior designers, and real estate brokers all fall under this category (Singh & Shahare, 2022).

3. Ancillary Industry Growth: As real estate values rise, there is a corresponding rise in demand for a number of ancillary industries. This comprises the production of furnishings, household appliances, building supplies, and a variety of service sectors including maintenance, security, and cleaning.

4. Wealth Creation and Asset Appreciation: Real estate is frequently seen as a safe long-term investment since it may increase wealth and asset value. Being a property owner helps people and families build money since real estate values tend to increase over time.

5. Government Revenue and Taxes: Through a variety of taxes including stamp duty, property tax, and registration fees, the real estate industry largely contributes to government income. Public services and infrastructure are funded using these revenues.

6. Impact on Financial Sector: Through mortgages and housing loans, real estate is closely related to the financial industry. Mortgage loans are made available by banks and other financial organizations, which stimulates the economy.

The real estate market in India has slowed down as a result of several issues (Singla, 2020) and (Jolly Cyril & Singla, 2020). Here are a few primary causes:

Economic Uncertainty and the epidemic: The COVID-19 epidemic resulted in employment losses, decreased buying power, and economic uncertainty. The demand for real estate has been influenced by this, especially in metropolitan areas.

High real estate costs: In many urban areas, real estate costs have dramatically increased in recent years, making it impossible for many prospective purchasers to afford homes. The result was a decline in sales.

Liquidity Crunch: The lack of funding for both developers and purchasers was a result of the liquidity crunch in the banking and non-banking financial sector (NBFC). This had an effect on project completion and hindered sales.

Regulatory Changes: The Real Estate (Regulation and Development) Act of 2016 (RERA) was implemented to bring about more openness, but it also presented developers with compliance issues.

Inventory Overhang: Due to a mismatch between supply and demand, several developers were left with unsold inventory. Prices were pressured downward by this overstock, which was concentrated in certain markets and areas.

Project Delays: Due to a variety of factors, including finance limitations, regulatory approvals, and labour shortages during the epidemic, several developers experienced project completion delays.

Increasing the real estate industry may benefit other industries and the economy as a whole because it is closely related to many others.

The following actions may be performed to stimulate the real estate market and the economy as a whole (Singh, Ghosh, Nimbarte, & Khan, 2023) and (Yadav et al., 2018):

1. Process streamlining and regulatory reforms: Construction project approval procedures should be made simpler and faster. Make that the Real Estate (Regulation and Development) Act (RERA) regulations are implemented transparently and effectively.

2. A decrease in interest rates: Reduced mortgage interest rates to make homeownership more accessible to prospective purchasers.

3. Liquidity Infusion: Make sure financing and credit facilities are easily accessible for both purchasers and developers, maybe through initiatives like making it simpler to get credit lines for real estate projects (Singh, Khan, Nimbarte, & Dhale, 2023)

4. Initiatives for Affordable Housing: Promote and implement affordable housing initiatives to serve a wider demographic.

5. PPPs (Public-Private Partnerships): Encourage government and private sector cooperation in order to finance and construct infrastructure projects and affordable housing.

6. Development of Infrastructure: Invest in infrastructure initiatives that improve connection and

accessibility to real estate developments, such as roads, transit, and utilities(Singh, Ansari, & Sikarwar, 2023).

7. Assistance with Rental Housing: Make policies that promote the growth of the rental sector, giving individuals who may not be prepared or capable of purchasing houses choices(Yat Hung et al., 2002).

8. Market analysis and open data: To assist investors in making wise decisions, promote ongoing market research and maintain data openness

Specific trends can evolve over time:

1.Sustainable and Green Buildings: The importance of environmentally friendly and sustainable construction is rising on a global scale. This covers the use of renewable resources, energy-efficient construction, and green certifications like BREEAM or LEED(Liow, 2010).

2.Smart Technology Integration: Technology for smart homes is gaining popularity. This includes attributes like integrated energy management, security systems, and home automation systems.

3. Co-Living and Co-Working Spaces: Flexible living and working environments are increasingly in demand. While co-working spaces offer adaptable workplace solutions, co-living places offer furnished housing with communal facilities.

4. E-Commerce and Logistics Real Estate: There is a rising need for logistics and warehouse spaces as e-commerce continues to rise. The ability to effectively manage the supply chain and be close to important transportation hubs are essential(Le et al., 2020).

5. Health and Wellness Amenities: Properties with wellness-oriented features, such gyms, yoga studios, and green areas, are becoming more and more desirable.

6. Mixed-Use Developments: It is becoming more typical to combine commercial, residential, and recreational areas in a single complex. Convenience and a sense of community are provided by this(Singh, Mahajan, & Mahajan, 2022)

7. Adaptive Reuse and Repurposing: Creating fresh, useful spaces out of outdated, underused buildings is becoming more popular. This may entail transforming warehouses into loft-style homes or turning former

industries into workspaces(Singh, Dhale, Joseph, & Jain, 2023).

8. Investment in Prop Tech: Real estate technology (Prop Tech) usage is transforming the sector. This covers advancements in real estate management as well as virtual reality tours, blockchain for transactions, and more(Dhale, Singh, Kawadkar, & Dubey, 2023)

CONCLUSION

The real estate industry has a significant impact on the GDP, employment, and a number of auxiliary businesses in India. It promotes wealth creation, underpins government income, and propels the construction of infrastructure. However, obstacles like monetary instability and legislative changes have an influence on its development. Maintaining a flourishing real estate sector in India will depend on putting reforms into place, making sure housing is affordable, and embracing technology improvements.

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Emerging Trends and Challenges in India's Insurance Landscape: A Comprehensive Review

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ABSTRACT

This exhaustive analysis explores key studies and their significant findings as it navigates the complex landscape of India's insurance industry. The examination covers a wide range of topics, from modern crop protection techniques to community health insurance programs. The need of strong health regulations, the booming life insurance market, and disruptive developments brought on by technological improvements are all emphasized in the study. It provides a thorough grasp of India's constantly changing insurance industry by covering crucial issues. Policymakers, business participants, and academics who want to understand the intricate interaction of forces influencing India's insurance market would find this research to be of great value.

KEYWORDS: *Insurance industry, India, Health policies, Life insurance, Risk mitigation, Emerging trends, Challenges.*

INTRODUCTION

In India, insurance is essential for protecting people and their families from unforeseen hardships. It provides financial security against a variety of hazards, such as ill health, mishaps, natural catastrophes, and even fatalities (Paul, Rathi, Ponnampalani, & Singh, 2023). Insurance acts as a safety net, ensuring that individuals can recover from losses and rebuild their lives and enterprises amid the country's diversified and occasionally unstable economic landscape. Additionally, it promotes long-term financial planning and saving, creating a culture of security and stability in a dynamic environment. The insurance sector is leading the way in innovation and adaptability in a world that is always changing. The insurance industry is not only keeping up with but also driving substantial changes as

technology continues to change our lives. We dig into the new trends that are reshaping the insurance industry in this thorough investigation (Ravallion & Chaudhuri, 1997).

Studying insurance is imperative for several reasons

Insurance is a key instrument for managing a variety of risks, including those involving health, property, and life. Understanding insurance enables people and organizations to choose well-informed financial protection decisions.

Legal Compliance: To lawfully operate cars or enterprises, several nations require certain insurance coverage, such as auto insurance. Compliance requires understanding these requirements.

Financial stability: Insurance acts as a safety net

during emergencies. It guards against potential financial disaster by ensuring that people and organizations can recover financially from unanticipated catastrophes.

Wealth Preservation: By preserving and growing a person's wealth over time, insurance products like life insurance and annuities offer security for retirement or for heirs.

Economic Stability: The health of the insurance sector is essential to the economy's overall stability. For long-term economic growth, it is crucial to spread and manage risks.

Opportunities for Employment: A background in insurance gives up several employment options in risk management, underwriting, claims adjustment, brokerage businesses, insurance companies, and more.

Entrepreneurial Ventures: For entrepreneurs and company owners, understanding insurance is essential. It assists businesses in picking the appropriate insurance policies for their operations and risk management.

Personal Finance Management: An essential component of personal financial literacy is understanding how insurance works. It gives people the power to decide for themselves how best to safeguard their possessions, health, and cherished ones.

worldwide Perspective: Because insurance is a worldwide sector, knowledge of its guiding principles may be used to better understand how financial markets and regulatory frameworks operate globally.

Obstacles in the path of achieving consent from common man in India

Selling insurance in India, while a lucrative opportunity, comes with its fair share of challenges. Let's delve into the key obstacles that insurers face in this diverse and dynamic market:

Low Insurance Awareness:

- a. **Limited Understanding:** A significant obstacle is the lack of awareness and understanding about insurance products among a large portion of the Indian population. Many view insurance as a complex financial instrument, making them hesitant to invest.
- b. **Cultural Beliefs:** It might be difficult to explain

the value of insurance in some areas since cultural norms forbid talking about death or unfavourable circumstances.

- c. **Illiteracy:** India continues to struggle with widespread illiteracy in some regions. This makes it more difficult to understand the terms and conditions of policies, which may put off prospective purchasers.

Trust Deficit:

- a. **Historical Issues:** In the past, certain insurance firms have engaged in dishonest business practices that have eroded customer confidence. Trust restoration is a continual challenge.
- b. **Lack of Personal Contact:** Building personal ties between agents and clients has been harder in the digital era. Face-to-face contacts, which might be scarce, are frequently where trust is established.

Regulatory Compliance:

- a. **Complex Regulations:** Insurance in India is subject to a complicated regulatory framework. It might be difficult for insurers to comply with the standards imposed by the Insurance Regulatory and Development Authority of India (IRDAI).
- b. **Frequent Changes:** The regulatory environment in India is continually changing, and insurers must respond quickly to new rules. This process can be resource-intensive.

Distribution Challenges:

- a. **Geographic Diversity:** Reaching potential clients might be difficult due to India's huge and diverse geography, particularly in rural and isolated locations.
- b. **Digital Divide:** Although the number of digital channels is increasing, a sizable section of the population still lacks access to dependable internet, making it challenging to reach this market.

Price Sensitivity

- a. **Affordability Concerns:** India is a market that is price-sensitive. It might be difficult to persuade people to set aside some of their income for insurance payments, especially if they have a limited budget.

- b. **Competition for Discretionary Spending:** Insurance competes with other necessary costs like healthcare, education, and housing for discretionary spending. It might be difficult to persuade customers to prioritize insurance(Singh & Shahare, 2022).

The solution to these problems must be diverse. Insurance companies must make investments in educational and awareness programs, make use of technology, foster trust by being transparent, and customize their products to fit the unique requirements of the Indian market. Success will also depend on building a strong distribution network and adjusting to changing regulatory environments (Mavalankar & Bhat, 2000; Ahlin et al., 2016; Sen et al., 2012).

The insurance sector is at the forefront of innovation and adaptability in a constantly changing environment. The insurance industry is not only keeping up with but also driving substantial changes as technology continues to change our lives. In this thorough investigation, we look into the new trends that are transforming the insurance industry(Gupta, 2007; Mahal, 2002; Srivastava & Tripathi, 2012).

Recent Trends Insurance Sector

1. Telematics: A Glimpse into the Future of Auto Insurance

A new age in vehicle insurance is being ushered in by telematics, a technique that combines computers and wireless technologies. Self-driving cars and other new technology promise to significantly reduce accidents—possibly by up to 90%—when used together. A safer, more technologically advanced driving environment is forcing insurance firms to reconsider their vehicle prices as a result of this tectonic upheaval(Singh, Ghosh, Nimbarte, & Khan, 2023).

2. Big Data: Illuminating the Path to Precise Actuarial Models

The Big Data age has brought about a paradigm change in the insurance industry. Using behavioural analytics, insurers may improve actuarial models by utilizing large troves of customer data. This

makes it possible to anticipate human behaviour and activities using large data sets. Insurance companies acquire previously unattainable insights into customer preferences and risk profiles as they grow more skilled at utilizing Big Data(Singh, Ansari, & Sikarwar, 2023).

3. Artificial Intelligence & Machine Learning: Revolutionizing Sales Strategies

Platforms on social media have become extremely useful sources of consumer information. Insurance companies may learn about new trends and demands among both existing and potential consumers by mining these platforms. Insurance companies may extract useful insights from the quantity of data that customers freely reveal about their lives online thanks to data analysis tools and procedures. Social Media: A Goldmine of Consumer Insights(Singh, Dhale, Joseph, & Jain, 2023)

4. Ride Sharing: Redefining Insurance in the Era of Shared Mobility

The landscape of insurance is changing as a result of the emergence of ride-sharing platforms, which are best represented by market leaders like Grab and Uber. The creation of specific ride-sharing insurance packages is required by this new trend. Insurers are continuously investigating novel strategies to satisfy the specific coverage requirements of this dynamic and developing market niche.

5. Cybersecurity: Safeguarding Sensitive Data in the Digital Age

Insurance businesses are increasingly being targeted by cyber attacks because they are the guardians of enormous quantities of sensitive personal data. Although previously the business hasn't been a top target for hackers, this is beginning to change. Attackers are turning their attention to insurance businesses while other industries strengthen their defences. This emphasizes how crucially important strong cybersecurity measures are for protecting customer data(Dhale, Singh, Kawadkar, & Dubey, 2023).

CONCLUSION

Pioneering the Future of Insurance for inclusion for making lives better.

Technology improvements and changing customer expectations are driving the insurance industry's inflection moment (Krishnamurthy et al., 2005; Aggarwal et al., 2013). For insurers trying to stay relevant and competitive in the competitive marketplace, embracing these emerging trends is not just a choice; it is a need. The insurance industry is well-positioned to succeed in an era of extraordinary change by utilizing these advances (Kumar & Ramamoorthy, 2014; Arif, 2015). A multifaceted strategy is essential to promote insurance acceptability in India and improve lives. First, massive financial literacy initiatives should be launched to inform the general public about the advantages and significance of insurance. Government agencies and insurance providers should work together to provide clear, straightforward regulations that address a range of demands. Insurance would become more available and applicable if there were tailored packages available for different income levels and occupations. Furthermore, providing tax breaks and incentives to encourage early adoption might persuade people even more. Establishing a strong regulatory framework and strict safeguards against fraudulent operations will inspire confidence. Building trust is crucial. Access might be made more widely available by utilizing technology to create streamlined, user-friendly interfaces and by using local language options. Additionally, it is necessary to raise awareness of certain insurance policies designed for important industries like agriculture, healthcare, and education. Targeted outreach initiatives can be facilitated through collaborations with local authorities, NGOs, and community leaders. An inclusive, informed citizenry and a coordinated effort between the public and private sectors would ultimately pave the path for a more insured, secure, and successful India.

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Employee Motivation and the Role of Artificial Intelligence: A Bibliometric Analysis

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ABSTRACT

Purpose – This study conducts a reflective review through bibliometric analysis of research publications focusing on employee motivation and the impact of artificial intelligence. It collected and analyzed 607 papers published from 2002 to 2024 from the Web of Science database using MS Excel and VOS Viewer for bibliometrics. The study aims to identify the key journals in this field with the highest number of publications, significant authors, and the most active countries and institutions. Additionally, it explores the co-occurrence map based on keywords, co-occurrence map based on country and co-authorship, and the co-occurrence map based on author and co-authorship to provide a comprehensive understanding of the research landscape in this area.

Research Methodology – The study utilized the Web of Science database for analyzing the extensive data included in the research. Two bibliometric techniques were employed:

- (a) Performance analysis: This method was used to showcase the performance of research constituents in the field. It included identifying journals with the highest number of publications, analyzing the number of publications year-wise and the most prolific authors, countries, and institutions,
- (b) Science mapping: This technique aims to identify intellectual and thematic relationships among research constituents. It involved creating networks for author and co-authorship, the co-authorship and country, as well as examining keywords co-occurrences.

Findings – This study analyses and contributes to the existing database on Employee motivation and Artificial Intelligence. A much more comprehensive and reliable picture of this area is provided using the bibliometric techniques spanning 2002 to 2024. The study included 607 publications revealing a gradual increase in annual publications, reaching its summit in 2022. The results can help guide the authors for future research on this topic. The results of this study indicate that in the year 2022, the maximum number of papers were published, the most significant journal is Bioinformatics, the most prominent author is Mr. Cheng Mingze, and the most prolific author is Prof. Al Dhuyyim Mesfer and the most prolific country and institutions are the Peoples Republic of China and Beijing university respectively. Results also portray China and the USA at a peak in terms of contribution to the field of Artificial Intelligence and Employee Motivation.

Conclusion: This analysis of bibliometric data accentuates the considerable potential of AI in transforming employee motivation across various domains. It sheds light on the applications of Artificial Intelligence that can contribute to the creation of technologically advanced, motivated, and productive workplace environments.

KEYWORDS: *Artificial intelligence, Employee motivation, Bibliometric analysis, VOS viewer.*

INTRODUCTION

The last two decades have witnessed major advances in artificial intelligence (AI) and robotics. Future progress is expected to be even more spectacular, and many commentators predict that these technologies will transform work around the world (Brynjolfsson and McAfee 2016; McKinsey Global Institute, 2017). It has the potential to transform not only our everyday lives but also the way organizations make decisions relating to employees, work tasks, and customers. These technologies are increasingly also being applied to domains and tasks that until very recently were believed to particularly require human capabilities such as reasoning, sensing, and deciding (Arntz et al. 2016). AI is becoming the ‘new normal’ in both manufacturing and service industries (Ibarra et al., 2018; Müller, Buliga, & Voigt, 2020).

AI is aimed at making machines think like humans but surpassing the way humans work (Misselhorn, 2018). Artificial intelligence is not here to replace us. It augments our learning processes in the workplace, especially in quality, accuracy, and precision (Wilkins, 2020). It can bring both opportunities and challenges to human resource management (Pereira, et al, 2021) and plays a significant role in modern manufacturing, particularly in the context of the Industry 4.0 paradigm (Zeba, et al. 2020.). Automation and digitization will not only bring challenges but also offer opportunities, such as new prosperity and higher productivity (Bughin, et al., 2018). It has emerged as a tool for the resolution of problems via information processing (Steinberger & Csaszar, 2019). The data that Artificial Intelligence can provide will however enhance the speed and accuracy of the decision-making process (Abu Bakar, 2017).

ARTIFICIAL INTELLIGENCE AND WORK MOTIVATION

In the age of Artificial Intelligence, the nature of work and the workplace will evolve in ways we believe can positively influence employee motivation. AI is increasingly incorporated at work to improve task execution and performance (Lee, Davari, Singh, & Pandhare, 2018; Von Krogh, 2018), and it is associated with computer-based systems and applications involving, among other things, machine learning (Chui, Manyika, & Miremadi, 2015), soft computing (Kumar

& Thakur, 2012), fuzzy logic systems (Karatop, Kubat, and Uygun, 2015), and virtual and augmented reality (Abou-Zahra, Brewer, & Cooper, 2018). Surveys show that workers see automation as an opportunity to free up their time to make meaningful contributions, which they find more rewarding. Employees will have greater autonomy to shape their day-to-day tasks and develop a greater sense of mastery and purpose over their contributions, which increases their motivation to drive the work.

Scholars have started to acknowledge the benefits and risks of the use of AI at work and the impact that smart computer-based technologies can have on people and organizations alike (Ibarra et al., 2018; Müller et al., 2020). Improving clarity on the way AI influences people, teams, and organizations, and mapping the impact of AI and employee motivation at the workplace consistently, can set a roadmap for future studies. Drawing on the above needs the present study is set to analyze a compilation of existing databases by thoroughly examining available data from the Web of Science and attempts to answer the following questions:

Q1. Which are the top ten Journals that have published the maximum number of papers? Q2. In which year the maximum number of papers have been published?

Q3. Who are the most prolific authors?

Q4. Which are the most prolific countries and institutions?

Q5. Which authors have co-authored the maximum with other authors?

Q6. Which countries’ authors have co-authored the maximum with the authors of other countries? Q7. Which are the most prominent occurrences of keywords?

The remainder of this paper is organized as follows: Section 2. explains the research methodology and procedure of this study, and Section 3. describes the results and findings of this analysis based on the research objectives and questions. Finally, Section 4. provides the discussion, conclusion, and limitations of this study.

RESEARCH METHODOLOGY

By examining patterns of citations, co-authorships, and keywords, bibliometric analysis allows for the identification of key authors, influential papers,

emerging areas of study, and collaborative networks within a particular field. Scholars use bibliometric analysis for a variety of reasons, such as to uncover emerging trends in article and journal performance, collaboration patterns, and research constituents, and to explore the intellectual structure of a specific domain in the extant literature (Donthu, Kumar, Pandey, & Lim,2021a; Verma&Gustafsson, 2020; Donthu et al., 2020c). The results of such analysis offer information that is practical, useful, and timely for both professionals and experts who are interested in appraising such scientific activity (Duque Oliva et al., 2006) As another advantage, bibliometric analysis also allows a specific discipline’s objective examination in a quantitative manner (Merigó et al.,2015) that can build firm foundations for advancing a field in novel and meaningful ways.

Selecting a software tool for bibliometric analysis depends on what type of analysis is required The Web of Science database was chosen because of its comprehensive coverage of high-quality journals. The search focused on papers related to artificial intelligence (AI) and employee motivation from 2002 to 2024. Keywords such as “employee motivation, work motivation, and artificial intelligence” were used to search for relevant papers, which were filtered to ensure they were genuinely related to the intended topic.

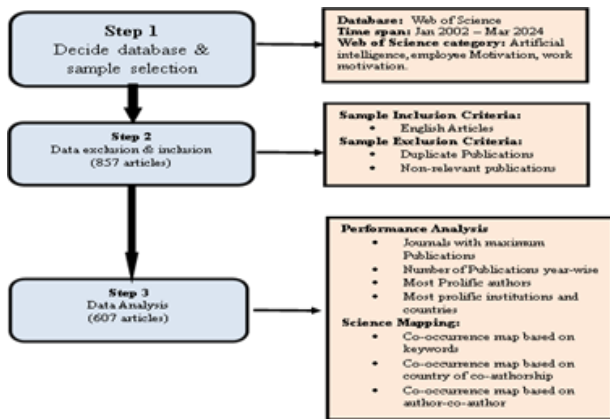


Fig 1: Flow Chart of data selection

MS Excel was used for the tabulation of data, for Author-Co-authorship network analysis, inter- country co-authorship network analysis, and Keyword analysis VOS Viewer 1.6.9 software was used. VOS viewer is a free software tool that is used for creating maps

based on network data. It also helps in visualizing and exploring these maps.

RESULTS AND FINDINGS

Performance Analysis

Journals with maximum publications

All the 607 papers in this study are from 217 different journals. Fig.2 displays the top twenty journals that have published the maximum number of papers on Artificial Intelligence and Employee Motivation. The journal with most papers is Bioinformatics published by Oxford University Press with 134 papers. Following that, five journals are from IEEE (Institute of Electrical and Electronic Engineering) each have 66 papers, and Science Direct also with 48 papers. Springer Publications has four journals with a total of 60 papers. The remaining journals are from Taylor and Francis(9), Tech Science Press(14), MDPI(8), and the International Journal of Interactive Multimedia & AI (7).



Fig 2: Journals with maximum publications

Publications Year-wise

Table 1 illustrates the number of papers published on AI and Employee Motivation from 2002 to 2024 showcasing the historical evolution of research in this area over the years. The data indicated a steady increase in the number of publications. In the year 2002, only 5 papers were published and it gradually rose to 9 in 2003 and significantly increased to 134 in 2023. The peak in publication occurred in 2022 with 138 papers marking the highest number of publications to date. Despite a slight decline in publications from 2007 to 2010 and a complete absence of publications in 2013, the overall trend shows a substantial growth in research interest. The progression from 5 articles to 607 in 2024a highlights the increasing importance and interest of the researchers in the field.

Table 1: Cumulative Publications year-wise

Year	Publications	Cumulative publications	Year	Publications	Cumulative Publications
2002	5	5	2014	7	89
2003	9	14	2015	8	97
2004	8	22	2016	9	106
2005	17	39	2017	14	120
2006	14	53	2018	19	139
2007	2	55	2019	37	176
2008	5	60	2020	61	237
2009	6	66	2021	87	324
2010	2	68	2022	138	462
2011	8	76	2023	134	596
2012	6	82	2024	11	607



Fig 4: Most Prolific Authors - Documents



Fig 3: Cumulative Publications year-wise



Fig 5: Most Prolific Authors - Citations

Most Prolific Authors

Fig. 4 shows the ten most prolific authors in the study. Out of the 607 papers analyzed, they collectively account for 2495 authors. After analyzing the data, a list of the top ten authors with maximum publications was compiled. The most prolific author in the field of Artificial intelligence and Employee Motivation is Prof. Al Duhayyim, Mesfer with ten Publications followed by Hamza, Manar Ahmed with eight documents, and Xiangtao Li with seven documents. Considering the most cited authors in the WoS (Fig.5) Chen Mingzhe was the most cited author with 514 citations, followed by Schmidhuber Juergen with 394 citations, and Haijun Zhang with 344 citations taking into account the minimum requirement of having at least two published documents.

Most prolific countries and institutions

The institutes with the highest number of articles published in the fields of artificial intelligence and work motivation are the Chinese Academy of Sciences (27 articles), Massachusetts Institute of Technology (MIT) (22 articles), and Jilin University (9 articles). However, in terms of total citations Beijing University leads with 1026 citations, followed by MIT 673 and Chinese University, Hong Kong with 577. In terms of countries contributing to research in this field are, China with 212 articles, followed by the USA (124 articles), England (43 articles), Spain (36 articles), and Saudi Arabia (35 articles). The country with the highest number of citations is China (4515), followed by the USA with 3877 citations, and England with 1289 citations.

Table 2: Most Prolific Countries and Institutions

Rank	Country	Documents	Citations	Average Citations	Institutions	citations	Average citations
1	Peoples R China	212	4515	21.30	Beijing University Posts & telecommunications	1026	102.60
2	USA	123	3877	31.27	MIT	673	32.05
3	England	43	1289	29.98	Chinese University Hong Kong	577	82.43
4	Spain	36	915	25.42	Princeton University	523	174.33
5	Saudi Arabia	35	507	14.49	Edinburgh University	499	249.50
6	Canada	32	633	19.78	Univ Science & Technology China	453	56.63
7	India	30	271	9.03	Nanyang Technology University	421	46.78
8	South Korea	30	237	7.90	Ecole Polytech Fed Lausanne	390	195.00
9	Australia	29	506	17.45	Broad Institute MIT & Harvard	371	123.67
10	Italy	29	424	14.62	Queen Mary University London	370	74.00

Science Mapping

In this section, we entrain on a comprehensive bibliometric analysis that investigates the field of Artificial Intelligence within the context of employee motivation. Science mapping examines the relationship between research constituents (Baker, Kumar, & Pandey, 2021; Cobo et al., 2011) It primarily pertains to theoretical and thematic associations among research constituents (Zupic & Cater, 2015). By examining a vast collection of articles and publications sourced from the Scopus database, we aim to analyze, the interdisciplinary nature of AI research, the geographic distribution of contributions, and the diverse fields within employee work motivation where AI is applied. We utilized VOSviewer to create visualization maps to provide an in-depth and comprehensive analysis of the topic. In these maps circles represent different items such as publications, authors, or keywords. A larger circle indicates a higher level of activity, whereas a smaller circle suggests less activity. The distance between any two terms in the diagram reflects the degree of association between them. A shorter distance signifies a stronger correlation, whereas a longer distance indicates a weaker correlation.

Co-Occurrences Map Based on Keywords

The analysis of 607 selected publications' bibliographic data identified frequently occurring keywords. A total of 3046 keywords were found, out of which 114 were selected, based on a minimum occurrence threshold

of 5. This analysis considered all keywords, including both author keywords and keywords plus.

Table 3 shows the ten most frequently used keywords, their occurrences, and their total link strength.

Table 3: Ten most frequently occurring keywords

Rank	Keywords	Occurrences	Link strength
1	Artificial Intelligence	77	94
2	Machine Learning	42	6
3	Motivation	50	37
4	Optimization	12	20
5	Task analysis	21	49
6	Reinforcement learning	16	23
7	Intrinsic motivation	18	10
8	Representation learning	10	11
9	Transfer learning	9	10
10	Training	10	26

“Artificial intelligence” (77) stands out as the most prevalent keyword, indicating the central role of AI in transforming employee motivational practices. “Machine learning” is also important, highlighting the key role of ML algorithms in AI. Additionally, “Motivation” and “Optimization” are significant, highlighting how AI impacts learning experiences and incorporates human factors in the learning process. “Task Analysis” indicates where computing technologies and learning interact. Finally, “Intrinsic motivation” focuses on employees and their intrinsic experiences, indicating a shift towards a more employee-centric approach in AI-driven interventions. These keywords collectively illustrate the extensive research in AI for employee motivation, emphasizing AI-driven technologies, and human-centric design, in various workplace settings.

Additionally, two more keyword maps were generated, one, (Fig.7) focusing on common author keywords(1921 total, with 43 visualizations, limited to a minimum of five occurrences), and another (Fig.8) on most common keywords plus (indexed) was created (1313 total, with 65 meeting the threshold for visualization with the minimum of five occurrences).

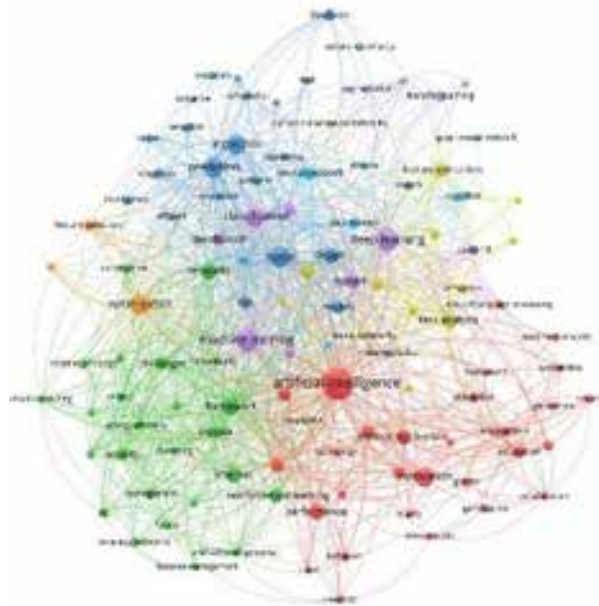


Fig 6: Co-occurrences map of all keywords

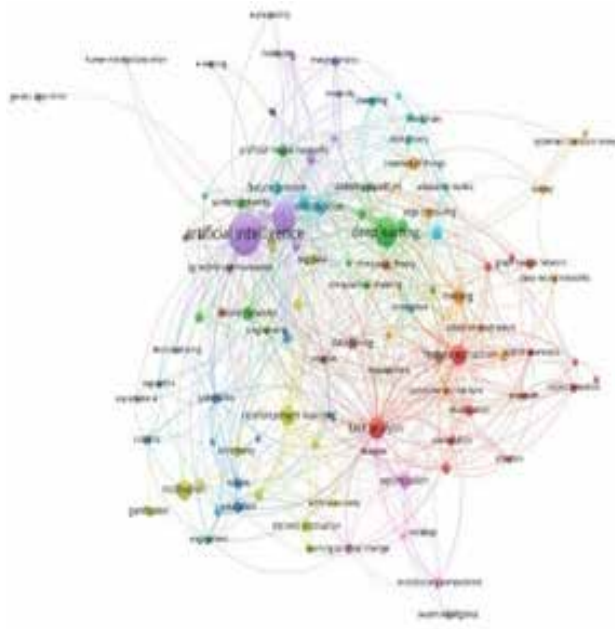


Fig 7: Co-occurrences map of author keywords

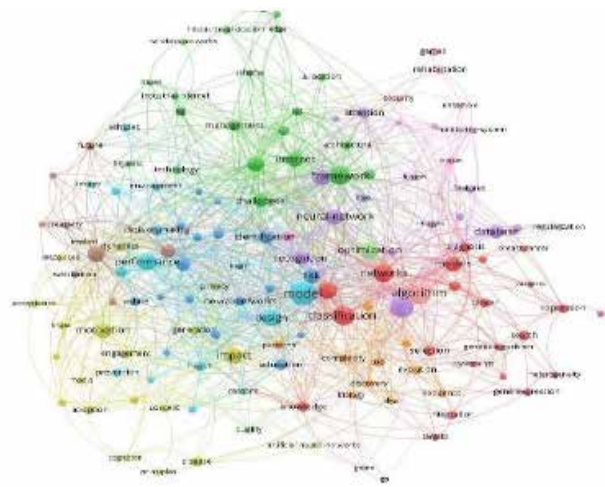


Fig 8: Co-occurrences map of keywords Plus
Co-Occurrence Map Based on Country of Co-Authorship

Furthermore, the data analysis also allows us to examine the geographic distribution of these publications. The visualization map was generated to show the countries of co-authorship by setting the minimum number of documents of a country to five. Of the 78 countries with publications, 41 met the threshold, for each of the 41 countries the total strength of co-authorship links with other countries was selected and the results are shown in Fig. 9.

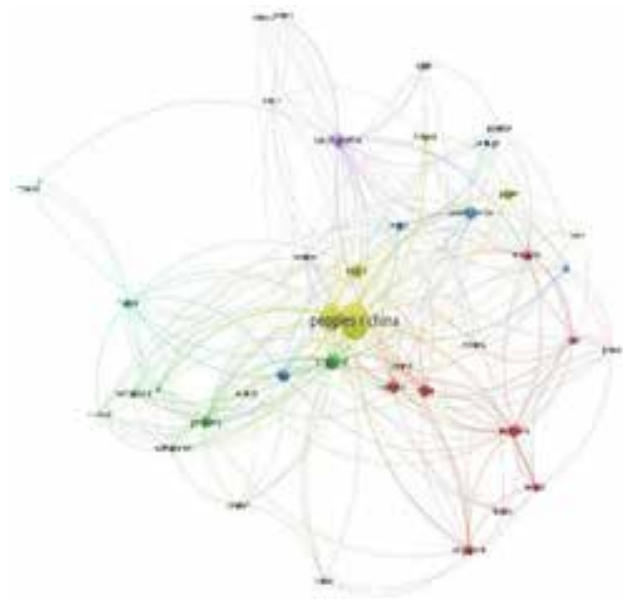


Fig 9: Country of co-authorships

Table 4: Top ten countries by link strength

Rank	Country of Co-authorship	Link Strength
1	Peoples Republic of China	142
2	USA	130
3	England	73
4	Saudi Arabia	55
5	Spain	45
6	Australia	38
7	Germany	38
8	Malaysia	36
9	Singapore	34
10	South Korea	31

The majority of publications originated from countries like China, the USA, England, Saudi Arabia, and Spain. China in particular, leads the agenda indicating its pivotal role in AI-related studies. This geographical distribution of publications establishes far-reaching comprehensive interest and participation in pursuing the possibility of AI in driving employee motivation at the workplace. This trend has the potential to drive advancement and inspire cross-cultural perspectives in AI and work motivation research.

Co-Occurrence Map Based on Author-Co-author

A further scrutiny looks at searching the co-authorship relations across the legion of authors of the publications. The co-author-author network visualization map was limited to authors with a minimum of five citations, out of the 2495 authors 165 met the threshold, and the largest set of connected authors included 18 authors. The resulting network visualization is depicted in Figure 10. and presents a complex web of links connecting these 18 authors.

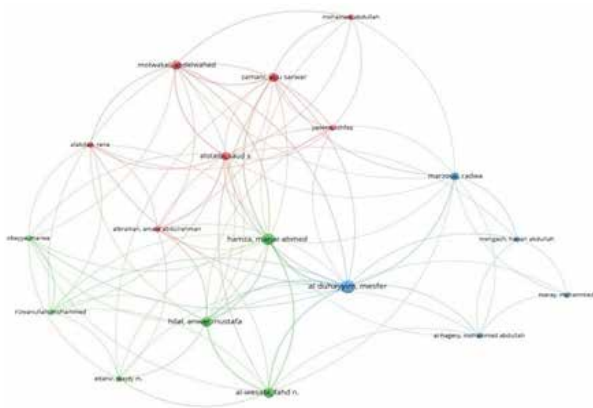


Fig.10. Co-occurrences map based on Co-author-author relationship

This demonstrates how researchers from diverse backgrounds and institutions come together to advance knowledge and innovation. By highlighting these connections, the visualization fosters a better understanding of the knowledge-sharing dynamics and the collective effort behind the advancements in AI in the workplace.

Table 6 displays the top 10 authors’ based on the number of documents produced while, Table 7 shows the top 10 authors’ citations based on the number of citations their work has received. The total link strength in each table indicates the total strength of the co-occurrence links for a given author with other authors.

Table 5: Top 10 authors by documents produced

Rank	Author	Document	Link strength
1	Al Duhayyim, Mesfer	10	41
2	Hamza, Manar Ahmed	8	32
3	Li, Xiangtao	7	22
4	Wong, Ka-Chun	7	22
5	Al-Wesabi, Fahd N.	6	24
6	Hilal, Anwer Mustafa	6	26
7	Xu, Hao	6	14
8	Albahri, A.S.	5	16
9	Albahri, O.S.	5	15
10	Asai, Kiyoshi	5	3

Table 6: Top Ten Authors by citations

Rank	Author	Citations	Link strength
1	Chen, Mingzhe	514	2
2	Schmidhuber, Juergen	394	2
3	Zhang, Haijun	344	0
4	Gupta, Abhishek	249	0
5	Yu, Bin	237	6
6	Ma, Qin	235	7
7	Liu, Li	231	1
8	Ma, Anjun	228	8
9	Chen, Cheng	227	6
10	Zhang, Ke	197	1

CONCLUSION

Motivation is essential to understanding human activity, it is the goals that motivate AI systems that have emerged as a revolutionary tool, particularly in the field of organizational behavior. As AI continues to progress through research and its applications, understanding the implications and challenges becomes essential for fostering human-machine cooperation. This bibliometric paper examines 607 publications by using bibliometric techniques spanning 2002 to 2024. The analysis reveals several significant insights, including a steady increase in annual publications, peaking in 2022. The most notable journal in this area is *Bioinformatics* published by Oxford Press. The leading author in terms of citations is Mr. Cheng Mingze with 514 citations while the most prolific author is Prof. Al Duhayyim Mesfer with 10 publications. The most active countries and institutions as measured by the total number of citations are the People's Republic of China and Beijing University respectively. The Chinese Academy of Sciences published a record 27 articles followed by the Massachusetts Institute of Technology's 22. Overall, the results suggest that the People's Republic of China leads in all aspects as compared to the USA in terms of contribution to the field of artificial intelligence and employee motivation in human resource management.

