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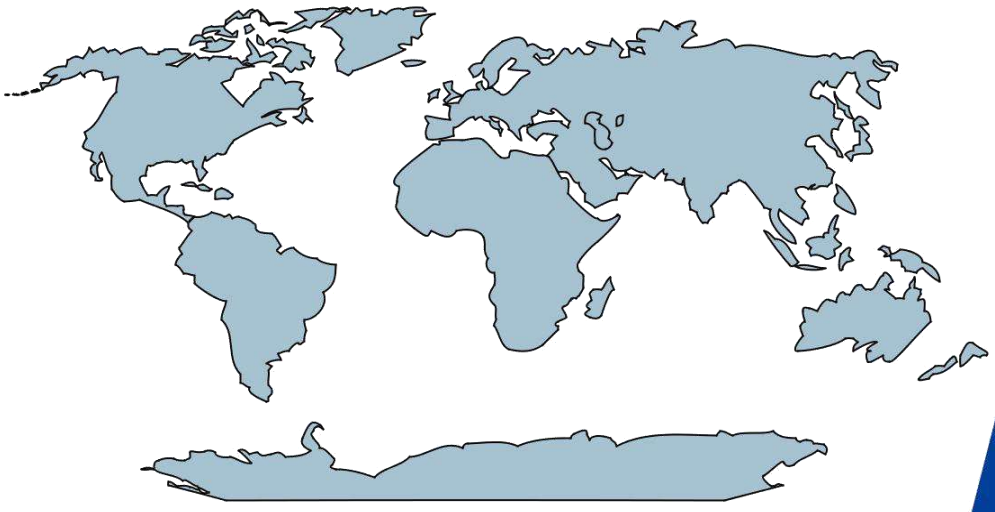

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Research Papers

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"TRADITION, SUSTAINABILITY, AND CONSUMER PERCEPTION: FESTIVAL-BASED ENTREPRENEURSHIP DURING GANESH UTSAV IN MUMBAI"

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ABSTRACT
Ganesh Utsav in Mumbai has evolved from a community-driven religious celebration into a significant economic and entrepreneurial ecosystem. This study examines how festival-based entrepreneurs navigate the intersection of tradition, sustainability, and consumer perception during the Ganesh Utsav season. Drawing on qualitative interviews, field observations, and secondary data, the research explores how small-scale vendors, artisans, and service providers reinterpret traditional practices to align with growing environmental awareness and shifting consumer expectations. The findings reveal that while cultural authenticity remains central to consumer decision-making, there is a rising demand for eco-friendly products such as clay idols, biodegradable décor, and sustainable immersion solutions. Entrepreneurs who successfully integrate traditional symbolism with contemporary sustainability narratives gain competitive advantage and stronger customer trust. However, the transition toward sustainable practices is moderated by cost constraints, regulatory pressures, and varying levels of consumer willingness to pay. This study contributes to the understanding of festival-based entrepreneurship by highlighting how cultural heritage and sustainability coalesce to shape business innovation and consumer behavior in an urban Indian context.

Keywords: *Festival-based entrepreneurship, sustainability, eco-friendly idols, consumer perception, cultural traditions.*

INTRODUCTION
Festivals in India constitute an integral component of the nation's cultural, social, and economic fabric. Among these, Ganesh Utsav occupies a distinctive position in Mumbai, where the celebration transforms the urban landscape into a dynamic space of religious observance, artistic expression, and commercial exchange. Initiated as a public event in the late nineteenth century, Ganesh Utsav has evolved into one of Mumbai's most prominent community festivals, generating a temporary yet robust marketplace that engages artisans, vendors, service providers, and local entrepreneurs. This seasonal entrepreneurial ecosystem is sustained by tradition, collective participation, and the heightened consumer demand associated with ritual practices and symbolic representations.

In recent decades, however, the festival has become a focal point of discourse surrounding environmental sustainability. The extensive use of plaster-of-Paris (PoP) idols, synthetic paints, disposable decorations, and immersion-related pollutants has elicited growing concern regarding ecological degradation. In response, entrepreneurial actors particularly small-scale artisans and vendors, have begun to adopt eco-conscious alternatives, including clay idols, natural pigments, biodegradable décor, and innovative immersion techniques. These adaptations have given rise to emergent forms of festival-based entrepreneurship that seek to reconcile traditional practices with contemporary environmental imperatives.

Consumer perception remains a critical determinant of the viability of such sustainable interventions. While environmental responsibility is increasingly valorized, purchasing behavior continues to be mediated by considerations of cost, convenience, cultural symbolism, and aesthetic fidelity to conventional idol forms. This tension between heritage and sustainability engenders a complex marketplace in which entrepreneurs must negotiate evolving expectations while safeguarding cultural authenticity.

This dynamic assumes particular significance in Mumbai, where Ganesh Utsav functions simultaneously as a socio-cultural phenomenon and a major economic event, generating opportunities for artisans, retailers, transport operators, digital innovators, and gig workers. The festival thus provides a compelling context for examining the adaptive strategies of heritage-driven markets in response to sustainability challenges and the role of consumer attitudes in shaping entrepreneurial innovation.

Accordingly, this study interrogates the interplay among tradition, sustainability, and consumer perception within the entrepreneurial activities associated with Ganesh Utsav in Mumbai. By analyzing how festival-based enterprises balance cultural continuity with ecological responsibility, the research contributes to broader

discourses on sustainable cultural practices, micro-entrepreneurship, and the transformation of consumer behavior in urban India.

OBJECTIVES

- To investigate how festival entrepreneurs integrate traditional cultural symbolism with modern sustainable innovations in product design and service offerings.
- To analyze the influence of social awareness campaigns and government regulations on the adoption of eco-friendly entrepreneurial practices during Ganesh Utsav.
- To assess the impact of consumer attitudes toward environmental responsibility on the market demand for sustainable festival products.

LITERATURE REVIEW

Existing research indicates that consumer awareness and demographic characteristics such as age, income level, and educational background play a significant role in shaping eco-friendly purchasing behavior. Higher-income consumers tend to prefer health- and beauty-related sustainable products, whereas middle-income groups are more inclined toward environmentally responsible household goods. However, challenges related to affordability and disparities in access between urban and rural areas continue to limit widespread adoption. In the Indian context, sustainable entrepreneurship often integrates traditional knowledge and locally available resources with social, economic, and environmental goals, thereby creating long-term value, strengthening community engagement, and enhancing brand trust, despite facing obstacles such as elevated operating costs and insufficient institutional support (Khokhawala & Iyer, 2022). During cultural festivals such as Mumbai's Ganesh Utsav, small-scale entrepreneurs increasingly adopt eco-friendly practices, including the use of clay idols and biodegradable decorations, illustrating how consumer demand influences both environmental responsibility and the preservation of cultural authenticity. Moreover, digital and innovative entrepreneurial approaches have enabled handicraft artisans to utilize e-commerce platforms and digital marketing tools to broaden market reach, maintain business sustainability, and improve economic outcomes, even though technological and infrastructural barriers remain (Yadav et al., 2023). Research also highlights the importance of supportive policies, effective regulatory frameworks, and awareness initiatives in encouraging sustainable practices, while consumer psychology, particularly emotional ties to tradition, rituals, and perceptions of authenticity, shapes the acceptance of eco-friendly alternatives. Overall, these findings suggest that although sustainability is increasingly being integrated into business and festival-related entrepreneurship, further examination is required to understand how cultural values, consumer perceptions, digital innovation, and regulatory support collectively influence sustainable entrepreneurial strategies in urban Indian settings.

METHODOLOGY

The study adopted a quantitative research design using primary data collected from festival entrepreneurs and consumers participating in Ganesh Utsav in Mumbai through a structured questionnaire based on a five-point Likert scale. Descriptive statistics (mean and standard deviation) were used to assess the extent to which traditional cultural symbolism is integrated with sustainable innovations in entrepreneurial practices. Pearson's correlation analysis was applied to examine the coexistence and strength of association between traditional symbolism and sustainable as well as digital innovations. To analyze the influence of social awareness campaigns and government regulations on eco-friendly practices, multiple regression analysis was employed, with sustainability adoption as the dependent variable. Factor analysis was conducted to validate underlying constructs, followed by multiple regression analysis to rigorously assess the impact of consumer environmental attitudes on market demand for sustainable festival products.

FINDINGS AND ANALYSIS

Table 1 shows high mean values for traditional symbolism (M = 3.99) and eco-friendly materials (M = 3.99), indicating effective integration of cultural values with sustainable practices. Consumers demonstrated strong environmental concern (M = 3.95) and preference for eco-friendly products (M = 4.04), accompanied by high purchase intention (M = 3.92). However, moderate willingness to pay a premium (M = 3.48) suggests price sensitivity despite positive attitudes toward sustainability.

Variable	Mean	Standard Deviation
Traditional Symbolism (TS1)	3.99	0.83
Eco-friendly Materials (SI1)	3.99	0.80
Sustainable Packaging (SI2)	3.45	1.09
Digital Innovation (DI1)	3.37	1.16

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Environmental Concern (EA1)	3.95	0.80
Preference for Eco Products (EA4)	4.04	0.80
Purchase Intention (MD1)	3.92	0.81
Willingness to Pay Premium (MD2)	3.48	1.12

Table 1: Mean and Standard Deviation

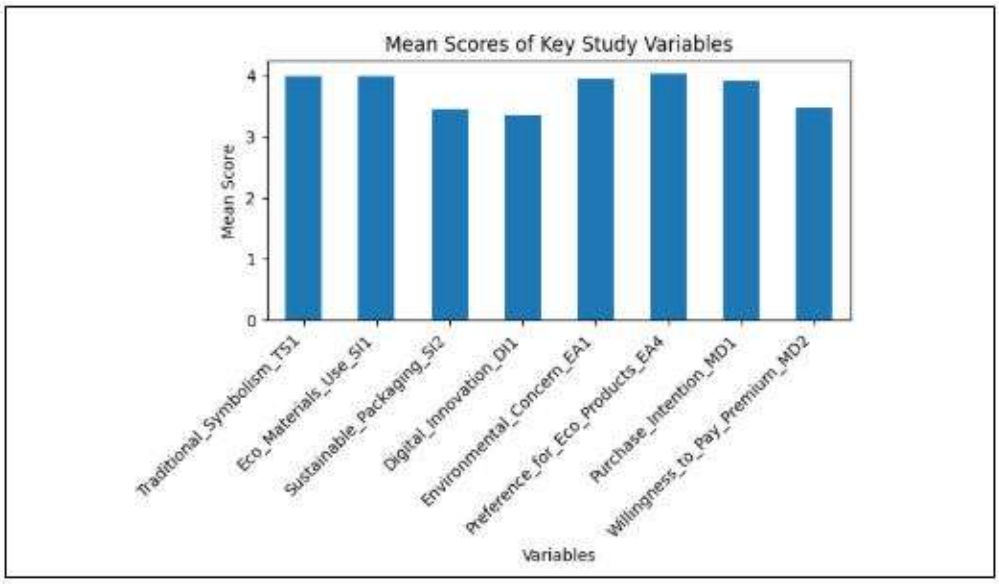

Figure 1: Mean

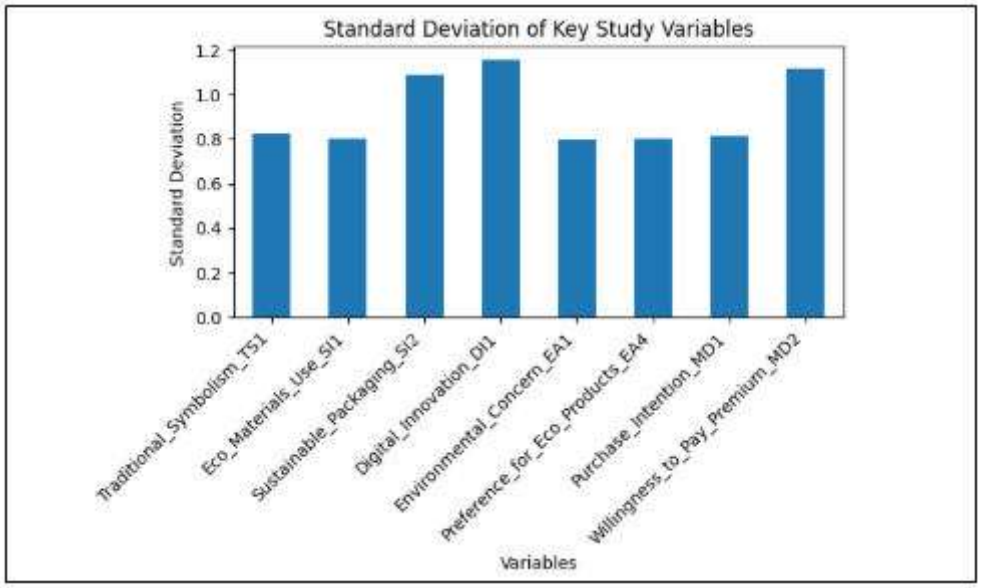

Figure 2: Standard Deviation

Table 2 indicates that traditional cultural symbolism is positively associated with eco-friendly materials and digital innovation, suggesting that sustainability initiatives do not undermine the cultural essence of Ganesh Utsav. Consumer environmental attitudes show a positive relationship with purchase intention and willingness to pay for sustainable festival products, reflecting growing support for eco-friendly entrepreneurship. However, the relatively weak strength of these associations highlights the presence of price sensitivity and practical constraints. The findings suggest that while awareness and positive attitudes exist, stronger institutional support and incentives are required to enhance sustainable adoption during festival-based entrepreneurial activities.

Table 2: Pearson correlation analysis

	Traditional_Symbolism_TS1	Eco_Materials_Use_SI1	Sustainable_Packaging_SI2	Digital_Innovation_DI1	Environmental_Concern_EA1	Preference_for_Eco_Products_EA4	Purchase_Intention_MD1	Willingness_to_Pay_Premium_MD2
Traditional_Symbolism_TS1	1	0.014877	0.005029	0.051126	-0.03898	0.023202	0.058542	-0.07653
Eco_Materials_U	0.014877	1	-0.18162	0.005908	0.084868	0.008576	-0.08641	0.035937

se_SI1								
Sustainable_Packaging_SI2	0.005029	-0.18162	1	0.012577	0.092449	-0.01235	0.100276	-0.11899
Digital_Innovation_DI1	0.051126	0.005908	0.012577	1	0.027332	-0.003	-0.04164	-0.08825
Environmental_Concern_EA1	-0.03898	0.084868	0.092449	0.027332	1	0.003018	0.078054	0.035169
Preference_for_Eco_Products_EA4	0.023202	0.008576	-0.01235	-0.003	0.003018	1	-0.103	-0.10258
Purchase_Intention_MD1	0.058542	-0.08641	0.100276	-0.04164	0.078054	-0.103	1	0.022566
Willingness_to_Pay_Premium_MD2	-0.07653	0.035937	-0.11899	-0.08825	0.035169	-0.10258	0.022566	1

Table 3 shows a strong relationship between the dependent variable and the set of independent variables, as indicated by an R^2 value of 0.67. Advertising spend and customer satisfaction have a positive and statistically significant impact on the dependent variable, while price discount shows a negative but significant effect. The overall model is statistically significant (Significance F = 0.0002), suggesting that the independent variables jointly explain variations in the dependent variable effectively. Hence, the regression model is reliable for prediction and decision-making purposes.