This analysis of bibliometric data highlights the significant potential of AI in transforming employee motivation across different fields. In organizations, while AI offers promising prospects for enhancing training, reinforcement learning systems, and performance, engaging in extrinsic as well as intrinsic motivation can lead to creativity and inventions. Further exploration of AI's capabilities coupled with the development of comprehensive guidelines and promotion of critical thinking skills, will contribute to creating a technologically advanced, inclusive, and productive workplace environment.

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Factors Influencing Sustainable Consumer Buying Behavior in the Context of Online Marketing

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ABSTRACT

In the 21st century E-commerce is playing a vital role but it also has some limitations like it does not cover all the sectors. The scope of e-commerce is very wider because it consists of buying, selling, financing, transportation and many other after-sales services. E-commerce transactions can be done between business-to-business [B2B], Business to Consumers [B2C] and Consumers to Consumers [C2C]. E-commerce is considered as the base of a developed economy but some of the people in India seem to be much more unaware of the benefits of E-commerce. In this study, research tried to explore the factors that can be affected by the buying behavior of consumers. In this research special focus is given to finding new factors. This study was adopted EFA. The structural questionnaire was circulated to more than 275 consumers of Raipur District. For factor analysis, SPSS software was used.

KEYWORDS: *E-commerce, EFA, Marketing, Traditional businesses.*

INTRODUCTION

In order to understand the meaning of electronic commerce you should first have to understand its purpose. In the decades most of the organization had adopted this concept in their working operations because, it has some major role in business enterprises. Electronic commerce means sharing of business information between each other's by using digital and electronic modes of sharing. The term e-commerce refers to the use of electronic technology in business practices and in different sectors like marketing, financing, commercial transactions and transportation also. Therefore, the need and scopes of e-commerce are in rise day-by-days (Singh, D. K., Mahajan, R., & Mahajan, J., 2022). E-commerce also consists of buying and selling of products through internet. The client who purchases goods through internet is term as "Cyber-consumer". Usually, people consider E-commerce means buying and selling activities over the internet but E-commerce consists much more than this (Singh, D. K., Kediya, S., Mahajan, R., & Asthana, P. K., 2021, November).

E-commerce consists of marketing, after sales services, financing, promotion, order, payment and many more. I.e. e-commerce has wider concept. E-commerce also helps in EDI and Electronic Marketing.

REVIEWS OF LITERATURE

Pratima Bhalekar, (2014). Author concludes that in our culture, e-commerce has taken the lead. The World Wide Web now takes up a significant portion of our world and everyday life. As a result, it is challenging for e-commerce to acquire small businesses. It is also evident that small businesses are not benefiting from e-commerce. (Singh, Ghosh, Nimbarte, & Khan, 2023). Authors believe that the growth of the e-commerce sector will result in an increase in electronic enterprises in the future years. Traditional business services were significantly disrupted by the e-commerce sector. (Dhale, Singh, Kawadkar, & Dubey, 2023). As according to them the main limitation of e-commerce is non-technical. The reason behind this is the lack of students, and businessmen's information. The scope of

e-commerce can be accurately achieved by spreading information related to the benefits of the adoption of E-commerce (Singh, Ansari, Sikarwar, & Kawadkar, 2023).

Dr. Rina (2016). Since authors believe that non-technical issues are the fundamental e-commerce limitations. This is due to a lack of knowledge among students and businesspeople. By disseminating knowledge about the advantages of e-commerce adoption, it is possible to correctly realize the potential of e-commerce. Minoti Khot and Sylvia Beyer (2017): In their study, Khot and Beyer claimed that it is difficult to predict the direction and potential of e-commerce. In order to increase public confidence and overcome E-commerce restrictions, there should be no discrepancy between the goods displayed on the screen and the product delivered. Ana Roncha et al. (2016): Roncha et al. Authors investigate how internet shoppers perceive sustainability. The study finds that when customers are given in-depth information about a product’s eco-credentials and the sustainable practices used by the e-commerce platform, they are more inclined to engage in sustainable e-commerce. Ying Chen et al. (2019): This empirical investigation looks into what influences people’s decisions to use green e-commerce. According to the study, price incentives, eco-labels, and the availability of sustainable products are key influences on customers’ decisions to shop sustainably online (Sangroya & Nayak, 2017).

Objective of the study

To find the factors affecting consumer buying behavior in E-Commerce platforms.

RESEARCH METHODOLOGY

Both primary and secondary data gathering methods are employed in research, and we collected data from a variety of sources, including journals, papers, magazines, and Google Forms.

METHODOLOGIES FOR GATHERING DATA

Scope of study

An attempt has been made to study the scopes and limitations of E-commerce in Raipur. The scope of this study is restricted only up to E-commerce

Businesses in Raipur. Only those businesses are taken who uses e-commerce in their operation for this study (RAJADURAI, BATHMANATHAN, & AZAMI, 2021).

Despite the researcher’s best efforts, the current study has a number of limitations since it cannot cover all of Raipur City’s enterprises owing to time and resource constraints. The study is limited to Raipur-based e-commerce companies. Only 189 of the 275 persons who received the questionnaire replied. The Raipur district was the sole location of the research.

Findings of study

KMO and Bartlett's Test		
The Kaiser-MeyerOlkin measure of sampling adequacy is 0.888, indicating a high level of adequacy for the sample.		0.888
Bartlett's Sphericity Test	Approx. Chi-Square	1316.712
	df	105
	Sig.	0.000

KMO value should be greater than 0.6 in this study KMO value is 0.888. Significant value should be less than 0.05. This study meets both the assumptions therefore EFA was applied.

Communalities		
	Initial	Extraction
Price	1.000	.633
Quality	1.000	.641
Income	1.000	.753
Lifestyle	1.000	.661
Occupation	1.000	.594
Culture	1.000	.504
Social Class	1.000	.752
Family	1.000	.592
Role & Status	1.000	.578
Age	1.000	.641

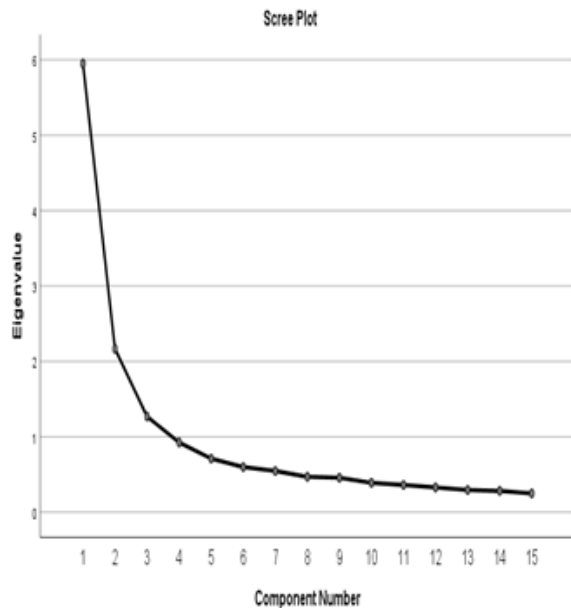
Personal income	1.000	.684
Family Income	1.000	.569
Belifs and Attitude	1.000	.706
Liquid Asset	1.000	.711
Government Policy	1.000	.767
Extraction Method: Principal Component Analysis.		

Communalities indicates the amount of variance in each variable that is accounted for by all components or factors. Every variable should explain variance more than 0.50, here all the variables are showing variance more than 0.5.

Explained Total Variance									
Component	Total	Calculated % of Variance	Calculated Cumulative %	Total	Calculated % of Variance	Calculated Cumulative %	Total	Calculated % of Variance	Calculated Cumulative %
1	5.950	39.670	39.670	5.950	39.670	39.670	4.051	27.008	27.008
2	2.166	14.439	54.108	2.166	14.439	54.108	3.026	20.175	47.183
3	1.269	8.460	62.568	1.269	8.460	62.568	2.308	15.385	62.568
4	.925	6.168	68.737						
5	.711	4.739	73.476						
6	.599	3.994	77.470						
7	.547	3.649	81.118						
8	.470	3.130	84.249						
9	.457	3.047	87.295						
10	.389	2.596	89.891						
11	.361	2.409	92.301						
12	.328	2.189	94.490						
13	.295	1.964	96.454						
14	.283	1.884	98.338						
15	.249	1.662	100.000						
Extraction Method: Principal Component Analysis.									

The sum of all the individual component variances is known as the total variance. The ratio of the variance of a particular constituent to the total variance is known as the fraction of variation explained by that constituent.

Add the variances of each constituent component for multiple components and divide the result by the total variances.



Rotated Component Matrix

	Component		
	1	2	3
Price	.046	.788	.101
Quality	.163	.744	.248
Income	.096	.860	.054
Lifestyle	.140	.800	.021
Occupation	.290	.446	.104
Culture	.635	.207	.240
Social Class	.839	.146	.162
Family	.716	.222	.173
Role & Status	.566	.034	.396
Age	.733	.292	.138
Personal income	.807	.090	.158
Family Income	.735	.002	.168
Belifs and Attitude	.155	.143	.813
Liquid Asset	.384	.183	.728
Government Policy	.263	.102	.829

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Rotated Component Matrix			
	Component		
	1	2	3
Price	.046	.788	.101
Quality	.163	.744	.248
Income	.096	.860	.054
Lifestyle	.140	.800	.021
Occupation	.290	.446	.104
Culture	.635	.207	.240
Social Class	.839	.146	.162
Family	.716	.222	.173
Role & Status	.566	.034	.396
Age	.733	.292	.138
Personal income	.807	.090	.158
Family Income	.735	.002	.168
Beliefs and Attitude	.155	.143	.813
Liquid Asset	.384	.183	.728
Government Policy	.263	.102	.829

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

The rotated component matrix indicates the variance contributed by the variables in the formation of the new 3 variables. These are the loadings. (Pidurkar, S. R., Singh, D. K., Vaidya, N., & Deshpande, A., 2021, May).

CONCLUSION

From the whole study, we are able to conclude that E-commerce plays a very significant role in business practices as it helps to increase the productivity of business firms and it indirectly helps to reduce the costs and resources as well. E-commerce has a wider scope as compared to traditional one but it has some limitations also. E-commerce has main scopes like financing, transportation and logistics, marketing, sales promotions, after-delivery services and many more. Thus, e-commerce is the need of today’s technological era. The scope of e-commerce can be achieved by spreading the benefits of the adoption of e-commerce. The limitations of e-commerce mainly consist of

the complexity of the web. E-commerce sectors are failing to acquire the trust of consumers, most of the consumers want to feel and touch the goods but they are unable to do so and this one is the most seen limitation in E-commerce. The analytical tool EFA gave 3 distinct variables to work with for the determination of the factors affecting consumer buying behavior on e-commerce platforms.

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Navigating the E-commerce Era: Understanding the Impact on Traditional Retailers

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ABSTRACT

The advent of e-commerce has reshaped the landscape of retail, prompting traditional retailers to navigate through a dynamic and challenging environment. This study delves into the multifaceted impact of e-commerce on traditional retailers, with a focus on customer behaviour, competitive challenges, and strategic responses. Through a comprehensive analysis, this research aims to illuminate the intricate dynamics at play and provide insights crucial for the survival and success of traditional retail businesses.

The objectives of this study encompass a thorough investigation of various facets of e-commerce's influence on traditional retailers. These objectives include analysing shifts in customer shopping behaviour, identifying challenges posed by e-commerce competition, examining strategies employed by traditional retailers to remain competitive, evaluating product assortment limitations imposed by spatial constraints, assessing measures taken to maintain pricing and quality competitiveness, and gathering qualitative feedback from traditional retailers.

This research contributes to a deeper understanding of the e-commerce era's implications for traditional retailers. By shedding light on challenges and opportunities, the study would provide valuable insights for devising strategies to thrive amidst evolving market dynamics. Ultimately, this study would serve as a guiding beacon for traditional retailers navigating the turbulent waters of the digital age.

KEYWORDS: *Traditional retailers, Online shops, E-commerce, Impact.*

INTRODUCTION

The retail industry has witnessed a seismic shift in recent years with the exponential growth of online shopping platforms. This transformation has presented a plethora of challenges for traditional brick-and-mortar retailers, compelling them to adapt to the changing landscape or risk obsolescence. This paper provides a comprehensive analysis of the challenges confronted by traditional retailers in the face of the growing dominance of online shops.

The study delves into various facets of the retail environment, including consumer behavior, technological advancements, market dynamics, and regulatory frameworks. By synthesizing existing literature and empirical evidence, this research

elucidates the underlying factors contributing to the struggles of traditional retailers and explores potential avenues for mitigation.

Key challenges identified include the convenience and accessibility offered by online shopping, fueled by technological innovations such as artificial intelligence and big data analytics. Moreover, the COVID-19 pandemic has exacerbated these challenges, accelerating the shift towards e-commerce and amplifying the disparities between online and offline retailers.

Regulatory hurdles, including taxation policies and data privacy regulations, further exacerbate the challenges faced by traditional retailers, creating an uneven playing field in the retail market. Additionally, changing consumer preferences and market trends, such as the

growing demand for sustainable and ethical products, pose additional complexities for brick-and-mortar stores striving to adapt to evolving consumer needs.

Moreover, the research will delve into the competitive strategies employed by e-commerce giants, such as deep discounting and extensive product ranges, which have put immense pressure on traditional retailers. It will also explore the role of government policies and initiatives aimed at supporting traditional retailers, such as the promotion of digital payments, training in digital skills, and incentives for adopting e-commerce platforms.

The socio-cultural aspect of shopping in India, which traditionally involves a tactile, interpersonal experience, is another critical area of study. The research will investigate how these ingrained shopping habits influence consumer resistance or acceptance of online shopping and how traditional retailers can leverage this to their advantage.

This research paper aims to conduct an in-depth analysis of the challenges faced by traditional retailers in the face of the growing dominance of online shops. By examining various aspects such as consumer behavior, technological advancements, market dynamics, this study seeks to shed light on the underlying factors contributing to the struggles of traditional retailers.

LITERATURE REVIEW

(Saha Shantanu, Rathore Arvind 2014) In this paper, the authors discuss the concept of i-retailing, as well as examine the various opportunities and challenges related to the Indian context, where the authors highlight on online retail service and e-commerce and the key focus of the paper is nurturing online retail sector as an effective tool for business excellence and also for growth of the country at large.

The research examines the underexplored domain of i-retailing within the Indian market, focusing on its inherent opportunities and challenges. It underscores the burgeoning landscape of online retailing and its untapped potential in India, shedding light on gaps in existing research.

(Raheem K. Ajeel, 2023) The study delves into the interplay among transaction costs, customer

satisfaction, and customer trust within the realm of online shopping, particularly in the context of India's expanding online retail sector. Its primary objective is to foster positive social change by bolstering the success of small businesses operating within the online retailing landscape.

The research gap for the study lies in the insufficient exploration of the specific impacts of online retailing competition on traditional retailers in India, as well as a lack of comprehensive analysis regarding the precise factors influencing the growth of online retailing in the Indian market, particularly transaction costs, customer satisfaction, and customer trust.

OBJECTIVES

- 1) To analyze the impact of e-commerce on customer shopping behaviour in traditional retail shops.
- 2) To identify the primary challenges faced by traditional retailers due to competition from e-commerce platforms.
- 3) To investigate the strategies employed by traditional retailers to compete with e-commerce retailers.
- 4) To examine the influence of space constraints on the variety of products offered in offline shops.
- 5) To assess the measures implemented by traditional retailers to maintain competitiveness in pricing and quality compared to both traditional and online retailers.
- 6) To gather additional insights and comments from traditional retailers regarding the overall impact of e-commerce on their businesses.

HYPOTHESIS

Hypothesis 1

H0: There is no significant difference in customer shopping behaviour between traditional retail shops and online shops.

H1: There is a significant difference in customer shopping behaviour between traditional retail shops and online shops.

Hypothesis 2

H0: There is no significant difference in revenue and

sales volume between traditional retailers who have integrated e-commerce solutions and those who have not.

H1: There is a significant difference in revenue and sales volume between traditional retailers who have integrated e-commerce solutions and those who have not.

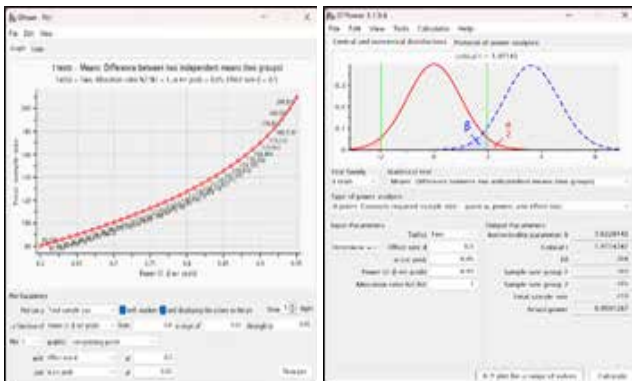
RESEARCH METHODOLOGY

Sample Selection

The sample size was determined using G*Power Software, utilizing the following parameters:

- Effect Size: 0.5
- Significance Level: 0.95
- Statistical Test: Independent Samples T-Test.

Based on these parameters, the software generated a sample size of 105 for each group, resulting in a total sample size of 210 respondents.



Hypothesis Testing: The independent samples t-test has been used for testing of both the hypothesis.

Hypothesis Testing

1) Hypothesis 1: This hypothesis aims to determine if there is a significant difference in customer shopping behaviour between traditional retail shops and online shops. The independent samples t-test is appropriate for comparing means or medians of two independent groups, respectively. In this case, these tests are suitable as we are comparing the average shopping behaviour scores (which are assumed to be normally distributed) between two independent groups: traditional retail shops and online shops.

2) Hypothesis 2: This hypothesis aims to assess if there is a significant difference in revenue and sales volume between traditional retailers who have integrated e-commerce solutions and those who have not. Similar to Hypothesis 1, we have used the independent samples t-test to compare the means or medians of two independent groups (traditional retailers with and without e-commerce integration). This test is appropriate as it allow us to determine if there is a statistically significant difference in revenue and sales volume between the two groups, based on their integration of e-commerce solutions.

Data analysis and interpretation

Descriptive statistics

The following responses have been collected through a survey from 210 retailers conducting their business for a period less than 1 year to more than 10 years.

How long have you been running your shop?

- less than 1 year 13
- 1-5 years 45
- 5-10 years 74
- More than 10 years 78

Have you noticed a change in customer shopping behaviour since the rise of e-commerce?

- Yes, significant changes 129
- Somewhat, noticeable changes 55
- No, minimal changes 18
- Not sure 8

What are the primary challenges your retail shop faces due to e-commerce competition? (Select all that apply)

- Price competition 124
- Keeping up with technological advancements 98
- Maintaining customer loyalty 106
- Inventory management 61
- Shipping and logistics 45

Have you integrated any e-commerce solutions into your retail business? (e.g., website, social media, online marketplace)?

Yes	121	No	31
No	63	How do you ensure that your prices are competitive and fair compared to both traditional and online retailers?	
Planning to integrate in the near future	26	Regular price checks	131
If yes, how long has your online presence been established?		Price matching	79
Less than 1 year	53	What measures do you take to provide excellent customer service in your offline shop?	
1-3 years	55	Knowledgeable staff	61
More than 3 years	43	Quick & humble assistance	96
What platforms do you use for online sales?		Availability of multiple	53
Own Websites	50	What is your policy regarding product exchanges in your offline shop?	
Third Party Platforms (e.g., Amazon, Flipkart)	58	Flexible exchange policy	149
Social media (e.g., Instagram, Facebook)	81	No Exchange policy	60
Online Marketplaces	55	Exchange if product is damaged or not working	1
How has your competitor e-commerce businesses affected your revenue and sales volume?		Do you have a return policy in place for products purchased from any other online shop?	
Increased revenue and sales volume	66	Yes	129
Decreased revenue and sales volume	71	No	81
No significant impact	50	How do you maintain the quality of products sold in your offline shop?	
Not Sure	23	Regular quality checks	131
What strategies have you employed to compete with e-commerce retailers?		Trusted suppliers	79
Offering unique in-store experiences	84	Do you have any loyalty programs or reward schemes for your regular customers?	
Implementing omni-channel strategies (e.g., click-and-collect)	54	Yes	121
Enhancing customer service	145	No	89
Providing exclusive products or services	56	How do you reach out to potential customers and increase foot traffic to your offline shop?	
How does space constraint affect the variety of products you offer in your offline shop?		Local advertising	56
Limited variety	104	Word of mouth	89
Optimal variety	75	Social media marketing	63
Extensive variety	31	Radio	0
Do you offer discounts or special promotions to attract customers to your offline shop?		nothing	2
Yes	179		

Do you conduct any customer or market research to understand consumer preferences and trends?

Yes 139

No 71

Do you notice any significant increase in sales during festive seasons or special occasions?

Yes 190

No 20

Have you explored or adopted any new distribution channels for your products recently?

Yes 83

No 127

How do you perceive the competition from online retailers in your industry?

Strong competition 93

Moderate competition 98

Minimal competition 19

How do you address the challenge of customers having a greater choice online compared to your offline shop?

Focus on unique products 73

Competitive pricing 81

After sale service 30

Personal Feel 25

nothing 1

Do you face any challenges due to cost advantages enjoyed by online retailers?

Yes 170

No 40

Inferential statistics

Hypothesis 1

		N	Mean	Std. Deviation	Std. Error Mean
Extent of Change in Customer Shopping Behaviour	Yes	105	1.28	.449	.044
	No	105	1.90	1.109	.108

		N	Mean	Std. Deviation	Std. Error Mean
5. Have you noticed a change in customer shopping behaviour since the rise of e-commerce?	Yes	105	1.28	.449	.044
	No	105	1.90	1.109	.108

Critical Value of t for degree of freedom being 125 and level of significance being 95% is 2.05. But as per the table given above the calculated value of $t = 5.302$; It shows that the calculated value of t-test is higher than the critical value of t. And hence the alternate hypothesis that there is a significant difference in customer shopping behaviour between traditional retail shops and online shops stands accepted by rejecting a null hypothesis.

Hypothesis 2

		N	Mean	Std. Deviation	Std. Error Mean
How has your e-commerce competitor businesses affected your revenue and sales volume?	Yes	105	2.52	.502	.049
	No	105	1.49	.722	.070

		Levene's Test for Equality of Variances					95% Confidence Interval of the Difference	
		F	Sig.	Mean Difference	Std. Error Difference	Lower	Upper	
How has your e-commerce competitor businesses affected your revenue and sales volume?	Equal variances assumed	12.097	.000	1.038	0.086	0.869	1.21	
	Equal variances not assumed	12.097	.000	1.038	0.086	0.869	1.21	

Critical Value of t for degree of freedom being 125 and level of significance being 95% is 2.05. But as per the table given above the calculated value of $t = 12.097$; It shows that the calculated value of t-test is much higher than the calculated value of t. And hence the alternate hypothesis that there is a significant difference in revenue and sales volume between traditional retailers who have integrated e-commerce solutions and those who have not stands accepted by rejecting a null hypothesis.

FINDINGS AND CONCLUSIONS

The majority of the retailers under study agree to have experienced significant changes in customer shopping behaviour since the rise of e-commerce with facing price competition due to e-commerce is found to be the primary challenge faced by traditional retailers while keeping up with technological advancements, maintaining customer loyalty and inventory management, shipping & logistics. The maximum number of traditional retailers under study has found to have integrated e-commerce solutions like launching own websites, use of third party platforms (Amazon, Flipkart), social media like Facebook and online market place with maximum retailers using social media for increasing their reach. Few traditional retailers are seen to have plan to integrate any of the said solutions in the near future. In order to combat the online competition, the traditional retailers are found to adopt strategies like offering unique in-store experience, implementing Omni-channel strategies, enhancing customer service, providing exclusive product services and also are found to offer discounts or special promotions, quick and humble assistance, flexible exchange policy, loyalty programs and reward schemes, quality check mechanisms for their regular customers to attract customers. In order to keep their prices competitive with that of online retailers, the traditional retailers are found to undertake regular price checks and price matching. Out of various advertising strategies used by traditional retailers, word of mouth is found to be influential. There has been found a significant increase in the sales of traditional retailers during festive seasons or special occasions implying that the customers prefer traditional retailers for shopping for speciality shopping. The cost advantage enjoyed by the online retailers is also found to pose a significant challenge to the traditional business creating a substantial impact while space constraint being one major challenge in offering a variety of products.

To conclude, all the traditional retailers perceive competition from online retailers with maximum retailers experiencing it moderate at level with few of them feeling stronger or minimal competition. In order to combat the same, the adoption of competitive pricing followed by focus on unique products are

found to be adopted by traditional retailers along with other techniques like providing after sales services, personal feel etc. It has been found that there is a significant difference in customer shopping behaviour between traditional retail shops and online shops. The majority of retailers have agreed that due to competitor e-commerce businesses there has been decrease in the revenue and sales volume of their respective business. There has also been found a significant difference in revenue and sales volume between traditional retailers who have integrated e-commerce solutions and those who have not yet resorted to them. The majority of traditional retailers are found to undertake customer/market research to understand customer preferences but they need to explore and adopt from time to time more new and innovative distribution channels, superimpose the impact of their personal connect with the customers through mouth publicity, investigate cost effective strategies, assess certain possibilities to moderate the space constraint, discover and make available the speciality and shopping products, taking advantage of festive season otherwise also investigate the potentials to integrate the e-commerce solutions in order to keep up with the online retailers.

The traditional retailers must embrace digital transformation, enhance their omnichannel capabilities, and leverage their unique strengths such as personalized customer service and community engagement. By fostering innovation and resilience, traditional retailers can navigate the turbulent waters of the retail landscape and secure their relevance in an increasingly digital-centric world.

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Board Committee Practices in Indian Small and Medium Enterprises

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ABSTRACT

The present study is undertaken to explore Board committee Practices in Listed Indian Small and Medium Enterprises. 70 Small and Medium Enterprises are selected from BSE SME Platform based on the availability of data for the period of 10 years. Hence the period of study is 10 years from 2010-11 to 2019-20. The select companies are categorized into sectors. Board committee practices are defined with the constituting required committees on their corporate boards namely Audit Committee, Nomination Committee, Remuneration Committee and Shareholders or Investors Protection Committee. A corporate board is bound to constitute these committees on their boards. In this study, number of committees on their board is considered. If there is no such committee on a company's corporate board, then that company is given with the value zero. Hence the maximum average score in a particular sector may be any number from 0 to 4. Mean, Standard Deviation and Coefficient of Variation is used to explore the Board Committee practices among listed SMEs. The study revealed that the Board Committee Practices in Indian Small and Medium Enterprises are reasonably good and reached the standard Practices among the select Sector of companies.

KEYWORDS: *Small and medium enterprises, Board committee, Audit committee, Remuneration committee, Investors protection committee, Nomination committee and corporate governance.*

INTRODUCTION

Board Committee parameter is the combination of 4 committees of the board which are constituted by the companies. Those committees are Audit Committee, Nomination Committee, Remuneration Committee and Shareholder/investor protection committee. As a part of corporate governance requirement, every listed company has to constitute these committees on their corporate boards. This is directed by Listing Agreements of stock exchanges. Some regulations regarding Board committee is also governed by the Companies Act 2013. ICAI issues and revises AS and IND AS from time to time in this regard. These committees ensure the transparency in the day to day activities of a corporate entity, in which ownership is not involved in this on a daily basis. They also provide information about the

performance and transparency of the Corporate Board, which is entrusted to work on behalf of shareholders. Each committee of a company has weighted with 1. Hence the maximum average score in a particular sector is 4 and minimum average score is 0.

REVIEW OF LITERATURE

In the intricate world of corporate governance, a multitude of research endeavors have illuminated the complex dynamics shaping managerial behavior and financial outcomes across diverse global contexts. Rahman et al. (2021) uncovered a positive correlation between insider trading profitability and board co-optation in U.S. firms, highlighting the pivotal role of board composition in influencing decision-making processes. Almaqtari et al. (2021) emphasized the

crucial significance of audit committee attributes in upholding compliance with International Financial Reporting Standards (IFRS) and bolstering financial reporting integrity, particularly during transitions from local GAAP to IFRS frameworks. Li & Li's (2020) research delved into the impact of female chairpersons within audit committees on mitigating financial irregularities in Chinese listed firms, showcasing the potential of gender diversity in fostering governance best practices. Meanwhile, Harymawan et al. (2020) shed light on the efficacy of Remuneration Committees (RCs) in Indonesia, stressing their role in aligning executive compensation with corporate objectives and fortifying governance standards. Nouri & Abaoub's (2020) study explored the ramifications of mandatory IFRS adoption on corporate board effectiveness in France, underlining its positive influence on governance quality and earnings transparency. Additionally, Kartal et al. (2018) underscored the importance of robust audit committees in the Turkish banking sector, while Nazir & Afza (2018), Jamaludin et al. (2015), and Miko & Kamardin (2015) collectively examined the interplay between governance mechanisms and earnings management practices across various contexts, elucidating the crucial role of governance structures in ensuring financial transparency. Finally, Rahim et al. (2015), Dobre et al. (2015), Madi et al. (2014), and Yunos et al. (2014) investigated the nexus between audit quality and corporate governance in different countries, emphasizing the imperative of strong governance frameworks in fostering effective oversight of corporate reporting processes. These studies collectively offer invaluable insights into the multifaceted relationship

between corporate governance mechanisms and firm performance, underscoring the universal quest for transparency, accountability, and excellence in corporate governance practices worldwide.

RESEARCH GAP

From the existing literature review it is observed that there are no studies found that are focused on Board committee Practices in Indian SMEs.

OBJECTIVE OF THE STUDY

The Research gap is addressed with the help of following objective.

The objective of the study is to evaluate the Board committee Practices of Indian Small and Medium Enterprises.

RESEARCH METHODOLOGY

Secondary source of data is used for the study. Total Listed SMEs on BSE SME Platform are 229. 70 Listed SMEs are selected for the study based on the availability of data for the entire period of study. Period of study is 10 years form 2010-11 to 2019-20. Data extracted from CMIE Prowess IQ. Explorative Research study is carried out to evaluate Board committee Practices in Indian SMEs. Mean, Standard Deviation and Coefficient of Variation are used to explore Board Committee Practices among Indian SMEs.

FINDINGS OF THE STUDY

The Sectors under the study are short formed in the table. The abbreviations are as below

Table 1: List of Abbreviations

Short form	Abbreviation
STD	Standard measure
AS	Agriculture & allied products
CS	Construction and Allied Sector
PF	Pharmaceutical Sector
ES	Entertainment Sector
FS	Financial Services
FB	Food and Beverages Sector
FF	Fund based Financial Services
MS	Manufacturing Sector

OS	Other services
SW	Software activities
WT	Wholesale Trading

The results of the Board Committee Practices are presented in Table 2

Table 2: Board Committee Practices

YEAR	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
WT	0	0	0	0	0.14	0.36	0.79	1.21	2	4
SW	0	0	0	0	0	0.33	1	1.33	3	4
OS	0	0	0	0	0	0	0.8	1.8	2	4
MS	0	0	0	0.15	0.77	1.08	1.31	1.85	2.77	4
FF	0	0	0	0.3	1	2.4	3	3	3.3	4
FB	0	0	0	0.4	1	1.6	1.6	2	2	4
FS	0	0	0	0.67	1	1	1	1	2.33	4
ES	0	0	0	0	0.33	1	1	1	1	4
PS	0	0	0	0	0	0	0	0.75	3	4
CS	0	0	0	0	0	0	0	0.63	1.25	4
AS	0	0	0	1.5	3	4	4	4	4	4
STD	4	4	4	4	4	4	4	4	4	4

Source: Compiled from CMIE Prowess IQ

Table 2 describes the status of Board Committee Practices in selected Sectors. Agriculture and Allied Sectors are following the Board Committee norms of Corporate Governance significantly from the year 2015-16. Practicing Board Committee norms of Corporate Governance is poor in the remaining Sector of companies. Fund based financial Sector and Software companies are striving towards implementing Board Committee Practices. Hence it can be concluded that the Board Committee Practices of Corporate Governance are not strictly followed by Small and Medium Enterprises in India.

Despite efforts by fund-based financial sectors and software companies to adopt these practices, the overall conclusion highlights a lack of strict adherence to corporate governance standards among SMEs in India. This underscores the importance of raising awareness and enforcing governance guidelines to foster transparency, accountability, and sustainable business practices across all sectors.

Table 3 contains the information about Board Committee Practices of Indian Small and Medium Enterprises during the study period.

Table 3: Year-wise Board Committee Practices

Year	Mean	Standard	Standard Deviation	Coefficient of Variation
2010-11	0.00	4.00	0.00	NA
2011-12	0.00	4.00	0.00	NA
2012-13	0.00	4.00	0.00	NA
2013-14	0.17	4.00	0.54	313.61
2014-15	0.53	4.00	1.13	212.98
2015-16	0.94	4.00	1.47	156.26

2016-17	1.24	4.00	1.57	126.62
2017-18	1.66	4.00	1.60	96.31
2018-19	2.37	4.00	1.46	61.41
2019-20	4.00	4.00	0.00	0.00

Source: Compiled from CMIE Prowess IQ

Table 3.10 contains the information of Board Committee Practices during the period of 2010-11 to 2019-20. Till the year 2012-13, no company of the selected Sectors formed all the four committees on their corporate boards. Few companies have started forming Board Committees on their boards from 2013-14 onwards. From then the Board Committee Practices are improving during the remaining period of study. Finally it reaches the standard level of Board Committee Practices. Standard deviations from the mean are increasing till the year 2018-19. But it came down a bit during 2018-19. During 2019-20 the standard deviation was observed as zero. It means every company of the selected Sectors formed all four committees on their corporate boards. For the year 2012-13, the coefficient of variation is not observed since the mean Practices of the Board Committee are zero. Till the year 2016-17 though some companies have started forming the Board Committees on their corporate boards, there is a huge variation among the companies. From the year 2017-18 the variation in Board Committee Practices is consistently followed by all the selected companies of different Sectors. By the year 2019-20 coefficients of variation become zero as the standard deviation is zero.

The data shows a progression in board committee formation across sectors in India, with no companies establishing all four committees until 2012-13, but gradual improvement thereafter. Standardization increased over time, with standard deviations initially rising until 2018-19, then decreasing, and reaching zero by 2019-20, indicating uniformity in board committee practices among companies.

CONCLUSION

The research draws several conclusions regarding board committee practices in selected sectors of SMEs in India. Firstly, it notes a significant discrepancy in adherence to corporate governance norms among different sectors, with agriculture and allied sectors notably following these norms from 2015-16 onwards,

while others, particularly small and medium enterprises (SMEs), lag behind. Despite efforts by fund-based financial sectors and software companies to implement board committee practices, achieving full compliance remains a challenge. Secondly, the research highlights a positive trend in board committee formation over time, with no companies establishing all four committees until 2012-13, but a gradual improvement thereafter. Standardization increased over the years, with standard deviations initially rising until 2018-19, then decreasing and reaching zero by 2019-20, indicating a convergence towards uniformity in board committee practices among companies. These findings underscore the importance of raising awareness and enforcing governance guidelines to foster transparency, accountability, and sustainable business practices across all sectors in India. From the study it can be concluded that the Board Committee Practices in Indian Small and Medium Enterprises are reasonably good and reached the standard Practices among the select Sector of companies.

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A Study on the Role of Organizational Culture on Employee Commitment and Job Satisfaction

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ABSTRACT

Organisational culture has an impact on how well employees work and how they are satisfied. The purpose of this study is to investigate the relationship between organisational culture and worker commitment and job satisfaction. Acknowledging workers as an essential resource, the study intends to provide insight into how they are treated and how committed they are to their jobs inside the company. Important elements including pay, peer connections, working hours, safety, and working conditions are looked at in a variety of Nagpur city sectors. Participants were given a customised questionnaire to complete in order to gather data. The results demonstrate the critical significance that a variety of factors, including work hours, safety precautions, peer interactions, financial rewards, and work environments, have in influencing employee satisfaction levels.

KEYWORDS: *Organizational culture, Employee commitment, Job satisfaction, Working conditions.*

INTRODUCTION

An organisation is a collection of individuals coming together to achieve individual and group objectives (Huma Abid Alvi, at all 2014) An organisation is a group of people who work together to achieve specific goals. Every organisation has a framework for leadership that outlines the connections between its stakeholders and the various activities. The organisation divides up the jobs of the employees and aligns their tasks with the company's goal. The degree of work satisfaction among employees will depend on how well organisational features fit the needs of the workforce (Gede Putu Kawiana, at all, 2018). Work satisfaction, organisational culture, and organisational dedication are all variables that could have an impact on an employee's performance. Organisational commitment is critical to the success of the organisation since it is believed to lead to high levels of resilience at work (Desliana Fajrin at all, 2018).

Organizational Culture: It refers to the mixture of values, ethics, and practices that mould and stimulates the behavior of all individuals within an organization. It

constitutes a framework of values, ethics and beliefs of individuals within an organization.

Employee Commitment: Employee commitment is the relationship they have with the organisation they work for. Workers that are dedicated to their company usually possess a sense of belonging, understanding the organization's objectives, and a connection with it.

Job Satisfaction: It is the degree to which an individual feels safe, determined and satisfied with their job is called job satisfaction. When an individual realize their career is growing, their job is secure, and they can easily manage their work-life, they are satisfied with their job.

LITERATURE REVIEW

According to Leodevina, Batugal, Darin Jan, etl., (2019), the impact of organisational culture on organisational commitment and job satisfaction of teachers in Philippine institutions was investigated. A few organisational cultures were considered in the study, including market, hierarchical, adhocracy, and clan cultures. In accordance to the survey, Clan organisational culture was the prevalent culture in the majority of institutions

in the United States. Organisational culture was found to have a positive effect on organisational commitment in Philippine institutions, but to have a very minor effect on satisfaction of job for the teachers employed there. As a result, developing a strong rapport between organisational culture and organisational commitment and job satisfaction is essential.