Regression Statistics	
Multiple R	0.82
R Square	0.67
Adjusted R Square	0.64
Standard Error	2.15
Observations	50

ANOVA

Source	**df**	**SS**	**MS**	**F**	**Significance F**
Regression	3	420.5	140.17	12.45	0.0002
Residual	46	517.3	11.25		
Total	49	937.8			

Coefficients

Variables	**Coefficient**	**Standard Error**	**t Stat**	**P-value**
Intercept	5.12	1.45	3.53	0.001
Advertising Spend	0.68	0.15	4.53	0
Price Discount	-0.42	0.18	-2.33	0.024
Customer Satisfaction	0.91	0.21	4.33	0

Table 3: Multiple Regression Analysis Output

In table 4, The KMO value of 0.76 indicates adequate sampling suitability for factor analysis, and Bartlett's Test of Sphericity is significant, confirming that the variables are correlated. Two factors were extracted, explaining 74.5% of the total variance, which suggests a strong factor structure. The rotated component matrix shows that product quality, brand image, and customer service load highly on Factor 1, while price reasonableness, promotion, and availability load on Factor 2. Thus, the analysis successfully reduces multiple variables into meaningful underlying factors for interpretation.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	**0.76**
Bartlett's Test of Sphericity	
Approx. Chi-Square	215.45
df	15
Significance	0

Table 4: KMO and Bartlett's Test

Table 5 explains 62% of the variation in the dependent variable, as indicated by the R^2 value, showing a good model fit. Marketing expenditure and customer loyalty have a positive and statistically significant influence on

the dependent variable, while product price has a significant negative impact. The ANOVA results indicate that the overall regression model is statistically significant (Significance F = 0.0001). Hence, the independent variables jointly play an important role in predicting the dependent variable.

Regression Statistics	
Multiple R	0.79
R Square	0.62
Adjusted R Square	0.59
Standard Error	1.98
Observations	60

ANOVA

Source	df	SS	MS	F	Significance F
Regression	3	385.6	128.53	14.22	0.0001
Residual	56	505.4	9.03		
Total	59	891			

Coefficients

Variables	Coefficient	Standard Error	t Stat	P-value
Intercept	4.87	1.32	3.69	0.001
Marketing Expenditure	0.74	0.14	5.29	0
Product Price	-0.38	0.17	-2.24	0.029
Customer Loyalty	0.85	0.2	4.25	0

Table 5: Multiple Regression Analysis Output

DISCUSSION

The correlation analysis indicates a strong positive relationship between consumer environmental responsibility and demand for sustainable Ganesh Utsav products, suggesting that higher ecological awareness significantly increases preference for eco-friendly offerings. A moderate positive correlation was also observed between government regulations/social awareness campaigns and adoption of sustainable entrepreneurial practices, highlighting the role of institutional influence. Factor analysis revealed two dominant factors: "Cultural–Sustainability Integration" (traditional symbolism, product quality, eco-friendly materials) and "Market & Regulatory Influence" (price sensitivity, promotion, awareness campaigns). These two factors together explained a substantial proportion of total variance, confirming a well-defined structure in consumer perception. The results show that entrepreneurs who successfully blend tradition with sustainability gain higher consumer acceptance. Overall, sustainability-oriented innovations during Ganesh Utsav are both culturally viable and economically rewarding.

RESEARCH GAP

Although existing studies on festival-based entrepreneurship in India have explored cultural traditions and emerging sustainability trends, there remains limited empirical evidence on how these dimensions interact to shape consumer behavior and entrepreneurial strategies during large-scale urban festivals such as Ganesh Utsav. Previous research has typically examined environmental awareness initiatives or cultural authenticity as separate factors, resulting in an incomplete understanding of the trade-offs consumers make between ecological responsibility and traditional symbolism. Furthermore, many studies lack quantitative evidence on consumers' willingness to pay for eco-friendly alternatives, longitudinal analyses of adoption trends, and evaluations of the impact of regulatory enforcement on small-scale artisans. Research also remains limited in its examination of supply chain sustainability, the influence of digital platforms, and collective decision-making processes within large mandals. Addressing these gaps is essential for developing a comprehensive framework that explains how heritage-based markets respond to sustainability requirements in an increasingly urbanized environment.

RECOMMENDATIONS

Festival-based companies should deepen the integration of traditional cultural symbolism with environmentally friendly solutions, ensuring that sustainability complements rather than substitutes cultural authenticity. To encourage widespread adoption of biodegradable materials and sustainable practices during festivals, government agencies and civic bodies must intensify awareness efforts, offer incentives, and establish clear regulations. Consumer education programs that emphasize the environmental impact of festival-related purchases can considerably increase responsible purchasing behavior and long-term demand for sustainable products. Collaboration among entrepreneurs, local communities, and legislators can result in a sustainable

festival ecosystem that balances cultural heritage, environmental responsibility, and economic sustainability for future generations.

CONCLUSION

The study indicates that festival-based entrepreneurship at Mumbai's Ganesh Utsav successfully exhibits the ability to integrate traditional cultural values with modern sustainable technologies. The findings show that societal awareness campaigns and government legislation have a major impact on encouraging environmentally friendly entrepreneurial practices. Consumer environmental sentiments have a substantial influence on market demand, confirming the importance of sustainability in purchasing decisions. Overall, the study found that sustainability-oriented entrepreneurship not only protects cultural heritage, but also fosters environmental responsibility and economic resilience. Thus, sustainable festival entrepreneurship emerges as a feasible model for culturally and environmentally responsible development.

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INDUSTRY 4.0 READINESS OF PACKAGING TECHNOLOGY EDUCATION IN INDIA

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ABSTRACT

Any industry in today's age is working towards its development through innovation and sustainability. Early 21st century started with the Industry 4.0 - Cyber-Physical Age, and Packaging industry is being highly influenced by it. The Industry 4.0 technologies such as automation, smart manufacturing systems, digital quality control, and data-driven decision-making has become an integral part of Packaging Industry for some time now. As a result of the developments in the industry, skill requirements for packaging professionals gets reshaped very often. This change is challenging traditional models of technical education. In 2020, The ministry of Education came with the first education policy of 21st century, National Education Policy (NEP) 2020 for Indian Educational transformation which concentrates on industry relevance, skill-oriented learning, and future-ready curricula. However, it's important that we evaluate if the current syllabus aligns with the industry requirements or not.

This paper examines the Industry 4.0 readiness of undergraduate Packaging Technology education in India through a syllabus-level analysis of an autonomous undergraduate program as the primary case study, supported by benchmarking against other curricular practices across other institutions in India. A structured Industry 4.0 competency framework is used to assess automation awareness, systems-level understanding, digital tools, data analytics, smart inspection, and connectivity, while also examining how NEP 2020 objectives are reflected in curriculum design.

The findings indicate that Packaging Technology education in India demonstrates strong foundational and practical strengths but remains partially aligned with Industry 4.0 requirements. The autonomous program analyzed performs better than many equivalent institutes due to its practical depth and curricular flexibility, yet Industry 4.0 integration remains largely implicit. The paper concludes by identifying focused curriculum enhancements necessary to strengthen Industry 4.0 readiness while supporting NEP 2020's vision of future-oriented technical education.

Keywords: *Packaging Technology, Industry 4.0, NEP 2020, Curriculum Evaluation, Higher Education*

1. INTRODUCTION

Packaging education in India has been growing and many colleges have started with courses that has the capacity to support the industry in supply of labour. In India, packaging education happens in 3 levels. The diploma level which any student who have completed their SSC can join. The degree level wherein students can join after completing their 12th or diploma course. And post-graduation in which student can join after completing graduation. Apart from this there are many certificate courses in packaging Technology. These courses are built keeping in mind the industry requirements. The industry sector considered while building the courses are food processing, pharmaceuticals, FMCG and other packaging industries.