Erna Paramita, Prihatin Lumbanrajs, Yeni Absah (2020) points that, the organisation is dedicated to improving worker performance and job happiness as they work towards organisational objectives. While there are many elements that affect employee performance and job happiness, this study focuses only on two: structure culture and structure commitment. Worker performance is seen as a crucial element. The study found that the performance of an employee affected by organisational commitment & culture. Job satisfaction and organisational commitment are positively correlated. They state that employee performance is connected to competitiveness, social responsibility, innovation, stability, and organisational culture. The link between structure, culture, and performance is influenced by job satisfaction. Performance of employees is directly correlated with organisational commitment. Positive organisational culture and structural commitments align with employee satisfaction. Worker satisfaction is directly related to structure and culture. Work satisfaction and structural commitment are positively correlated.

Bambang Raditya Purnomo, Anis Eliyana, Elvina Dyah Pramesti (2020), Employee performance serves as the study's dependent variable, and the researchers identify leadership style, organizational culture, and work satisfaction as the study's independent variables. The investigation establishes that organisational commitment and culture have a positive impact on performance of the employee, whereas the other variables of management style and work satisfaction, have a negative impact.

Sarantuya, Altanchimeg, Tsolmon, Buyankhishig (2021), The study pays attention on three variables to gain a better thought of the association among organisational culture, employee satisfaction, and organisational commitment for workers of an insurance company. According to the study, organisational culture

is a key factor in increasing employee loyalty to their place of employment. The company with a good culture keeps its personnel for a longer period of time with a high job dedication level and also lowers employee turnover. The study's analysis has led it to the conclusion that organisational culture has important impact on employee job satisfaction but less so on organisational commitment.

According to Chompunuch Sriphong, Meena Raden-Ahmad, et al., (2022) there are differences in organisational commitment levels within Thailand region employees based on demographic parameters. According to the researchers, organisational commitment is determined by the employees' duration of service. Individuals with varying tenures in the organisation have varying effects on organisational commitment.

HYPOTHESIS

- H0: Organizational culture has no significant impact on Employee Job Satisfaction.
- H1: Organizational culture has significant impact on Employee Job Satisfaction.
- H0: Organizational culture has no significant impact on Employee Commitment.
- H2: Organizational culture has significant impact on Employee Commitment.

RESEARCH METHODOLOGY

Using a descriptive methodology, the researcher collected data from 150 respondents who were employed in different industries of Nagpur city. The research sample consists of people from five distinct industries. The researcher used primary and secondary sources to gather data. Created a questionnaire for primary data that included questions about age, gender, education, industry of work, and work experience. The other section includes rating on a range of 1 to 5.

RESULTS AND DISCUSSIONS

In this study, researcher wanted to find out more about the factors influencing job satisfaction level and employee commitment towards organization, as well as to assess the association between organizational culture and job satisfaction. The main objective of the study is to understand how organizational

culture influences both job satisfaction and employee commitment. To do so, we formulated hypotheses to examine the significance of organizational culture’s impact on employee job satisfaction. While alternative hypothesis (H1) proposed a considerable impact, the null hypothesis (H0) proposed no significant influence. Our investigation aimed to provide light on the critical influence that organisational culture has on the attitudes and actions of workers in the workplace.

H0: Organizational culture has no significant impact on Employee Commitment

H1: Organizational culture has significant impact on Employee Commitment

Table 1.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.223	1	10.223	21.187	.000 ^b
	Residual	24.607	51	.482		
	Total	34.830	52			

a. Dependent Variable: EC Loyalty
 b. Predictors: (Constant), Organizational Culture

Table 2.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.940	1	.940	1.497	.227 ^b
	Residual	32.041	51	.628		
	Total	32.981	52			

a. Dependent Variable: EC_Peer Relations
 b. Predictors: (Constant), Organizational Culture

Table 3.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.866	1	2.866	4.402	.041 ^b
	Residual	33.209	51	.651		
	Total	36.075	52			

a. Dependent Variable: EC_Working Hours
 b. Predictors: (Constant), Organizational Culture

Table 4.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.150	1	1.150	1.113	.296 ^b
	Residual	52.662	51	1.033		
	Total	53.811	52			

a. Dependent Variable: EC_Salary and Benefits
 b. Predictors: (Constant), Organizational Culture

Table 5.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.764	1	1.764	2.029	.160 ^b
	Residual	44.340	51	.870		
	Total	46.113	52			

a. Dependent Variable: EC_Safety and Security
 b. Predictors: (Constant), Organizational Culture

Purpose of the study was to look into how organisational culture affects many aspects of employee commitment, such as safety and security, working hours, loyalty, peer relationships, and pay and perks. The study developed two hypotheses: one, called H1, suggested that organisational culture has a major effect on employee commitment, while the other, called H0, suggested that it does not. ANOVA tests were used in the research to test the connections between organisational culture and each aspect of employee commitment.

The results provide mixed findings regarding the hypotheses. While significant impacts of organizational culture were observed on employee commitment dimensions related to loyalty ($F(1, 51) = 21.187, p < .001$) and working hours ($F(1, 51) = 4.402, p = .041$), no significant impacts were found for peer relations ($F(1, 51) = 1.497, p = .227$), salary and benefits ($F(1, 51) = 1.113, p = .296$), and safety and security ($F(1, 51) = 2.029, p = .160$). These results suggest that while organizational culture plays important role in shaping certain aspects of employee commitment, its impact may vary across different dimensions.

H0: Organizational culture has no significant impact on Employee Job Satisfaction.

H2: Organizational culture has significant impact on Employee Job Satisfaction.

Table 6.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.056	1	13.056	36.458	.000 ^b
	Residual	18.264	51	.358		
	Total	31.321	52			

a. Dependent Variable: Job Satisfaction

b. Predictors: (Constant), Organizational Culture

By applying ANOVA, it can be analyzed that the value of *f* is less than 0.05 so the model is fit to go.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.646 ^a	.417	.405	.598

a. Predictors: (Constant), Organizational Culture

The results of the ANOVA test indicate an important regression model ($F(1, 51) = 36.458, p < .001$), providing indication to reject the null hypothesis (H_0). This suggests that organizational culture indeed has a significant impact on employee job satisfaction. Additionally, the model summary demonstrates a moderate significant association between organizational culture and job satisfaction ($R = .646, R\text{ Square} = .417$). The adjusted R Square value suggests that approximately 40.5% of the variance in job satisfaction can be explained by organizational culture.

As a result, the data are consistent with the alternative hypothesis (H_2), which holds that organisational culture has a leading influence on employee satisfaction level with reference to their jobs. This focuses on how crucial it is for organizations to have an enjoyable & encouraging culture to increase employee satisfaction, which can then lead to higher morale, productivity, and overall success.

CONCLUSIONS

In this research, major objective is to understand the connection among work dedication & job satisfaction among employees and organisational culture. While our findings show mixed results regarding the effect on different dimensions of commitment of employee,

with respect to loyalty, working hours, peer relations, salary and benefits, and safety & security. A significant positive relationship between organizational culture and employee job satisfaction can be observed. Additional study will go deeper into the complex nature of organisational culture and how it affects employee outcomes to offer insightful advice for organisational management and decision-making.

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A Study of Effects of Work Stress on Family Well being Among Bank Employees

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ABSTRACT

This study investigates the phenomenon of work stress among bank employees and its ramifications for both the employees themselves and their families. Utilizing primary data collected from 125 respondents, the research delves into the multifaceted nature of work stress within the banking sector and explores its implications on various aspects of employee well-being and family dynamics. Through a comprehensive analysis of demographic information, work stressors, consequences, and family impacts, this study aims to shed light on the intricate interplay between work-related stressors, employee health, job satisfaction, work-life balance, and familial relationships. By identifying key stressors and their associated consequences, the findings of this study provide valuable insights for banks and organizations to develop targeted interventions and support systems aimed at mitigating work stress and promoting the overall well-being of bank employees and their families. Additionally, this research contributes to the broader understanding of work stress in the context of the banking industry and highlights the importance of addressing this issue for sustainable employee performance and organizational success.

KEYWORDS: *Work stress, Bank employee.*

INTRODUCTION

The foundation of the economies of both our state and nation is the banking sector. In the current dynamic and competitive business landscape, one of the key pillars supporting economic growth and stability is the banking industry. Workers in the banking sector frequently experience high levels of stress due to the industry's fast-paced demands and complexities. This problem affects the employees' families as well as themselves and is not limited to the job. It also seeps into their personal lives. In order to promote a healthier work environment and ensure the wellbeing of all engaged, it is essential to comprehend the complexities of job stress and its effects on bank employees and their families. The job description for banking employees

includes long hours, an ineffective timetable, a lack of job tone-acceptability, and employment difficulties.

The Latin word "stringere" is where stress originates. It implies to be tightly drawn. It is the way our bodies, minds, and emotions respond to the different circumstances, demands, and changes that life presents. "Stressors" are the things that happen to us or the circumstances around us that make us feel stressed. Proactive stressors and systematic stressors are the two categories of stressors. Stressors that are proactive involve prompt responses to unexpected danger, difficulty, or anxiety (Kumari, 2019). Work stress means the physical, mental and emotional pressure people suffer as a result of their work environment, responsibilities and demands is referred to as job stress. It is a frequent occurrence in today's hectic

and cutthroat work environments and can have a big influence on someone's productivity, well-being, and health. The impacts of work-related stress include those on employee satisfaction, organizational productivity, their physical and mental health, the financial cost of absenteeism, increased influence on their families, and competencies of employees.

Work-Family Conflict

Work-family conflict (WFC) is a term used in psychology and organizational studies to describe the interference or conflict that arises when the demands of work and the demands of family life are mutually incompatible. In other words, it refers to the struggle individuals experience when trying to balance their responsibilities and obligations in both the work and family domains. Work-family conflict is defined as "a form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect" (Greenhaus & Beutell, 1985)

The impact of work stress on Work-family conflict

Three manifestations of WFC exist, and each poses a different set of difficulties. Time-based conflict occurs when people are forced to choose between conflicting priorities because their work obligations take up more time than their family responsibilities. Role-related stress and identity conflicts result from behaviour-based conflict, which happens when the attitudes and behaviours anticipated in one role are inconsistent with those expected in the other. When tension, weariness, or emotional strain from one area permeates the other and hinders an individual's capacity to perform well in both, strain-based conflict results. (Abdou, et al., 2024)

REVIEW OF LITERATURE

According to author (Garg & Yajurvedi, 2017) Banking industry has become highly competitive sector in India and has been facing greater challenges of technological revolution and global banking system. Stress is unavoidable on the part of employees as the systems, procedures and techniques are getting complicated with the use of advance technology. The present paper seeks to comprehend the working framework with respect to various factors, like long working hours, improper reward system, lack of job autonomy, organizational culture, role conflict and others, and the main reason is lack of management support to employees, which

results in imbalance in their work life. Both qualitative and quantitative research methodologies are used in this study to create its research proposals. The purpose of the study was to identify the various factors that lead to stress in the workplace. These factors include role conflict, uncertainty, insecurity, fear of job loss, job changes, compensation, role ambiguity, changes in power, status, and the effect these factors have on employees' work lives.

Researcher (Gaur, Gupta, & Jaiswal, 2021) investigated how work-related stress affects quality of life and work-life balance. It has been determined that the management of work-life balance and job satisfaction among bank workers is a determinant of occupational stress. The study's findings indicate that work-life balance has a somewhat positive and substantial association with occupational stress as well as a significant and positive relationship with job satisfaction. The research paper titled "Impact of stress on employees of banks: Indian context" delves into the pressing issue of stress among employees in the banking sector, highlighting its detrimental effects on both individual well-being and organizational performance. The study presents compelling evidence indicating that employees in the banking sector experience higher levels of stress and insecurity compared to their counterparts in other industries. Researcher (Kumari, 2019) underscored the correlation between elevated stress levels and poorer health indicators among bank employees, highlighting the urgency of addressing this issue. The research sheds light on the nuanced relationship between stress and performance. While low to moderate levels of stress may stimulate productivity and enhance performance, prolonged exposure to high levels of stress ultimately leads to decreased efficiency and diminished outcomes. This nuanced understanding underscores the importance of adopting targeted stress management interventions tailored to the unique demands of the banking sector.

RESEARCH OBJECTIVES

- To understand the frequency of bank employees faced work stress.
 - To analyse the effects of work stress on family wellbeing of bank employees.
4. Research Hypothesis

- There are no significant differences in various aspects related to work-life balance and family dynamics between the groups.

RESEARCH METHODOLOGY

The present study is based on both primary and secondary data. The researchers have collected primary data from 150 bank employee of Jalgaon district through convenience sampling method. The researchers have collected primary data by filling questionnaire consists of 7- point Likert scale and analyzed the primary data with SPSS and used Independent Sample T Test.

DISCUSSIONS AND INTERPRETATIONS

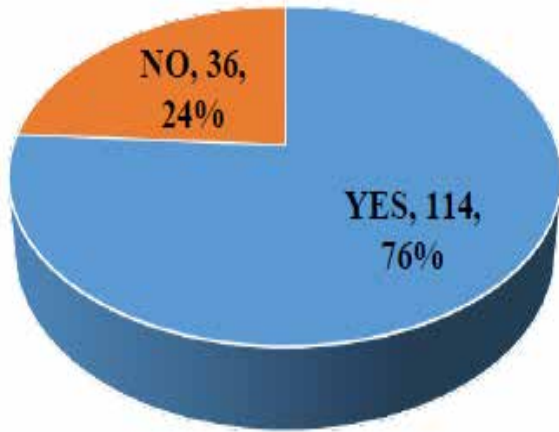


Figure 1: Details of work stress affect the family and create stress

From the above figure 1, the researchers have found that 114 respondents (76%) indicated that their work stress affects the family and creates stress, whereas, 36 respondents (24%) stated that their work stress does not affect the family and create stress.

Table 1: Details of Effects of Work-Stress on Family Wellbeing of Bank Employees

Effects of work-stress on Family Wellbeing	1	2	3	4	5	6	7
Emotional	16	11	07	11	58	36	11
Less time to family	12	12	10	15	36	51	14
Misunderstanding among family	15	8	10	06	33	58	20
Less time to personal	09	13	05	08	28	60	27

Work responsibilities	06	14	10	08	31	58	23
Less priority to family members	13	13	05	09	28	55	27
Effects on poor performance of children	08	09	08	07	41	47	30
Effects due to social factor	14	06	11	09	35	47	28

(1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Disagree, 4 = Neutral, 5 = Somewhat Agree, 6 = Agree, 7 = Strongly Agree)

The researchers have analysed the effects of work-stress on family wellbeing and interpreted as mentioned below:

- Emotional Reaction to Work Problems:** A significant portion of respondents (38.7%) somewhat agree and (24%) agree that they often react too emotionally when faced with problems at work. This suggests that work-related challenges may trigger emotional responses among employees.
- Limited Time with Family:** A substantial proportion (34%) agree and (9.3%) strongly agree that their occupation does not give them enough time to spare with family members. This indicates a prevalent perception of work-life imbalance among respondents.
- Work Pressure and Family Conflicts:** A considerable percentage (38.7%) agree and (13.3%) strongly agree that work pressure creates conflicts and misunderstandings among family members. This highlights the potential negative impact of work stress on family relationships.
- Limited Enjoyment of Leisure Activities:** A significant number of respondents (40%) agree and (18%) strongly agree that they rarely enjoy leisure activities like watching movies/TV programs, listening to music, and reading literature. This suggests that work-related stress may hinder their ability to engage in recreational pursuits.
- Attribution of Disturbance to Work Responsibilities:** A notable proportion (38.7%) agree and (15.3%) strongly agree that their family believes disturbances are caused by their work

responsibilities. This indicates a perceived link between work commitments and disturbances within the family.

- Low Priority on Family Holidays: A substantial majority (36.7%) agree and (18%) strongly agree that holidaying with family members has not been a priority during the last year. This implies a lack of emphasis on family bonding activities due to work-related demands.

- Impact on Children’s Performance and Behaviour: A significant percentage (31.3%) agree and (20%) strongly agree that they feel disturbed due to job schedules and lack of attention towards children, resulting in their poor performance in studies, career and behaviour. This highlight concerns about work interfering with parenting responsibilities and its repercussions on children.

- Disturbance from Social Factors Affecting Family:

A noteworthy proportion (31.3%) agree and (18.7%) strongly agree that they usually feel disturbed because family members are affected by social factors due to their job profiles. This suggests an acknowledgment of how external factors related to work can impact family well-being.

Table 2: Details of Group Statistics

Effects of work-stress on Family Wellbeing	Work stress affect the family & create stress	N	Mean	Std. Deviation
Emotional Reaction to Work Problems	Yes	114	4.93	1.527
	No	36	3.44	1.874
Limited Time with Family	Yes	114	5.16	1.479
	No	36	3.39	1.840
Work Pressure and Family Conflicts	Yes	114	5.32	1.571
	No	36	3.64	1.988
Limited Enjoyment of Leisure Activities	Yes	114	5.43	1.528
	No	36	4.22	2.072
Attribution of Disturbance to Work Responsibilities	Yes	114	5.45	1.470
	No	36	3.86	1.743
Low Priority on Family Holidays	Yes	114	5.37	1.620
	No	36	3.81	2.095
Impact on Children's Performance and Behaviour	Yes	114	5.52	1.409
	No	36	4.06	1.912
Disturbance from Social Factors Affecting Family	Yes	114	5.32	1.669
	No	36	3.94	1.881

Table 3: Results of Independent Samples Test

Effects of work-stress on Family Wellbeing		Levene's Test for Equality of Variances		t-test for Equality of Means
		F	Sig.	t
Emotional Reaction to Work Problems	Equal variances assumed	7.861	0.006	4.809
	Equal variances not assumed			4.324
Limited Time with Family	Equal variances assumed	5.833	0.017	5.886
	Equal variances not assumed			5.256

Work Pressure and Family Conflicts	Equal variances assumed	9.306	0.003	5.251
	Equal variances not assumed			4.650
Limited Enjoyment of Leisure Activities	Equal variances assumed	11.660	0.001	3.776
	Equal variances not assumed			3.231
Attribution of Disturbance to Work Responsibilities	Equal variances assumed	4.646	0.033	5.392
	Equal variances not assumed			4.935
Low Priority on Family Holidays	Equal variances assumed	11.351	0.001	4.687
	Equal variances not assumed			4.105
Impact on Children's Performance and Behaviour	Equal variances assumed	12.616	0.001	4.956
	Equal variances not assumed			4.239
Disturbance from Social Factors Affecting Family	Equal variances assumed	3.529	0.062	4.167
	Equal variances not assumed			3.914

Table 4: Details of Hypothesis Testing, Results and Inference

Effects of work- stress on Family Wellbeing	Results	Inference
Emotional Reaction to Work Problems	The p-value for Levene's Test (0.006) indicates unequal variances between the groups. The t-value for the test (4.809, with equal variances assumed) or (4.324, with equal variances not assumed) is statistically significant.	There is a significant difference in the emotional reaction to work problems between the groups.
Limited Time with Family	The p-value for Levene's Test (0.017) indicates unequal variances between the groups. The t-value for the test (5.886, with equal variances assumed) or (5.256, with equal variances not assumed) is statistically significant.	There is a significant difference in the perception of time availability for family between the groups.
Work Pressure and Family Conflicts	The p-value for Levene's Test (0.003) indicates unequal variances between the groups. The t-value for the test (5.251, with equal variances assumed) or (4.650, with equal variances not assumed) is statistically significant.	There is a significant difference in the impact of work pressure on family conflicts and misunderstandings between the groups.
Limited Enjoyment of Leisure Activities	The p-value for Levene's Test (<0.001) indicates unequal variances between the groups. The t-value for the test (3.776, with equal variances assumed) or (3.231, with equal variances not assumed) is statistically significant.	There is a significant difference in the enjoyment of leisure activities between the groups.
Attribution of Disturbance to Work Responsibilities	The p-value for Levene's Test (0.033) indicates unequal variances between the groups. The t-value for the test (5.392, with equal variances assumed) or (4.935, with equal variances not assumed) is statistically significant.	There is a significant difference in the perception of family disturbance due to work responsibilities between the groups .
Low Priority on Family Holidays	The p-value for Levene's Test (<0.001) indicates unequal variances between the groups. The t-value for the test (4.687, with equal variances assumed) or (4.105, with equal variances not assumed) is statistically significant.	There is a significant difference in prioritizing family holidays between the groups.

Impact on Children's Performance and Behaviour	The p-value for Levene's Test (<0.001) indicates unequal variances between the groups. The t-value for the test (4.956, with equal variances assumed) or (4.239, with equal variances not assumed) is statistically significant.	There is a significant difference in the level of disturbance due to job schedule and lack of attention towards children between the groups.
Disturbance from Social Factors Affecting Family	The p-value for Levene's Test (0.062) does not indicate significant differences in variances between the groups. The t-value for the test (4.167, with equal variances assumed) or (3.914, with equal variances not assumed) is statistically significant.	There is a significant difference in feeling disturbed due to family members being affected by social factors related to job profiles between the groups.

Major Findings

- Bank employees commonly experience emotional reactions to work problems, indicating a potential impact on family well-being.
- Time constraints and work pressure contribute to conflicts within families, emphasizing the importance of balancing work and family commitments.
- Reduced enjoyment of leisure activities among employees may affect family bonding and overall well-being.
- Work responsibilities are perceived to disturb family life, highlighting the need for strategies to mitigate these effects.
- Family holidays are often not prioritized, suggesting a potential neglect of family time.
- Employees' job schedules and attention towards children are perceived to negatively affect children's performance and behaviour.
- Social factors related to job profiles can disturb employees when affecting family members, underscoring the importance of support systems.

CONCLUSION

The study on the effects of work stress on family well-being among bank employees highlights the significant impact of work-related factors on family dynamics. The researchers have suggested through the findings that bank employees commonly experience emotional reactions to work problems, perceive limited time availability for their families and face conflicts and disturbances within their families due to work pressure

and responsibilities. The other effects of work stress also focus on reduced enjoyment of leisure activities, a lack of prioritization of family holidays and concerns about job schedules and attention towards children. These all effects highlight the challenges faced by bank employees in balancing work and family life.

Addressing these challenges is crucial for promoting healthier family environments and enhancing bank employee satisfaction. Banks should consider implementing supportive policies such as flexible work arrangements, promoting work-life balance initiatives and providing resources for managing work-related stress. The banking institutions can contribute to improving both the well-being of bank employees and their families, ultimately fostering a more productive and fulfilling work environment.

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A Study and Analysis of Agricultural and Food Supply Chain through Blockchain and IoT

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ABSTRACT

Agriculture & its foods invention is estimated to be 80% advanced by 2060 than it is today, by means of the all God's creatures populace is going to be raised additional than 10 billion, 33% greater than nowadays. The farmer abstain remained enforced to do production extra by means of the similar type of properties. This type of burden earnings a lot that optimized efficiency is lone of the leading objective of the producer but then again moreover in the ecological ways. Not individual the food production appearance declines in productions, nevertheless it likewise took to appearance limitation in statistics collections, storage's, & distribution's, environment changes, increase in inputs price, old-fashioned food SCM system wherever here is not at all straight connections stuck between farmers & buyers, & restriction on dynamism usage. Present Internet of Things centered agricultural system abstain been centralize layout & operates in quarantine, separation rooms to unsettled issue & most important concern, together with statistics securities, manipulations, & solitary disappointment point.

KEYWORDS: *SCM– Supply Chain Management, IoT–Internet of Things, ERP–Enterprise resource planning, Blockchain technology.*

INTRODUCTION

In latest years, supply chain management & logistic devise witness remarkable hypothesis shift. Their increased curiosity in supply chain management & logistic has been focused by the reasonable stress and has led in the direction of its ultimate elevations to fit keen on a precarious portion of corporation operation & strategies. The character of those administrative function had, understandability, converted to extra noticeable, & company want to manage proficiently that SCM & logistic activity to withstand their reasonable place in a progressively vigorous commercial environments. Organization have to continuously upgrade their supply chain management & logistic system in direction to provide the correct products to the accurate customers at exact interval. Conventionally, logistic had been consider an exclusive but essential price teamster for business to relatively than a calculated sources

for expensive advantages. Nevertheless, through the appearance of fresh Technology, organization abstain remained capable to grab unique opportunity & succeed economic advantage.

Development in information technology had frolicked an important part in improving the formation, applying, & controlling of flow & putting away of good, service. The bound of modification conveyed by fresh technology had transform the manner in which business construct and convey worth to consumer. Aimed at ex. the beginning of Industry has demonstrated a precarious achievement factors for provided that numerous industry benefit as well as the optimizations of businesses operation & importance series events. It play a precarious character in organizing the player from side to side enlightening communications, obtaining & communicating statistics, by this means permitting in effect administrative & enhancing SCM performances. IoT is one of the latest

information technology development in supply chain management that be able to provide additional correct data on behalf of extra actual decision-makings.

LITERATURE REVIEW

The blockchain was firstly introduced as a stage for alphanumeric bills of Bitcoins. Today's, blockchain technologies are not only a podium intended for crypto currencies, but likewise has various solicitations & advantage. The blockchain technologies are centered on the dispersed journal. The dispersed databases indicate it is public relations. In those cases, the documents are not transfer for dissimilar node by a principal authorities. The blockchain technologies has play an important character in varieties of businesses & communal communications owing to transparencies, securities, & presentation improvements.

In the blockchain systems, every facts slab is recognized by a confusion encryption utility & interact by way of additional block, developing a statistics blockchain. As a result, the blockchain technologies diminishes the role of intercessors that causes disruptions, hackings, & frauds. When that type of blockchain technologies are uses, the trust in networks & it is operation is increases. That type of technologies make it conceivable to generate & transmission arithmetical asset with higher sureness. Another features of that type of technologies is the smooth convention modules, which store the compromise term & confirm result alongside the granted term. That reduce the roles of the mediators, cumulative transparencies in transaction & interaction. That type of blockchain competencies are also uses in an SCM.

Hypothesis

- o HO1: The blockchain and IoT helps & increases the efficiency and effectiveness of SCM.
- o HO2: A new trend supply chain management is far better than the traditional techniques use in the back days. So it is very useful to use rather than traditional technique.
- o HO3: This new technology of supply chain management though blockchain and IoT is the future of SCM.
- o HO4: The blockchain technology and IoT can help to build a trusted, self-recognized, open and ecological smart agricultural system.

- o HO5: The future of supply chain management will control whole market by blockchain and IoT.
- o HO6: The blockchain and IoT will rule over traditional technology.

RESEARCH METHODOLOGY

Based on the topics & existing researchers in this areas, a systematic reviews on industry in logistic & SCM was implements'. For those papers, a structural reviews & methodologies was adopts based on 5 step given by Denyers & Tranfields, 2010 suggests for a conduction of systematic review:

- I. Questions formulations
- II. Location of study
- III. Studies selections & evaluations
- IV. Analysis & creation
- V. Reporting's & use of result

Questions formulations

Leading, the author investigated the wide-ranging inquiries trend in collected works since the perspective of the numeral of revisions on Industry in the SC, Industry in logistic, & interconnected subject, estimating the framework of revisions & dissimilar method. Subsequent, the author investigated discoveries since the prevailing researches, the formal of the researches on those subjects of foregoing lessons.

Location of study

The significant researches associated with specific evaluation question remained positioned, designated, and evaluated by Denyers & Tranfields, 2010. 5 hunt keywords slogans: - "Production 4.0 and SC," "Production & Logistic," "Smooth SC," "E-Logistic," & "E-SC," remained jumble-sale to right of entry Google Scholars 1st, for the reason that those exploration engines show furthestmost of the result on or after entirely database. To categorize appropriate paper, titles, abstracts, keyword controlled be present scrutinized. Keywords assortment and catalog tilts triggered a number of limitation on discovery paper in those researches.

Studies selections & evaluations

On the way to assess appropriate study on those topics, the author revised the contented of every broadsheet. There a selection of interrelated paper, which talk over SCM in smooth industrial unit with manufacturing line of attack. For the reason that in attendance be present not sufficient printed paper in those region and supplementary paper be present wanted for those investigation, author observed to additional database like Wiley’s and Semantics Scholars. There is a selection of significant printed paper through prospective contents approximately those researches, which make sure of not seem throughout the searches of the designated paper.

Analysis & creation

In those steps, every singular studies remained examined centered on the double question point out overhead in Exhibition. The principal interrogations convoluted to the examination for the trend of in effect exploration in Productiveness and the SC, aimed at ex, the amount of study, journal dates and inquiries methods, which off the record a selection of paper addicted to 6 category: -investigation, interviews, event studies, contented investigation, writings reviews, & demonstrating.

Reporting’s & use of result

Allowing to this methodologies, in those steps, these researchers result are offered centered on the assessment of designated paper by indistinct classifications enlightened in the most recent subsections & similarly TMs. Proceeding the explosion of the consequence, investigation gap are indomitable & recommendation for upcoming investigation are prepared. At the completion of those documents, a instantaneous & conclusion are offered.

ANALYSIS & OUTCOME

The below table shows the detail of an authors who participate in BIoT research. There are various author who published different number of research paper & there paper got multiple number of citations as mention in Table no. 1.

Table 1:- Author participated in BIoT research

S.No.	Author	Document	Citations	Selection Percentage
1	Ali, S. M. A., & Ali, S. M. A.
2
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13
14
15
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In this BIoT research total 2655 numbers of authors participate & there are many authors who has so many numbers of research paper published till date. & the author Javid Moosavai, Leila M. Naenin, Amir M. Fathollahia-Fard, Ugao Fiore 2022, Environmental Science and Pollution Research – Article having most number of citation i.e. 166. This article is published in the year 2022 & this papers gets 77% more attention than other author’s papers.

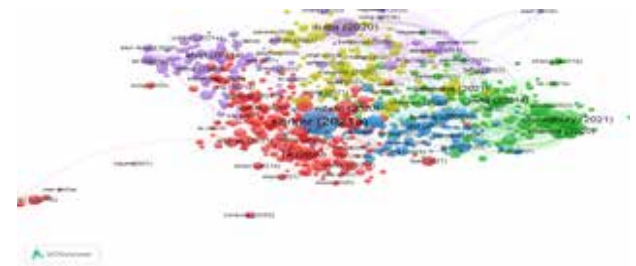


Fig. 1:- A Bibliometric Analysis of Authors



Fig 2:- Year wise Paper Analysis

The above figure shows analysis of year wise papers that has been studied. And that papers having different authors who states the various studies on supply chain management through Blockchain and IoT. The maximum number of papers published are in the year 2022 that is 32.2% and the lowest number of papers published in the year 2017 on the topic chosen for this paper. This all papers are studied and analysis their data.

RQ1 Do you think Blockchain & IoT helps to increase the efficiency & effectiveness of SCM?

5) Do you think Blockchain & IoT helps to increase the efficiency & effectiveness of SCM?
237 responses

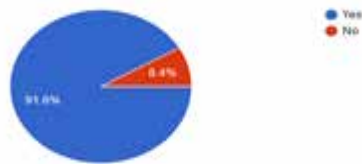


Fig3:- Distribution by efficiency & effectiveness

The above research question is based on the effectiveness and efficiency of the latest technology of Blockchain and IoT in supply chain management. Total 237 responses collected from the employee of various supply chain organization employees and out of them 91.6% agree with it. And 8.4% of them thinks traditional technology is better than this modern technology.

RQ2 Does it improve the custom administration controls of an international trades through a blockchain technologies?



Fig 4:- Distribution by control of international trade

In the next question we asked about the international trade and the customs administration control. Out of 237 responses 44.3% thinks that it is very useful in the international business. And 49.8% of responder are not sure about the international trade of the modern technology. And the remaining thinks that it is not that much useful.

RQ3:- Do you think food tracing & tracking food in SCM with IoT devices will become more efficient?

11) Do you think food tracing & tracking food in SCM with IoT devices will become more efficient?
237 responses



Fig 5:- Distribution of SCM with IoT

In this question we asked about using IoT SCM & we get many different responses as show in the above figure and it shows that most of the thinks that the IoT is best for the tracing & tracking of food in the SCM.

RQ4 How would you like to rate this modern technology over traditional technique?

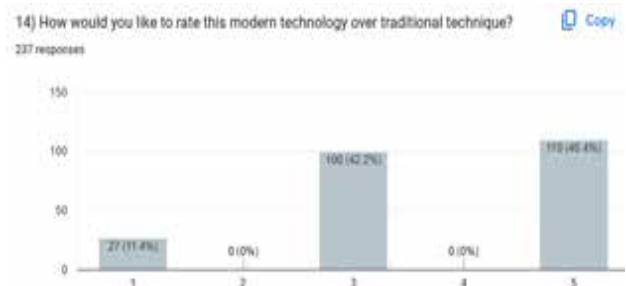


Fig 6:-Technological Distribution

In this we asked about the difference of both the technologies that traditional technology over the modern technology. In this we get the response of most of the thinks that it is better than the traditional technology. And very less thinks it is not useful than the traditional technology.

SPSS

Table 2:- Hypothesis Test Summary

	Null Hypothesis	Test	Sig. ^{a,b}	Decision
1	The categories defined by VAR00001 = 1 and 2 occur with probabilities .500 and .500.	One-Sample Binomial Test	<.001	Reject the null hypothesis.

a. The significance level is .050.

Table 3:- One-Sample Binomial Test Summary

One-Sample Binomial Test Summary	
Total N	237
Test Statistic	217.000
Standard Error	7.697
Standardized Test Statistic	12.732
Asymptotic Sig. (2-sided test)	<.001

Table 4:- Descriptive Statistics

	Descriptive Statistics												
	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance	Skewness	Kurtosis			
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Std. Error	
X1	237	1	1	2	256	1.08	.018	.272	.074	3.112	.158	7.749	.315
X2	237	1.00	1.00	2.00	256.00	1.0802	.01763	.27213	.074	3.112	.158	7.749	.315
Valid N (listwise)	237												

The above tables are the SPSS done and based on the data collected through questionnaire through survey. The data is analyze after the 200 plus response collected and the results are shown in the tables. The various tests performed are Hypothesis Test Summary, One-Sample Binomial Test Summary and Descriptive Statistics these tests are done on the basis of data collected through survey.

After the analysis of data and the SPSS done on that collected data we found the value of the standard deviation statistics is 0.272 which is moderate. And hence the test performed on the collected data is found to be less error and reliable to use and conclude the result.

FINDINGS

Our work aim to incorporate all of the literatures that has stayed circulated by way of an article in the various publications, article in media, assessment paper & little inspection affecting to application, combination & implementations of Internet of things & blockchain technologies in supply chain & logistic. It uncover current trend of Internet of things & blockchains in supply operation & floors way to upcoming researches. As an observation, the possibility of this exertion is constrained to supply chain. The development of exploration in those areas has been speed up from 2016 & has sustained at a colossal paces. Through those papers, we tried to deliver insight by speaking the problems.

CONCLUSION

From the above detail we conclude that with using Blockchain & IoT we can create an environment that give frictionless result which increases the production

in agricultural & food supply chain business. Internet of things gives safety to the SCM operations of food & agricultural & the blockchain provide more efficient way to increase the SCM which is better than the method use previously or the traditional method.

The study ensure that the use of blockchain is very useful in SCM of agricultural & food securities. And the SCM plays a very important role in the monitoring of all the details of the food until it reach to its consumer. It help in maintaining the quality of the food & maintain the supply of agricultural food according to its demand of the consumers. The specifications of the transactions done by anyone can be easily accessible by everyone who is part of it that has been occurs on the networks.

Hence we conclude that it is the best technology for the supply chain management of food and agricultural though Blockchain and Internet of things and at the end of the result the traditional technology also plays a vital role it also good technology we can use sometimes. But the modern technology is better than the traditional technology. And Blockchain and IoT helps to achieve it and the best for the future of supply chain management.

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Impact of Performance Appraisal on Employee Productivity in Banking Sector

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ABSTRACT

The implementation of performance reviews by banks aims to improve employee productivity, as a result of the industry's high targets. The purpose of this research was to ascertain how staff productivity at this institution was affected by performance appraisal criteria, feedback, rewards, and competency assessments. For the management terms and staff of the Banks, the study's significance is consequently crucial. Three theories served as the foundation for this investigation the implicit theory that guides this work, the goal setting theory, and Adam's equity theory. The target audience consisted of all bank employees. Using the systematic sampling technique, the sampled employees were chosen from the guidance of Manager or CO of the particular Banks. A coded questionnaire was then entered into the statistical package for Social Sciences for analysis. Analysis that was done from the SPSS test some SPSS tests were used are as follows: Descriptive Statistics, Test of Normality skewness and kurtosis value, Reliability Analysis- Alpha, Correlation. The study came to the conclusion that staff productivity in banking industry is highly influenced by the primary performance appraisal indicators utilized. It is consequently advised that salaries be in line with job description, that promotions be given to staff members based on their output, and that regular opportunities for additional training be provided to them.

KEYWORDS: *Performance appraisal, Employee productivity, Organizational performance, Banking sector, Reward, Compensation, Employee performance.*

INTRODUCTION

One of the fundamental responsibilities of the organization's management, performance appraisal are an essential component of human resource management and are meant to improve employee performance. Employee select employees based on their performance, and the assessment procedure identifies discrepancies between expected and actual performance. Employee productivity is determined by the skill, knowledge, ability, attitude, and job perception that may be assessed using the performance appraisal system. The purpose of PAS, an employee development tool, is to boost worker productivity and improve organizational performance. An organization's most significant asset is its workforce, hence the growth of this workforce must be the main emphasis of performance appraisals. The best kind of investment

made by management to raise the performance of the company is the time, money, and energy put in to increase their knowledge, skills, and talents. The purpose of performance appraisal is supposed to be multifaceted. Finding out what training employee need to address their weaknesses and boost their output in the best interests of the company is the main goal. Because of this, a well-functioning performance appraisal system aids in staff growth and boosts output. As a result, the performance appraisal system has been examined in this study from the standpoint of realizing this primary goal and an efficient evaluation system. Trainings that are tailored to an organization's needs are essential for building its human resources, which raises employee productivity. The study has investigated the impact of performance appraisal system on employee productivity in the Banking sector. Employee productivity is boosted by

its impact on employee growth and ability to recognize training needs, boost of which have been investigated. Thus, in the specified research environment, this study has been carried out to confirm the association between Employee Productivity and the performance appraisal system, while the role of training has been examined as a mediating variable. It was necessary to investigate the issues if employee productivity in banking sector. The performance evaluation method must be trustworthy, accurate, and devoid of political biases in order to elicit a positive response from the personnel being graded. It must also allow the employees to participate in the process and voice their opinions. Performance Appraisal is a systematic evaluation of the performance of an employee on his present job in relation to future jobs that he or she may be required to take up. In order for employees to get better over time, it is important to measure and assess their performance and identify their strengths and weaknesses. A sound appraisal system is essential to every organization's personnel management. An effective appraisal system is critical to an organization's success. The proper kind of people are likely to be promoted into roles with more responsibility and those who contribute more will be suitably rewarded under a sound appraisal system. Therefore, for any assessment system to be effective, the staff members need to comprehend it, perceive it as fair, and be sufficiently focused on their work to be concerned about the outcomes.