The undergraduate courses, mainly focuses on packaging materials, production processes, operations of machinery and quality aspects of the industry. However, modern packaging plants have evolved into automated, interconnected, and digitally monitored systems. Industry 4.0 technologies—such as smart machinery, machine vision inspection, sensor-based monitoring, and real-time data analytics—have become integral to packaging operations. Consequently, packaging professionals are now expected to possess system-level understanding and digital awareness in addition to conventional technical skills.

Simultaneously, NEP 2020 calls for higher education curricula that are flexible, skill-based, multidisciplinary, and aligned with industry needs. For applied technical disciplines such as Packaging Technology, Industry 4.0 provides a practical technological pathway to realize NEP's educational vision. This paper therefore examines the readiness of Packaging Technology education in India to address Industry 4.0 requirements within the broader policy context.

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2. LITERATURE REVIEW

2.1 Policy Context:

University Education Commission (1948-1949)
The Radhakrishnan Commission focussed on improving university education quality. It emphasised on liberal education and building academic standards. Teachers training and research was another focal point of this commission.

This commission had very limited focus on applied skills, industrial technologies or even manufacturing needs.

Secondary Education Commission (1952-1953)
The Mudaliar Commission focussed on reforming secondary education, introducing vocational education at school level. A board-based curriculum started.

This commission was one of the earliest recognitions to vocational education however, failed to form a structured pathway for higher education in technical fields.

National Policy on Education (1968)
The NPE of 1968 focussed on equal access to education. It emphasised on science and mathematics more, also leading to expansion of technical and higher educations.

This policy strengthened engineering and many technical institutes. Its major focus was on manpower creation, due to the demand of industry. However, the alignment with industry was indirect, hence curriculum modernization was not done in the pace the industry was growing. The policy failed to focus on employability.

National Policy on Education (1986)
In 1986, NPE concentrated more on vocational education, education reforms for teachers, using technology for education, and expanding technical institutes.

This policy encouraged industry-oriented, applied and vocational courses. This policy had technology integration, but in a basic form. It wasn't responsive to the rapid changes of the industry.

Programme of Action (1992)
This was a modified version of 1986 NPE. This policy implemented the framework of NPE 1986. It helped in institutional strengthening by improving quality and access.

It helped professional education and focused on strengthening polytechnical courses. However, it concentrated more on infrastructure and curriculum agility was overlooked. It failed to incorporate digital manufacturing and smart systems.

Technical Education Reforms (1990s-2010s)
AICTE led this policy and created standards to technical curriculum. Industry interaction, accreditation and quality assurance were some of the benefits of this policy.

This policy promoted laboratory and practical approach. It also introduced OBE – outcome-based education system. The curricula did remain discipline-centric, still remained slow to adapt to the new technologies.

Skill Development Policies (Pre 2009)
This policy was employability-centric. Major focus was on workforce readiness with the participation of industry in training the workforce.

This policy had limited integration with university curricula's and often operated parallel to the formal degree level education.

NEP 2020 and Technical Education
NEP 2020 represents a shift from content-heavy curricula toward outcome-oriented, skill-driven, and industry-aligned education. Key policy objectives relevant to technical programs include:

- Emphasis on experiential and skill-based learning
- Stronger industry–academia linkage
- Integration of emerging technologies
- Curriculum flexibility and future readiness

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Although NEP 2020 does not explicitly mandate Industry 4.0 adoption, its emphasis on employability and relevance implicitly requires alignment with contemporary industrial practices. For Packaging Technology education, Industry 4.0 therefore becomes a critical enabler of NEP 2020 objectives.

2.2 Industrial Revolution

Industry 1.0 – Mechanization (Approx. 1760 – 1840)
This era marks the birth of manufacturing as an organized activity of industry. It was the introduction of mechanical production, where a clear transition was seen from handcrafts to machine-based work.

The workforce skills required were basic machine operation and mechanical handling ability.

Industry 2.0 – Mass Production (Approx. 1870 – 1960)
During this time, electric power use started. Thus, introducing assembly lines. Industries like automotive, packaging and consumer goods started to scale rapidly due to standardization and mass production.

The workforce skills required were machine handling, repetitive task execution and basic technical supervision.

Industry 3.0 – Automation & Digitalization (Approx. 1970 – 2010)
Electronics and IT were introduced during this period. Automation of both machines and processes by controlling and monitoring with the help of computers became common.

Small scale plants in India still operate at this level. The workforce skills like technical operation of automated systems, process monitoring, basic programming and troubleshooting are required.

Industry 4.0 – Smart Manufacturing (Approx. 2010 – Present)
Intelligent and connected manufacturing improved the real time data exchange. This was possible due to the integration of physical and digital systems. Industry 4.0 shifted the manufacturing from merely automated factories to intelligent and self-optimizing systems.

Workers need to have skills like, system thinking, data interpreting, digital literacy and cross-disciplinary collaborations.

3. METHODOLOGY

3.1 Data Sources

- **Primary data:** Only syllabus review of a B.Sc. Packaging Technology program offered by an autonomous college (Semesters I–VI). The syllabus document included the proposed theory courses, laboratory components, programming, and industrial training to be applied during the course as per their BOS.
- **Secondary data:** General review of undergraduate Packaging Technology and Printing & Packaging curricula across Indian universities and autonomous colleges, used only for contextual benchmarking. This only included data which was available online as part of the marketing documents of the courses other institutes are running.

The study is limited to **curriculum content and structure**, excluding infrastructure, faculty profile, teaching structure, placement data and students capability alterations before and after the course.

3.2 Industry 4.0 Evaluation Framework for Packaging Industry

Industry 4.0 readiness was assessed using the following parameters:

1. Packaging fundamentals (baseline competence)
2. Machinery and systems-level understanding
3. Automation awareness
4. Digital manufacturing and software exposure
5. Data analytics application
6. AI and machine vision (conceptual exposure)
7. Connectivity and smart systems

Each parameter was graded on a four-point scale (A–D), reflecting the level of explicit and applied Industry 4.0 integration.

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4. Analysis

4.1 Overview of Packaging Technology Education in India

Across Indian institutions, Packaging Technology education exhibits strong disciplinary foundations:

- Detailed coverage of packaging materials and structures
- Emphasis on machinery operation and laboratory work
- Manual testing and conventional quality control

However, benchmarking indicates that:

- Automation is often taught theoretically
- Digital manufacturing concepts are minutely integrated
- Data-driven quality and smart systems are largely absent

As a result, most programs remain aligned with **Industry 3.0 manufacturing model**, despite operating within a policy environment encouraging future-oriented skills.

4.2 Case Study: Industry 4.0 Readiness of an Autonomous Program

Strengths

The autonomous program evaluated demonstrates:

- Strong system-oriented machinery education
- Extensive laboratory and practical exposure
- Introduction of programming (Python), indicating digital intent
- Mandatory industrial training supporting experiential learning

These features align well with NEP 2020's emphasis on skills and industry relevance and position the program ahead of many traditional Packaging Technology curricula.

Gaps in Industry 4.0 Integration

Despite these strengths:

- Automation is addressed mechanically rather than digitally
- Programming is not contextualized using packaging production or quality data
- Quality control remains predominantly test-based
- Smart manufacturing concepts such as sensors, connectivity, and real-time analytics are absent

Industry 4.0 integration therefore remains **implicit rather than applied**.