LITERATURE REVIEW

Impact of Employee Performance Appraisal system on Employee Productivity A study of selected of Educational Institutes Paridhi Jain, Dr. Rekha Swarnkar December 2023 Human resource managers prioritize employee performance since it is a valuable asset for their organizations. Over time, a number of performance appraisal approaches have been created to evaluate employee performance in a thorough manner, taking motivation into account. The usefulness of performance appraisal methods and their effect on employee motivation are investigated in research, particularly in relation to performance management. The importance of performance rating systems is highlighted by the requirement to match individual performance with corporate goals. Furthermore, studies show that a large

number of workers have an innate desire to do well in their positions, support the growth of the company, and show dedication. As a result, accomplishing corporate goals and promoting employee motivation depend heavily on efficient performance appraisal systems.

Study of Effectiveness of Performance Appraisal System in Banking sector with special reference to State Bank of India Dr. Preeti Rani November 2023 Businesses depend on employee performance reviews to guarantee constant, high-quality labour in order to stay competitive. Systems of performance ratings encourage high-quality work and point out areas in need of development. The principal objective is to increase productivity by evaluation of post-selection individual abilities, motivation, and training. The effectiveness of an organization is greatly impacted by a well-functioning performance appraisal system. The purpose of this descriptive study is to assess the State Bank of India's performance appraisal system through the use of statistical analysis with SPSS software and structured questionnaires. The success of the approach is confirmed by the findings, which show a correlation between employee performance and appraisal outcomes. Overall, the study's regression and correlation analyses show that performance reviews have a major impact on worker productivity.

Effect of Employee Performance Management on Productivity of Safaricom Steel Lekaana Dr. Michel Mutabazi June 2023. The connection between employee performance management and productivity has been studied over an extended period of time, with a particular emphasis on Safaricom, the biggest telecom company in Kenya. The purpose of this cross-sectional study was to ascertain how staff performance management affects productivity at Safaricom. Understanding Safaricom's strategies for promoting improved performance, the effect of employee involvement on productivity, and the efficiency of incentive and recognition schemes were among the specific goals. A self-administered questionnaire was used to gather data from customer service centres, and descriptive statistics were used to analyse the results. The findings demonstrated how staff performance management strategies have a major impact on output. Suggestions include resolving employee under-engagement and maintaining rewards

for attaining corporate goals. Similar studies could be carried out in other telecom companies to increase knowledge in the industry.

A study on effect of target-based performance appraisal towards employee productivity at Ashoka Farm Aids, Peenya Industrial Area. Vidya D, Prof. Chandana T C October 2023. The effect of target-based performance reviews on employee output inside the company is investigated in this study. It investigates, taking contextual factors into account, the relationship between productivity and evaluation methodologies through a combination of approaches, including surveys and interviews. The results show a substantial relationship between target-based assessments and higher productivity, especially when individual goals line up with organizational goals. Motivation is increased via efficient coaching, ongoing feedback, and transparent goal-setting communication. The article acknowledges challenges related to egalitarian goal creation and suggests a well-rounded strategy that incorporates both qualitative and quantitative elements. Employee growth depends on fair and open appraisal processes, which enable continuous performance discussions and feedback mechanisms. Productivity can be increased and overall success can be achieved by strategically utilizing strengths and resolving obstacles.

OBJECTIVES OF STUDY

- To study the relationship between performance appraisal and employee productivity.
- To study the different appraisal methods and its effectiveness.
- To determine how performance appraisal feedback affects employee performance.
- To study the effect of employee compensation on employee productivity.

SCOPE OF STUDY

A thorough grasp of the effect of performance reviews on employee productivity in the banking industry can be attained by addressing these issues within the parameters of the research.

Performance Appraisal and Employee Productivity: Examine how employee productivity in the banking industry is related to performance appraisal procedures.

Distinct Appraisal Techniques and Their Efficiency: Examine the effects of different performance evaluation techniques used in the banking industry on employee productivity

Effect of Employee Compensation on Employee Productivity: Assess the connection between productivity levels and employee compensation structures.

Performance Appraisal Feedback’s Effect on Employee Performance: Examine how employee performance in the banking industry is impacted by the type and manner of performance appraisal feedback.

RESEARCH METHODOLOGY

The research or data extraction about this topic was based on a combination of both primary and secondary data. The data regarding this topic is collected with the help of suitable Questionnaire (Google Form), Research paper, Thesis, etc. The respondent was the employee of the banks who are aware of the Performance Appraisal and likely to help in our research.

Source of Data: The research data is collected from both primary and secondary data.

Data Collection Tools: For research, the data collected through previously published research papers, journals, and google form questionnaire.

Limitations of the study: A sample size of 181 respondents in total was collected. The research is limited to Employees of Banking sector.

Statistical Tools used: Excel and SPSS for analysis

DATA ANALYSIS

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.503	.515	8

Although marginally better when based on standardized items, a Cronbach’s alpha between 0.503 and 0.515 indicates a relatively low level of consistency among the items in evaluating the same underlying construct.

Put another way, the concepts you are interested in are not consistently assessed by the items on your scale.

Bartlett's Test reveals that the variables are significantly correlated, suggesting the acceptability of the data for factor analysis despite certain constraints. The KMO result indicates marginal adequacy for factor analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.601
Bartlett's Test of Sphericity	Approx. Chi-Square	181.693
	df	28
	Sig.	<.001

Bartlett's Test reveals that the variables are significantly correlated, suggesting the acceptability of the data for factor analysis despite certain constraints. The KMO result indicates marginal adequacy for factor analysis.

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Performance appraisal act as motivator	180	4.2444	.43096	.03212
PA system helps to strength and weakness	180	4.3500	.54388	.04054
Promotion associated with PA	180	4.2889	.60250	.04491
Reward and compensation increase employee productivity	180	4.6056	.55428	.04131
PA helps to set and achieve goal	180	4.2278	.56756	.04230
Are you satisfied with solutions provide by Org	180	3.6056	.76587	.05708
PA is easily understood by employee	180	3.7000	.76150	.05676
Are you satisfied with current PAP	180	4.1778	.61776	.04605

The information shows 180 participants' answers to questions about different facets of performance review processes. With values ranging from 3.60 to 4.61 on a scale of 1 to 5, participants generally assessed the efficacy of performance appraisal systems as reasonably high across all categories. Notably, participants rated satisfaction with the current performance appraisal methods relatively well, but they saw awards and compensation as the biggest motivators for productivity increase. Concerns were raised, meanwhile, about the organization's general satisfaction with the solutions it offered and the clarity of its performance rating standards, which may indicate areas where the system needs to be improved.

FINDINGS

The study discovered a favorable relationship between worker productivity in the banking industry and the efficacy of performance appraisal systems. Employee productivity is typically better in banks with well-thought-out and transparent appraisal systems than in those with shoddy or irregular appraisal procedures. The findings of the study indicate that employee compensation has a noteworthy impact on productivity levels within the banking industry. Employees at banks with competitive compensation packages which may include basic pay, bonuses, and performance-based incentives tend to be more driven and effective than those at banks with less alluring pay plans. Feedback from performance reviews is very important in determining how well employees perform in the banking industry. According to the study, prompt, helpful, and targeted feedback given during performance reviews has a favorable impact on worker motivation, job satisfaction, and ensuing performance levels. Workers with significant feedback are more likely to accomplish performance goals, advance their careers, and successfully support company objectives.

CONCLUSION

The research validates a robust positive association between staff productivity and performance evaluation in the banking industry. Employee productivity and performance are increased when performance appraisals help with goal-setting, expectations-clarification, and feedback providing. While there is evidence that several performance appraisal techniques

are useful, maintaining consistency in their use is crucial for increasing productivity. Notably, strategies like balanced scorecard, MBO, and 360-degree feedback work especially well in the banking industry. Furthermore, feedback from performance appraisals has a big impact on worker performance. Over time, motivation and performance improvement are driven by constructive criticism and positive reinforcement. The research indicates that employee compensation has an impact on productivity levels in the banking industry. Although the process of determining rewards is guided by performance appraisal, productivity

may not be stably increased by depending only on financial incentives. non-cash benefits and professional advancement. Equally important elements are non-cash incentives, professional development opportunities, and a positive work atmosphere. In summary, strong employee development programs, equitable remuneration policies, insightful feedback, and efficient performance review procedures all contribute to a high-performance culture in financial institutions. By assisting in the accomplishment of strategic goals and preserving industry competitiveness, this method guarantees long-term success and productivity.

One-Sample Test							
Test Value = 5							
	t	df	Significance		Mean Difference	95% Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
Performance appraisal act as motivator	-23.522	179	<.001	<.001	-.75556	-.8189	-.6922
PA system helps to strength and weakness	-16.034	179	<.001	<.001	-.65000	-.7300	-.5700
Promotion associated with PA	-15.835	179	<.001	<.001	-.71111	-.7997	-.6225
Reward and compensation increase employee productivity	-9.547	179	<.001	<.001	-.39444	-.4760	-.3129
PA helps to set and achieve goal	-18.254	179	<.001	<.001	-.77222	-.8557	-.6887
Are you satisfied with solutions provide by Org	-24.428	179	<.001	<.001	-1.39444	-1.5071	-1.2818
PA is easily understood by employee	-22.904	179	<.001	<.001	-1.30000	-1.4120	-1.1880
Are you satisfied with current PAP	-17.857	179	<.001	<.001	-.82222	-.9131	-.7314

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Embracing the Digital Money Revolution: How Central Bank Digital Currencies (CBDCs) Shape the Future of Financial Transformation

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ABSTRACT

The emergence of Central Bank Digital Currencies (CBDCs) is revolutionizing global finance, potentially altering the functioning of financial systems. This study aims to explore the intricate connection between CBDCs and financial change. We'll examine their adoption, differences from payment methods like the Unified Payment Interface (UPI), potential future developments, risks, and wider effects. Focusing on India's CBDC acceptance, we'll highlight distinctions from UPI. Additionally, we'll discuss future CBDC trends and implementation challenges, along with risks. We'll also evaluate how CBDCs are reshaping traditional finance, considering pros and cons. This research aims to enhance understanding of CBDCs' role in shaping finance's future for a more equitable and efficient digital economy, drawing on both existing knowledge and new insights.

KEYWORDS: CBDC-Central Bank Digital Currencies, Unified Payment Interface, Finance, Revolutionizing, Financial systems, Equitable.

INTRODUCTION

In recent years, managing our finances has undergone a significant shift, largely due to the rise of Central Bank Digital Currencies (CBDCs). These digital currencies issued by central banks are fundamentally changing how we handle and exchange money.

The concept of CBDCs raises important questions about the future of financial systems. How will they impact our purchasing habits? Can they truly reshape our financial landscape in the years to come? Our aim is to delve into the fascinating realm of central bank digital currencies and explore their potential to revolutionize money management.

Central Bank Digital Currencies (CBDCs) are essentially digital versions of a country's official currency, issued and regulated by the central bank. Unlike traditional physical currencies such as coins and banknotes, CBDCs exist purely in electronic form, stored in digital

wallets or accounts. The central bank, as the issuer, ensures the legitimacy, security, and authenticity of these virtual currencies.

Unlike cryptocurrencies like Bitcoin, CBDCs are typically centralized and closely tied to a nation's official currency. They are recognized as legal tender, with their value pegged to the equivalent amount of traditional currency. The primary objective of CBDCs is to combine the benefits of digital payments with the stability and security of government-backed money.

The adoption of CBDCs forms part of central banks' broader efforts to modernize and adapt to the changing landscape of financial technology. These digital currencies have the potential to enhance financial inclusion and facilitate safer and more efficient transactions. However, their implementation raises various legal, financial, and privacy considerations that must be carefully addressed.

Overall, CBDCs represent a significant advancement in the realm of digital finance, promising to shape the future of financial systems in profound ways. This research aims to explore the implications of this digital money revolution and its potential to transform how we interact with and manage money.

An Overview of Key Features of CBDCs

1. Issued by Central Banks: Unlike cryptocurrencies from private sources, CBDCs are created and managed by a country's central bank, ensuring they're secure and backed by the government.
2. Digital Format: CBDCs exist purely in electronic form, making them easy to send and receive using digital devices like computers and smartphones.
3. Similar to Fiat Money: CBDCs work much like physical cash, allowing for everyday transactions such as payments, settling bills, and receiving salaries.

Potential Benefits of CBDCs

1. Faster, Cheaper Transactions: CBDC transactions are quick and cost-effective compared to using credit cards or traditional bank transfers.
2. Enhanced Financial Inclusion: CBDCs can extend access to financial services for people who don't have traditional banking access.
3. Improved Traceability and Transparency: CBDC transactions are traceable, aiding in the fight against financial crimes like money laundering.
4. Programmable Features: CBDCs can be customized with features like spending limits or expiration dates, tailored to specific needs or policy objectives.

Differences between CBDCs and Unified Payment Interface (UPI) include

1. Authority: CBDCs are issued and regulated by central banks, whereas UPI is a payment system managed by the National Payments Corporation of India (NPCI).
2. Nature: CBDCs are digital currencies directly issued by central banks, serving as a form of legal tender, while UPI facilitates real-time payments between bank accounts using smartphones.

3. Purpose: CBDCs aim to provide a digital form of traditional fiat currency, enhancing financial inclusion and efficiency, whereas UPI primarily focuses on facilitating peer-to-peer and merchant payments.
4. Backing: CBDCs are backed by the issuing central bank, providing assurance of value and stability, whereas UPI transactions are backed by the funds in the linked bank account.
5. Scope: CBDCs have broader implications for the entire financial system, including monetary policy and financial stability, whereas UPI is primarily a payment infrastructure facilitating transactions within India.

OBJECTIVES

1. To Evaluate current adoption of CBDCs by India.
2. Predict future trends in CBDC adoption and their broader implications.
3. To Identify risks and challenges associated with CBDC implementation.

SCOPE OF STUDY

- The study covers the concept of Central Bank Digital Currencies (CBDCs) and their emergence in the digital money landscape.
- This study focuses only on India's Central Bank Digital Currency.
- Both primary and secondary data sources will be explored to ensure a comprehensive understanding of the subject.

LITERATURE REVIEW

International Monetary Fund. (2022). Central Bank Digital Currencies: Designing Effective Policies. This IMF research draws from the experiences of pilot programs around the world to provide a thorough review of CBDC design issues. Possible effects on financial stability, cross-border payments, monetary policy, and financial inclusion are covered. When creating and executing CBDCs, the IMF stresses the importance of meticulous preparation and cooperation between governments, the private sector, and central banks. They advise concentrating on particular policy

objectives, such as cross-border efficiency and financial inclusion, while minimizing possible dangers and guaranteeing compatibility with current systems.

Prasad, E. (2022). A Digital Pound for Our Time? Exploring the Implications of CBDCs in the UK. In the UK, Prasad compares and contrasts CBDCs with other digital payment systems, such as Faster Payments, to examine the possible advantages and disadvantages of the technology. He highlights programmable features, financial inclusivity, and efficiency improvements, but he also expresses worries about systemic dangers, data privacy, and the potential reduction in private sector payments. Prasad supports a carefully thought-out CBDC in the UK that strikes a balance between innovation and the country's current financial system. He suggests a hybrid business strategy that combines wholesale and retail CBDCs, putting inclusion and financial stability ahead of technology disruption.

Shin, H. S. (2022). Can Central Bank Digital Currencies Promote Financial Inclusion? ,Shin focuses on how CBDCs could increase financial inclusion, especially in developing nations. He looks at how CBDCs might be made to make it easier for people to obtain financial services, lessen their need for cash, and make remittances easier.

Shin contends that although careful planning and execution are necessary for CBDCs to be effective, they can be a potent instrument for financial inclusion. He exhorts central banks to guarantee inclusion by taking into account elements like affordability, accessibility, and user-friendliness.

Prasad, E. (2022). The Future of Money: How the Digital Revolution Is Transforming Currencies and Finance. Prasad examines the growth of stablecoins, CBDCs, and cryptocurrencies within the larger framework of the digital money revolution. He contends that in order to keep control over monetary policy and financial stability, central banks must react to these advances.

Prasad urges the creation of CBDCs to be approached methodically and strategically. In order to prevent disruptions and optimize the benefits of digital currencies, he highlights the significance of striking a balance between innovation and regulatory monitoring as well as guaranteeing international cooperation.

Kapur, V. S. (2023). CBDCs: A Technological Revolution or a Centralized Power Grab?, In his critical analysis of CBDCs, Kapur expresses worries about the possibility of further governmental control and monitoring. He examines the effects on financial freedom, individual privacy, and competitiveness in the banking industry.

Kapur demands more openness and discussion about CBDC development in the public sphere. He underlines the necessity of protections to uphold individual liberties and guarantee fair competition for private sector innovation.

Demertzis, M., & Adrian, T. (2023). Beyond the Hype: Assessing the Potential of CBDCs to Revolutionize Cross-Border Payments. This study explores how CBDCs could reduce existing frictions and inefficiencies in cross-border payments. They examine the ways in which CBDCs might lower expenses, do away with middlemen, and improve transparency in cross-border transactions. Despite the technological and legal obstacles, Demertzis and Adrian contend that CBDCs present a viable way forward for a more effective and inclusive global financial system. They advise worldwide standardization and collaboration in order to fully realize the promise of cross-border CBDC payments.

Ulrich, F., & Adrian, T. (2023). Programmable Money: CBDCs and the Reshaping of Financial Contracts. The creative potential of programmable features in CBDCs—which enable the automatic execution of particular conditions in transactions—is examined in this research. They examine the potential applications of these traits for automated tax payments, smart contracts, and focused monetary policy interventions. Ulrich and Adrian conclude by highlighting the possible advantages of programmable CBDCs but also bringing up issues with security, complexity, and regulatory obstacles. Before these features are widely adopted, they stress the importance of rigorous design and pilot programs to evaluate and improve them.

Demirgüç-Kunt, A., & Levine, R. (2023). CBDCs and Emerging Markets: Catalyzing Innovation or Exacerbating Inequality?,The adoption of CBDC in emerging economies has unique opportunities and problems that are the subject of this article. They

examine the ways in which CBDCs may advance financial inclusion, enhance the dissemination of monetary policy, and provide substitute savings options. They also draw attention to privacy issues, the dangers of digital divides, and possible changes to the current financial structures.

Demirgüç-Kunt and Levine advocate for developing CBDCs in emerging markets with a customized strategy that prioritizes resilience and financial inclusion while controlling risks. They stress that in order to achieve successful implementation, it is crucial to take local settings into account and work with stakeholders.

RESEARCH METHODOLOGY

Research Design

The study employs a mixed-methods approach, utilizing both qualitative and quantitative research methodologies. Primary data collection involves distributing a structured questionnaire via Google Forms to respondents in the Nagpur region.

Data Collection Type & Method

Primary Data Collection: A survey method involving a structured questionnaire through Google form was used to gather the data.

Secondary Data Collection: Literature review through J-gate online Journals and websites.

Sample Size: 180+ respondents from the Nagpur region.

Sampling Frame: The target population includes Government Servants, students in the Nagpur region who are aware and interested about CBDC's.

Sampling Technique: Convenience-based sampling

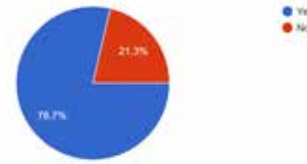
Interviews: Interviews were conducted with representatives from Public sector banks in Nagpur. Questions will cover the services offered, challenges faced, and the impact of CBDC's on financial system of the country.

DATA ANALYSIS & FINDINGS

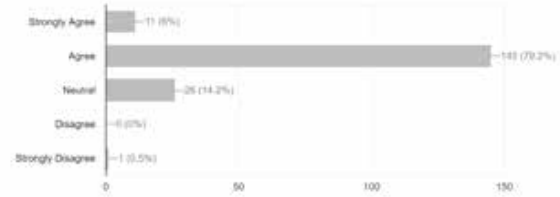
Primary Data Analysis

The study shows that out of 183 respondents 78.7% knew about Central Bank Digital Currency and show willingness to adopting them as they believe that it may shape the future of Financial Transformation.

1. Have you heard of Central Bank Digital Currencies (CBDCs) before?
183 responses

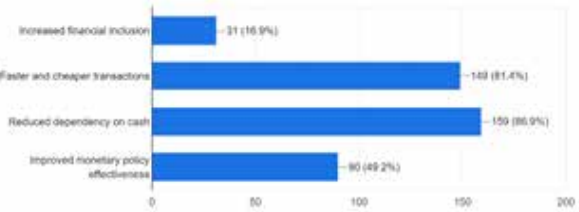


2. Do you think CBDCs have the potential to revolutionize the way we use money?
9 / 183 correct responses



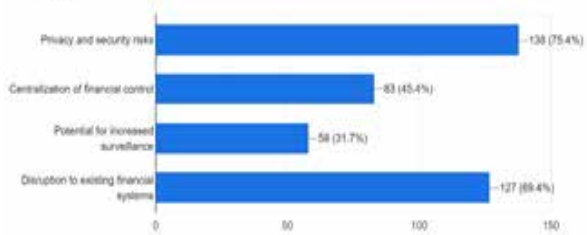
A significant majority of respondents, 79.2%, believe that Central Bank Digital Currencies (CBDCs) have the potential to revolutionize money usage. Only a small proportion, 6.8%, disagree with this notion. Approximately 14% of respondents remain neutral on the matter.

3. What benefits do you think CBDCs could bring to the financial system?
183 responses

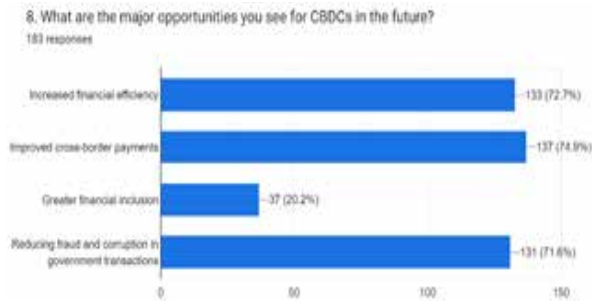


According to the majority of responders, CBDCs might drastically lessen the need for actual currency. Central banks can save their expenses by using CBDCs to handle, transfer, and print cash. CBDCs can automatically combat fraud by implementing policies that are integrated in transaction codes and currencies, so fostering a safer financial environment.

4. What concerns do you have about the implementation of CBDCs?
183 responses



Transactions using digital currencies can be tracked, which presents privacy issues for users. People are concerned about who may access and how their financial information will be used. The possibility of cyberattacks is a serious worry. The digitalization of money makes it more vulnerable to hackers, increasing the risk of theft or money loss. Furthermore, concerning is the absence of established technological stability for CBDCs. Concerns have been raised over the dependability of the technology underlying virtual currency.



Payments with CBDCs can be made more quickly, affordably, securely, and easily. The implementation of multi-CBDC arrangements has the potential to enhance the efficiency of cross-border payments, thereby benefiting international trade and finance. Additionally, CBDCs may have an impact on the monetary system by offering customers convenient digital payment options that shield them from the volatility of cryptocurrencies.

Data Analysis on SPSS

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.664	.661	4

Discussion: As we can see Cronbach’s Alpha is 0.66 which is very close to 0.7 (acceptable figure) we can go ahead with statistical analysis.

Test of Normality

The skewness and kurtosis value in each case is between -3 and +3. The data for the analysis is normalized. Thus, we can say that the test of normality is achieved.

Correlation

Inter-Item Correlation Matrix				
	Q2	Q5	Q7	Q10
Q2	1.000	.196	.086	.086
Q5	.196	1.000	.082	.217
Q7	.086	.082	1.000	.075
Q10	.086	.217	.075	1.000

The Pearson correlation in all four cases is positive which means there is strong relation between each of the variables and are positively correlated.

CHI-SQUARE ANALYSIS

Table 1: Relationship between Q.2 &Q.5

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	29.054a	6	<.001
Likelihood Ratio	27.576	6	<.001
Linear-by-Linear Association	1.214	1	.271
N of Valid Cases	183		

a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is .33.

HYPOTHESIS

H0: There is no significant relationship between how often they use digital transactions and comfortability in using it.

H1: There is significant relationship between how often they use digital transactions and comfortability in using it.

INTERPRETATION

In the above analysis, the calculated chi-square value (29.054) is more than the table value (12.592) at the level of 5% significance. Hence, null hypothesis H0 is rejected and H1 is accepted.

Table 2: Relationship between Q.7 &Q.10

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	37.287a	9	<.001
Likelihood Ratio	25.222	9	.003
Linear-by-Linear Association	1.338	1	.247
N of Valid Cases	183		

a. 11 cells (68.8%) have expected count less than 5. The minimum expected count is .01.

HYPOTHESIS

H0: There is no significant relationship between digital transactions will revolutionize and will support government initiatives to provide education and training programs to help people adapt to the digital money revolution.

H1: There is significant relationship between digital transactions will revolutionize and will support government initiatives to provide education and training programs to help people adapt to the digital money revolution.

INTERPRETATION

In the above analysis, the calculated chi-square value (37.287) is more than the table value (16.919) at the level of 5% significance. Hence, null hypothesis H0 is rejected and H1 is accepted.

CONCLUSION

The research's conclusions highlight the significant influence that Central Bank Digital Currencies (CBDCs) will have on financial systems in the future. This study offers important insights into the revolutionary potential of digital currencies through a thorough investigation of CBDC adoption, potential hazards, and related advantages.

First off, the survey indicates that most participants are aware of and accepting of CBDCs, and a sizable majority are upbeat about their potential to completely transform

how people use money. This excitement is further evidenced by the conviction that, thanks to integrated security measures, CBDCs might significantly lessen dependency on physical currency, improve transaction efficiency, and promote a safer financial environment.

However, the study also raises important issues in addition to the positive aspects of CBDCs. Concerns about privacy pertaining to transaction traceability and hack vulnerability stand out as important factors. Furthermore, close examination is necessary to determine whether the underlying technology is reliable and whether it could upset established financial institutions. Chi-square tests show a substantial correlation between the frequency of digital transactions and users' comfort level with them, which supports the significance of these findings even more.

Furthermore, the correlation analysis highlights significant positive correlations between factors, suggesting that respondents had a clear knowledge of the transformative potential of CBDCs.

In summary, CBDCs have the potential to transform financial institutions into a more just and effective digital economy, but their effective application will require rigorous evaluation of the dangers and difficulties involved. In order to embrace the digital money revolution driven by CBDCs, decision-making and strategy planning can be based on the research presented here.

SUGGESTIONS AND FUTURE SCOPE

1. **Privacy Protection and Security Enhancement:** In the future, it's crucial to focus on making CBDCs more secure and protecting users' privacy. This means looking into advanced encryption methods, biometric authentication, and decentralized ledger technology to keep transactions safe and private.
2. **Technology Stability and Reliability:** To make CBDCs work well, we need to make sure the technology behind them is dependable. This involves thoroughly evaluating the technology used for CBDCs, doing stress tests, and trying them out in different situations to see how well they hold up. Working with experts in cybersecurity and technology can help us find and fix any issues.

3. Policy Guidelines and Regulations: As CBDCs become more important in our financial systems, we need clear rules and guidelines to govern how they're used. Future research should focus on creating these rules, making sure they protect consumers while still allowing for innovation. This means looking at things like data privacy laws, consumer rights, and laws against money laundering. It's important to work with lawmakers and regulators to get these rules right.
 4. Educating Users: To get people to use CBDCs, we need to help them understand how they work and why they're useful. This means running campaigns to raise awareness, holding training sessions, and running workshops. By working with banks, governments, and schools, we can reach more people and help them understand how CBDCs can help them.
 5. International Cooperation: CBDCs aren't just important in one country—they're important all over the world. That's why it's crucial for countries to work together to set standards and rules for how CBDCs work. This means working with other countries, banks, and international organizations to make sure CBDCs can be used easily across borders. By working together, we can make sure CBDCs help everyone, no matter where they are.
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Exploring the Impact of Environmental Awareness on Consumer Choices in the Adoption of Electric Vehicles

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ABSTRACT

This research paper deals with the impact of environmental awareness on consumer choices in the adoption of electric vehicles (EVs). It identifies specific concerns and doubts people have regarding the environmental aspects of EVs, such as battery production, range anxiety, and electricity sources. The study investigates whether caring about the environment directly influences the intention to purchase an EV, emphasizing the importance of eco-friendly considerations in consumer decision-making. Common misunderstandings and lack of information that hinder people from choosing EVs, such as misconceptions about their environmental impact and challenges related to range anxiety and charging infrastructure, are also explored. By addressing these concerns through education, debunking misconceptions, expanding infrastructure, and offering incentives, this research aims to encourage more consumers to embrace EVs and accelerate the transition to sustainable transportation systems.

KEYWORDS: *Environmental awareness, Consumer choices, Electric vehicles (Evs), Battery production, Range anxiety, Electricity sources, Charging infrastructure, Incentives, Sustainable transportation systems.*

INTRODUCTION

The automotive industry is witnessing a perspective shift towards sustainability, with electric vehicles (EVs) at the forefront. This study explores the concerns of individuals about how electric cars would affect the environment and determines whether these worries affect people's intentions to buy. Key concerns include Fears about the environmental effects of battery production and disposal, the energy sources used for charging, limitations in charging infrastructure, life cycle analysis of EVs, and the financial considerations of upfront costs. By examining how environmental awareness shapes consumer decisions, this research aims to unwrap the complicated connection between a tendency and eco-consciousness to adopt electric vehicles. Insights from this exploration have the potential to inform strategies for promoting sustainable transportation and addressing consumer doubts, fostering a more environmentally conscious automotive landscape.

ENVIRONMENTAL AWARENESS

The way that consumers' awareness of the ecological consequences of their actions affects the environment is reflected in the consequentialist idea of the impact of consumption. In actuality, consumers' purchasing decisions are determined by their level of worry over how the use of a product may impact the biological environment. In this way, the intention to buy environmentally friendly products is also influenced by environmental knowledge. They could see anything as unethical and environmentally unfavourable due to the influence on the environment. Customers' awareness of the environmental effects of their consumption is reflected in the profound idea of responsibility for the ecological repercussions of use. For these individuals, universalism's core ideals—environmentalism and peace—are more important.

INTENTION TO ADOPT ECO-FRIENDLY HABITS

According to this study, persons who perceive themselves as environmentally conscious consumers have a greater social responsibility to use fewer products that harm the environment, which includes buying and adopting ecologically friendly electric automobiles. The more enthusiastic they are about the arrival of environmentally friendly electric cars, the more probable it is that they will buy them.

SCOPE OF THE STUDY

This study aims to explore the intricate relationship between environmental awareness and consumer choices in the adoption of electric vehicles. By specifically addressing the concerns and doubts outlined above, the research seeks to:

Analyze Consumer Attitudes: Examine how individuals perceive the environmental implications of electric cars and whether these perceptions influence their overall attitudes towards adopting this technology.

Evaluate Environmental Awareness Influence: Investigate whether a heightened level of environmental awareness directly correlates with a greater intention to purchase electric vehicles.

Identify Barriers to Adoption: Explore the identified concerns as potential barriers to the widespread adoption of electric cars and assess their relative impact on consumer decision-making.

Provide Strategic Insights: Offer insights and recommendations for policymakers, manufacturers, and marketers to address and mitigate concerns, fostering a more favorable environment for the adoption of electric vehicles.

In essence, this research seeks to contribute to a comprehensive understanding of how environmental awareness shapes consumer behavior in the context of electric vehicles, with the ultimate goal of promoting sustainable transportation choices.

REVIEW OF LITERATURE

Afroze Nazneen(2018) The study's conclusions People's opinions on buying electric vehicles are influenced by issues such as environmental concerns and

customer confidence in technology. On the other hand, the barriers to adoption include costs, infrastructure constraints, and social acceptance. Therefore, it is essential that governments take the initiative to encourage the sale of electric vehicles by developing environmental legislation, improving infrastructure, and offering financial incentives like bank loan interest rate reductions or car cost subsidies.

Jay P Trivedi(2020): A long-term study involving consumers who have test-driven electric cars and those who have actually made purchases is required to improve our understanding of the factors driving the adoption of electric vehicles. It could be advantageous to include gender-based moderation in the analysis of future research. Future studies should also look into how various communication methods impact consumer awareness, since prospective buyers might not be fully informed about electric automobiles.

Peter Ansu Mensah:2021: The present research has contributed to the extant literature on environmentally conscious consumer behaviour. Specifically, it has focused on increasing consumer awareness of environmentally conscious products in developing economies such as Ghana, particularly within the framework of Space Situational Awareness (SSA). It's also important to note that the ongoing global COVID-19 pandemic increases the importance of this research because governments and corporations are working to encourage people to buy eco-friendly items in order to protect the ecosystem.

Sofi Dinesh Suddhachit Mitra (2023) This study explores the impact of the Big Five personality traits on consumers' adoption intentions for electric vehicles (EVs) in India, considering extraversion, agreeableness, conscientiousness, neuroticism, and openness. Findings from a survey of 150 users and non-users indicate a significant influence of all traits, except neuroticism, on adoption intention, with no gender-based differences. In the second stage, an expert-opinion survey aligned with the Diffusion of Innovation theory suggests that product attributes negatively affect adoption intentions in individuals with high neuroticism. The study offers valuable insights for EV marketers and policymakers aiming to promote sustainable consumption practices based on personality traits.

Sriram K V1, Lidwin Kenneth Michael1 *, Sumukh S. Hungund1 and Mabelle Fernandes (2022) This paper addresses the escalating environmental concerns by investigating factors influencing consumers' intention to adopt Electric Vehicles (EVs) as an alternative to fossil fuel-powered vehicles. Using a quantitative approach and data collected from 172 respondents in Bengaluru through online surveys, the study employs exploratory factor analysis to identify key factors. The study identifies Financial Barriers, Vehicle Performance Barriers, Lack of charging infrastructure, Environmental Conservation, Societal Influence, and Social Awareness as significant influencers in EV adoption. The findings offer valuable insights for policymakers, suggesting potential modifications to current electric vehicle policies in emerging nations to encourage adoption.

Tetsuya Tamaki 2019 This study examines the intention of non-electric vehicle (EV) owners and the post-purchase satisfaction of EV owners in Japan regarding the reduction of CO2 emissions. An online survey is conducted, and structural equation modeling (SEM) is employed to analyze the structural relationship between these factors, with a focus on environmental awareness. The results reveal distinct structures in the purchase intentions of non-EV users and the post-purchase satisfaction of EV users. Environmental awareness directly influences the purchase intention of non-EV users but has an indirect effect on the post-purchase satisfaction of EV owners.

Farshid Javadnejad 2023 This study examines factors influencing electric vehicle (EV) adoption in the US, considering both incentives and barriers. Government initiatives like subsidies and tax credits, along with infrastructure development, drive EV adoption by making them financially attractive and convenient. However, challenges such as high upfront costs, limited range, and consumer concerns hinder broader uptake. Through a literature review and advanced fishbone diagram, the study categorizes these factors into economic, technical, policy, and social dimensions, providing insights into their interrelationships. Quantitative analysis of selected factors correlates with EV sales, offering a comprehensive understanding for policymakers and stakeholders to develop effective strategies for promoting sustainable transportation.

OBJECTIVES

1. To Identify specific concerns or doubts people have about the environment when it comes to electric cars.
2. To Examine if caring about the environment directly influences the intention to buy an electric car.
3. To Find common misunderstandings or lack of information that might be stopping people from choosing electric cars.

RESEARCH METHODOLOGY

The research or data extraction about this topic was based on a combination of both primary and secondary data.

Research Method: As it is a latest topic trending among the people of Gen Z & Millennials, we were focus on their views & opinions which was be covered by both Quantitative & Qualitative approaches of research.

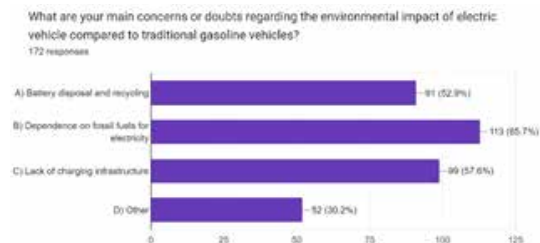
The maximum part of the data regarding this suitable topic was secondary data & for more requisite information we were conduct a survey i.e. a suitable Questionnaire describing the needy information in form of different questions.

The Target audience/respondents was the people who are aware of this concept & are likely to help in our research, and also the individuals who are facing or undergoing though the same situation.

Sample size or Target Audience size: Around 150-200 people.

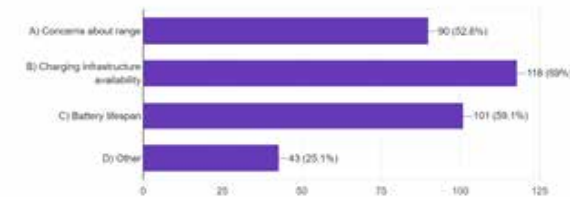
The output of the questionnaire was be in the form of pie-charts & bar diagram or tabular form & in SPSS format.

Sample Tool: Google form (for survey) & Microsoft-excel (for tracking of responses).



The Above Data of the respondent shows the main concern or doubts the people shows regarding the environmental impact of electric vehicles compared to traditional gasoline vehicle. It shows that 65.7% of the respondents are care about the dependence on fossil fuels for electricity as a most concerning and doubtful factor which regarding the environmental awareness.