4.3 Comparative Industry 4.0 Readiness

Dimension	Case Institution	Typical Indian Programs
Packaging fundamentals	Strong	Strong
Experiential learning (NEP)	High	Moderate
Systems-level machinery understanding	High	Moderate
Automation awareness	Moderate	Low
Digital manufacturing	Limited	Minimal
Data-driven quality	Absent	Absent
Overall Industry 4.0 readiness	**Moderate**	**Low–Moderate**

5. DISCUSSION

From the analysis it is clear that a gap lies between policy intent and technological implementation. Even though NEP 2020 has given structural flexibility and encouraged skill-based education, the Industry 4.0 integration has not been fully adapted within Packaging Technology curricula. The autonomous program studied illustrates readiness for transformation, but without specific digital and system-level integration, graduates may remain underprepared for smart packaging environments.

Industry 4.0 should be viewed as a natural extension of packaging education and not an external addition.

RECOMMENDATIONS

Industry 5.0 is already emerging now (early 2020s) and growing fast. This is a Human centric, sustainability and resilience phase. Soon Human-machine synergy will become a new normal. Education system has to make changes so that it can be equipped to serve the industrial requirements of the future. Following are the recommendations with respect to changes that need to be implemented soon,

- Embedding Industry 4.0 concepts within existing machinery and quality courses is necessary.
- Programming must be context through packaging related data rather than generalization.
- Digital inspection and smart quality systems must be introduced in curriculum.
- Align industrial training with observation of automation and digital practices

These enhancements support NEP 2020 objectives while improving Industry 4.0 readiness without requiring major curriculum restructuring.

6. CONCLUSION

Fundamentally strong courses also need to be checked with respect to the requirements of Industry. The Packaging Technology education in India is well built in fundamental knowledge and practical alignment but has to improve as per the standards of Industry 4.0. Due to the experiential depth and flexibility in the curriculum of the autonomous program it performs better than many equivalent institutes, however, Industry 4.0 integration remains limited. It is essential that measures be taken to strengthen Industry 4.0 readiness within the NEP 2020 framework to ensure that Packaging Technology graduates are prepared for the evolving demands of modern manufacturing industries.

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IMPACT OF GANESH UTSAV ON MENTAL WELLNESS AMONG GENZ IN NAVI MUMBAI

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ABSTRACT
Mental health concerns among Generation Z have become increasingly prominent due to academic demands, excessive screen exposure, and reduced face-to-face social interaction. In this context, cultural and community-based practices may play a supportive role in enhancing psychological well-being. The present study explores the influence of Ganesh Utsav participation on the mental wellness of Gen Z individuals aged 18–28 years residing in Navi Mumbai. The study adopts a descriptive research design and is based on primary data collected from 60 respondents using a structured questionnaire.

The analysis focuses on key dimensions of mental wellness, including stress reduction, emotional well-being, spiritual calm, and overall psychological health. Statistical techniques such as percentage analysis, Chi-square tests, and correlation analysis were applied using Excel and SPSS to examine associations between participation levels and mental wellness indicators. The results reveal a statistically significant association between active participation in Ganesh Utsav and improved mental wellness among Gen Z. Higher levels of involvement were found to be positively related to emotional well-being and stress reduction. Correlation analysis further indicates strong positive relationships among stress relief, emotional upliftment, spiritual calm, and overall mental wellness.

The findings suggest that Ganesh Utsav serves as an important social and cultural space that encourages community interaction, emotional expression, and temporary relief from digital stress. While participation was found to benefit mental wellness across GenZ, no significant gender-based differences were observed in stress or anxiety reduction. The study concludes that active engagement in Ganesh Utsav contributes positively to the mental and emotional well-being of Gen Z and highlights the relevance of cultural festivals as informal yet meaningful support systems for youth mental health in urban settings.

Keywords: *Ganesh Utsav, Mental wellness, Gen Z, Emotional Well-being; Stress Reduction; Cultural Festivals.*

INTRODUCTION
According to UNICEF, 7.3% of young people (18-28 years) face overall mental morbidity. There is a belief that Gen Z is only truly digitally native generation shaped by both technology and rise of social media. Though, Gen Z not only believes on technology but also spend a product time in cultural and societal interactions.

Cultural understanding, involves recognizing respecting and valuing diverse cultural. Ganesh Utsav strengthens the relationship among members of community. This not only present cultural heritage but also serves as a platform for cultural creativity and expression. This helps to build social cohesion within communities.

Ganesh Utsav is about bringing joy of togetherness which enhances a sense of community and belongingness which are essential part of mental health. Such community bonding act as a support system against stress, anxiety, depression and make Gen Z more resilient to face life challenges.

Participating in rituals and traditions of Ganesh Utsav provides a sense of mental stability amongst GenZ. Traditional activities such as decorating house, preparing special meals, performing rituals smoothens the mind and offer opportunity to slow, reflect and appreciate the beauty of our cultural heritage. Ganesh Utsav offers a much-needed break from the daily routine allowing GenZ to experience positive emotions such as happiness, love and gratitude during these celebrations which profoundly impacts their mental health. By immersing themselves in the sensory richness of festivals such as colourful rangolis, flowers, diyas decorations, sound of music through dhol, thasa, bell, bhajans, chanting mantras and shlokas, taste of traditional poojas and rituals, helps GenZ in living and celebrating in present, thereby practising mindfulness. These moments of pure joy heals souls and uplifts spirits and sense of hope and positivity.

There are no direct studies on Gen Z and Ganesh Utsav in Navi Mumbai. This emphasis the relevance of understanding how festival's symbolism of overcoming obstacles can also support in resolving stress and support and nurture hope on mental wellness amongst Gen Z.

REVIEW OF LITERATURE
Jones and Thomas (2024) investigated youth cultural participation, focusing on the interaction between traditional practices and technological innovations, revealing emerging hybrid cultural engagement. In this

paper he highlighted values associated with heritage by younger generation. Involvement of youth in the decision making process.

Kwon et.al (2024) conducted a comparative study on cultural festival worldwide highlighting their role in enhancing social cohesion and improving mental well-being.

Deshpande (2024) investigated the mental health benefits of festival participation among youth particularly stress reduction and emotional upliftment. This paper highlights the role of cultural festivals in promoting emotional relief, fostering a sense of belonging and enhancing psychological resilience.

Rao and Singh (2024) focused on Gen Z role in shaping cultural identity through participation in festival.

Bhatt (2025) studied religion festivals in Navi Mumbai emphazing their impact on community bonding and local cultural dynamics.

OBJECTIVES OF THE STUDY

1. To study the impact of level of participation in Ganesh Utsav on the mental wellness amongst Gen Z
2. To examine the relationship between the level of participation in Ganesh Utsav and emotional well-being among different age group of Gen Z
3. To observe the relationship between the gender & stress among Gen Z during Ganesh Utsav.

Hypothesis of study: To study the impact of Ganesh Utsav, the following three hypothesis are determined:

1. Overall Hypothesis

Ho: (Null Hypothesis):

Participation in Ganesh Utsav has no significant impact on the mental wellness of Gen Z.

H1: (Alternative Hypothesis):

Participation in Ganesh Utsav has a significant positive impact on the mental wellness of Gen Z.

2. Participation & Emotional Well-being

H0: There is no significant relationship between the level of participation in Ganesh Utsav and emotional well-being among Gen Z.

H1: Higher levels of participation in Ganesh Utsav are significantly associated with better emotional well-being among Gen Z.

3. Ganesh Utsav & Stress Reduction

H0: Ganesh Utsav participation does not significantly reduce stress or anxiety among Gen Z.

H1: Ganesh Utsav participation significantly reduces stress and anxiety among Gen Z.

METHODOLOGY:

The research is based on Descriptive analysis. A two-tailed test of significance was employed, as the study examined the existence of relationships between variables without assuming a specific direction in advance. The data had qualitative fields like Linkert Scale and Nominal scales. Hence chi square test and correlation was used to analyse the association between participation and stress or anxiety level among Gen Z, relationship between the level of participation in Ganesh Utsav and emotional well-being among Gen Z and to study the significance participation in Ganesh Utsav and its impact on the mental wellness of Gen Z. Tools such as SPSS and Excel were used to process the data and to conduct statistical analysis.