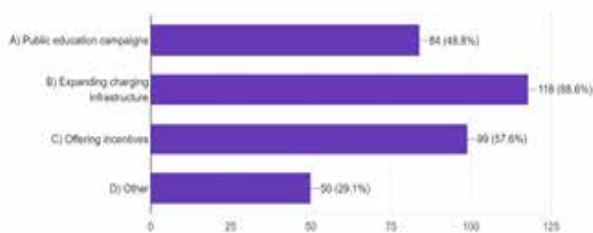
Which of the following factors do you believe are common misunderstandings or lack of information that might stop people from choosing electric vehicle?
171 responses



The above factors are often cited as key considerations for potential electric car buyers, reflecting uncertainties or misconceptions that may need to be addressed through education, infrastructure development, and improvements in electric vehicle technology.

The data suggest that potential electric car buyers weigh multiple factors when making purchasing decisions, including cost, driving range, and vehicle performance. While environmental concerns are important, factors such as cost-effectiveness, practicality for daily use, and overall driving experience also play significant roles in the decision-making process.

In your opinion, what more can be done to increase environmental awareness and encourage more people to choose electric vehicle?
172 responses



The Above strategies—expanding charging infrastructure, implementing public education campaigns, and offering incentives—could effectively increase environmental awareness and promote the adoption of electric cars among consumers. Each strategy addresses different barriers to adoption and can work synergistically to encourage more sustainable transportation choices.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.540	.553	7

The internal consistency of our scale, as measured by Cronbach’s Alpha, is .540 that can be calculated as moderate. It suggests that the items in our scale are somewhat related to each other, but there is room for improvement in terms of consistency.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.653
Bartlett's Test of Sphericity	Approx. Chi-Square
	93.577
	df
	21
	Sig.
	<.001

A KMO value of 0.653 suggests moderate sampling adequacy. Generally, a KMO value above 0.6 is considered acceptable, indicating that factor analysis may be appropriate for our dataset. While our value is on the lower end of acceptability, it still indicates that our data are potentially suitable for factor analysis.

The predictor variable (EW) appears to be a significant predictor of the dependent variable (AVE), as the regression coefficient for EW is significant.

The results suggest that both the constant term and the predictor variable (EW) are significant predictors of the dependent variable (AVE), and the regression model as a whole is statistically significant.

CONCLUSION

The impact of environmental awareness on consumer choices regarding electric vehicles (EVs) is significant, with concerns about battery production, range anxiety, and electricity sources influencing attitudes. Consumers who prioritize environmental sustainability are more likely to consider EVs, emphasizing the importance of promoting eco-friendly aspects in marketing. Misunderstandings about EVs’ environmental impact and barriers like range anxiety and charging infrastructure hinder adoption. Addressing concerns through education, debunking

misconceptions, expanding infrastructure, and offering incentives can encourage more consumers to embrace EVs. Collaboration among stakeholders is crucial to accelerate the transition to sustainable transportation systems and promote environmental responsibility.

FINDINGS

1. Concerns about the environmental impact of electric vehicle (EV) production, including the mining of materials for batteries and energy-intensive manufacturing processes.
2. Doubts about the actual carbon footprint reduction of EVs compared to traditional gasoline-powered vehicles, especially in regions where electricity is generated from fossil fuels.
3. Questions about the sustainability of EV batteries and their disposal at the end of their lifecycle, leading to concerns about potential environmental pollution.
4. Lack of awareness about the overall lifecycle emissions of EVs, including emissions from electricity generation and battery production.
5. Misconceptions about the range limitations of EVs and the availability of charging infrastructure, leading to doubts about the practicality of owning an EV.
6. Lack of information about government incentives and subsidies available for EV purchases, which may influence consumer decision-making.
7. Common misunderstandings about the cost of owning and maintaining an EV compared to a traditional vehicle, leading to hesitancy in making the switch.

FUTURE SCOPE

1. Investigate the perception of electric vehicles as truly environmentally friendly compared to traditional gasoline-powered cars.
2. Explore concerns about the environmental impact of battery production and disposal in relation to electric vehicles.
3. Examine the influence of range anxiety on consumer willingness to switch to electric cars.

4. Study the role of government incentives and policies in shaping consumer attitudes towards electric vehicles from an environmental perspective.

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Role of Advertising and its Impact on Brand Equity & Firm Value in Selected Companies

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ABSTRACT

The basic purpose of the researcher is to study the role of an advertisement and its positive impact on brand equity and shareholder values. Three industries were taken as a focus group under the study which are two product-based and one from the service industry. The reliability value has been checked to test the hypothesis. Questionnaires as an instrument were used for data collection. A sample size of 550 respondents has been responded to for the study. Convenient Sampling and Stratified Random Sampling methods have been adapted for study. The subsequent paper consists of all Consumers, Employees, and Share Holder of Dins haws Ice-cream, Hadrian, and Buldhana Urban Credit Cooperative Society in the Vidarbha Region.

KEYWORDS: *Advertisement, Brand awareness, Brand equity, Brand loyalty, Perceived quality.*

INTRODUCTION

Advertising is the most common tool organizations use to market their product, services, or ideas to introduce to customers. It is a non-personal, informative, usually paid, one-way communication mode used by many business firms and entities through various social media platforms to introduce their businesses. Customers, Shareholders, and partners are considered as the major forms of market assets.

Brand Equity is the principal concept adopted in this study to measure the impact of an advertisement on the market, though it influences major market assets. To measure and evaluate brand equity, the researcher first reviews the theory of brand equity. Brand equity indicates the substantial value of the brand for producers, wholesalers, retailers, and the final consumer.

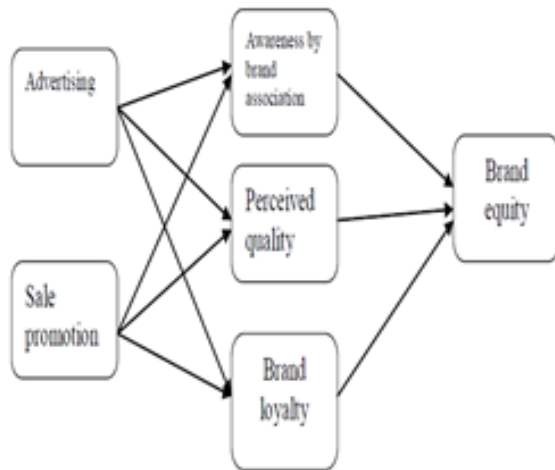
The realistic outcomes of Brand equity might be either on the Consumer level or firm level. Brand awareness, brand image, and brand knowledge are measured under consumer-level outcomes. While, market share, revenue, and cash flows are measured under firm-level outcome.

Rational behind the study

In today's era, the brand is equivalent to a human entity. it occupies a space in the consumer landscape. As a result, everyone Jumps on the band and gives first preference to quality products while buying and purchasing commodities. Brands are superior than ever in consumer mindset, but as a result, it is also true that more than ever is expected of them. Advertising also provides necessary support to businesses to position their products in consumers' minds. Both, Advertisement

and Branding, help businesses or firms to increase sales. Consumers are attracted to the brand and make purchases. If the consumers experience discomfort or dissonances owing to their purchase decision, then the advertisement reduces this feeling of discomfort by providing information on the product's attributes. It is even more necessary to neutralize the impact of the advertisements of rival brands. The ultimate objective of this study is to examine the relationship between effective advertisement on brand equity and the Firm Value of the Product and examine its significant impact on rival brands which has been discussed recurrently in numerous sources.

CONCEPTUAL MODEL OF RESEARCH AND REVIEW OF LITERATURE



According to Edwards et al, (2000), in their study, they present a conceptual model as a basis for implementing their study. And specified desired parameters to measure the relationship. In this study, the researcher used the same parameter for further research.

Advertisements do enhance the market-based assets and eventually enhance the stakeholder values. It is important to understand the market assets which include customer relationships which, mainly created if proper values are delivered to them if customers perceive higher values from brands naturally better image, the association is brand is created which also increase the sale of products and ultimately which also increased the market share and revenue.

RESEARCH OBJECTIVES

1. To explore the relationship of an effective advertisement on brand equity and the Firm Value of the Product
2. To explore, an advertising can contribute directly to brand equity and indirectly to shareholder value.
3. To determine how much value advertising can deliver to brands and firms.
4. To study the role of advertisement in developing and maintaining brand equity and shareholders' value.
5. To study the role of advertisement in developing market-based assets and in turn, financially contribute to the wealth of firms.
6. To study the impact of R&D, this is positively affecting brand equity by presumably enhancing a firm's intellectual market-based assets.
7. To study the role of advertising in a marketing context.

RESEARCH HYPOTHESIS

- H1: There is a significant relationship between brand equity and advertising costs
- H2: The collaboration between R&D and advertising has an optimistic effect on brand equity.
- H3: There is a significant relationship between brand equity and shareholders' value.
- H4: The impact of Advertising has a dynamic contribution to brand equity than R&D
- H5: Advertising contributes more to brand equity for product firms than for service firms.

RESEARCH METHODOLOGY AND DATA COLLECTION

Both primary and secondary data have been investigated under critical examination. A questionnaire as a tool has been adopted for the study to gather data. Personal Interviews and researcher observation through the survey have helped the researcher to investigate the facts for the study. For sampling techniques, the Convenient Sampling Method and Stratified Random Sampling method have been chosen for data collection. A sample size of 550 respondents responded to the study.

SAMPLING FRAME

To measure category effects, the sample has been categorized into three different categories based on the primary target market which are: Consumer-product firms, Industrial-product firms and Service Firms

DATA PREPROCESSING

This hypothesis has been tested on three dimensions which are as given below:

- A. Based on data collected from 250 customers
- B. Based on data collected from 250 employees
- C. Based on data collected from 50 Managers.

For Part A, we have considered the 5 Different sections of the designed questionnaire as given below

Section	Title	No. of Question
A	Brand Awareness	12
B	Advertisement Impact*	15
C	Brand Association	8
D	Brand Loyalty	6
E	Brand Perceived Quality	5

Hypothesis Testing

Hypothesis 1

Customer perception contributing 25 pre-samples under 5 different sections, for the following 5 factors (variables) is:

Sr. No.	Factor	No. of Questions	Cronbach's Alpha Value	Interpretation
01.	Brand Awareness	12	0.883	Good
02.	Advertisement*	15	0.839	Good
03.	Brand Association	8	0.857	Good
04.	Brand Loyalty	6	0.813	Good
05.	Perceived Quality	5	0.846	Good

Interpretation: Since all the 5 factors, Cronbach's $\alpha > 0.8$, the model is good enough for the all the items under consideration for testing Hypothesis 1.

Hypothesis 2:

Part I: The reliability test based on overall 12 factors under Customers' perception contributing to 25 pre-samples is:

Sr. No.	Factor	No. of Questions	Cronbach's Alpha Value	Interpretation
01.	Advertisement + R&D + Brand Equity*	12	0.825	Good

* indicates Output variable

Interpretation: Since Cronbach's $\alpha > 0.8$, the model is good enough for the all the items of Customers' perception under consideration for testing Hypothesis 2.

Hypothesis 3

Part I: The reliability test based on overall 15 factors under Customers' perception contributing 25 pre-samples is:

Sr. No.	Factor	No. of Questions	Cronbach's Alpha Value	Interpretation
01.	Brand Equity + Shareholder value*	15	0.810	Good

* indicates Output variable

Interpretation: Since the Cronbach's $\alpha > 0.8$, the model is good enough for the all the items of Customers' perception under consideration for testing Hypothesis 3.

Hypothesis 4

Part I: The reliability test based on overall 15 factors under Customers' perception contributing 25 pre-samples is:

Sr. No.	Factor	No. of Questions	Cronbach's Alpha Value	Interpretation
01.	Advertisement + R&D + Brand Equity*	15	0.837	Good

* indicates Output variable

Interpretation: Since the Cronbach's $\alpha > 0.8$, the model is good enough for the all the items of Customers' perception under consideration for testing Hypothesis 4.

CONCLUSION

This study concludes that there is a positive relationship between advertisement and brand equity. As per the dimensions of brand equity, effective advertisement has a moderate effect on brand awareness. Brand loyalty and perceived quality have a strong positive relationship with an effective advertisement, it has proved that advertisements virtually play its role only then companies can create loyalty among their customers.

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Incorporating Modern Contemporary practices – Maximizing Brand Visibility for Nagpur’s Jewelry Brands through AI/AR Integration

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ABSTRACT

Increasing Brand visibility in business increasingly depends on the application of AI (Artificial Intelligence) and AR (Augmented Reality) technologies. This study looks into the possible uses of AI and AR in the promotion of branded jewellery. By carefully examining relevant literature and conducting an actual survey, this study presents practical strategies for using augmented reality (AR) to establish long-lasting Brand visibility in the competitive market. This study adopts a mixed-method approach, which combines qualitative and quantitative methods.

In order to gain a deeper grasp of the present research and theoretical foundations of AI, AR, and Brand visibility, a comprehensive literature study is first conducted. A structured questionnaire is designed to gather empirical data on customer attitudes, preferences, and behaviours about marketing efforts by jewellery manufacturers that are powered by artificial intelligence (AI) and augmented reality (AR). The questionnaire is administered to female respondents in Nagpur city. With the use of SPSS, statistical tests are used to analyse quantitative data. The results indicate that augmented reality (AR) has the potential to drastically alter online shopping and make it more dependable, enjoyable, and easy for the consumer as more companies integrate AR capabilities into their e-commerce systems.

KEYWORDS: AI / AR, Brand visibility.

INTRODUCTION

One of the largest user sectors in the country is the jewellery industry. The gem and jewellery industry are one of the fastest-growing and highest-earning sectors of the Indian economy. Indians have worn jewellery for decoration and as investments for a long time. The study also suggests that industry players be up to date on the latest developments and trends. Nagpur City’s beautiful jewellery market has a large selection of merchandise. Brand management is essential in today’s marketplaces, especially when the city is being considered to be developed as one of the 100 smart cities proclaimed by the government. The people of Nagpur are highly customary. Prior to now, jewellery was just a safe investment for locals, and buyers demanded more value for their money. Jewellery has also made branding

more fashionable and forced traditional jewellers to implement branding techniques. Their idea of jewellery has changed from being something they just wanted to own to something authentic, stylish, and designer. This is reflected in their collections, merchandise, and marketing campaigns. Augmented reality (AR) is revolutionising online shopping by fusing virtual and physical retail environments, providing consumers with a more dynamic and engaging shopping experience. Thanks to augmented reality (AR) technology, customers can virtually try on clothing, look at furnishings in their houses, test out makeup looks, and even see how art would look on their walls. As a result, concerns about fit and quality of the goods are finally allayed, decreasing return rates and raising customer satisfaction. Additionally, by fusing the convenience of

internet shopping with the tactile experience of in-store shopping, augmented reality (AR) makes the purchasing process more personalised and engaging.

Adopting AI / AR: (lin) While weak artificial intelligence is made to behave like people, strong artificial intelligence is made to think like humans. Businesses are looking for people with the skills to create autonomous algorithms these days. The latest catchphrase is a “Elite MBA” or “Management by Algorithm”. This is the current method used. Because chatbots with artificial intelligence have so many advantages, using them is becoming more and more common in technology research. Polienov (2023) In the rapidly evolving field of technology, one thing is becoming increasingly clear: artificial intelligence (AI) is a reality today and an essential tool for businesses, not a concept of the future. AI is transforming business thinking, planning, and value generation; it’s no longer just about efficiency and automation. AI is becoming more and more prevalent in day-to-day life. Algorithms now make decisions based on our actions, and in time, they will also consider our emotional states. Identifying and addressing ingrained beliefs and biases is critical to ensuring that economically disadvantaged places, businesses, and populations have fair access to the benefits of technology.

Brand visibility

When consumers are thinking about a relevant product or service category, it symbolises the brand’s capacity to stand out and be easily remembered. (Aaker, 1991) High recognised brands have an advantage over their competitors since consumers are more likely to remember and favour them. (keller, 2015) In order to increase a brand’s visibility, distinctiveness, and relevance in consumers’ minds, strategic measures must be made in order to achieve Brand visibility. This can be achieved by a variety of marketing initiatives, including memorable advertising campaigns, product distinction, consistent brand message, and captivating consumer experiences. Through the regular reinforcement of favourable brand associations and a robust presence across pertinent touchpoints, brands may enhance their salience and create a durable bond with customers.

LITERATURE REVIEW

The review of literature gives a broad outlook of the various research studies made in the past and the details of such studies throw light on the future studies to be made. It also strengthens one’s theoretical base of the research study. Following researches and surveys have contributed on this topic.

(Chen & Wu, 2018) This study looks into the impact of augmented reality on jewellery customisation and how it affects consumer engagement and brand loyalty. It looks at how personalised experiences made possible by augmented reality (AR) increase consumer pleasure and loyalty, which in turn increases Brand visibility and advocacy.

(Kumar & Gupta, 2018) This study examines how augmented reality technology affects consumers’ perceptions of brands, with a particular emphasis on jewellery brands. It looks into how AR experiences affect how customers view a brand’s value, quality, and trustworthiness—all of which eventually increase the salience of the brand.

(Smith & Johnson, 2019) The application of augmented reality technology in the retail jewellery industry is examined in this study, along with its effects on customer engagement and brand experience. It looks on how AR applications might improve customer happiness and Brand visibility in the retail jewellery industry.

(Kim & Wang, 2019) The jewellery industry’s use of augmented reality marketing techniques is compared in this study. It contrasts how successful various augmented reality (AR) applications are in increasing consumer engagement and Brand visibility, including virtual try-ons, product visualisations, and interactive promotions.

(Tan & Lim, 2019) The use of artificial intelligence in jewellery marketing is examined in this research paper along with how it affects customer happiness and Brand visibility. It goes into how recommendation engines, chatbots, and AI-driven personalisation improve consumer experience and increase brand engagement.

(Park & Kim, 2019) The impact of augmented reality on jewellery sector consumer purchasing intentions is investigated in this study. It looks into how AR

experiences impact customers’ opinions about the value, quality, and trustworthiness of products—perceptions that ultimately influence consumer behaviour and Brand visibility.

(Lee & Chen, 2020) This paper offers a thorough analysis of how artificial intelligence influences Brand visibility. It goes over several AI tactics and applications that companies may use to increase their salience and standout in the market.

(Zhang & Wang, 2020) The integration of artificial intelligence and augmented reality technology in luxury jewellery retail is examined in this research paper. It talks about how improving brand experience and customer pleasure through AI-driven personalisation and AR-enhanced experiences raises Brand visibility.

(Wong & Lee, 2020) It looks on how augmented reality (AR) experiences affect customers’ attitudes, behaviours, and perceptions of jewellery companies, which in turn shapes consumer loyalty and Brand visibility.

(Wang & Li, 2021) This study investigates how AI-powered personalisation strategies affect consumer engagement and Brand visibility in the jewellery industry. It talks about how AI algorithms can be used to evaluate client information and provide tailored experiences that appeal to customers.

RESEARCH METHODOLOGY

- i. Problem Statement: How can the adoption and utilization of Augmented Reality (AR) technologies be leveraged by jewellery brands in Nagpur to enhance Brand visibility?
- ii. Objective of the study: To investigate consumer awareness, attitude, preference and perception about AR in Jewellery segment & to offer suggestions and analysis on how Nagpur-based jeweller brands may best use AI and AR technologies to boost their market competitiveness and Brand visibility.
- iii. Research Hypothesis: The researcher has framed following null hypothesis.

Null hypothesis 1: AR Awareness amongst consumers does not affect their purchase decision.

Null hypothesis 2: Brand visibility does not affect

the purchase decision of a consumer as concerns implementation of AR in branded jewellery market.

- iv. Data collection: A structured questionnaire is constructed to conduct survey & gather factual information about consumer perceptions, inclinations, and actions with reference to AR-powered jewellery brand marketing initiatives. SPSS is used to conduct data analysis.

DATA ANALYSIS

Null Hypothesis 1: AR Awareness amongst consumers does not affect their purchase decision.

Using a one-way analysis of variance, the effect of the independent variable on the dependent variable was examined (ANOVA). The AR Awareness amongst consumers in this case is the independent variable, while the consumer’s purchase choice is the dependent variable.

ANOVA

Purchase Decision

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.250	1	.250	.282	.596
Within Groups	141.750	160	.886		
Total	142.000	161			

The results of an ANOVA study performed using SPSS version 27 software to determine whether there is a significant difference between group means are displayed in the table above. From the above table we can see that the significance value i.e., the p- value is greater than 0.05 and hence we accept the null hypothesis i.e., in the city of Nagpur, AR Awareness amongst consumers does not affect their purchase decision to buy Jewellery.

Null Hypothesis 2: Brand visibility does not affect the purchase decision of a consumer as concerns implementation of AR in branded jewellery market.

The researcher utilised one-way analysis of variance (ANOVA) to assess the influence of independent variable on dependent variable in this hypothesis. Purchase decisions are thought of as the dependent

variable, while Brand visibility is an independent variable.

ANOVA

Purchase Decision

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	119.500	19	6.289	39.694	.000
Within Groups	22.500	142	.158		
Total	142.000	161			

In order to assess whether there is a significant difference between group means, an ANOVA study was conducted using SPSS version 27 software. The results are shown in the table above. From the above table we can see that the significance value i.e., the p- value is less than 0.05 and hence we reject the null hypothesis i.e., Brand visibility does not affect the purchase decision of a consumer and accept the alternate hypothesis.

FINDINGS, CONCLUSIONS & SUGGESTIONS

Findings: In accordance with the results of the study, 75.2% of participants said they were aware of augmented reality (AR) technology,

The results of the hypothesis testing show that the significance value (p-value) for the hypothesis “AR Awareness among consumers does not affect their purchase decision” is bigger than 0.05. Consequently, at the chosen alpha level, the null hypothesis is accepted. This implies that the degree of AR awareness among consumers does not statistically significantly affect their decision to buy diamonds in Nagpur.

The majority of respondents (57.8%) believe that the experience of purchasing jewellery might be totally transformed by augmented reality (AR) technology. according to 29.1% of respondents, if their favourite jewellery manufacturers offered virtual try-on experiences online, they would give them a try. 24% of respondents indicated that they would be open to interacting on social media with jewellery producers who provide interactive augmented reality experiences. When compared to traditional showroom visits, the

majority of participants (66.5%) are positive that augmented reality technology might make the process of buying jewellery simpler and save money, time, and energy. Furthermore, 65.2% of participants think that sharing images of jewels with loved ones via mobile devices and augmented reality technologies can assist them understand their opinions. With advantages for both customers and businesses, the majority of respondents—65.2%—are optimistic about augmented reality’s potential benefits for the jewellery industry.

The null hypothesis, which maintains that brand visibility has no effect on a consumer’s decision to purchase, was rejected since the obtained significance value (p-value) was less than 0.05. Therefore, the alternative hypothesis—which contends that a consumer’s decision to purchase is influenced by brand visibility—is accepted. This implies that consumers are likely to consider a brand’s perceived relevance or popularity when making purchasing decisions. To impact consumer purchasing decisions and boost revenue, businesses should prioritise strategies that aim to improve brand visibility.

CONCLUSIONS

Artificial intelligence (AI) is becoming more and more important in a variety of fields, such as business, engineering, manufacturing, and health. As artificial intelligence (AI) develops, the market experiences a digital revolution that results in the broad integration of cutting-edge technology like virtual reality (VR) and augmented reality (AR) into corporate processes. The COVID-19 epidemic has expedited the uptake of augmented reality technologies. Jewellers adopted a novel augmented reality (AR) marketing tactic called Virtual Try-On during the pandemic. With the help of this technology, clients can virtually try on jewellery from a distance and personalise it to their tastes without having to visit actual stores. While branded jewellery stores are implementing Virtual Try-On services through smartphone applications and kiosks, the services are still relatively new in India. In the future, the Indian jewellery sector is expected to make greater use of augmented reality. Additionally, AR transforms product packaging, greatly improving customer experiences. It is imperative, nevertheless, to handle any privacy issues that may arise from these applications. Future

studies can examine how users feel about Virtual Try-On apps, how they affect data privacy, and how they affect shrewd retailing.

Suggestions:

In the Industry 4.0 era, smart retailing—which is defined as the fusion of smart technologies and conventional retail techniques—is becoming more and more popular. Subsequent studies may examine the use of augmented reality (AR) and virtual try-on applications in the context of smart shopping.

Data privacy is a major problem that modern digital marketing strategies bring with them.. As a result, future studies should concentrate on analysing how Virtual Try-On apps affect data privacy and investigating solutions for associated issues.

Previous research has addressed the possible marketing advantages that Virtual Try-On applications may provide in great detail. Future studies, meanwhile, should focus more on comprehending user attitudes and satisfaction levels with regard to using these kinds of programmes. This would provide insightful information about the inventiveness and preferences of consumers.

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Economic Sustainability Through Adaptation: A Case Study of Artisanal Transitions in the Handicraft Sector in the Karimnagar district of Telangana State

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ABSTRACT

India boasts a rich cultural heritage and is a key center for labor-intensive handicrafts. The sector offers high value addition with low capital investment and export potential. Globalization since 1991 has boosted India's handicraft exports and employment, but artisans now face challenges from global competition and evolving consumer tastes. This paper deals with the economic sustainability of Handicraft activities and their Transition due to artisans adopting Changes. Out of 800 artisans, 400 directly involved in handicrafts were selected through convenience sampling method for data collection. The selected respondents, 200 from each category, were interviewed to understand the ground reality. The study is based on facts and figures obtained from primary Data. In this paper, the researcher tries to figure out artisans' monthly income with the help of an independent sample t-test results show that "the mean rank of income of group changed is greater than that of the group not changed in both handicraft categories except stone carving artisans for internet facilities.

KEYWORDS: *Economic sustainability, Monthly income, Independent sample t-test, Artisanal transitions. etc.*

INTRODUCTION

Economic sustainability refers to the ability of an economy to maintain stable growth over time, while also preserving environmental resources and social well-being for present and future generations. Telangana has a rich tradition of handicrafts, with the government supporting the sector through various initiatives. The Ministry of Textiles reports around 1.5 lakh artisans in the state, engaged in diverse crafts like handloom and metalware. Despite this, artisan performance. Analyzing their challenges such as limited access to finance and outdated technology persist, impacting operational performance is vital for sustainability and cultural preservation. This study examines economic performance using variables like monthly income and market sustenance decisions.

REVIEW OF LITERATURE

Dalal Arunava et al. (Dec-2023) conducted a study to identify and address issues faced by the handicraft

industry. Using qualitative content analysis and in-depth interviews with 45 Bengali artisans, they examined factors affecting both artisans and the industry. The study resulted in a model leveraging internet technology to tackle identified limitations.

Ms. Meeta Siddhu, (June,2023) The research highlights the evolution of traditional Indian textiles and handicrafts from functional items to designer products. It also challenges the prevailing notion that handlooms and handicrafts have been sidelined in the fashion industry.

Jena's (2018) research highlights that traditional crafts and modern automated production coexist in India's handicraft industry. The study suggests that while globalization has had both positive and negative effects on the Indian economy, the handicraft sector has notably benefited. Since

1991, Indian handicraft exports have surged to unprecedented levels due to globalization.

Malekjani (2018) argues that countering price fluctuations and market instability is crucial for economic defense. Handicraft products can stabilize prices of machine-made goods, facilitating growth in the handicraft sector. The author also contends that the handicraft industry supports long-term economic and social viability and consistently generates foreign exchange.

Research Gap: Most of the studies are conducted from different parts of the country but very less found in the geographical area of Telangana State. So, the present study is under taken to mitigate the gap.

Objective: “To investigate the economic sustainability of handicraft activities in the Karimnagar district of Telangana State”

Hypothesis: There is no significant difference between the Handicraft incomes of two groups of artisans: Those who have adopted Particular changes in their Occupation and those who have not.

RESEARCH METHODOLOGY

Research Methodology guides the systematic and scientific approach to conducting a study, facilitating

Table 1: Monthly income of Artisans

Monthly Income of Artisan	Silver filigree		Stone carving		Total	
	No.	%	No.	%	No.	%
<5000	22	11	0	0	22	5.5
5000-10000	71	35.5	39	19.5	110	27.5
10000-15000	51	25.5	50	25	101	25.3
15000-20000	50	25	94	47	144	36.0
>20000	6	3	17	8.5	23	5.8
Total	200	100	200	100	400	100

Source: field study

The above table-1 shows that, the data illustrates income distribution among artisans in different brackets. Stone carving artisans dominate the higher income brackets, while silver filigree artisans lead in lower brackets and apprentice positions. Income ranges from below 5000 Rs for apprentices to over 20,000 Rs for skilled artisans, reflecting varied earning potentials within the

the creation of new knowledge and solutions to societal issues. In this study focusing on Karimnagar district in Telangana’s handicrafts sector, 400 artisans were selected through convenience sampling for data collection from a total of 800 artisans. Data was gathered from these artisans between September and December 2023 using structured interview schedules. The collected information was primarily sourced directly from the artisans, supplemented by secondary data. The primary data collection utilized interview schedules/questionnaires, while analysis employed independent sample t-tests and cross-tabulation, conducted using the Statistical Package for Social Sciences (SPSS).

Data Analysis and Interpretation

Monthly Income of the Respondents

Income is a vital indicator of an artist’s financial stability, influencing their societal acceptance and personal contentment. For families relying on handicrafts as their main income, monthly earnings from these activities are crucial. This study aims to examine the monthly income of respondents engaged in handicrafts.

craft sector.

Source of Employment

Handicraft artisans depend on orders from businesses or home-based work for employment. They earn from their skills, focusing on crafting rather than investing in materials or marketing.

Table 2: Source of Employment

Source of Employment	Handicraft Categories				Total	
	Silver Filigree		Stone Carving			
	No.	%	No.	%	No.	%
Customers	168	90.32	172	95.55	340	92.89
Welfare & Cooperative societies	161	86.55	71	39.44	170	46.44
Government Agency	27	14.51	33	18.33	60	16.39
Traders	11	5.91	22	12.22	33	9.01

Source: field study (Multiple answers found)

The table-2 explains about the majority of workers, around 92.89%, obtain work directly from customers, with both silver filigree and stone carving artisans heavily involved. Additionally, 46.44% of workers receive work from welfare and cooperative societies, with a higher proportion from silver filigree. A smaller percentage, 16.39%, secure work directly from government agencies, with stone carving artisans slightly more represented. Furthermore, 9.01% of workers receive job work from traders, with a higher proportion from stone carving compared to silver filigree.

Table 3: Work Experience of the Respondents

Work Experience of the Respondents	Category				Total	
	Silver Filigree		Stone Carving			
	No.	%	No.	%	No.	%
< 5 Years	39	19.5	3	1.5	42	10.5
5-10 Years	100	50	85	42.5	185	46.25
10-20 Years	61	30.5	87	43.5	148	37
>20 Years	0	0	25	11.5	25	6.25
Total	200	100	200	100	400	100

Source: field study

The table-3 explains about, the majority of respondents in the handicraft sector in Karimnagar district have 5 to 10 years of work experience, with stone carving and silver filigree artisans being the most prevalent.

Additionally, a significant portion of respondents have between 10 to 20 years of experience, further highlighting the industry’s skilled workforce.

MARKET LEVEL

The evolution of market dynamics in the handicraft sector reflects a shift from traditional local operations to some artisans expanding their reach, despite challenges persisting despite government initiatives.

Table 4: Market Level

Categories	Market Level						Total	
	District		State		National			
	No.	%	No.	%	No.	%	No.	%
Silver Filigree	30	15	50	25	120	60	200	100
Stone Carving	100	50	50	25	50	25	200	100
Total	130	32.5	100	25	170	42.5	400	100

Source: field study

Table 4 results show that, In the Silver Filigree category, out of a total of 200 artisans, 30 artisans (15%) sell their products at the district level, 50 artisans (25%) at the state level, and 120 artisans (60%) at the national level. For Stone Carving, out of a total of 200 artisans, 100 artisans (50%) operate at the district level, 50 artisans (25%) at the state level, and 50 artisans (25%) at the national level.

Table 5: Handicraft artisans’ satisfaction on government promotional programs

Categories	Satisfied about the government promotional programs.				Total	
	Yes		NO			
	No.	%	No.	%	No.	%
Silver Filigree	61	30.5	139	69.5	200	100
Stone Carving	14	7	186	93	200	100
Total	75	18.75	325	81.25	400	100

Source: field study

The majority of respondents (81.25%) expressed dissatisfaction with government promotional programs, with a significant portion from both Stone Carving (93%) and Silver Filigree (69.5%) categories. Conversely,

only a small proportion (18.75%) reported satisfaction, notably with a higher representation from Silver Filigree (30.5%) compared to Stone Carving (7%).

Testing of Hypothesis: “there is no significant difference between the Handicraft Monthly Income of two groups of artisans: those who have adopted particular changes in their occupation and those who have not.”

The above hypothesis has been tested using independent sample t-test. The summary of the result is shown in the table below. For testing the above hypothesis, income of artisans of two different groups (first, artisans who have adopted changes and secondly artisans who have not) has been compared by independent sample t-test. The result is summarized as under:

Table 6: independent sample t-test results

Silver Filigree Handicraft Artisans Decisions	Mean Score		Sig.	Decision
	Not changed	Changed		
Change in Material and Method of Production	10448.80	17917.60	.001	H ₀ is rejected
Change in Product Designs & Innovations	5333.71	12665.45	.001	H ₀ is rejected
Change in Machinery, Tools and Equipment	4931.25	12262.10	.001	H ₀ is rejected
Change in Marketing Practices	6972.41	15064.12	.001	H ₀ is rejected
Use of Internet Facility	9180.6475	16339.5082	.001	H ₀ is rejected

Table: 7 independent sample t-test result

Stone Carving Handicraft artisans Decisions	Mean Score		Sig.	Decision
	Not changed	Changed		
Change in Material and Method of Production	10935.2013	15433.1373	.001	H ₀ is rejected
Change in Product Designs & Innovations	9473.6842	12694.043	.001	H ₀ is rejected
Change in Machinery, Tools and Equipment	6493.33	12130.22	.001	H ₀ is rejected
Change in Marketing Practices	6896.00	12711.71	.001	H ₀ is rejected
Use of Internet Facility	11893.66	12361.38	.415	H ₀ is accepted

Note: level of significance is 0.05

Table-6 Results shows that, the mean rank of income of group Yes is greater than that of group No. therefore, it can be concluded that the artisans who have adopted new technologies and innovations earn more as compared to those who have not adopted such changes in handicraft practices. Hence, the above hypothesis is rejected.

Table-7 Results shows that, the mean rank of income of group changed is greater than that of group Not changed. therefore, it can be concluded that the artisans who have adopted new technologies and innovations earn more as compared to those who have not adopted such changes in handicraft practices except changes in internet usage group. Handicraft artisans who made changes to internet practices earned more or less similar income compared to the artisans who did not make any changes to internet practices. Hence, the above hypothesis is rejected except internet changes.

FINDINGS

- Stone carving artisans dominate the higher income brackets, while silver filigree artisans lead in lower brackets and apprentice positions.
- the majority of workers, around 92.89%, obtain work directly from customers, with both silver filigree and stone carving artisans heavily involved.
- the majority of respondents in the handicraft sector in Karimnagar district have 5 to 10 years of work experience, with stone carving and silver filigree artisans being the most prevalent.
- The data indicates a higher proportion of Silver Filigree artisans selling at the national level compared to Stone Carving artisans, who predominantly operate at the district level.
- The findings reveal widespread dissatisfaction among artisans with government promotional programs, with Silver Filigree artisans demonstrating relatively higher satisfaction levels compared to Stone Carving artisans.

The adoption of new technologies and innovations among both handicraft category artisans is associated with higher income levels, except in the case of changes related to internet usage where income levels remain similar for stone carving artisans.

CONCLUSION

The researcher used an independent sample t-test to compare the monthly incomes of artisans who adopted new technologies and those who didn't. The results indicated a significant difference in income between the two groups across most handicraft categories, except for stone carving artisans using internet facilities. Overall, artisans embracing technological and innovative changes earned more than those who didn't, except in stone carving where incomes remained comparable regardless of technological adoption.

Suggestions: The following are some of the suggestions derived by the researcher during the present research study for Improve the Conditions of Handicraft Artisans.

- Government should promptly facilitate financial aid for financially underprivileged artisans.
- Boost handicraft industry through tourism demand and market collaboration.
- Support artisans in branding and marketing; promote recognition like Geographic Indication (GI) for unique crafts.
- Increase brand and product visibility through local to international exhibitions and quality checks.
- Establish modern Telangana handicraft showrooms nationwide.
- Provide work sheds and modern tools to Sartisan's dependent on handicrafts for livelihood.
- Declare Karimnagar as the "Silver City of Telangana" with proper infrastructure like the Silver Park at LMD.

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Digitalization of Education: Future of India

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ABSTRACT

India is making significant strides in digital education, driven by the increasing adoption of digitization in universities and colleges, boosted by rising internet usage and growing student demand. The Covid-19 pandemic further accelerated the shift away from traditional classroom education, prompting various educational systems to swiftly embrace digital channels. The Indian government responded promptly by launching several initiatives to promote digital education.

One such initiative is the DIKSHA platform, introduced under the Atma Nirbhar Bharat Programme, aiming to provide a unified digital platform for school education across the nation. It is now accessible in schools across all Indian states, catering to students from grades I to XII.

Another key endeavor is the SWAYAM platform, jointly orchestrated by the Ministry of HRD and the Government of India. Serving as an integrated portal, SWAYAM hosts MOOCs sponsored by NME-ICT, providing a wide range of courses. Additionally, the Ministry of Human Resource Development (MHRD) launched 'e-PG Pathshala' under the National Mission on Education through ICT (NME-ICT), implemented by the UGC.

This research article explores the achievements, successes, and challenges encountered by these government-initiated digital learning platforms.

KEYWORDS: *Digitalization of education, E-learning, 4 quadrant approach, National Education Policy(NEP).*

INTRODUCTION

The technique of learning by including technology and digital learning devices is called as Digital education. The student may be present at any corner of country and far away from the teacher, but he can learn and gain knowledge by using advanced learning methodology. In India digital education is also known by names like e-education, e-Learning and Technology enhanced learning. Digital Education is considered as future of education and learning all the world, and the same applies to India as well.

'National Education Policy (NEP) 2020' emphasized the need for the implementation of Educational Technologies to make education more inclusive, interesting, and more effective.