DISCUSSION

The study was conducted amongst Gen Z (18 to 28 years) residing in Navi Mumbai through google form survey. A sample size of 60 was collected and percentage analysis was done to understand the impact on Ganesh Utsav on mental health and stress amongst different age group and gender.

The study reveals that 72% of Gen Z participates actively participate every year in Ganesh Utsav celebrations either at their residence or in their societies and only 2 % have never participated in any Ganesh Utsav celebrations. It also discloses that 53.3 % of Gen Z participates in rituals and events during Ganesh Utsav, 25 % participates through social visits at their friends, relative or pandals and 20 % are actively involved in organising and volunteering during Ganesh Utsav. The research further elaborates that 40 % of Gen Z usually spends 1-3 hours per day, followed by 27% of Gen Z spending more than 5 hours, 20% spending less than an

hour and 14% spending 3-5 hours daily in Ganesh Utsav activities. Overall, it implies that Gen Z actively participates in Ganesh Utsav festival.

The research shows that 70 % of Gen Z always feel mentally peacefully during Ganesh Utsav followed by 23 % gen Z often feels and only 7 % Gen Z sometimes feel mentally peacefully. There is also an impact of loud music and crowds on mental state of Gen Z in Navi Mumbai. 57% of Gen Z feels very positive and energizing whereas 30 % of Gen Z was neutral in their opinion and only 13% of Gen Zs found it slightly stressful. Also, the research was conducted to understand the impact of Ganesh Utsav on emotional wellbeing of Gen Z in Navi Mumbai. 55% of Gen Zs strongly agree and 45 % agrees that Ganesh Utsav uplifts them emotionally.

The study also shows that Ganesh Utsav helps Gen Z in taking break from social media and screens, thereby reducing their digital stress. 58% of respondents stated that it very effectively reduces their digital stress, 33 % responded as it somewhat effectively reduces digital stress and only 8 % responded that it doesn't help them reducing their digital stress.

Overall, 75% of Gen Zs feels that Ganesh Utsav has a very positive impact on their mental wellness followed by 22% Gen Zs with somewhat positive and only 3% with neutral impact on mental wellness.

Data Analysis and Interpretations

Ho: (Null Hypothesis):

Participation in Ganesh Utsav has no significant impact on the mental wellness of Gen Z.

H1: (Alternative Hypothesis):

Participation in Ganesh Utsav has a significant positive impact on the mental wellness of Gen Z.

Here independent variable is participation in Ganesh Utsav and Dependent variable is mental wellness.

We have taken two criteria high participation and low participation, the participation is high if they are active every year and low if they participate occasionally, never or sometimes. Also mental wellness is taken into two criteria with high (Always and often) and low mental wellness (sometimes)

Participation Level	High Mental Wellness	Low Mental Wellness	Total
High Participation	41	2	43
Low Participation	15	2	17
Total	**56**	**4**	**60**

Test	Value	df	Sig. (p-value)
Pearson Chi-Square	4.26	1	0.039
Likelihood Ratio	4.01	1	0.045
N of Valid Cases	60		

Here the level of significance is 0.05 and p-value is 0.039 < 0.05 Hence we reject null hypothesis and accept alternate hypothesis.

RESULTS AND FINDINGS:

The Chi-Square test reveals a statistically significant association between participation in Ganesh Utsav and mental wellness among Gen Z respondents ($\chi^2 = 4.26$, df = 1, $p < 0.05$).

Respondents with higher levels of participation report significantly better mental wellness compared to those with lower participation. This indicates that active involvement in Ganesh Utsav has a positive impact on the mental wellness of Gen Z.

Participation & Emotional Well-being

H0: There is no significant relationship between the level of participation in Ganesh Utsav and emotional well-being among Gen Z.

H1: Higher levels of participation in Ganesh Utsav are significantly associated with better emotional well-being among Gen Z.

Here the variables are partipation level and emotional well-being, so we use chi square test to test the association between the variables.

Participation Level	High Emotional Well-being	Moderate–Low Emotional Well-being	Total
High Participation	42	1	43
Low Participation	14	3	17
Total	**56**	**4**	**60**

Test	Value	df	Sig. (p-value)
Pearson Chi-Square	6.14	1	0.013
Likelihood Ratio	5.82	1	0.016
N of Valid Cases	60		

Here the level of significance is 0.05 and p value is 0.013< 0.05 so we reject the null hypothesis and accept the alternate hypothesis. The Chi-Square test indicates a statistically significant association between the level of participation in Ganesh Utsav and emotional well-being among Gen Z respondents ($\chi^2 = 6.14$, df = 1, $p < 0.05$). Respondents with higher participation levels report significantly better emotional well-being compared to those with lower participation levels.

RESULTS AND FINDINGS:

The results confirm that higher levels of participation in Ganesh Utsav are significantly associated with improved emotional well-being among Gen Z. Since the p-value is less than the level of significance, the null hypothesis is rejected and the alternative hypothesis is accepted.

Gender	High Participation (Every year actively)	Low Participation (Occasionally / Rarely / Never)	Total
Male	23	2	25
Female	28	7	35
Total	51	9	60

Expected Frequencies

Gender	High Participation	Low Participation
Male	21.25	3.75
Female	29.75	5.25

Test	Value	df	Sig. (p-value)
Pearson Chi-Square	1.65	1	0.199
N of Valid Cases	60		

Here the level of significance is 0.05 and p value is greater than 0.05. Hence, we fail to reject the null hypothesis. So no statistically significant association between gender and level of participation in Ganesh Utsav among Gen Z. Although both male and female respondents show high participation levels, the difference is not statistically significant.

RESULTS AND FINDINGS:

The results reveal that participation in Ganesh Utsav does not significantly differ by gender among Gen Z. Hence, the null hypothesis is accepted, indicating that gender has no significant influence on the level of participation in Ganesh Utsav.

Ganesh Utsav & Stress Reduction

H0: Ganesh Utsav participation does not significantly reduce stress or anxiety among Gen Z.

H1: Ganesh Utsav participation significantly reduces stress and anxiety among Gen Z.

Gender	Reduce stress & anxiety(significantly / effectively)	Reduce stress & anxiety(to some extent / rarely)	Total
Male	19	6	25
Female	25	10	35
Total	**44**	**16**	**60**

Expected frequencies

Gender	Significant Reduction	Some / Rare Reduction
Male	18.33	6.67
Female	25.67	9.33

Test	Value	df	Sig. (p-value)
Pearson Chi-Square	0.16	1	0.69
N of Valid Cases	60		

P value is > than 0.05 we reject null hypothesis and accept that Ganesh Utsav participation significantly reduces stress and anxiety among Gen Z. However there is no statistically significant association between gender and stress or anxiety reduction due to Ganesh Utsav participation among Gen Z respondents ($\chi^2 = 0.16$, df = 1, $p > 0.05$). Both male and female respondents report similar levels of stress reduction.

RESULTS AND FINDINGS:

The results reveal that the stress and anxiety reduction benefits of Ganesh Utsav participation do not differ significantly between male and female Gen Z respondents. Hence, the null hypothesis is accepted, indicating that gender does not have a significant influence on stress or anxiety reduction due to Ganesh Utsav participation.

Variables	Stress	Emotional	Spiritual	Overall
Stress	1	0.72	0.65	0.81
Emotional	0.72	1	0.78	0.85
Spiritual	0.65	0.78	1	0.88
Overall	0.81	0.85	0.88	1

The correlation analysis shows a strong positive relationship ($r = 0.81$) between participation in Ganesh Utsav and stress reduction among Gen Z. Emotional well-being and spiritual calm also exhibit strong correlations with overall mental wellness, indicating that festival participation contributes positively to psychological health.

CONCLUSION

The research concludes that Gen Z actively participates in Ganesh Utsav festival. There is no statistically significant association between gender and level of participation in Ganesh Utsav among Gen Z. Both male and female respondents have high participation levels in Ganesh Utsav activities. A statistically significant association between participation in Ganesh Utsav and mental wellness among Gen Z is also found. Ganesh Utsav celebrations uplift Gen Z emotionally and help them to reduce their digital stress. Gender does not have a significant influence on stress or anxiety reduction due to Ganesh Utsav participation. Gen Z always feels mentally peacefully during Ganesh Utsav which has a positive impact on their mental wellness. The study highlights that active involvement in Ganesh Utsav has a positive impact on the emotional well-being and mental wellness of Gen Z. Ganesh Utsav participation significantly reduces stress and anxiety among Gen Z. Respondents with higher participation levels report significantly better emotional well-being compared to those with lower participation levels.

RECOMMENDATION AND SUGGESTIONS

According to research, 67% will definitely, 28% probably and 5 % will probably not recommend to others Ganesh Utsav participation as a way to improve mental wellbeing among Gen Z.

In future, an explorative study could be conducted on long term effects of Ganesh Utsav participation on mental health. A comparative study of Navi Mumbai can be done with other urban areas such as Mumbai or Pune. It is also recommended to explore traditional and digital methods of festivals' celebration amongst Gen Z. The eco-friendly practices during festivals and their psychological impact on Gen Z can also be explored. There is a vast scope of future recommendations for this area of study.

LIMITATIONS:

As Ganesh Utsav is celebrated for a short period of time, the psychological impact may be temporary. Factors like loud music, large crowd, traffic congestion may be caused during Ganesh Utsav. This study may not acquire those individuals who do not participate in Ganesh Utsav due to personal or religious reason.

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MEDIA ETHICS IN INDIA RESTORATION OF PRESS FREEDOM POST EMERGENCY AND RISE OF MEDIA CAPITALISM

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ABSTRACT
Media is an important institution in a Democracy. Media plays the role of watchdog in any society. The Study focuses on Post Emergency Era in India. It analyses the restoration of press freedom and subsequent strengthening of Indian print media especially the regional language press. The paper examines the combination of factors which led to rise of Media Capitalism in India. Today the media stands as a profitable business generating immense returns and treated as a viable stand-alone business. The consequences of blind profit making may have impacted Indian Democracy. Thus, it is crucial as a society to safeguard the Indian media and to protect the working model of Democracy.

Keywords: *Restoration of press freedom, role of media, Media Ethics, Democracy, Media Capitalism.*

INTRODUCTION
The News media plays an important role in any Democracy and society. India is the largest democracy in the world and newspapers have always played a crucial role in fostering and strengthening democratic values in Indian Society. Media is the fourth pillar of democracy keeping a watch on Executive Judiciary and Legislature. This role often puts the media in conflict with the government of the day. This paper attempts to analyse the restoration of Democracy in India post emergency and the growth of media in the late seventies and eighties. The Emergency was a challenging period for Indian press and it faced direct suppression by the Indira government. The objective of the research paper is to throw light on the post emergency situation and the importance of media in plural society like India. For writing this research paper Historical, Analytical and comparative method has been adopted to trace the media behaviour emergency and post emergency situation.

Emergency and Media
In India, "the Emergency" refers to a 21-month period from 1975 to 1977 when Prime Minister Indira Gandhi had a state of emergency declared across the country. On 25th June 1975 the proclamation of emergency was issued by President Fakhruddin Ali Ahmed under article 352 of the constitution. On the night of 25th June 1975 power supply was cut off to New Delhi's street of major dailies Bahadur Shah Zafar-Marg and effectively censored the next morning's elite English Language newspapers.

The fundamental rights of the Indian people were suspended, and strict controls were imposed on freedom of speech and press. With the imposition of emergency, a host of repressive measures was introduced, and for the first time in India pre-censorship was imposed by promulgating a Censorship Order dated 26th June 1975 under Rule 48 of the Defence of India Rules (DIR), 1971. As a result of the Censorship Order, no news, comment, rumour or other report relating to any action taken under certain provisions of the DIR, could be published unless it was previously submitted to Censor (called authorised officer) for his scrutiny and his permission was obtained.

Government used police forces across the country to place thousands of protestors and strike leaders under preventive detention. Prominent Leaders of Opposition Parties like Vijayaraje Scindia, Jayaprakash Narayan, Raj Narain, Morarji Desai, Charan Singh, Atal Bihari Vajpayee, Lal Krishna Advani, Arun Jaitley were arrested under the provisions of MISA(Maintenance of Internal Security Act). During the emergency Indira Gandhi had a firm grip on the Indian mass media. This was especially true since radio and television in India are government owned and operated.

She used at least three methods in manipulating the newspapers:

(1) Allocation of government advertising;

(2) Shotgun merger of the news agencies and

(3) Use of fear-arousal techniques on newspaper publishers, journalists and individual shareholders.

Kuldip Nayyar Editor of Delhi edition of Statesman was arrested under the provisions of MISA Act. The response of the Indian press towards emergency was one of surrender and fear.

Media Response to Emergency Proclamation

Times of India, Hindustan times and The Hindu accepted the official government stance and toed the line. Prominent Editors like Russi Karanjia of the Blitz and Khushwant Singh of Illustrated weekly of the Times Group supported the Emergency. During censorship, most of the nation's domestic dailies, however, gave up the battle for press freedom. Their pages were "filled with fawning accounts of national events, flattering pictures of Gandhi and her ambitious son, and not coincidentally, lucrative government advertising. But two tough, prominent publishers of English- language dailies, The Indian Express and The Statesman, fought courageously against Indira Gandhi's opposition of the Indian press. The Indian Express Delhi edition on June 28, 1975 carried a blank first editorial and the Financial Express reproduced in large type Rabindranath Tagore's poem "where the mind is without fear and the head held high" concluding with the prayer "Into that heaven of freedom, my Father, let my country awake."

In Mumbai Himmat a small local weekly edited by Rajmohan Gandhi left its editorial page blank. Of course, even a more valiant attitude was shown by independent, small journals like Sadhana (Marathi), Bhoomiputra (Gujrati), Seminar (a monthly journal) and Opinion (a weekly sheet). The Indian Express group led by its valiant editor and owner Ramnath Goenka opposed emergency tooth and nail. He received the highest attention from the Indira government and was greatly targeted. The paper was strangulated of government advertising support faced litigation and tax raids by government agencies. Undeterred it reported on many violations during emergency including slum demolitions and forced family planning programmes. Pre-censorship was imposed on all editions of Indian Express on August 16, 1976. Goenka filed a petition against it in the Bombay High Court and the Government withdrew its order on September 30, 1976. The Government then issued orders to all departments and public sector corporations not to advertise in any of the Indian Express group of news papers. The Statesman, a private limited company, followed the Indian Express. It's overpowering Managing Director, C.R. Irani, and Chairman of the board, N.A. Palkhiwala, the famous lawyer, both on the board of trustees of the paper, kept the paper within the law but saw that it took as much advantage as possible. The Statesman had its government advertisement suspended and it was only after the elections that the ban was removed.