Recognizing the pivotal role of technology and digitization in higher education, NEP-2020 has put forth the concept of the National Educational Technology Forum (NETF). This forum aims to foster comprehensive discussions on various aspects of digitization and online education, with a specific focus on areas like assessment, planning, and administration.

NEP-2020 underscores the vital role of digitalization in offering novel and innovative support to faculty, learners, and the learning process. It supports the improvement of current digital platforms and ongoing ICT-based educational initiatives to tackle both current and future challenges in higher education.

Section 15.10 of the NEP emphasizes promoting the utilization of technology platforms like SWAYAM and DIKSHA for providing online training to teachers.

This approach aims to facilitate standardized training programs that can efficiently reach a large number of teachers in a short period.

OBJECTIVES OF THE STUDY

- To study various e-learning models in India
- To understand how learners are benefited by digital learning.

METHODOLOGY

The aim is to find facts about digital learning in India. For this descriptive research methodology is adopted. Information collected from various research journal articles, and policy studies.

DIGITAL EDUCATION IN INDIA

India is progressing towards digital education, supported by accelerating adoption of digitization by universities and colleges with the help of increasing internet penetration and mounting demand from students. The pandemic Covid-19 disrupted the physical school education system. In response to all these circumstances, various education systems immediately reacted in removing hurdles in the learning system by using various digital channels. Government of India responded timely and taken many initiatives regarding digital education in India.

Announced on May 17, 2020, “PM eVidya” was introduced with the goal of integrating all endeavors pertaining to digital/online/on-air education to ensure equitable access to education through various modes. This consolidation is expected to benefit approximately 25 crore school-going children nationwide. Undoubtedly, one of the paramount initiatives of the Ministry of Human Resource Development (MHRD) is “DIKSHA - Digital Infrastructure for Knowledge Sharing” - a unified digital platform for the entire nation.

DIKSHA, an initiative led by the National Council for Educational Research and Training (NCERT) under the guidance of the Ministry of Education (MoE), Government of India (GOI), serves as a national platform for school education. Inaugurated in 2017, it has been adopted by nearly all states, union territories, and central autonomous bodies/boards, including the CBSE.

Introduced as part of the Atma Nirbhar Bharat Programme, DIKSHA stands as India’s ‘one nation, one digital platform’ for school education. Accessible in all schools throughout the nation and spanning grades I to XII, DIKSHA is conveniently available via both the DIKSHA App mobile application and the web portal <https://diksha.gov.in/>.

DIKSHA operates with a mission to establish a transformative learning ecosystem that equips students to excel in the 21st century. This vision advocates for education to be readily accessible, captivating, and customized to meet the unique needs of every learner.

It was founded on fundamental principles such as open architecture, unrestricted access, open licensing, choice, and independence. Crafted as an open-source technology specifically for India and created domestically, DIKSHA seamlessly integrates internet-scale technologies with round-the-clock reliability. This amalgamation provides a diverse range of solutions and use-cases aimed at enriching the teaching and learning experiences.

Clause 2.60 of the NEP 2020 explicitly states that a premier national repository emphasizing foundational literacy and numeracy resources will be available via the Digital Infrastructure for Knowledge Sharing (DIKSHA).

Clause 23.60 of the NEP 2020 states that the development of teaching-learning e-content will persist across all states in various regional languages. This endeavor will be undertaken not only by the NCERT, CIET, CBSE, and NIOS but also by other relevant bodies and institutions. Subsequently, this content will be uploaded onto the DIKSHA platform.

DIKSHA, the Digital Infrastructure for Knowledge Sharing, encompasses several key features:

1. It offers courses for teachers, quizzes, and other educational resources.
2. It provides extensive e-content aligned with the curriculum.
3. DIKSHA includes various case studies and solutions, facilitated by Energized Textbooks (ETBs) that are QR coded.

4. The platform introduced 'VidyaDaan' in April 2020, a national-level content contribution program. This initiative enables interested subject experts, private bodies, and educational institutions to donate or contribute e-learning resources for school education using the DIKSHA platform and tools.

DIKSHA supports 36 Indian languages, facilitating access for learners and teachers across the country.

Another notable endeavor in this domain is 'SWAYAM - Study Webs of Active Learning for Young Aspiring Minds.' Administered by the Ministry of HRD and the Government of India (GOI), SWAYAM functions as a unified portal and platform that hosts Massive Open Online Courses (MOOCs). These courses are designed and developed under the guidance of NME-ICT. In MOOCs, the term "massive" denotes the large volume of learners, with no limit on enrollment. The term "open" signifies that the courses are accessible to everyone without fixed prerequisites. These courses are delivered entirely online through the internet medium.

SWAYAM devoted to connecting the digital divide and extending educational opportunities to students who have underserved due to lack of various facilities by the digital revolution, thus enabling them to take part in the knowledge economy.

The Government of India has embraced the concept of 'MOOCs' to strengthen the formal education system nationwide, covering education from high school to higher levels. This initiative encompasses a wide array of courses ranging from curriculum-based education to continuing education and skill development.

The courses offered on SWAYAM are interactive manner and carefully curated by the nation's most esteemed educators and organizations, and the highlight is that all these are available FREE of charge to all learners.

For certain courses, a learner can transfer his credits on completion of SWAYAM platform to the academic record of the learner irrespective of college or university he is attending. This can be a big advantage to the student.

SWAYAM offers a diverse range of courses covering various fields such as Engineering, Science, Business,

Social Sciences, Humanities, Computer Science, Mathematics, Art & Design, Programming, Health & Medicine, Data Science, Education & Teaching, Personal Development, and more. These courses are developed and managed by nine National Coordinators appointed by the Ministry of Human Resource Development (MHRD). The coordinators include UGC, NPTEL, CEC, IGNOU, NCERT, NIOS, IIMB, NITTTR, and AICTE.

The e-content follows 4 quadrant approach to cater for the needs of students.

4 quadrant learning approach - Quadrants Description

Quadrant-I (e-Tutorial) encompasses a variety of multimedia content including video and audio resources, simulations, animations, virtual labs, and video demonstrations aimed at enhancing subject understanding.

Quadrant-II (e-Content) offers self-instructional materials, e-books, pertinent case studies, illustrations, presentations, and web resources like references, links, and open-source content. It also includes access to research papers, journals, historical background, anecdotes, and other supplementary materials.

Quadrant-III (Discussion Forum) serves as a platform for students to engage in discussions, seek clarification on course-related doubts, and receive real-time assistance from the course coordinator or their team.

Quadrant-IV (Assessment) provides various assessment tools, including multiple-choice questions (MCQs), fill-in-the-blanks, matching questions, short and long-answer questions, quizzes, assignments, and solutions. Moreover, it offers discussion topics, frequently asked questions (FAQs), and clarifications on prevalent misconceptions.

As per AICTE, SWAYAM is expected to yield the following outcomes:

- i. Development of new content for 600 courses spanning from Secondary to Higher Education levels and covering various disciplines.
- ii. Adaptation of 1400 existing e-content courses from the NMEICT program to align with SWAYAM's pedagogy and andragogy.

- iii. Establishment of the SWAYAM platform, hosting approximately 2000 courses, with each course offered three times annually.
- iv. Provision of a robust Internet Cloud infrastructure, including Content Delivery Network (CDN), and ample bandwidth to support concurrent access for up to 1 million users.
- v. Administration of examinations and issuance of certificates to participants upon successful completion of courses.
- vi. Providing guidance to institutions on integrating the Choice Based Credit System (CBCS) with SWAYAM courses.

The Government of India has introduced SWAYAMPURABHA, comprising 22 Direct-to-Home (DTH) channels exclusively dedicated to broadcasting high-quality educational programs round the clock via GSAT-15 satellite.

The educational content offered by NPTEL, IITs, UGC, CEC, and IGNOU is broadcasted on SWAYAMPURABHA channels. These programs are aired for a minimum of four hours daily, with five additional repeats throughout the day. This flexibility enables students to select the most convenient time for viewing, facilitating asynchronous usage—accessible anytime, anywhere, for anyone registered for the courses.

Another initiative under the Ministry of HRD's National Mission on Education through ICT (NME-ICT), overseen by the UGC, is e-PG Pathshala. This platform offers high-quality, curriculum-based, interactive e-content covering 70 subjects across various disciplines. The content is meticulously crafted by subject experts from Indian universities and other research and development institutes nationwide.

One more important initiative which is helping teachers, students and parents as well is e-Pathshala mobile app and web-portal available in languages including – English, Sanskrit, Urdu and Hindi offering audio and video content of NCERT.

e-Pathshala is a collaborative effort between the Ministry of Human Resource Development (MHRD), GoI, and NCERT. This initiative is designed to centralize and distribute all electronic educational resources, including

subject-related textbooks, audiovisual materials, periodicals, and a diverse range of digital resources to facilitate student learning.

The ePathshala Mobile app is designed with the objective of advancing SDG-4, which emphasizes “Quality Education” through the provision of equitable, high-quality, and inclusive learning opportunities, thereby narrowing the digital gap. This initiative serves all stakeholders, including students, teachers, educators, and parents, granting access to subject-related eBooks across various technology platforms such as mobile phones, tablets (in epub format), laptops, and desktops via the web portal. ePathshala allows users to access a wide range of books compatible with their devices, offering functionalities like pinch, select, zoom, bookmark, highlight, navigate, share, and listen to text using text-to-speech (TTS) applications. Additionally, users can make digital notes for enhanced learning experiences. Additionally, E-PG Pathshala offers e-content categorized into four quadrants and can be accessed as Open Educational Resources (OER).

Open Educational Resources (OER)

These platforms serve as repositories for educational, instructional, and scholarly materials offered in diverse formats and mediums. These resources may reside in the public domain or be subject to copyright but are released under open licenses, permitting free access, reuse, modification, and redistribution by users. OER platforms generally do not offer teacher assistance or guidance to students.

‘The National Repository of Open Educational Resources (NROER)’ is a collaborative platform by the Ministry of Education. It is an e-content open storehouse. Around 17,500 fragments of e-content are available in the form of educational videos, audio, images, documents, and interactive modules. Apart from this, all grade school subjects, and resource contribution is also available on NROER.

289 community radio stations are broadcasting the content related to the NIOS for grades IX to XII. There is an app named Shiksha Vani to upload Podcasts by the Central Board for Secondary Education (CBSE). It has eight tabs to cater to various categories of audience.

Salient features of digital education in India include:

1. Creating top-notch digital content in regional languages to accommodate the linguistic variety present in the nation.
2. Offering courses for skill development, virtual laboratory experiences, and virtual vocational training opportunities.
3. Establishment of Online/Digital Education Guidelines to bridge the digital divide.
4. Integration of educational systems and technology to create digital classrooms.
5. Formulation of frameworks for assessments in the digital education era.
6. Guaranteeing a seamless user experience by providing education access through various channels such as mobile apps, web portals, television channels, radio broadcasts, and podcasts.
7. Emphasis on “anytime, anywhere” access, with a focus on increasing mobile phone usage for education.
8. Priority given to providing complete access to e-content and e-infrastructure for all school-going students. Specifically, priority is given to grades IX to XII, followed by grades VI to VIII, while grades I to V focus on proficiency and foundational literacy.
9. Utilization of e-learning resources to enhance teachers’ skills through upskilling initiatives.

The Government of India is firmly dedicated to ensuring equal access to online education for all segments of society. In this regard, special e-content has been developed for the visually and hearing impaired using the Digitally Accessible Information System (DAISY).

DAISY is an international non-profit membership organization collaborating with over 150 partners worldwide to enhance access to reading materials for individuals with print disabilities.

A dedicated sign language DTH channel is available for hearing-impaired students. It provides accessibility and supports their learning needs. It is available on NIOS website and YouTube.

National Initiative for School Heads and Teachers for Their Holistic Advancement - NISHTHA Online

It is fact that, for the success of digital education programmes, teachers are also should equipped with required knowledge and technical know-hows. In this regard, we should discuss about NISHTHA.

NISHTHA is an online capacity-building program that encompasses a vast number of 4.2 million elementary school teachers and school heads nationwide. Initially conducted through face-to-face interactions, the program underwent redesigning in response to the pandemic and subsequent developments, transitioning to a fully online format to cater to the evolving needs of teaching and learning.

Elementary level teachers may receive financial assistance of up to Rs 1000 to participate in the online NISHTHA training program. This support can be used for acquiring study materials such as pen drives, printing modules, and high-speed data packs, with reimbursement contingent upon the successful completion of the training course.

The NISHTHA training program comprises 18 modules, with:

- 12 modules designed for teachers,
- 5 modules tailored for school heads, and
- one specialized module focusing on teaching and learning in pandemic-like situations.

Each module within NISHTHA encompasses essential guidelines, briefings, training packages featuring QR-coded e-content, module-specific videos, and additional e-resources. NISHTHA Online for elementary teachers was officially launched on October 6, 2020.

Key usage metrics of NISHTHA courses on the DIKSHA platform as of October 22, 2020, include:

- 18 courses uploaded with 3 live courses available in Hindi, English, and regional languages for each State/UT/Central Organization tenant.
- NISHTHA was launched by 17 States/UTs and NCERT on October 16, 2020.
- Over 17 crore learning sessions have been conducted on DIKSHA.

- There have been 30 lakh enrollments across various courses.

A total of 1.6 million digital certificates have been granted to teachers upon finishing the courses.

Advantages of Digital Education in India

During 2019-20, amid the COVID-19 pandemic, digital education served as the sole learning resource for students in India and globally.

Mentioned below are some more advantages:

- Students gained more practical and technical knowledge.
- It enabled students to attend online classes and learn as per their convenience.
- All the required study material is available online makes the students can understand any topic.
- High Engagement Learning: Digital education enhances the engagement and interactivity between students and teachers, fostering a more dynamic learning experience. While comparing with the traditional education system which provides a restricted possibility for engagement as it works with limited factors like textbooks, an instructor, and hand-written notes, the digital education system offers a wide range of learning choices. As already mentioned, the availability of unlimited learning resources are making every session extremely innovative and engaging. Here we mention about highly interactive mode of learning, game-based learning sessions highly engages students.
- Digital education aims to personalizing the learning experience. Digital technology utilizes technology to adapt to individual learning styles and paces.
- The digital learning system provides real-time evaluation in the form of system generated performance reports with utmost transparency.
- It is observed that that the digital education system makes the students independent as it is their decision that what study, when to study and how to study.

Many argue that Digital Education can be an extension and does not completely overpower traditional education.

Challenges with Digital Education in India

Implementing digital education is not a cake walk for both the ends. As many technology-based adaptations were come across in this process and GOI has to be ensured to be reached the students across India.

Major challenges in Indian scenario are:

- One of the biggest requirements for the implementation of digital education is internet connectivity across the nation. Obviously, this is one of challenge in front of Government to provide easy access to information.

Based on the data - Internet Connectivity in Schools: UDISEPlus 2021-22, out of 1,489,115 schools across India, only 33.9% have internet connectivity. Among these, government-managed schools exhibit a lower percentage of internet connectivity at 24.2%. the position of government-aided schools is with 53.1% and private unaided schools are 59.6%. These statistics are showcasing the gloomy picture of future of digital education pan-India. Efforts should be taken to bridge the digital divide to ensure equitable access to internet connectivity in all schools on a pan-India basis.

- Providing devices to economically disadvantaged individuals ensures accessibility to technology, preventing them from being deprived of education.
- Offering appropriate training to teachers enhances their technical proficiency, enabling them to conduct digital classes effectively.
- Making digital education cost-effective serves as a key objective for the Government.
- Ensuring that government schools and colleges are equipped with adequate facilities for conducting digital classrooms is essential.

CONCLUSION

Section 24.4 (c) of the NEP specifies that existing e-learning platforms will be expanded to furnish teachers with structured, user-friendly, and comprehensive assistive tools for monitoring the progress of learners.

For improvisation and accessibility of Digital Education, The Government of India undertaken many projects which aim to provide online education or e-learning for students across India.

DIKSHA usage analysis shows number of times learning activities were undertaken using its infrastructure by learners i.e. 5,34,34,74,905 Learning sessions. When we see the geographical distribution of usage Uttar Pradesh stands top position with 5.37 million learning sessions and Karnataka stands second with 4.29 million learning sessions. Total DIKSHA usage time is of 62,38,81,67,568 in minutes and Application Availability in the last 3 months is of 100%.(Source ; <https://diksha.gov.in/data/> as on 31 Jan 2024)

SWAYAM offers numerous courses free of charge to learners. Through the Credit Framework for Online Learning Courses via SWAYAM Regulation 2016, students can pursue various courses from esteemed institutions online without disrupting their regular studies. AICTE has also issued a gazette notification in 2016, and subsequently, for the adoption of these courses for credit transfer.

SWAYAM platform is a real success with 203 partnering institutes, 11772 completed courses, a whopping 40678959 student enrolment, 3998352 Exam Registrations, and 2528181 Successful Certification. (Source: https://swayam.gov.in/nc_details/)

Online education opens doors to higher education for a vast number of learners spread across the globe, offering affordability or even no cost. However, it is crucial to uphold stringent quality control measures to ensure the maintenance of educational standards. Developing interactive e-materials helps learners remain engaged in both synchronous and asynchronous modes of communication, fostering enriching learning experiences.

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Analyzing Market Potential for Online Learning Apps at Nagpur City

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ABSTRACT

Online learning applications (Apps) are becoming very common among the young learners because apart from having many learners centric features it adds an extra feature of fun while learning.

This paper attempts to analyze the market potential for the booming Learning Application businesses at Nagpur city. The paper uses a univariate two-way ANOVA factorial model to assess the market potential for the Learning Applications.

From the analysis, it was established that the experimental design model considered for the evaluation of the problem at hand was found to be significant. The dependent variable, Lead Score had a strong relationship with the Lead Status considered as an independent variable. Whereas the Standard of the class considered in the model was not found to be of significance. The mean qualified lead score for standard XII was found to be the highest which defines the market potential of the learning apps in Nagpur city.

The research would be useful for the companies operating in the business of online learning applications in Nagpur city by incorporating findings in their decision-making.

KEYWORDS: Online learning application, Market potential, Lead score, Lead status, Online shopping.

INTRODUCTION

Online Learning Application businesses are growing at a fast speed in the Indian Market. The acceptance of the business is itself justifying the fact that how the young generation wishes to learn. Consumer behavior concerning learning is making a shift from physical conventional classrooms to virtual classrooms.

LITERATURE REVIEW

Several studies have been investigated to study customer

attitudes and his/her responsive behavior toward B2C e-commerce to measure their satisfaction. Here listed an exclusive research article with relevance to this research has been briefed below.

A study by Khanna Preeti & Brinda Sampat (2015), focuses on various positive and negative factors responsible, which influencing consumer online shopping in India. The researcher explores how digital platforms and modernized technologies have transformed traditional shopping processes. In their

study researcher observed that the key factors that are responsible for the selection of any product or service are product specification and prices. However, understanding consumer behavior with the help of shopping history and analyzing the same with other relevant data for making customized recommendations can further improve the positive response from customers.

Another study by Kettiramalingam, A. Y., Mathivanan, R. & Mangayarkarasi (2014), they study on consumer online shopping behavior. In their research article on customer satisfaction towards online shopping. This research envisioned customer satisfaction levels along with different factors influencing on consumer's minds while online shopping are demographic factors such as age and gender of consumer. The findings of the study showed that there was no relationship between the hourly usage of the internet in a day and the age of respondents. Similarly, Another Outcome showed that there was no relationship between the gender of the respondent's and the importance paid to the price of the product while shopping online.

FINDING THE GAP

Various research papers have attempted to gauge the market potential for online learning applications in different parts of the world however there hasn't been any significant contribution to the study at this part of the India.

OBJECTIVES OF THE STUDY

Following are the objectives:

- I) To examine the Market Potential, with respect to class Standard for Learning Applications at Nagpur City
- II) Does the Lead Status have significant relationship with Lead Score
- III) Does the Standard of the class has any significant relationship with Lead Score

Framing of Hypotheses

H01: The overall model is not significant

H11: The overall model is significant

H02: Both Lead Status and Standard have no significant effect on Lead Score

H12: Both Lead Status and Standard have significant effect on Lead Score

H03: Lead Status has no significant effect on Lead Score

H13: Lead Status has significant effect on Lead Score

H04: Standard has no significant effect on Lead Score

H14: Standard has significant effect on Lead Score

RESEARCH METHODOLOGY

The experimental factorial design method was used to establish the model. Two-way ANOVA parametric test was used to analyze the model.

Sampling Technique: Probability sampling method, Simple random sampling technique was used to collect the data from person interested in the product.

Sample Unit: Any person interested in using online learning application for self or for his or her near and dear ones.

Sample Size: As both the independent variables were having $3 \times 4 = 12$ groups in total. So according to thumb rule each group should have 20 responses, thus $12 \times 20 = 240$ responses. Moreover, 322 responses were considered for the study.

DATA ANALYSIS

Dependent Variable [Y]: Lead Score

It is a continuous variable (Metric Data), having scores of the potential customers depending upon the interest they have shown in filling the demographic data and the activities they have performed on the company's web app. Activities were in form of exploring different services provided by the company, it could be solving the assignment floated by company to engage potential customers, learning contents viewed for different standards etcetera.

Independent Variables

There were two Factors (Independent Variables) in the research undertaken viz., Lead Status and class Standard for which the customer has shown interest.

Independent Variable [X1]: Lead Status

Depending upon the Lead Scores and the subsequent calls made to the potential customers, all the leads were categorized by the company into different groups. However for simplicity only 3 categories has been considered for the research. These groups under the factor Lead Status are as follows,

Qualified Lead: These are the set of potential customers who have all the qualifications to qualify as customers as per company’s defined parameters. The decision on the qualified customers list has been taken on the basis of the data the potential customer has shared, the activities he or she has performed on the Learning Application and on the inputs given during telephonic conversation or demonstration made at potential customer’s site.

Disqualified Lead: They did not qualify according to parameters laid down by the company.

Not able to connect: These were the set of potential customers with whom the telephonic conversation with the company’s executive had not happened and still waiting to be categorized as Qualified or Disqualified lead.

Independent Variable [X2]: Standard

From standard I to standard XII the data was collected by the company however for simplicity the potentially high business for standard IX, X, XI and XII were considered for analyzing the data. Thus the Independent Variable Standard had 4 different category groups namely,

- Standard IX
- Standard X
- Standard XI
- Standard XII

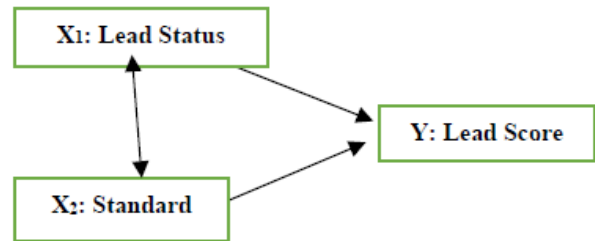
Univariate Analysis of Variance

Two way ANOVA as a statistical test was used to examine, how the dependent variable mean varies with the independent variable means. It also takes into account the interaction effects of independent variable between them and how it varies with the dependent variable. It is univariate because we are using one dependent variable in this two way ANOVA test.

In two way ANOVA there is one dependent variable which is measured on continuous scale (i.e. they are interval or ratio data) and two independent variables which is measured on categorical scale (i.e., nominal or ordinal data).

PROPOSED MODELS

Univariate Two Way ANOVA Model



Where,

X1: Independent Variable 1: Lead Status (Categorical data on Nominal Scale)

X2: Independent Variable 2: Standard (Categorical data on Nominal Scale)

Y: Dependent Variable: Lead Score (Continuous data on Ratio Scale)

Following effects were examined in the study on dependent variable.

Main Effect: A main effect is the effect on performance of one treatment variable considered in isolation (ignoring all other variables in the study).

Interaction Effect: When assessing the relationship between two variables, an interaction occurs if the effect of X₁ depends on the level of X₂ and vice versa. Interaction occur when the effects of one factor on the dependent variable depends on the level (category) of the other factors.

A major advantage of n-way ANOVA is that it enables researcher to examine interactions between the factors. The statistics associated with Two Way ANOVA can be equated as,

$$SS_{total} = SS \text{ due to } X_1 + SS \text{ due to } X_2 + SS \text{ due to interaction of } X_1 \text{ and } X_2 + SS_{within}$$

Or

$$SSy = SSx_1 + SSx_2 + SSx_1x_2 + SS_{error}$$

SS = Sum of Squares

X1 = Groups within independent variable X1

X2 = Groups within independent variable X2

The larger the interaction between X1 and X2, the larger SSx1x2 will be, on the other hand, if X1 and X2 are independent, the value of SSx1x2 will be zero.

Following steps is followed to conduct the test,

Step 1: The strength of the joint effect of two factors or the overall effect, Eta square, η^2 .

Step 2: The significance of the overall effect can be tested by an F test.

Step 3: Significance of the interaction effect.

Step 4: Significance of the main effect of each factor.

Following were the output test statistics derived from the SPSS, Version 20 (IBM).

Between-Subjects Factors

	Value Label	N
Lead Status	Disqualified	199
	Not able to connect	81
	Qualified	42
Standard	IX	32
	X	99
	XI	58
	XII	133

DISCUSSION

The above statistics shows that there were 42 responses classified as “Qualified”, 199 responses as “Disqualified” and 81 as “Not able to connect” categories. The maximum enquiry about Learning App were for Standard XII (133 respondents) followed by Standard X (99 respondents), then XI (58 respondents) and IX (32 respondents) respectively.

Descriptive Analysis

Descriptive Statistics

Dependent Variable: Lead Score

Lead Status	Standard	Mean	Std. Deviation	N
Disqualified	IX	13.67	15.609	18
	X	56.74	144.019	74
	XI	50.59	77.820	34
	XII	30.63	61.658	73
Total		42.22	101.362	199
Not able to connect	IX	97.38	161.130	8
	X	170.64	331.676	11
	XI	66.75	80.747	12
	XII	19.48	36.637	50
Total		54.70	143.419	81
Qualified	IX	69.00	102.814	6
	X	44.71	56.021	14
	XI	83.58	104.802	12
	XII	87.10	146.581	10
Total		69.38	101.444	42
Total	IX	44.97	95.345	32
	X	67.70	168.664	99
	XI	60.76	84.041	58
	XII	30.68	65.769	133
Total		48.90	113.442	322

DISCUSSION

The above table gives the descriptive analysis of how the means and standard deviations of both the independent variables varies with respect to dependent variable. It can also be seen from the table that the total sample size is 322.

Levene’s Test of Equality of Error Variances

Levene's Test of Equality of Error Variances^a

Dependent Variable: Lead Score

F	df1	df2	Sig.
5.292	11	310	.000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + LeadStatus + Standard + LeadStatus * Standard

DISCUSSION

H0: The variance within the groups of independent variables are equal.

H1: The variance within the groups of independent variables are not equal.

As it could be seen from Levene’s Test that we cannot reject the Null Hypothesis as F = 5.292 (p < 0.05), thus we conclude that the variance within the groups of independent variables are equal which is a basic assumption to carry out n-way ANOVA.

Test Statistics between Dependent and Independent Variables

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	311973.625 ^a	11	28361.239	2.302	.010	.076
Intercept	732276.500	1	732276.500	59.441	.000	.181
LeadStatus	107869.708	2	53934.854	4.378	.013	.027
Standard	59598.465	3	19866.155	1.613	.186	.015
LeadStatus * Standard	183750.841	6	30625.140	2.486	.023	.046
Error	3819001.195	310	12319.359			
Total	4600964.000	322				
Corrected Total	4130974.820	321				

a. R Squared = .076 (Adjusted R Squared = .043)

DISCUSSION

Overall model is significant, having $F = 2.302$ ($p < 0.05$) and Eta Square = 0.076, as strength of relationship between Dependent variable and independent variables.

The interaction effect between Lead Status and Standard is significant, having $F = 2.486$ ($p < 0.05$) and Eta Square = 0.046, as strength of relationship between Lead Score and the interacting independent variables.

Lead Status is significant, having $F = 4.378$ ($p < 0.05$) and Eta Square = 0.027, as strength of relationship between Lead Score and Lead Status.

Standard of class is not significant, having $F = 1.613$ ($p > 0.05$) and Eta Square = 0.015.

Mean difference within the group - Lead Status

Pairwise Comparisons

(i) Lead Status	(j) Lead Status	Mean Difference (i-j)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
Disqualified	Not able to connect	-50.653	18.226	.006	-86.515	-14.791
	Qualified	-33.192	20.270	.103	-73.076	6.691
Not able to connect	Disqualified	50.653	18.226	.006	14.791	86.515
	Qualified	17.461	23.881	.465	-29.528	64.450
Qualified	Disqualified	33.192	20.270	.103	-6.691	73.076
	Not able to connect	-17.461	23.881	.465	-64.450	29.528

Based on estimated marginal means

a. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

DISCUSSION

Within the group Lead Status, “Disqualified” has significant relationship with “Not able to connect”. Rest no other categories have any significant relationship.

Mean difference within the group - Standard

Pairwise Comparisons

(i) Standard	(j) Standard	Mean Difference (i-j)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
IX	X	-30.684	26.758	.252	-93.234	21.966
	XI	-6.960	27.270	.799	-60.619	46.699
	XII	14.277	25.657	.578	-36.207	64.762
X	IX	30.684	26.758	.252	-21.966	83.334
	XI	23.724	22.563	.294	-20.673	68.121
	XII	44.961 [*]	20.584	.030	4.458	85.464
XI	IX	6.960	27.270	.799	-46.699	60.619
	X	-23.724	22.563	.294	-68.121	20.673
	XII	21.237	21.246	.318	-20.568	63.042
XII	IX	-14.277	25.657	.578	-64.762	36.207
	X	-44.961 [*]	20.584	.030	-85.464	-4.458
	XI	-21.237	21.246	.318	-63.042	20.568

Based on estimated marginal means

a. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

DISCUSSION

In the independent variable - Standard, within the groups Standard X and Standard XII the mean difference is significant at 0.05 level.

Interaction Effect between Lead Status and Standard

4. Lead Status * Standard

Lead Status	Standard	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Disqualified	IX	13.667	26.161	-37.809	65.143
	X	56.743	12.903	31.355	82.131
	XI	50.588	19.035	13.134	88.043
	XII	30.630	12.991	5.069	56.191
Not able to connect	IX	97.375	39.242	20.161	174.589
	X	170.636	33.466	104.788	236.485
	XI	66.750	32.041	3.705	129.795
	XII	19.480	15.697	-11.406	50.366
Qualified	IX	69.000	45.313	-20.159	158.159
	X	44.714	29.664	-13.654	103.083
	XI	83.583	32.041	20.538	146.628
	XII	87.100	35.099	18.038	156.162

DISCUSSION

Interaction effect between Lead Status – Qualified and Standard Class XII is most as it can be seen from the table that the mean is equal to 87.1.

Interaction effect between Lead Status – “Disqualified” and Standard – “Class X” is most as it can be seen from the table that the mean is equal to 56.743.

Interaction effect between Lead Status – “Not able to connect” and Standard – “Class X” is most as it can be seen from the table that the mean is equal to 170.636.

Post Hoc Test:

For Lead Status

Multiple Comparisons

Dependent Variable: Lead Score
Tukey HSD

(I) Lead Status	(J) Lead Status	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Disqualified	Not able to connect	-12.49	14.629	.670	-46.94	21.96
	Qualified	-27.16	18.847	.321	-71.55	17.22
Not able to connect	Disqualified	12.49	14.629	.670	-21.96	46.94
	Qualified	-14.68	21.105	.766	-64.38	35.02
Qualified	Disqualified	27.16	18.847	.321	-17.22	71.55
	Not able to connect	14.68	21.105	.766	-35.02	64.38

Based on observed means.
The error term is Mean Square(Error) = 12319.359.

DISCUSSION

There is no significant relationship between the mean values of Lead Status within the group as value of $p > 0.05$ for all the variances.



DISCUSSION

The above graph shows variance of Mean between Lead Score with the Lead Status. Qualified Lead Status has got much higher Mean (71.099) as compared to Disqualified Lead Status mean (37.907).



DISCUSSION:

It was seen that maximum mean Lead Score was for Standard X. However it constitutes Qualified, Disqualified as well as “Not able to Connect” leads.

For Standard

Multiple Comparisons

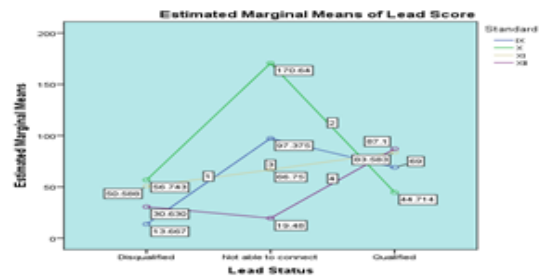
Dependent Variable: Lead Score
Tukey HSD

(I) Standard	(J) Standard	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
IX	X	-22.73	22.570	.745	-81.03	35.57
	XI	-15.79	24.441	.917	-78.92	47.34
	XII	14.28	21.854	.914	-42.17	70.73
X	IX	22.73	22.570	.745	-35.57	81.03
	XI	6.94	18.353	.982	-40.47	54.35
	XII	37.01	14.733	.060	-1.04	75.07
XI	IX	15.79	24.441	.917	-47.34	78.92
	X	-6.94	18.353	.982	-54.35	40.47
	XII	30.07	17.465	.314	-15.04	75.19
XII	IX	-14.28	21.854	.914	-70.73	42.17
	X	-37.01	14.733	.060	-75.07	1.04
	XI	-30.07	17.465	.314	-75.19	15.04

Based on observed means.
The error term is Mean Square(Error) = 12319.359.

DISCUSSION

There is no significant relationship between any one Standard class with other Standard class. As it is apparent from the fact that value of $p > 0.05$ for all the variances.



DISCUSSION

From the above info-graph it could be inferred that the Qualified Mean Lead Score is maximum for Standard XII (87.1) followed by Standard XI (83.583), Standard IX (69.0) and finally Standard X (44.714).

Hypotheses Testing Results

Hypotheses Number	Hypotheses	Accepted or Rejected
H01	The overall model is not significant	Rejected
H11	The overall model is significant	Accepted
H02	Both Lead Status and Standard have no significant effect on Lead Score	Rejected
H12	Both Lead Status and Standard have significant effect on Lead Score	Accepted
H03	Lead Status has no significant effect on Lead Score	Rejected
H13	Lead Status has significant effect on Lead Score	Accepted
H04	Standard has no significant effect on Lead Score	Not Rejected
H14	Standard has significant effect on Lead Score	Rejected

CONCLUSIONS AND SUGGESTIONS

From the analysis it was established that the factorial design model considered for the evaluation of the problem at hand was found to be significant. The Lead score had a strong relationship with the Lead status, considered as independent variable. Whereas the Standard of the class considered in the model was not found to be of significance. It was seen that the maximum Mean Qualified Lead Score was for Standard XII. It could be inferred that maximum potential customers have shown

interest for enrolling the Learning Application package for Standard XII.

The research would be useful for the companies operating in the business of online learning applications at Nagpur city by incorporating findings in their decision making.

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Information Technology Service Management (ITSM) Software

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ABSTRACT

A ITSM aims to make a conversation between both human and machine. The machine has been embedded knowledge to identify the queries and making a decision itself as response troubleshooting to solve queries.

IT service management, or ITSM, is essentially how IT teams handle the entire lifecycle of IT services for their customers. This includes everything from designing and creating services to delivering and supporting them.

This research aims to reduce manual effort and time in problem resolution by using autonomous agents. The current ITSM experience for software company employees involves searching for solutions or creating tickets manually. To improve this, a chatbot tailored for software firm employees is proposed. This chatbot uses Natural Language Processing to understand and respond to queries, making decisions independently with the help of a neural network. It can also remember conversation context and perform tasks like creating tickets on behalf of the user.

KEYWORDS: *ITSM, Services, Troubleshooting, Installation, System, laptops, Software, resolution.*

INTRODUCTION

IT team oversees a variety of devices such as laptops, smartphones, printers, servers, and phone systems, along with the numerous applications installed on each device. They handle everything from setting up and configuring these devices and software to ensuring their security and troubleshooting any issues that arise.

Additionally, it manages user access and update applications. In addition to these day-to-day tasks, modern IT departments also have strategic responsibilities. They develop and integrate applications to create advanced hybrid cloud environments, enhancing team productivity and efficiency. This project is the solution for all IT support engineers. It

focuses on reducing time and increasing efficiency. This ITSM software will perform all the troubleshooting for the clients using batch script.

MAJOR FEATURE OF ITSM

- Allows users to raise queries or requests through ITSM software and faster solution.
- Provides a repository of articles, FAQs, and troubleshooting guides to help users find solutions to common issues independently. It is a knowledgebase.
- Manages service requests from users and provide verification of user, access and request, software installations, equipment requests, through automated workflows.

- It is flexible to work on any queries related to ITSM.

BACKGROUND

The background of ITSM (IT Service Management) software application is deeply rooted in the necessity for organizations to efficiently administer their IT services and support their business operations. The emergence of ITS software was a response to the need for streamlining and automating IT service delivery, enhancing service quality, and improving customer satisfaction. Here is a more technical overview of the background and evolution of ITSM software:

Origins in ITIL: ITSM practices are founded on the ITIL (Information Technology Infrastructure Library) framework, which offers best practices for managing IT services. In ITIL, organizations can adopt processes and functions to align their IT services with business requirements.

Evolution of ITSM Tools: Initially, ITSM practices were managed through manual processes and rudimentary tools such as spreadsheets and emails. As IT environments became more complex, there was a growing need for specialized ITSM software.

LITERATURE REVIEW

The literature review establishes the background and context for this study by summarizing existing research and theories relevant to “Information Technology Service Management”. It serves to highlight the gaps in current knowledge that this research aims to address, thereby contributing to the advancement of the field [1]. According to author Incident, Request, Problem, and Change Management are the essential ITSM modules. Ticket handling involves agents, administrators, and service managers, with an added approval team for Request Management. A chat-bot aids users with recurring tickets, and data visualization enhances system understanding visually [2]. The researcher says, we have presented a scalable, multi-bot framework to build conversational systems for technical support by leveraging interactions and co-ordination between bots to automate the process of guided troubleshooting [3]. According to researcher, the research found that different service dimensions are relevant for chatbots compared to traditional hotlines. Additionally, the study

found a significant main effect of service dimensions on customer satisfaction, service costs, and intent to re-use, word-of-mouth, and customer loyalty. Overall, the findings suggest that chatbots offer a valuable extension to customer service in B2B markets [4]. According to author It enables users to submit queries, delivers quick and relevant search results, and has the potential to expand to other domains, showcasing its versatility and benefits beyond academia[5]

The author implemented a multilingual healthcare chatbot system that supports text and speech in regional languages, catering to the rural population of India. The system not only provides disease diagnosis based on symptoms but also offers disease descriptions, precautions, and addresses health-related queries. The paper conducted a comparative analysis of five Machine Learning Classification algorithms, highlighting the Random Forest Classifier’s superior accuracy of 98.43%.



Fig.1 ITSM Market GLOBAL FORECAST 2028(UD BN)

Source: <https://www.marketsandmarkets.com/Market-Reports>

The global IT Service Management (ITSM) Market is projected by 2028, USD 10.5 billion will grow to USD 22.1 billion, with a CAGR of 15.9%. The report discusses the market’s resilience during the recession and attributes the demand for cloud ITSM solutions to their quick deployment and accessibility. Cloud ITSM’s operational expenditure (OPEX) model reduces total ownership costs, making it affordable for businesses of all sizes.

METHODOLOGY

The ITSM system is developed using Python due to its adaptability and rich libraries tailored for tasks

like natural language processing (NLP) and machine learning. Moreover, Python’s extensive support for web development frameworks makes it a fitting choice for designing the user interface of the ITSM software, ensuring a smooth and user-centric experience for employees interacting with the system.

By automating tasks currently handled by help desk engineers, this research aims to increase the efficiency of the company’s operations by developing and implementing an IT Service Management (ITSM) software solution. The qualitative research approach is chosen to understand the specific needs and requirements of the company and its employees.

Data collection methods include surveys to gather quantitative data on current ITSM processes and employee preferences, as well as interviews with key stakeholders and software users to obtain qualitative insights. ITSM requirements will be identified through thematic analysis of survey responses and interview transcripts. To ensure that participants are representative of various departments, purposive sampling will be used to select participants. The research will follow ethical principles, guaranteeing confidentiality for participants and ensuring they are fully informed about the study.

Resources such as existing research papers and input from senior management and help desk engineers will be utilized. The timeline includes data collection, analysis, and software development stages, culminating in a comprehensive research paper presenting key insights and recommendations for the ITSM software.

RESULT

Case Study 1: ID Creation for new employee. Scenario: A new joinee, siddhi, has joined the organization and requires an ID for accessing various IT systems and services.

Siddhi raise the query to request an ID for accessing IT systems.

Troubleshooting: The ITSM will verify the joinee with the confirmation letter and will create the ID for Siddhi using the organization’s ID creation policy. Suppose they use Microsoft software they’ll create id using ms excel For example, the ID format could be “Siddhi01” followed by a sequential number for uniqueness.

The ITSM will automatically registers siddhi’s ID in the organization’s IT systems, ensuring that she has access to the required resources based on his role.

Case Study 2: Software Installation Support Scenario: A user requests installing a new software application on their computer.

Troubleshooting: The ITSM software will provides step-by-step guidance on how to download and install the software, by providing link. If the employee goes wrong, it will prompt a message to follow right step.

Resolution: The software is successfully installed, and the user is able to use it without any further issues.

Case Study 3: Resolving a Network Connectivity Issue Scenario: A employee update a query for they are unable to connect to the company’s network from their system.

Troubleshooting: In order to troubleshoot an issue, the ITSM checks the technical issues. If

the issue is not resolved it contacts the onsite engineer to check the network cable, network adapter settings, and network configuration.

Resolution: After identifying that the network cable was unplugged, the engineer guides the user to reconnect the cable, and the issue is resolved. The engineer documents the incident for future reference.

Case Study 4: Resolving Printer Problem

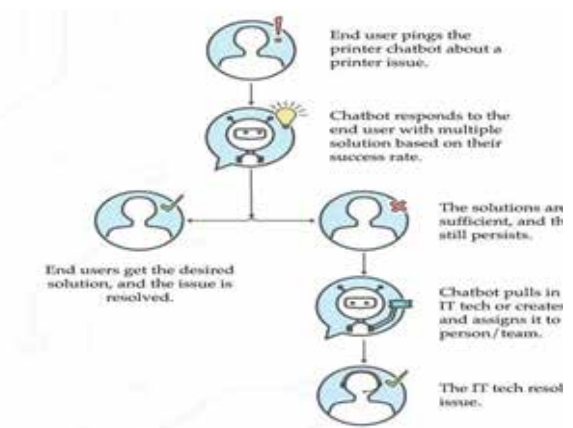


Fig.2 CHATBOTS-SCENARIO Resolving Printer Problem

Source: Chatbots – scenario 1 Resolving printer problem - DATAVERSITY

CONCLUSION

This paper demonstrates the implementation of a IT service management (ITSM). This ITSM supports and provide the IT services to the IT employees. The system can address the queries of the employees and in response; first it will guide them to resolve basic problems by sharing the step by step procedure of the troubleshooting.

In this research we have used search algorithm, NLP algorithm which is Natural Language Processing (NLP): NLP algorithms like named entity recognition or sentiment analysis can be used for processing and analyzing text-based knowledge articles.

The proposed system involves the automatic troubleshooting of the queries by using backscript. Setting up and configuring these devices and software to ensuring their security and troubleshooting any issues that arise.

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Performance Evaluation of Public Distribution System: Perceptions of Rural and Urban Beneficiaries in Telangana State

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ABSTRACT

This study examines the perceptions of rural and urban beneficiaries regarding the implementation of the Public Distribution System (PDS) in Telangana State. The primary objective is to assess whether there are significant differences in perceptions between rural and urban beneficiaries. Data was collected from 400 respondents (200 from Hyderabad and 200 from Vikarabad) using a structured questionnaire. Statistical analysis, including independent samples t-tests, was conducted to compare perceptions across various parameters. The findings reveal significant differences in perceptions related to accessibility, availability, satisfaction, utilization, problems and prospects, and monitoring and grievance redressal. The results underscore the need for tailored policy interventions to address the specific concerns of rural and urban beneficiaries within the PDS.

INTRODUCTION

The Public Distribution System (PDS) is a cornerstone of India's social welfare initiatives, designed to provide essential food commodities at subsidized rates to ensure food security for the nation's vulnerable populations. However, the success and impact of the PDS can vary significantly across different regions, particularly between rural and urban areas. Telangana State, like many parts of India, grapples with challenges in effectively implementing the PDS, often encountering disparities in service delivery and beneficiary experiences between its urban centers and rural communities. Telangana, formed in 2014 as India's newest state, inherits a complex socioeconomic landscape characterized by diverse livelihood patterns, income disparities, and infrastructural variations between its urban and rural zones. Urban centers like Hyderabad, the state capital and a burgeoning technology hub, boast higher per capita income levels and better access to amenities compared to rural districts like Vikarabad, where agriculture remains a predominant occupation and incomes are comparatively lower. The effectiveness of the PDS hinges on several critical

factors, including efficient procurement, storage, and distribution of food commodities, as well as beneficiary perceptions and experiences regarding accessibility, availability, quality, and satisfaction with the services provided. Understanding how beneficiaries perceive and experience the PDS is essential for policymakers and stakeholders to identify areas for improvement and to ensure equitable access to food subsidies across different segments of the population. This study focuses on analyzing beneficiary perceptions of the Public Distribution System in Telangana, with a specific emphasis on comparing these perceptions between rural and urban populations. By exploring these differences, the study aims to shed light on disparities in PDS implementation and to assess whether rural-urban variations impact beneficiary attitudes and experiences. The hypothesis under scrutiny is whether there are significant differences in beneficiary perceptions of the PDS based on their rural or urban location. This research is crucial for informing evidence-based policy interventions aimed at optimizing the PDS and ensuring more equitable food security outcomes across Telangana State's diverse landscape.

LITERATURE REVIEW

Ajay Bohatan (2019): Examines the Indian Public Distribution System from a supply chain perspective. Utilizes the Performance Objectives-Productivity (PO-P) approach model to assess PDS performance. Offers recommendations to stakeholders based on performance evaluation.

Suprit Panigrahi (2014):Assesses the Targeted Public Distribution System (TPDS) in Sundargarh District, Odisha.

Evaluates access, efficiency, utilization, and impact of the PDS in the region. Explores public opinion on substituting food grain subsidies with cash transfer schemes. Reports overall improvement in the functioning of PDS in Odisha, particularly in rice distribution. Jayan.T (2014):Analyzes the Targeted Public Distribution System in Kerala. Studies how ration subsidies benefit low-income households and those below the poverty line. Investigates the impact of large-scale food grain distribution on market price stabilization.

Research Objective: To analyze and compare the perceptions of rural and urban beneficiaries regarding the PDS.

Hypothesis: H01 - There is no significant difference between the perceptions of rural and urban beneficiaries on the PDS.

METHODOLOGY

A quantitative research approach was adopted for this study. Data was collected through a structured questionnaire administered to 400 beneficiaries, comprising 200 respondents from Hyderabad (urban) and 200 from Vikarabad (rural). The questionnaire included items related to awareness, accessibility, availability, satisfaction, utilization, stability, problems and prospects, monitoring, and grievances within the PDS. Statistical analysis included descriptive statistics, independent samples t-tests to compare means between rural and urban beneficiaries, and other relevant tests to assess hypotheses.

Analysis and Outcome

Comparison of Perceptions between Rural and Urban Beneficiaries in Telangana State.

Parameter Difference	t-value	df	p-value	mean
Awareness	4.146	398	0.000	-0.23083
Accessibility	3.082	398	0.002	0.14563
Availability	3.058	398	0.002	0.18525
Satisfaction	-3.448	398	0.001	-0.20400
Utilisation	4.380	398	0.000	0.28400
Food stability	0.667	398	0.505	0.04300
Problems in PDS	2.098	398	0.037	0.09083
Monitoring and Grievance	-4.252	398	0.000	-0.31400

Source: Compiled from Primary Data

The table presents the results of independent samples t-tests comparing rural and urban beneficiaries' perceptions across different parameters related to the Public Distribution System (PDS) in Telangana State. Here's the interpretation of the findings:

Awareness: The t-test results indicate a significant difference in awareness between rural and urban beneficiaries ($t = -4.146$, $df = 398$, $p < 0.001$). Urban beneficiaries have a significantly higher level of awareness (mean difference = -0.23083) compared to rural beneficiaries.

Accessibility: There is a significant difference in accessibility perceptions between rural and urban beneficiaries ($t = 3.082$, $df = 398$, $p = 0.002$). Urban beneficiaries perceive slightly higher accessibility (mean difference = 0.14563) compared to their rural counterparts.

Availability: Similar to accessibility, availability perceptions also differ significantly between rural and urban beneficiaries ($t = 3.058$, $df = 398$, $p = 0.002$). Urban beneficiaries report higher availability (mean difference = 0.18525) compared to rural beneficiaries.

Satisfaction: The t-test indicates a significant difference in satisfaction levels between rural and urban beneficiaries ($t = -3.448$, $df = 398$, $p = 0.001$). Rural beneficiaries exhibit lower satisfaction (mean difference = -0.20400) compared to urban beneficiaries.

Utilization: There is a significant difference in utilization perceptions between rural and urban beneficiaries ($t = 4.380$, $df = 398$, $p < 0.001$). Urban beneficiaries

report higher utilization (mean difference = 0.28400) compared to rural beneficiaries.

Food Stability: The difference in food stability perceptions between rural and urban beneficiaries is not significant ($t = 0.667$, $df = 398$, $p = 0.505$). Both groups perceive similar levels of food stability.

Problems in PDS: The t-test shows a significant difference in perceptions of problems within the PDS between rural and urban beneficiaries ($t = 2.098$, $df = 398$, $p = 0.037$). Urban beneficiaries report slightly higher problems (mean difference = 0.09083) compared to rural beneficiaries.

Monitoring and Grievance: There is a significant difference in perceptions of monitoring and grievance mechanisms between rural and urban beneficiaries ($t = -4.252$, $df = 398$, $p < 0.001$). Rural beneficiaries perceive lower monitoring and grievance support (mean difference = -0.31400) compared to urban beneficiaries.

FINDINGS

From the above study is found that in Awareness: No significant difference was observed in awareness levels between rural and urban beneficiaries ($p > 0.05$). Accessibility: Rural beneficiaries reported significantly lower accessibility levels compared to urban beneficiaries ($p < 0.05$). Availability: Urban beneficiaries perceived better availability of PDS commodities compared to rural beneficiaries ($p < 0.05$). Satisfaction: Rural beneficiaries reported lower satisfaction levels with the PDS compared to their urban counterparts ($p < 0.001$). Utilization: Urban beneficiaries exhibited higher utilization rates of PDS services compared to rural beneficiaries ($p < 0.001$). Stability: There was no significant difference in stability perceptions between rural and urban beneficiaries ($p > 0.05$). Problems and Prospects: Rural beneficiaries highlighted more challenges and concerns with the PDS compared to urban beneficiaries ($p < 0.05$). Monitoring and Grievance: Rural beneficiaries perceived lower effectiveness in monitoring and grievance redressal mechanisms within the PDS ($p < 0.001$).

CONCLUSION

The study reveals substantial differences in beneficiary perceptions of the Public Distribution System

between rural and urban areas in Telangana State. Rural beneficiaries face more challenges related to accessibility, availability, satisfaction, and effective grievance redressal within the PDS. These findings underscore the importance of targeted policy interventions to address disparities and enhance service delivery in rural areas. Efforts to improve accessibility, enhance monitoring mechanisms, and strengthen grievance redressal processes are recommended to optimize the effectiveness of the PDS and ensure equitable service delivery across diverse populations in Telangana.

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Impact of Working Capital Management Practices on the Performance of Indian Large_Cap Pharmaceutical Companies

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ABSTRACT

The present study is undertaken to explore the impact of working capital management practices on Indian large cap pharmaceutical companies. The study investigates the impact of working capital management on the financial performance of Indian pharmaceutical companies listed on the BSE platform. Data from CMIE Prowess IQ was used for 23 listed pharmaceutical companies out of 129 possible due to data availability. Companies were categorized by size (market capitalization) and the analysis covers a 10-year period from 2013-14 to 2022-23. The study uses multiple regression to explore how working capital practices such as raw material turnover, WIP turnover, finished goods turnover, debtor's turnover, Creditors turnover and Current ratio influence return on assets (ROA) while considering factors like company size, Growth, Sales and debt-to-equity ratio. An analysis of large-cap pharmaceutical companies revealed that managing current assets effectively (high current ratio) is key to strong profitability (ROA). While inventory turnover has some influence, it needs further investigation. Other factors like sales growth and debt levels showed no statistically significant impact on ROA. There's a weak negative association between sales and ROA that warrants further exploration.

KEYWORDS: Firm performance, Pharmaceutical sector, Working capital management, Current ratio, Return on assets, Profitability of the firm.

INTRODUCTION

Working capital management is all about ensuring a company has enough resources for day-to-day operations while using those resources efficiently. The key focus isn't just on the total current assets, but on the net working capital, which considers current liabilities. This involves balancing how much to invest in current assets like inventory and receivables, how to structure short-term and long-term debt, and choosing the right sources of short-term financing. There's a balancing act: holding more assets means more liquidity but less potential return elsewhere. Ultimately, effective working capital management keeps a company running smoothly by managing cash, marketable securities, receivables, and inventories to meet short-term obligations and support long-term goals.

REVIEW OF LITERATURE

Several studies establish a positive correlation between effective WCM and profitability. Abednego Osei et al. (2023) emphasize the importance of efficiently managing inventories, cash, debtors, and creditors to achieve financial goals. Similarly, Fekadu Agmas Wassie (2021) finds a positive association between WCM practices (measured by receivables period, cash conversion cycle, and payables period) and profitability metrics (return on assets and return on investment) for Ethiopian export firms. These findings align with Pham et al. (2020) who demonstrate a strong positive influence of WCM on the profitability of Vietnamese steel companies. Furthermore, Ahm Yeaseen Chowdhury (2018) concludes that efficient WCM is critical for the profitability of Bangladeshi pharmaceutical firms.

However, the relationship between WCM and profitability can be more nuanced. Anton and Nucu (2021) and Minhas Akbar et al. (2021) propose an inverted U-shaped relationship, where WCM has a positive impact on profitability up to a certain level, beyond which it becomes negative. This suggests an optimal working capital level that maximizes profitability. Industry-specific factors may also influence the WCM-profitability relationship. Rey Ares et al. (2021) highlight how WCM policies (collection and inventory conversion periods) affect the economic profitability of Spanish fish canning companies. Similarly, Farhan et al. (2021) explore how WCM practices differ in managing working capital among small, medium, and large Indian pharmaceutical firms.

Macroeconomic factors like inflation and GDP can influence the WCM-profitability dynamic. Iman and Mehdi (2019) demonstrate that while both inflation and GDP are positively related to a firm's return on assets (ROA), only inflation significantly impacts refined economic value added (REVA). This suggests that macroeconomic conditions might influence how WCM practices translate into profitability metrics. It's worth noting that some studies haven't found a statistically significant impact of WCM on profitability. Yousaf and Bris (2021) analyze Czech firms and report a negative impact of working capital on firm performance. This underscores the complexity of the relationship and the need to consider various factors.

RESEARCH GAP

Despite evidence linking effective WCM to profitability, there remain gaps in our understanding. The studies primarily focus on correlations, leaving a need for research that explores causal relationships between specific WCM practices and profitability metrics. By taking the gap as a motivation, the present study has been undertaken.

OBJECTIVE OF THE STUDY

The objective of the study is to evaluate the performance of Indian large-cap pharmaceutical companies with respect to working capital management practices

RESEARCH METHODOLOGY

The study investigates the impact of working capital

management on the financial performance of Indian pharmaceutical companies listed on the BSE platform. Data from CMIE Prowess IQ was used for 23 listed pharmaceutical companies out of 129 possible due to data availability. Companies were categorized by size (market capitalization) and the analysis covers a 10-year period from 2013-14 to 2022-23. The study uses multiple regression to explore how working capital practices such as raw material turnover, WIP turnover, finished goods turnover, debtor's turnover, Creditors turnover and Current ratio influence return on assets (ROA) while considering factors like company size, Growth, Sales and debt-to-equity ratio.

FINDINGS OF THE STUDY

To study the impact of working capital management practices on the performance of Indian large-cap pharmaceutical companies, multiple regression has been used. The statistical results of multiple regression are as follows.

Table 1: Model Summary results of large-cap pharmaceutical companies

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.334a	.112	.073	5.977

Source: Compiled from CMIE Prowess IQ

Performance yielded an overall R Square value of 0.112, indicating that approximately 11.2% of the variability in the dependent variable (presumably something like stock price, revenue, or another financial metric) could be explained by the predictors included in the model. The adjusted R Square, which accounts for the number of predictors in the model, stands at 0.073, suggesting that about 7.3% of the variability is more accurately accounted for by the included variables. The standard error of the estimate, at 5.977, represents the average difference between the actual and predicted values. The R Square and adjusted R Square values, standing at 0.112 and 0.073, respectively, indicate that only around 11.2% of the variance in the company's performance could be elucidated by the chosen predictors. This suggests that while these factors might have some influence, a significant portion of the companies'

performance remains unaccounted for by the variables in the model.

Table 2: ANOVA results of large-cap pharmaceutical companies

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	941.469	9	104.608	2.928	.003 ^b
Residual	7501.963	210	35.724		
Total	8443.432	219			

Source: Compiled from CMIE Prowess IQ

Return on Assets (ROA) indicates a significant regression model involving nine predictors. These predictors collectively contribute to explaining ROA variation. However, despite the model's statistical significance, a substantial amount of unexplained variance persists within the model, denoted by a high residual sum of squares. This suggests that while the model holds relevance in understanding ROA, there are influential factors or complexities not captured by the current set of predictors.

The ANOVA results for the large-cap pharmaceutical companies' Return on Assets (ROA) unveils a statistically significant model ($F(9, 210) = 2.928, p = .003$). The regression model's overall explanatory power is evident as indicated by a substantial regression sum of squares of 941.469. This model demonstrates a mean square of 104.608. Despite the model's significance, the residual sum of squares stands at 7501.963, suggesting unexplained variance remaining in the model.

CONCLUSION

The analysis of factors influencing Return on Assets (ROA) for large-cap pharmaceutical companies underscores the pivotal role of the current ratio in determining financial performance. A high current ratio positively affects ROA, indicating that efficient management of current assets and liabilities significantly contributes to profitability. However, while raw material and finished goods turnover exhibit some influence, their impact lacks statistical significance, suggesting a need for further investigation or a consideration of additional variables. Notably, variables like debtors' turnover, creditors' turnover, debt to equity ratio, sales, and growth show no statistically significant association

with ROA at conventional levels. The near-significant negative relationship of sales with ROA warrants attention but indicates a weak impact. In essence, optimizing the current ratio emerges as a critical strategy for enhancing ROA, while the influence of other factors appears less pronounced or inconclusive in this specific context.

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A Study on Employees' Perspective towards Work-life Balance Policies and their Impact on Work-life Balance and Employee Performance

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ABSTRACT

Work-life Balance is a new workforce trend, where the employees are not just motivated by pay and perks. Work-life balance is essential for life satisfaction. Companies strive to provide the best of the best work-life balance options to their employees, to enhance job satisfaction. However, employee perception of it matters. The usefulness of the facility to them decides their satisfaction and happiness at the workplace. This study is conducted on 72 professionals working in different sectors. Different age groups are taken into consideration for the same. The study reveals that most of the employees find their organization's Work-life Balance facilities helpful. It helps them to manage their me time as well as social life too.

KEYWORDS: *Work-life balance, Policies on work-life balance, Flexible work hours, etc.*

INTRODUCTION

Work-life Balance became a mandate in most of the sectors after Covid 19. The facility helps employees to save their commutation time and effort in a city like Mumbai. The pandemic also made people realize the value of life as most of us have left our nearer and dearer ones. Hence working professionals seek a good balance between professional and personal life. Companies draft work-life balance policies for their employees, as much as they can provide to them. The young employees strive for GIG employment with the same intentions to have a balance between other prominent domains of life.

The provisions made by the organizations are sometimes not useful for their existing employees and remain on the paper as a policy document. Utilization of most of the work-life balance facilities and their usefulness to the organization's employees are equally important. This study focuses on the employees' perception of their present workplace's work-life balance policies.

OBJECTIVES

1. To understand the perspective of employees towards the influence of work from-home policy on Work-life Balance
2. To study the perspective of employees towards the impact of work-from-home policy on work performance

HYPOTHESIS

HO There is no significant impact of the Work-from-home policy on work-life Balance concerning gender.

H1 There is no significant impact of the work-from-home policy on work performance concerning gender.

Scope of the Research:

This research study tried to see the influence of Work from Home on the work-life Balance and work performance from the Employees' point of view, data collected will be very useful for providing suggestions as well as recommendations that can be fruitful for all.

Also, it will provide insight to HR professionals that will help them to get the employee's perspective on Work-life balance and Work performance concerning Work-from-home policies. So accordingly, the new policies can be developed.

REVIEW OF LITERATURE

Lutz Bellmann, (2020) found strong or heterogeneous connections in remote work have a clear negative impact on work-life balance, but are compared to strictly non-binding promises. Then, contractual arrangements have higher job satisfaction and the work-life balance is not bad.

Sanghamitra Chaudhuri,(2020) In this literature, it has been implied that since 2013 there is an increase in the research on Work-Life balance. They have also suggested implementing employee-friendly policies to achieve high outcomes, stating that it may be useful for human resource management as well as HR professionals to get ideas and appreciate the organizational components, and settings that must serve better WLB, thereby resulting in enhanced organizational outcome i.e. Performance.

Krasulja Nevenaa, (2015)The basic argument is that if employees have more flexible work schedules and, as one of them, can complete their work at home, the desired balance can be achieved. Consistent with predictions workplace, employees in almost every demographic, cultural, and sociological group believe that life boils down to the trend of work, and the motto of "born for work" is irrelevant. The term "born for work" means an individual's full commitment to the work that he considers the "center" of his life.

Rajadhyaksha, (2012) stated that Indian Organisations are having work-life balance supportive policies, that help to manage work-life balance for their employees for three reasons. Ultimately, multinational companies offer work-life balance practices as part of their diversity policy. Indian Organisations aim to create opportunities for growth and career development for employees to improve their work-life balance.

Sharma and Mehta (2011) reveal that the employees in the sales department face serious work-life issues due to overwhelming targets. Therefore, the HR department should create policies to maintain the work-life balance

of Sales teams, so that they do not return home from work with stress and anxiety.

RESEARCH METHODOLOGY

Research Design: The research is descriptive in nature. Data is collected from the employees working in different organizations and working from home. The sample universe is Kandivali, Mumbai. Due to shortage of time the sample size is less. The research used both primary and secondary data.

Data Collection Methods

Primary Data: The data collected is the primary data by using the questionnaire method, for which the structured questionnaire has been created and circulated via Google Forms to the relevant respondents.

Sampling: Random Sampling

- The data collected is being stored and the sample size is 72
- The respondents are the working professionals in their respective field

Secondary Data: Research Journals

ANALYSIS AND OUTCOMES

Thus this quantitative data collected will be analyzed using PSPP software, as well as MS. Excel, and one way ANNOVA is used for hypotheses testing

Hypotheses Testing

Table 1: ANOVA for Work-life balance

	Sum of Squares	df	Mean Square	f	Sig.
Mean between Groups	2.57	1	2.57	4.93	.30
Within Groups	33.37	64	.52		
Total	35.94	65			

Inference

The above result indicates that the significance value is less than 0.05; the F-test is rejected. Hence the null hypothesis is rejected, and alternate hypothesis is accepted.

Table 2: ANOVA for Work Performance

	Sum of Squares	df	Mean Square	f	Sig.
Mean2 Between Groups	0.90	1	0.90	1.93	.170
Within Groups	30.02	64	0.47		
Total	30.93	65			

Inference

The above result indicates that the significance value is greater than 0.05; the F-test is accepted. Hence the null hypothesis is accepted, and alternate hypothesis is rejected.

FINDINGS

- From the study, it is concluded that nearly all the respondents are extremely qualified enough and they agreed that the work from home policy may affect their work performance as well as their Work-life balance.
- More than 53% respondents have good work-from-home experience and they like to work from home in future as well.
- Less than 20% respondents either work more than their normal working hours that may result in high work performance.
- More than 60% respondents agree that their work hours are flexible, it may lead to better work performance.
- Nearly the majority of employees say that coping with the workload assigned is challenging still they are able to set the boundaries between work and family domain
- More than 50% employees agreed that their organization's policy and attitude towards work-from home affect the productivity
- The employees are able to manage their work efficiently from home, hence it give them flexibility to manage Work-life balance.

- Further, more than 50% employees agreed that the technical support increase their productivity.
- Lastly on applying the ANOVA test it can be concluded there is significant impact of work from home policy on work-life balance with respect to gender.
- There is no significant impact of work from home policy on work performance with respect to gender.

CONCLUSION

The study found that most of the employees gave mix opinions in about work-life balance practices of their respective organizations. It indicates that their organization may have the Work-life balance practices in place but, availing these facilities is a challenge to the employees, due to their nature of work as well as the pressure of the same.

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Students' Perception of AI Tools for Engaged Learning in Mumbai: A Technology Acceptance Model (TAM) Perspective

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ABSTRACT

This research paper investigates students' perceptions of AI tools in engaged learning, contextualized within the Technology Acceptance Model (TAM). The study focuses on three core constructs: perceived usefulness, perceived ease of use, and intent to use AI tools. The research methodology employs a cross-sectional survey and a structured questionnaire among students in diverse educational settings. The findings reveal a strong positive correlation between perceived usefulness and students' behavioral intention to use AI tools, moderated by the perceived ease of use. The study uncovers a uniform acceptance of AI tools in academic settings, irrespective of gender or education level. These insights suggest that students' acceptance and intent to use AI tools are largely influenced by their perceived benefits and user-friendliness. The research contributes to a deeper understanding of factors shaping students' attitudes towards AI in education and underscores the need for designing AI tools that are both effective and easily adoptable.

KEYWORDS: *AI, Engaged learning, TAM, Educational technology.*

INTRODUCTION

The realm of education is undergoing a significant transformation, driven by the integration of Artificial Intelligence (AI). This change marks a pivotal moment in the history of educational methodologies and the way learning is delivered and received. AI in education extends beyond mere technological novelty; it fundamentally alters the traditional teaching paradigm, paving the way for more personalized, responsive, and efficient educational experiences (Chen, Chen, & Lin, 2020).

At the heart of AI's role in education is its capacity for personalization. Leveraging machine learning algorithms, AI systems can analyze individual learning styles, pace, and preferences to create bespoke educational pathways. This results in learning experiences that are more aligned with each student's unique needs, thereby enhancing engagement and efficacy. Intelligent tutoring systems represent another

facet of AI's educational impact. These systems emulate one-on-one interactions between students and tutors, providing instantaneous feedback and guidance, filling educational gaps as they arise (Lievertz, 2019).

AI's infiltration into educational settings offers a myriad of tools, from automated grading systems to personalized learning pathways. The efficiency and effectiveness of these tools, however, are contingent upon students' acceptance and willingness to use them. (Kumar & Raman, 2022) revealed that students see the potential of AI in enhancing the teaching-learning process and academic administration, though they express reservations about its use in admissions, examinations, and placements. This dichotomy underscores the complexity of AI's role in education and the necessity to understand it from the student's perspective.

As the landscape of education continues to evolve, the role of Artificial Intelligence (AI) in facilitating engaged learning has become a focal point of academic inquiry,

especially within the framework of the Technology Acceptance Model (TAM). This research paper aims to delve into students' perceptions of AI tools in education, exploring the constructs of perceived usefulness, ease of use, and intent to use.

Utilizing the TAM model provides a structured approach to assessing students' attitudes towards AI tools. (Chen, Chen, & Lin, 2020) emphasized the transformative impact of AI in education, particularly in administration, instruction, and learning. The effectiveness of AI tools in personalizing content to meet students' needs significantly contributes to improved learning experiences and outcomes. However, as (Liang, 2023) points out, there is a need to balance the advantages of AI tools with their potential drawbacks, such as loss of creativity and ethical concerns.

(Sağın, Özkaya, Tengiz, Geyik, & Geyik, 2023) further explored the disruptive impact of generative AI models like ChatGPT on educational content creation and modification. They recommend educators and students engage in peer learning for better adaptation while maintaining a critical perspective on AI tools' utility and limitations. (Abbas, Ali, Manzoor, Hussain, & Hussain, 2023) also highlighted the role of AI tools in enhancing student performance at higher education levels, emphasizing the need for effective implementation strategies and ethical considerations.

The insights provided by these studies are instrumental in understanding the factors influencing students' perceptions and acceptance of AI tools in education. This research paper aims to bridge the gap between AI's capabilities and student acceptance, fostering an environment where technology enhances learning outcomes and student engagement effectively.

Importance of student engagement in learning in context to AI tools

Engaging students in social science subjects is particularly challenging due to the abstract and theoretical nature of the content. AI tools can provide interactive and personalized learning experiences that foster deeper engagement in these subjects.

- AI tools can transform traditional social science education into a more interactive experience. By leveraging machine learning algorithms, these

tools can identify and adapt to individual student's learning styles, interests, and needs, thereby fostering a more engaging and effective learning environment (Hussain, Zhu, & Abidi, 2018).

- AI can personalize the content delivery in social science courses, making it more relevant and engaging for students. This personalization can lead to increased motivation and deeper learning, as students feel the content is more directly applicable to their interests and goals (Bae & Lai, 2020).
- AI can be used to analyse students' participation in social networks and online discussions related to social science topics. This analysis can provide educators with insights into how students engage with the material and each other, enabling more targeted and effective instructional strategies (Badge, Saunders, & Cann, 2012).
- AI-driven predictive analytics can forecast students' engagement levels in social science courses. These insights can help educators intervene early with at-risk students or adjust their teaching strategies to better engage the entire class (Orji & Vassileva, 2020).

REVIEW OF LITERATURE

The integration of Artificial Intelligence (AI) in Indian education, particularly in urban areas like Mumbai, is an emerging trend. AI is currently taking initial steps in the country and is poised for significant growth, addressing the limitations of traditional teaching methods, and catering to the changing needs of students. The integration of AI is seen as essential for creating equitable learning opportunities and enhancing the quality of education (Kataria, Mishra, & Lalwani, 2022). India's Central Board of Secondary Education has started initiatives to prepare young learners for future AI readiness, integrating AI in school curricula. This systematic review explores the promise and potentiality of AI in school education, presenting an overview of the current status and development trends of AI integration in the Indian education system, including urban areas like Mumbai (Karan & Angadi, 2023).

India's new National Education Policy (NEP) stresses digital literacy and AI-assisted pedagogy. The policy aims to integrate AI systems and technologies in an

accessible and inclusive manner, focusing on improving the digital divide and embracing cultural differences within the education sector, including urban areas (Shetty & Mishra, 2020).

The acceptance and understanding of AI integration among medical students in India, including urban areas, show a keen interest in AI and its applications in healthcare and education. This study assesses the acceptance and understanding of AI among students across different regions of India through a pan-India survey, highlighting diverse opinions on AI integration in medical education (Sharma, Saini, Pareek, & Kumar, 2023).

(Gupta & Bhaskar, 2020) identifies inhibiting and motivating factors affecting the adoption of AI-based teaching and learning solutions by teachers in the higher education sector in India, including urban regions. It emphasizes the importance of institutional support and recognition in adopting AI-based teaching methodologies. Despite the increase in technology use in Indian classrooms, challenges such as lack of professional development for teachers, access and availability issues, and lack of digital leadership at the management level in schools, especially in urban areas, pose significant barriers to effective AI integration (Sawhney, 2016).

Perception

Students view AI as a useful tool for various aspects of higher education, such as academic administration and the teaching-learning process, but they are hesitant to use it for processes like placement, testing, and admissions. (Kumar & Raman, 2022).

Students and professionals who have used e-learning modules believe that AI enhances their personal learning environments, positively impacting perceived ease of use and usefulness, thereby improving overall attitude and satisfaction with e-learning (Kashive, Powale, & Kashive, 2020). Personalized computerized practising affects student effort and ability. Students who perceive the task as not too difficult tend to practice longer, and personalization impacts task perceptions and engagement differently for students with varying levels of ability (Cornelisz & Klaveren, 2018). A study reveals diverse ethical challenges and attitudes

associated with AI implementation in higher education, highlighting factors influencing individual intentions to engage with AI technologies in learning and teaching (Palmer, et al., 2023). Using social networking sites for asynchronous learning, in addition to traditional face-to-face interactions, has shown to increase student engagement and positively impact academic outcomes (Northey, Bucic, Chylinski, & Govind, 2015).

In Mumbai's rapidly evolving educational landscape, the integration of AI tools has gained prominence. Understanding students' perceptions of these tools is vital for their effective use. The Technology Acceptance Model (TAM) serves as a foundational framework for this exploration, focusing on perceived usefulness, perceived ease of use, and the intent to use these tools.

Perceived Usefulness

An AI acceptance model based on established technology acceptance models shows that perceived usefulness and ease of use were most predictive of psychology students' attitudes towards AI. These attitudes, alongside perceived usefulness, social norm, and perceived knowledge were predictors for the intention to use AI (Gado, Kempen, Lingelbach, & Bipp, 2021). (Saadé, 2007) proposed three dimensions of perceived usefulness – performance-related outcome expectations, personal-related outcome expectations, and intrinsic motivation – and explored their relationships with perceived ease of use, attitudes, and behavioural intentions in the context of online technologies. Evaluating e-learning systems, the research emphasized the importance of IT infrastructure services and IT quality on perceptions of usefulness, highlighting that service delivery quality fully mediates the impact of IT infrastructure services, system quality, and information quality on perceived usefulness (Alsabawy, Cater-Steel, & Soar, 2016). A study on EFL students' perceptions of using an AI app in a writing class showed that students perceived the AI app as useful and helpful in their writing, enjoying the learning process (Sumakul, Hamied, & Sukyadi, 2022).

Perceived usefulness is a TAM construct that refers to students' belief that using AI tools will enhance their learning outcomes. In Mumbai, students' acceptance of AI tools is greatly influenced by their perceived benefits, such as improved learning efficiency and personalization

(Bhattarai & Maharjan, 2020; Al-Abdullatif & Gameil, 2021). Studies by (Ali, 2018) and (Kwok and Yang, 2017) further reinforce the importance of perceived usefulness in influencing students' attitudes towards e-learning and ICT tools.

Perceived Ease of Use

A study explored the perception of AI in enhancing personal learning environments, affecting both perceived ease of use and perceived usefulness. The ease of use showed a mediating effect between personal learning environments and attitude/satisfaction, further influencing the intention to use e-learning modules (Kashive, Powale, & Kashive, 2020). Research on students' perceptions regarding the ease of use of e-learning platforms found that their intentions to use these platforms are strongly influenced by cognitive absorption and self-efficacy, as well as by system interactivity and facilitating conditions (Bucur & Şerban, 2019). A study investigating students' perceptions of technological use in a flipped classroom revealed mixed perceptions towards different tools. Perceived ease of use was a key factor in determining students' preferences and engagement with these tools (Dianati, Nguyen, Dao, Iwashita, & Vásquez, 2020). The relationship between students' perception of blended learning platforms and course satisfaction based on engagement showed that perceived ease of use indirectly affects course satisfaction through emotional engagement (Gao, Jiang, & Tang, 2020). A study on psychology students' acceptance and use of AI found that perceived ease of use and usefulness were predictive of students' attitude towards AI, influencing their intention to use AI (Gado, Kempen, Lingelbach, & Bipp, 2021).

Another critical TAM construct, perceived ease of use, concerns the degree to which students feel that using AI tools will be free of effort. The ease of interaction with AI tools is a significant determinant of their adoption in educational settings. Research by (Dianati, Nguyen, Dao, Iwashita, & Vásquez, 2020) illustrates that the user-friendliness of technological tools like Padlet and Kahoot! can significantly impact students' learning experiences. (Balaman & Baş, 2021) and (Singh, Sharma, & Paliwal, 2020) also highlight the

role of user-friendly interfaces in influencing students' willingness to engage with AI tools.

Intent to Use

A study explored users' perceptions of AI in enhancing personal learning environments and found that satisfaction mediates between perceived ease of use and intention to use AI-enabled e-learning modules. This indicates that satisfaction with AI tools positively influences students' intent to continue using them (Kashive, Powale, & Kashive, 2020). Research involving primary students examined factors affecting their behavioural intention to engage in AI learning. It was found that AI literacy, confidence in AI, and AI for social good were positively associated with students' behavioural intention (Chai, et al., 2020). This study focused on AI-enabled automatic scoring applications in language learning, examining how such AI affordances influence learners' continuous learning intention. The study underscores the importance of AI-enabled tools in fostering ongoing engagement and learning intent (Fu, Gu, & Yang, 2020). An investigation into student perceptions of ChatGPT using expectancy value theory found that perceived value has a strong positive influence on the intention to use, indicating the significant role of perceived benefits in determining the intent to use AI tools (Sankaran, Deshbhag, Durbha, Gururajan, & Zhou, 2023). This study developed and evaluated a model predicting students' engagement with and intent to continue using mobile-Learning Management Systems. Factors like perceived usefulness, ease of use, and enjoyment were significant influencers of student engagement and continuance intention (Imlawi, Al-Shatnawi, AlFawwaz, AL-Shatnawi, & Al-masaeed, 2023).

The intent to use AI tools is shaped by how useful and easy to use these tools are perceived to be. (Pillai, Sivathanu, Metri, & Kaushik, 2023) discuss how students' intention to use AI-based tools is influenced by their perceived advantages. Similarly, (Hu, 2021) underscores the importance of this relationship in the context of precision education in AI-supported environments. Studies by (Bhattarai & Maharjan, 2020) and (Singh, Sharma, & Paliwal, 2020) confirm the critical role of the perceived effectiveness of digital

learning platforms in shaping students' intentions to use them.

RESEARCH METHODOLOGY

The review of the literature discussed acts as a foundation for the theoretical framework. In this research, factors like perceived usefulness, ease of use and intent have been integrated into the framework to better understand the students' perception towards use of AI powered tools in engaged learning in Mumbai.

Research objective

1. To study the students' perception towards using AI powered tools in engaged learning in Mumbai.
2. To study the impact of perceived usefulness and ease of use on students' intention to use AI powered tools in engaged learning in Mumbai.
3. To study the usage intention of demographic characteristics such as gender and education of the students' towards using AI powered tools in engaged learning in Mumbai.

Research Hypotheses

HO1: Perceived usefulness of AI-powered tools does not influence students' behavioural intention to continue using these tools for academic purposes.

Ha1: Perceived usefulness of AI-powered tools influences students' behavioural intention to continue using these tools for academic purposes.

HO2: Perceived ease of use of AI-powered tools does not influence students' behavioural intention to continue using these tools.

Ha2: Perceived ease of use of AI-powered tools

DATA ANALYSIS AND INTERPRETATION

Demographic Characteristics

Table 1 : Gender

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	62	59.6	59.6	59.6
	Female	42	40.4	40.4	100.0
	Total	104	100.0	100.0	

influences students' behavioural intention to continue using these tools.

HO3: Gender has no impact on students' perceived usefulness and ease of use of AI-powered tools.

Ha3: Gender has an impact on students' perceived usefulness and ease of use of AI-powered tools.

HO4: Education has no impact on students' perceived usefulness and ease of use of AI-powered tools.

Ha4: Education has an impact on students' perceived usefulness and ease of use of AI-powered tools.

Research Design

A cross-sectional correlation field study research design was used as the primary objective of the research was to study the students' perception and intention to use AI powered in engaged learning in Mumbai. The Non-Probability Purposive / Convenience Sampling technique is used for the selection of the samples. The data was collected from 104 students studying in Mumbai.

The research information was collected by means of a structured questionnaire. The items were rated on a 5-point Likert Scale with 1 being strongly disagree and 5 strongly agree. The questionnaire thus constructed was required to undergo a test for validity and reliability. The internal consistency of the items was tested for all the dimensions using Cronbach's alpha. The cut-off value used for Cronbach's alpha was 0.7.

The data is presented using Frequency tables and Crosstabs, Correlation, ANOVA test using Statistical Package for Social Science (SPSS).

Table 2 : Education

Education		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Secondary	7	6.7	6.7	6.7
	Higher Secondary	2	1.9	1.9	8.7
	Undergraduate	20	19.2	19.2	27.9
	Postgraduate	75	72.1	72.1	100.0
	Total	104	100.0	100.0	

Descriptive:

Table 3 Frequency of using AI-powered tools for academic

Frequency of using AI-powered tools for academic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rarely	8	7.7	7.7	7.7
	Occasionally	16	15.4	15.4	23.1
	Frequently	64	61.5	61.5	84.6
	Very Frequently	16	15.4	15.4	100.0
	Total	104	100.0	100.0	

Crosstabs: Gender * Frequency of using AI-powered tools for academic purposes

Table 4 : Summary

Case Processing Summary

		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
Gender	* Frequency of using AI-powered tools for academic purposes	104	100.0%	0	0.0%	104	100.0%

Table 5: Crosstabulation

Gender * Frequency of using AI-powered tools for academic purposes Crosstabulation

Count		Frequency of using AI-powered tools for academic purposes				Total
		Rarely	Occasionally	Frequently	Very Frequently	
		Gender	Male	5	7	
Female	3	9	23	7	42	
Total		8	16	64	16	104

Crosstabs: Education * Frequency of using AI-powered tools for academic purposes

Table 6: Summary

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Education * Frequency of using AI-powered tools for academic purposes	104	100.0%	0	0.0%	104	100.0%

Table 7: Crosstabulation

Education * Frequency of using AI-powered tools for academic purposes Crosstabulation

Count		Frequency of using AI-powered tools for academic purposes				Total
		Rarely	Occasionally	Frequently	Very Frequently	
		Education	Secondary	0	4	
Higher	0	2	0	0	2	
Secondary	Undergraduate	2	6	8	4	20
Postgraduate	6	4	53	12	75	
Total		8	16	64	16	104

Inferential Statistics

HO1: Perceived usefulness of AI-powered tools does not influence students' behavioural intention to continue using these tools for academic purposes.

Table 8: Summary

Descriptive Statistics

	Mean	Std. Deviation	N
Avg_Perceived_Usefulness	91.3942	14.99930	104
Avg_Intent	79.3595	13.05587	104

Table 9: Correlation (Perceived Usefulness and Intent)

Correlations

		Avg_Perceived_Usefulness	Avg_Intent
Avg_Perceived_Usefulness	Pearson Correlation	1	.649**
	Sig. (2-tailed)		.000
	N	104	104
Avg_Intent	Pearson Correlation	.649**	1
	Sig. (2-tailed)	.000	
	N	104	104

** . Correlation is significant at the 0.01 level (2-tailed).

Interpretation

The relatively high correlation of 0.649 suggests a strong positive relationship between perceived usefulness and students' behavioural intention to continue using AI-powered tools for academic purposes. This challenges HO1, indicating that the perceived usefulness of AI tools does significantly influence students' intent to continue

using them. In other words, as students perceive AI tools to be more beneficial for their learning and academic performance, they are more likely to intend to use these tools in their future studies.

HO2: Perceived ease of use of AI-powered tools does not influence students' behavioural intention to continue using these tools.

Table 10: Summary

Descriptive Statistics

	Mean	Std. Deviation	N
Avg_Ease_of_Use	90.7692	15.76172	104
Avg_Intent	79.3595	13.05587	104

Table 11: Correlation (Ease of Use and Intent)

Correlations		Avg_Ease_of_Use	Avg_Intent
Avg_Ease_of_Use	Pearson Correlation	1	.518**
	Sig. (2-tailed)		.000
	N	104	104
Avg_Intent	Pearson Correlation	.518**	1
	Sig. (2-tailed)	.000	
	N	104	104

** . Correlation is significant at the 0.01 level (2-tailed).

Interpretation

A correlation value of 0.518 indicates a moderate positive correlation between the ease of use of AI-powered tools and the intent to use them among students. This suggests that as students find AI tools easier to use, their intention to continue using these tools increases to a certain extent.

In practical terms, this means that usability is a key factor influencing students' decisions to adopt and persist in using AI tools for their academic purposes. While other factors might also play a role, the ease of use is significant enough to be considered when developing and implementing such tools in educational settings. The goal would be to make these tools as user-friendly as possible to encourage wider and more sustained usage among students.

HO3: Gender has no impact on students' perceived ease of use and usefulness of AI-powered tools.

Table 12: Summary

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Avg_Perceived_Usefulness	Male	62	92.0161	17.21274	2.18602
	Female	42	90.4762	11.08776	1.71088
Avg_Ease_of_Use	Male	62	91.5323	15.80072	2.00669
	Female	42	89.6429	15.82653	2.44209

Table 13: Gender and Perceived Usefulness and Ease of use

Independent Samples Test								
Levene's Test for Equality of Variances			t-test for Equality of Means					
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower Upper

Avg Perceived Usefulness	Equal	3.20	.07	.51	102	.610	1.53994	3.00835	-	7.506
	variances	2	7	2					4.427	99
	assumed								11	
Avg Ease of Use	Equal	.018	.89	.59	102	.551	1.88940	3.15979	-	8.156
	variances		4	8					4.378	83
	assumed								03	
Avg Perceived Usefulness	Equal			.55	101.7	.580	1.53994	2.77593	-	7.046
	variances			5	93				3.966	12
	assumed								24	
Avg Ease of Use	Equal			.59	88.07	.552	1.88940	3.16079	-	8.170
	variances			8	2				4.391	74
	assumed								94	

Interpretation:

The t-test results indicate that there is no statistically significant difference in the perceived usefulness and ease of use of AI-powered tools between male and female students. Therefore, based on this data, we

would fail to reject the null hypothesis (HO3) that states “Gender has no impact on students’ perceived usefulness and ease of use of AI-powered tools.”

HO4: Education has no impact on students’ perceived usefulness and ease of use of AI-powered tools.

Table 4 14: ANOVA

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Avg Perceived Usefulness	Between Groups	1256.741	3	418.914	1.911	.133
	Within Groups	21916.095	100	219.161		
	Total	23172.837	103			
Avg Ease of Use	Between Groups	1281.081	3	427.027	1.757	.160
	Within Groups	24307.381	100	243.074		
	Total	25588.462	103			

Interpretation

The F-statistic is 1.911 with a significance level of 0.133. Since the p-value (0.133) is greater than the conventional threshold of 0.05, we fail to reject the null hypothesis. The F-statistic is 1.757 with a significance

level of 0.160. Since the p-value (0.160) is greater than 0.05, we fail to reject the null hypothesis. For both variables (Perceived Usefulness and Ease of Use), the ANOVA results indicate that there are no significant differences between groups.

FINDINGS

- A strong positive correlation (0.649) is observed between the perceived usefulness of AI-powered tools and students' behavioural intention to continue using them for academic purposes. This challenges the null hypothesis (HO1), demonstrating that as students perceive AI tools to be more beneficial for their learning and academic performance, they are more likely to intend to use these tools in their future studies.
- There is a moderate positive correlation (0.518) between the ease of use of AI-powered tools and students' intention to continue using them. This finding challenges the null hypothesis (HO2), indicating that the usability of AI tools is an important factor influencing students' decisions to adopt and persist in using these tools for their academic purposes.
- The analysis reveals no statistically significant difference in the perceived usefulness of AI-powered tools between male and female students. This supports the null hypothesis (HO3), suggesting that gender does not significantly influence students' perceptions regarding the usefulness and ease of use of these tools.
- The ANOVA results showing no significant differences in both perceived usefulness and ease of use of AI-powered tools across different student groups suggest a uniformly positive reception of these tools in academics.

CONCLUSION

The research provides insightful findings on students' perceptions of AI tools in engaged learning. The strong positive correlation between perceived usefulness and students' behavioral intention to use AI tools highlights the importance of demonstrating the practical benefits of these tools in educational settings. Additionally, the moderate positive correlation between perceived ease of use and intent to use underscores the need for user-friendly and accessible AI tools in education. The lack of significant differences in perceptions based on gender and education level suggests a uniformly positive reception towards AI tools across diverse student groups. Overall, this study emphasizes the critical role

of perceived usefulness and ease of use in the successful integration of AI tools in education, providing valuable insights for educators, administrators, and technology developers in optimizing these tools for enhanced learning experiences.

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A Study on Perception of Higher Education Students towards Blended Learning

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ABSTRACT

Blended learning has emerged as a significant catalyst for change within India's educational framework, introducing adaptability, customization, and heightened availability of high-quality education. It serves as a remedy for the disparity in educational access by broadening the scope of learning opportunities and extending its reach to a larger student population. The study aimed to explore the perception of higher education students towards blended learning (BL). The sample of the study consisted of 98 students. The researcher used an exploratory research design for this study. Researcher used Both primary and secondary data for the research. Primary data was collected through a 'structured questionnaire' from students enrolled in one of the leading MBA institutions where blended learning is executed in the program. Secondary data were collected through websites, articles, journals and reports, etc. The normality of the data was checked by the 'Skewness and Kurtosis' method. 'Cronbach alpha coefficient' was used to check the reliability of the questionnaire. Excel and SPSS (28) were used to analyze the data. To check the relationship between dependent (effectiveness/preference of BL) and independent (Learning Experience & Technical aspects) variables researcher used 'Multiple regression'. The study found that students have positive learning experiences of BL which enhances the effectiveness/preference of BL. It means there is a significant relationship between the learning experience & the effectiveness/preference of BL. Timely technical support also enhances the effectiveness/preference of BL among the students. It means there is a significant relationship between learning experience, technical aspects, and effectiveness/ preference of BL.

KEYWORDS: *Blended learning, Higher education, Learning experience, Perception of students.*

INTRODUCTION

Across the span of time system of education has gone through numerous changes which in turn different pedagogical approaches opted by educators and learners. Such development assisted educationalists to develop their own pedagogical approaches, which influence the learner's performance whose intellectual skills and knowledge gaining has enhanced broadly due to the blending of e-learning techniques in instruction (Delacey & Leonard, 2002). The evolution of pedagogical practices has given rise to the concept of "blended learning", which combines traditional learning methods with electronic learning tools. Blended learning is seen as a natural progression

from e-learning, aiming to address the limitations of both traditional and online learning approaches. This method has gained popularity in educational institutions and training centers for its ability to provide a more holistic and engaging learning experience. By integrating both traditional and electronic components, blended learning offers a comprehensive approach to education that caters to a wide range of learners (Rovai & Jordan, 2004). Blended learning, a combination of traditional teaching methods with online resources, has been shown to greatly improve the effectiveness and efficiency of education and training. By blending face-to-face instruction with digital learning tools, students are encouraged to focus on developing critical thinking

skills, take ownership of their learning process, and effectively utilize resources. This approach not only enhances learning outcomes but also promotes a more engaging and interactive learning environment (Condie & Livingston, 2007).

BACKGROUND OF THE STUDY

Recently, there have been frequent discussions around the idea that the term “blended learning” is now commonly used in the business world (Graham, 2006). No clear-cut definition is there, & no clear understanding of what BL is all about is available either (Garrison & Kanuka, 2004). Literature on blended learning typically explores five key questions and challenges that remain unresolved among leading researchers in the field. These include defining blended learning, identifying current reasons for its use, addressing the difficulties faced by educators when implementing it, and predicting the future trends of BL systems (Graham, 2006). Blended learning, linking traditional teaching and online tools, It is replacing exclusive e-learning. It mixes face-to-face instruction with digital resources, offering a dynamic educational experience. Widely acknowledged as the future of education, it utilizes electronic tools to enhance classroom learning. This approach caters to diverse learning styles, combining offline and online elements for effective teaching (Fransen, 2006). In short, the major elements of BL as a newly developed instructional approach consist of Face-to-face regular classroom talks between students and teachers, old-fashioned learning supplies like workbooks, printed textbooks, and worksheets computer-based learning through e-learning surroundings, and electronic assessment and feedback. Above all, the learner in BL is the focal point of the learning procedure (Collis, 2003).

WHY ADOPT BL?

Three primary motives exist for adopting blended learning over other teaching approaches: the first is that it makes use of effective teaching strategies; the second is that it improves accessibility to information and convenience; and the third is that it is more economical (Graham, 2006). Blended learning considers the diversity in students’ learning preferences and enables them to progress at personalized speeds aligned with their unique capabilities Voci & Young, 2001). In addition to

encouraging cooperative learning and utilizing cutting-edge instructional tools, blended learning gives students the freedom to study on their own and take charge of their education (Dziuban et al., 2004). According to (Noirid & Srisa-ard, 2007) BL possesses the potential to boost students’ grasp and practical use of freshly obtained knowledge and skills. Various studies reveal that in comparison to online learning alone, blended learning is becoming a more popular learning mode in educational and training facilities as a source of enhancing learning and training results.

RESEARCH OBJECTIVE

- To study the perception of higher education students towards Blended Learning.
- To investigate the factors such as learning experience, technical aspects, and their combined influence on the effectiveness of blended learning.

HYPOTHESIS

H0: There is no significant relationship between the learning experience and the effectiveness of blended learning.

H1: There is a significant relationship between the learning experience and the effectiveness of blended learning.

H0: There is no significant relationship between technical aspects and the effectiveness of blended learning.

H2: There is a significant relationship between technical aspects and the effectiveness of blended learning.”

METHODOLOGY

The researcher used an exploratory research design for this study. The study also used Both primary and secondary data for the research. Primary data was collected through a ‘structured questionnaire’ from students enrolled in one of the leading MBA institutions where blended learning is executed in the program. The questionnaire was distributed through a Google form. A link to the google form was sent to the 120 students out of which 98 responses were received. Here the researcher used the simple random sampling technique for sample selection. Secondary data were collected through websites, articles, journals and reports, etc. The

normality of the data was checked by the ‘Skewness and Kurtosis’ method. ‘Cronbach alpha coefficient’ was used to check the reliability of the questionnaire. Excel and SPSS (28) were used to analyze the data. To check the relationship between dependent (effectiveness/preference of BL) and independent (Learning Experience & Technical aspects) variables researcher used ‘Multiple regression’.

ANALYSIS & DISCUSSION

Test of Normality

Descriptive statistics shows the elementary attributes of the data which play a significant role in research. It provides an easy summary of the sample. Center tendency is used to present the quantitative data. So testing the normality is the main step to determine the measures of center tendency. Before analyzing the data, it is very important to check that the collected data is normally distributed. There are various methods to test the normality of data like Shapiro Wilk Test, Kolmogorov Smirnov (K-S) Test, and Skewness and kurtosis method etc. Here, the Skewness and kurtosis method is used.

Table 1. Test of Normality

Variables	Skewness	Kurtosis
1	-.078	-.837
2	-.167	-.885
3	-.260	-.350

The skewness and Kurtosis value of the data has been checked to test the normality of data. If the ratios are in the range of -2 to +2, then data can be accepted as normally distributed (Ryu, 2011). The result found that the value of skewness and Kurtosis of data has been ranging between -2 to +2, which shows the normality of data.

MEASUREMENT OF RELIABILITY

The reliability of data is assessed to establish its appropriateness for research purposes. It is connected to the level of certainty. If a researcher obtains inconsistent results when measuring the same variables multiple times with the same instrument, it indicates a lack of reliability. The reliability of a scale is determined by its stability and consistency, which can be assessed

using the Cronbach’s Alpha. These metric gauges the internal consistency of a set of items, indicating how closely related they are when considered together. The researcher utilized Cronbach’s Alpha to assess the questionnaire’s reliability. If the Cronbach Alpha result exceeds 0.70, then the questionnaire’s outcome is deemed reliable.

Table 2. Cronbach’s Alpha coefficient for Measurement of Reliability

Reliability Statistics		
N of Items	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items
3	.736	.738

As mentioned above the result, a Cronbach’s Alpha coefficient exceeding 0.70 signifies questionnaire consistency. In Table 6.2.1 the calculated alpha value is 0.738, which is higher than the prescribed value of alpha which shows good consistency and it is acceptable for research.

Hypothesis 1:

H0: There is no significant relationship between the learning experience and the effectiveness of blended learning. Rejected

H1: There is a significant relationship between the learning experience and the effectiveness of blended learning. Accepted

Table No. 3 Model Summary				
Std. Error of the Estimate	Adjusted R Square	R Square	R	Model
.638	.369	.376	.613 _a	1
a. Predictors: (Constant), Learning Experience				

The analysis reveals that the Learning Experience variable serves as a significant predictor, explaining approximately 37.6% of the variance observed in the dependent variable. The model indicates a moderate relationship, with an R value of 0.613, between the predictor (Learning Experience) and the outcome variable. Additionally, the adjusted R Square value of 0.369 suggests that roughly 36.9% of the variance in the outcome can be explained by the predictor.

Model	Df	Sum of Squares	Mean Square	Sig.	F	
1	Regression	1	23.482	23.482	.000 ^b	57.731
	Residual	96	39.048	.407		
	Total	97	62.531			
a. Dependent Variable: Effectiveness of BL/Preference of BL						
b. Predictors: (Constant), Learning Experience						

The result of ANOVA reveals a significant regression model (F = 57.731, p < .001), indicating that Learning Experience is a significant predictor of the Effectiveness of Blended Learning. The substantial F-value and the significance level below 0.001 indicate that the predictor accounts for a considerable portion of the variability in effectiveness, leading to the rejection of the null hypothesis.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
	(Constant)	.964	.389				2.480
1 Blended Learning has improved my overall learning experience	.717	.094	.613	7.598	.000	.530	.905
a. Dependent Variable: Effectiveness of BL/Preference of BL							
b. Predictors: (Constant), Learning Experience							

The analysis of the research findings demonstrates a standardized coefficient of 0.613 for Blended Learning, indicating a robust positive influence on the overall learning experience. The corresponding t-value of 7.598 indicates that the relationship between Blended Learning and the Effectiveness of BL is statistically significant. Moreover, the confidence interval (0.530, 0.905) provides a range within which the true coefficient is likely to lie, further affirming the reliability and strength of the observed relationship.

Hypothesis 2:

H0: There is no significant relationship between technical aspects and the effectiveness of blended learning. Rejected

H1: There is a significant relationship between technical aspects and the effectiveness of blended learning. Accepted

Std. Error of the Estimate	Adjusted R Square	R Square	R	Model
.711	.215	.223	.472 ^a	1

The model summary reveals a moderate relationship (R = 0.472) between the predictors (Technical Aspects) and the outcome variable. Approximately 22.3% of the variance in the outcome is explained by the predictors, as indicated by the R Square value of 0.223. The adjusted R Square value (0.215) accounts for potential overfitting, suggesting a robust fit of the model to the data.

Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	13.941	1	13.941	27.544	.000 ^b
	Residual	48.589	96	.506		
	Total	62.531	97			
a. Dependent Variable: Effectiveness of BL/Preference of BL						
b. Predictors: (Constant), Technical Aspects						

The ANOVA results indicate a significant regression model ($F = 27.544, p < .001$), suggesting that the predictors i.e Technical Aspects, collectively contribute to explaining the Effectiveness of blended learning. The regression accounts for a substantial portion of the variance, with a significant Mean Square value of 13.941. as evidenced by the high F-value and low p-value. It means we reject the null hypothesis. This implies that the model fits the data well, providing valuable insights into factors affecting the effectiveness of blended learning.

Table No. 8 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.621	.436		3.719	.000	.756 2.486
	Reliable access to internet	.547	.104	.472	5.248	.000	.340 .754

a. Dependent Variable: Effectiveness of BL/Preference of BL

The coefficients analysis reveals that reliable internet access significantly influences the effectiveness of blended learning. The standardized coefficient of 0.472 indicates a strong positive impact, with a corresponding t-value of 5.248 ($p < .001$), highlighting its statistical significance. The confidence interval (0.340, 0.754) suggests that the true effect of internet access on the effectiveness of BL is likely to fall within this range. Additionally, the constant term contributes to satisfaction with blended learning, with a coefficient of 1.621 ($t = 3.719, p < .001$), indicating its significance in the model.

CONCLUSION

The study aimed to explore the perception of higher education students towards blended learning and the factors influencing its effectiveness. Hypotheses were formulated to examine the relationships between learning experience, technical aspects, and the effectiveness of blended learning. The analysis revealed significant relationships between the variables, indicating that factors such as learning experience and

technical aspects significantly contribute to increase the effectiveness of BL. The analysis of the results demonstrated the significance of factors such as learning experience and technical aspects enhance the effectiveness of BL. Blended learning has emerged as a significant catalyst for change within India’s educational framework, introducing adaptability, customization, and heightened availability of high-quality education. It serves as a remedy for the disparity in educational access by broadening the scope of learning opportunities and extending its reach to a larger student population.

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Exploring UPI and IMPS Adoption, Trends, and Fraud Challenges in the Digital Transformation of Indian Banking

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ABSTRACT

Digital payment systems have become instrumental in transforming economies worldwide, with notable impact observed in India following the demonetization drive. This paper examines the growth trajectory, evolving trends, and socio-economic implications of prominent digital payment modes, particularly focusing on BHIM UPI (Unified Payments Interface) and mobile wallets. Through comprehensive data analysis, this study reveals the significant adoption rates of these digital platforms, particularly among urban youth, driven by the factors of convenience, accessibility, and government-driven incentives. Despite facing challenges such as cybersecurity risks and infrastructural gaps, the widespread adoption of digital transactions has positively influenced various economic indicators and contributed to enhanced financial inclusion. This research underscores critical policy implications for stakeholders and suggests strategic interventions to further promote the adoption of digital payment systems, especially in rural and underserved areas.

KEYWORDS: *Digital banking, Digital payment, Electronic payment system.*

INTRODUCTION

The landscape of financial transactions underwent a revolutionary shift in India following the government's bold demonetization move in 2016, which propelled the widespread adoption of digital payment systems. This pivotal event marked a significant inflection point, catalyzing a transition towards cashless transactions and accelerating the integration of digital technologies into everyday economic activities. The post-demonetization era witnessed a surge in the use of innovative digital payment platforms, notably BHIM UPI (Unified Payments Interface) and mobile wallets, which emerged as key enablers of financial inclusion and economic empowerment. These digital solutions not only offered a convenient alternative to cash but also facilitated seamless peer-to-peer transactions, e-commerce payments, and bill settlements. Their growing popularity reflected not only evolving consumer preferences but also a fundamental transformation in India's financial ecosystem. The objective of this

study is to delve into the multifaceted impact and implications of digital payment modes, particularly focusing on BHIM UPI and mobile wallets, within the broader socio-economic context of India's post-demonetization landscape. By examining the growth trajectories, consumer behaviour patterns, regulatory frameworks, and economic indicators influenced by these digital innovations, this research aims to elucidate the transformative role of digital payments in shaping India's economic narrative.

Amidst this backdrop, it becomes imperative to explore how these digital platforms have facilitated financial inclusion, empowered marginalized communities, and catalysed entrepreneurial ventures. Moreover, the study seeks to identify the challenges and opportunities associated with the adoption of digital payment systems, highlighting key policy implications for stakeholders and policymakers alike.

As digital payment systems continue to evolve and permeate various facets of economic activity,

understanding their impact and leveraging their potential becomes instrumental in steering India towards a more inclusive, transparent, and digitally empowered economy. This research endeavours to contribute to this discourse by offering empirical insights and strategic recommendations that can inform policy interventions and industry initiatives aimed at fostering sustainable growth and financial resilience in India's digital era.

LITERATURE REVIEW

The digital revolution in the Indian economy has transformed the payments system of the country fostered by numerous innovations and developments in the payments ecosystem. NPCI conducted a pilot launch with 21 member banks. The pilot launch was on 11th April 2016 by Dr. Raghuram G Rajan, Governor, RBI at Mumbai. Banks have started to upload their UPI enabled Apps on Google Play store from 25th August, 2016 onwards. The Unified Payment Interface (UPI) is one such predominant innovation advanced under the umbrella of the National Payments Corporation of India (NPCI) that has brought a paradigm shift in the Indian economy, which has eventually accelerated the pace of India's journey towards the digital path (Bohra et al., 2021). Digital payment refer to sending and accepting money via digitally (Chandra Vishnoi, 2022). To facilitate digital payments, "National Payment Corporation of India (NPCI)" launched the "Unified Payment Interface (UPI)", which is an amazing, revamped, and cost-effective breakthrough for enabling digital payment services for all (A. and Bhat, 2021). UPI is built over Immediate Payment Service (IMPS) for transferring funds using Virtual Payment Address (a unique ID provided by the bank) (Muralidhara, 2021). Immediate Payment Service (IMPS) public launch happened on 22nd November 2010 by Smt. Shyamala Gopinath, DG RBI at Mumbai and this service is now available to the Indian public. Digital payments accounted for an 11% increase in the year 2017 alone, which topped \$1.9 trillion in global revenue, indicating that cashless payments were accelerating at an incredible pace (Sanghvi, 2020). Economies have consciously and consistently begun moving away from the transaction of physical money to more cashless and online transactions (Sanghvi, 2020).. Modern day trade demands massive payments to be settled st over

long distances with minimum transaction cost (Shree et al., 2021). Evidently, to suit these needs the payment systems are being digitized globally. Cash, however, remains a crucial part of the trade (Pandey, 2022). The interface is regulated by the Reserve Bank of India (RBI) and works by instantly transferring funds between two bank accounts on a mobile platform (Narayanan & Narayanan, 2021). Bank fraud is a type of financial fraud and it differs from a bank robbery (Vasanthi Thangam Associate Professor, 2019). The Banking Sector in India has been struggling with fraud for a while now. (Singh & Kaur, n.d.). The delays in legal procedures for reporting, and various loopholes in system have been considered some of the major reasons of frauds and NPAs (Vigneshwaran et al., 2018). The Indian banking system should take care of their credit worthiness of the customers as the prevention is the better than care hence the banking systems need to provide basic security for all the customers (Ojha & Jain, 2020). Indian economy suffers to a great extent from these problems (Hani, 2020)., and this analysis purpose is to know the what is the impact of banking frauds on UPI payment values and IMPS transfer values in Indian Banking sector. Coming to the magnitude of the wilful default problem, the loan dues from wilful defaulters in 2017-18 was ₹109831.80 crores and increased to ₹ 29560433.9 cores at the end of March 2022-23, with a compound 235.53 (M and N, 2023). Research Gap: There are many of studies were there in digital banking system but among the all studies didn't find any research related to growth of UPI and IMPS transactions in terms of volume and value of transactions. At the same time how the banking frauds (Number of frauds reported and Amount involved in banking frauds) are linked to the UPI and IMPS transactions.

Objectives

The present research particularly focused on the following Objectives.

1. To analyse the growth and trends of Digital Payment transactions in Indian banking sector.
2. To analyse the growth and trends of UPI and IMPS Volume
3. To analyse the Number of frauds reported and Amount involved in frauds in cards and internet Operations.

Hypotheses

1. Ho There is no Significance difference Digital Transactions volume in various digital payment modes.
2. Ho There is no Significance difference UPI and IMPS Volume
3. Ho There is no Significance difference Number of cases reported in credit card/ internet Operations and Amount involved in frauds credit card/ internet Operations

RESEARCH METHODOLOGY

This study adopts a robust mixed-methods approach, combining quantitative analysis of transactional data with qualitative insights from consumer surveys. Transaction data sourced from the National Payments Corporation of India (NPCI) and in-depth survey responses provide a comprehensive understanding of adoption patterns, consumer preferences, and perceived benefits and challenges associated with digital payment systems.

ANALYSIS & OUTCOME**Table 1: Regression Analysis of Various Digital Payment Modes**

SI No	Variable	Regression model value				ANOVA	
		R	R Square	Adjusted R Square	F	Sig.	Accept/Reject
1	AEPS (Aadhaar Enabled Payment System)	.272a	0.074	-0.112	0.398	.556b	Accept null hypothesis
2	BHIM Aadhaar	.805a	0.648	0.577	9.188	.029b	Reject the null hypothesis
3	BHIM UPI (Unified Payments Interface)	.929a	0.863	0.835	31.408	.002b	Reject the null hypothesis
4	Closed loop wallet	.733a	0.538	0.445	5.819	.061b	Accept null hypothesis
5	Credit card	.913a	0.834	0.8	25.05	.004b	Reject the null hypothesis
6	Debit card	.539a	0.29	0.148	2.043	.212b	Accept null hypothesis
7	Immediate Payment Service	.987a	0.974	0.969	190.702	.000b	Reject the null hypothesis
8	Internet banking	.655a	0.429	0.315	3.756	.110b	Accept null hypothesis
9	Mobile Banking	.876a	0.767	0.72	16.461	.010b	Reject the null hypothesis
10	National Automated Clearing House	.988a	0.977	0.972	209.954	.000b	Reject the null hypothesis
11	National Electronic Funds Transfer	.949a	0.901	0.881	45.405	.001b	Reject the null hypothesis
12	National Electronic Toll Collection	.972a	0.945	0.934	86.121	.000b	Reject the null hypothesis
13	Others	.980a	0.961	0.954	124.055	.000b	Reject the null hypothesis

14	Prepaid Payment Instrument	.970a	0.942	0.93	80.496	.000b	Reject the null hypothesis
15	Real – Time Gross Settlement	.971a	0.943	0.932	82.788	.000b	Reject the null hypothesis
16	Unstructured Supplementary Service Data	.250a	0.062	-0.125	0.333	.589b	Accept null hypothesis

Table 1 states that regression and ANOVA results. The p-values less than 0.05 (values 2, 3, 5, 7, 9, 10, 11, 12, 13, and 14), we reject the null hypothesis. There is sufficient evidence to suggest a significant effect or difference. For the p-values greater than 0.05 (values 1, 4, 6, 8, and 15), we fail to reject the null hypothesis. There is not enough evidence to suggest a significant effect or difference.

Table 2: Regression model for Digital payments in terms of value from various modes

SI No	Variable	Regression model value				ANOVA	
		R	R Square	Adjusted R Square	F	Sig.	Accept/Reject
1	UPI Value (in Cr.	.925	0.856	0.832	35.555	.001b	Reject the null hypothesis
2	IMPS Amount (in Cr)	.987	0.974	0.97	225.467	.000b	Reject the null hypothesis
3	Number of Fraud cases reported in Card/Internet	.853	0.728	0.674	13.394	.015b	Reject the null hypothesis
4	Amount Involved in frauds in Card/Internet	.821	0.674	0.609	10.346	.024b	Reject the null hypothesis

Table 2 explores about the regression analysis indicates strong relationships between digital payment values from various modes and their respective predictors.

UPI value and IMPS amount both exhibit high R-squared values (0.856 and 0.974 respectively), suggesting that they are excellent predictors of digital payment values.

Similarly, the number of fraud cases reported in Card/Internet transactions and the amount involved in such frauds demonstrate significant predictive power for digital payments.

However, the total amount involved in frauds and the total number of digital transactions from various payment modes show weaker correlations with digital payment values, indicating that they may not be as influential in explaining variations in digital payment amounts.

Overall, the results suggest that UPI value, IMPS amount, fraud cases in Card/Internet transactions, and the amount involved in such frauds are important factors

in determining digital payment values, while total fraud amount and total digital transactions may have lesser predictive significance.

Table 3: Correlations Among the UPI Value (in Cr.), IMPS Amount and Amount Involved in frauds in Card/Internet

		UPI Value (in Cr.)	IMPS Amount (in Cr)	Amount Involved in frauds in Card/Internet
UPI Value (in Cr.)	Pearson Correlation	1	.971	.828
	Sig. (2-tailed)		.000	.021
	N	8	8	7
IMPS Amount (in Cr)	Pearson Correlation	.971	1	.853
	Sig. (2-tailed)	.000		.015
	N	8	8	7

Amount Involved in frauds in Card/Internet	Pearson Correlation	.828	.853	1
	Sig. (2-tailed)	.021	.015	
	N	7	7	7

Table 3 shows that Correlations Among the UPI Value (in Cr.), IMPS Amount and Amount Involved in frauds in Card/Internet. There is a very strong positive correlation between the UPI value (in Crores) and the amount involved in IMPS Amount (in Crores), with a Pearson correlation coefficient of 0.971 ($p < 0.001$). This suggests that as the UPI value increases, there is a corresponding increase in the amount involved in IMPS transactions.

There is a strong positive correlation between the UPI value and the amount involved in frauds related to Card/Internet transactions, with a Pearson correlation coefficient of 0.828 ($p = 0.021$). This indicates that higher UPI transaction values may be associated with higher levels of fraud in Card/Internet transactions.

There is a strong positive correlation between the amount involved in IMPS Amount and the amount involved in frauds related to Card/Internet transactions, with a Pearson correlation coefficient of 0.853 ($p = 0.015$). This suggests that higher IMPS transaction amounts may also be associated with higher levels of fraud in Card/Internet.

FINDINGS

The data presents a comprehensive overview of the digital transactions landscape in India from 2017 to 2023. Across various payment modes, there has been a remarkable surge in transaction volumes, indicating a substantial shift towards digital financial services. Unified Payments Interface (UPI) and Immediate Payment Service (IMPS) transactions have experienced particularly significant growth, with compound annual growth rates (CAGR) of 128.67% and 32.04%, respectively, showcasing their increasing popularity and adoption. Moreover, the volume of total digital transactions has seen a staggering increase, soaring from 20,708.5 lakhs in 2017 to 1,845,293 lakhs in 2023, demonstrating the nation's rapid digital transformation in the financial s.













CONCLUSION

UPI and IMPS transactions have seen substantial growth, traditional payment modes such as debit cards and NEFT have also maintained considerable transaction volumes. However, it's noteworthy that certain payment modes, such as closed-loop wallets, have experienced fluctuations and negative compound annual growth rates (CAGR), indicating challenges or shifts in consumer preferences. Additionally, the data highlights a concerning trend of fraud cases reported in card and internet transactions, urging stakeholders to enhance security measures and regulatory frameworks. Overall, the findings underscore the dynamic nature of India's digital payments landscape, emphasizing the need for continuous innovation, regulatory vigilance, and consumer education to ensure the resilience and security of the digital financial ecosystem.

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