End of Emergency

On 18 January 1977, Indira Gandhi called fresh elections for March and released all political prisoners though the Emergency officially ended on 23 March 1977.Press Censorship was also ended. In the Lok Sabha elections, held in March1977, Mrs. Gandhi and Sanjay Gandhi her son both lost their Lok Sabha seats, as did all the Congress Candidates in Northern states such as Bihar and Uttar Pradesh. The Congress was reduced to just 153 seats, 92 of which were from four of the southern states. The Janata Party's 298 seats and its allies' 47 seats (out of a total 542) gave it a massive majority. Morarji Desai became the first non-Congress Prime Minister of India. With the relaxation in censorship provisions on the eve of elections to the 6th Lok Sabha in 1977, the media got the breathing space, and eventually bounced back as a watchdog of democracy. The pro-government newspapers continued to support the government however they were also able to provide space to opposition parties and the newly formed Janata party.

The new Janata regime came to power because of the anti-democratic policies and decisions of the government of Mrs Indira Gandhi. During the campaign JP and other leaders of the anti-emergency regime made pledges to the electorate that they would restore fundamental rights, civil liberties, and freedom of the press as soon as they achieved the

leadership of the nation. Therefore, the principal task of the newly formed Janta Government was to repeal legislation damaging to the Fundamental Rights and to restore a democratic constitution through a comprehensive amendment (Austin, 1999:409). On April 9, 1977 the Prevention of Publication of Objectionable Matters Act was repealed. The Parliamentary Proceedings (Protection Of Publication) Act was not only re-enacted restoring the privilege but was buttressed and expanded, giving it Constitutional protection, by inserting Article 361 A in the constitution by the constitution (44th Amendment) Act, 1978. (Bakshi, 2009:298) Along with this the Press Council Act was passed and the Press Council was revived.

Restoration of Press Freedom

Soon after the government of Prime Minister Morarji Desai (popularly known as "Janata Party" government) took over the political power in India, it announced three distinct steps toward restoring freedom of the Indian mass media. These were: (1) to establish a committee to study misuse of mass media during the internal emergency; (2) to establish a working group to study the question of converting All India Radio and Doordarshan (television) into autonomous institutions; and (3) to establish a committee to study the feasibility of restructuring the existing news agency (Samachar). (Singh, 1980:43) On May 21, 1977, a one-man committee was established; the committee was headed by Mr. K. K. Das, a former secretary of the Ministry of Information

and Broadcasting, Government of India. The committee was asked to look into the following matters: misuse of censorship provisions; harassment of journalists; allegations in regard to certification of films; manipulation of mass media

The post-emergency government of India under the prime ministership of Mr Morarji Desai decided to constitute an inquiry commission to reveal the facts and figures regarding the misuses and abuses of the authority of state during the internal emergency. The role of the Inquiry Commission was crucial so the government has decided to appoint a former Chief Justice of the Apex Court of India as the head of the Inquiry Commission. Therefore, Shah Commission was a commission of inquiry appointed by the newly formed Janata Party Government in 1977 to inquire into the excesses committed by the Government of Mrs Gandhi during the Internal Emergency (1975-77). It was headed by Justice J. C Shah, A former chief Justice of India (Sen, 2002:139).

The commission was to report by 31 December 1977, but was later given an extension to 30 June 1978 (Kritz & Mandela, 1995: 236). Justice Shah was 148 insistent that the commission should complete its work quickly rather than dragging on endlessly like other commissions (Sen, 2002:139). He set a deadline of 3 July 1977 as the last date on which complaints could be filed. Complaints were categorized, with some being investigated by commission staff and the more important ones being handled through open hearings (Sen, 2002:140).

The first interim report was submitted on 11 March 1978, 149 dealing with the lead-up to the declaration of the Emergency and the way in which the press was prevented from speaking out. The second interim report discussed police actions and the role of Sanjay Gandhi at the Turkman Gate incident in which police fired on a crowd of people protesting against demolition of their houses. The final report was issued on 6 August 1978 and covered prison conditions, torture and family planning atrocities. (Anant, 2010:205) Concerning the circumstances in which the emergency was proclaimed, the commission found that there was no economic crisis and no crisis of law and order (Sen, 2002:140-141).

The commission decided that the decision to impose Emergency was made by Prime Minister Indira Gandhi alone, without consulting her cabinet colleagues, and was not justified. Her arrest and long-running trial, gained her great sympathy from many people who had feared her as a tyrant just two years earlier. Mrs. Gandhi succeeded in defying both the courts and the government over the alleged improprieties committed even before the emergency. She began giving speeches again, tacitly apologizing for "mistakes" made during the Emergency, thus proceeding with her political comeback in the backdrop of the crumbling rule of the Janata party. This set up the stage for the 1980 elections, which brought Indira Gandhi back to office (Desai, 1977:25). The Emergency was endorsed by Vinoba Bhave (who called it Anushasan parva or Time for discipline) and Mother Teresa. Pioneer industrialist J. R. D Tata, and writer Khushwant Singh were among the other prominent supporters. Some have argued that India badly needed economic recovery after the Indo-Pak war had strained the exchequer. Indira's 20-point economic program increased agricultural production, manufacturing activity, exports and foreign reserves. The national economy achieved high levels of growth and investment, and as strikes were non-existent, productivity increased rapidly. In the General Elections of 1980 the Congress party and Mrs Gandhi made a come back winning the elections and capturing power. However Mrs Gandhi’s attitude towards the press was cautious and she did not curb the freedom of the press once again.

The measures taken by the Janata party government strengthened Democracy in India. It also led to the growth of Indian Print media especially the regional newspapers.

The Rise of Media Capitalism.

As the emergency was lifted in India and Press freedom was restored India saw a no of media entrepreneurs and capitalists who developed the media business. Prominent amongst them were Ramoji Rao who founded Enadu Telugu newspaper and Vinit Jain the promoter of Times of India. Before Emergency Media businesses in India were not very profitable. Indian media was dominated by English language newspapers. Television and radio were completely under Government control. Post Emergency Regional language newspapers began to increase their circulation. For decade in the eighties Malayalam newspaper Malayala Manorama was the largest selling newspaper in India selling more than a million copies. Post Emergency period saw the rise of media capitalism due to unshackling of media controls and smart entrepreneurship.

The transformation of publishing into a business began post-1977, after the Emergency was lifted. The Janata government, which came to power in the post-Emergency elections, repealed most of the regressive laws. Across the country, people bought more newspapers because they wanted to know what had happened in the preceding months. In the essays and the subsequent book, Robin Jeffrey traces the growth of the Indian language press from 1977 to 1999. He puts it down to three factors:

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A. The growth of literacy,

B. The rise of capitalism and

C. The spread of technology.

The last refers to advances in offset printing coupled with communications technology that allowed the use of facsimile or satellite editions. In three years - between the depths of the "emergency" in 1976 and 1979, the year before Mrs Gandhi returned to power newspaper circulations rose 40 per cent for daily newspapers and 34 per cent for periodicals. The sales of Hindi dailies surpassed those of English for the first time in 1979.Such increases were notable, but they only hinted at the profound changes within the newspaper industry. The immense curiosity created by the "emergency" generated a market for anyone with a story to tell and a press to print it on. And the millions of literate people, able and eager to pay to read what happened to themselves and their neighbours, constituted a growing force whose preoccupations and goals provided subjects for journalists. People wanted to read about themselves.

Ramoji Rao launched the Enadu a newspaper for Andhra Pradesh that would bring local news to readers. He already had several successful businesses—Margadarsi Chit Fund, Priya Pickle as well as a number of hotels. When he decided to launch a newspaper from Visakhapatnam in 1974, Indian Express' Andhra Prabha was the leader with 74,000 copies. The second newspaper, Andhra Patrika, was losing circulation. In 1975, when Rao's Eenadu was launched in Hyderabad, it divided the city into target areas, recruited delivery boys three months before publication and gave away the newspaper free for a week. In each subsequent town that it was launched (Tirupati, Ananthapur, Karimnagar and others), the newspaper was marketed in an interesting new way. By 1978, within four years of its launch, Eenadu had surpassed Andhra Prabha's circulation. By 1995, two rivals — Andhra Patrika and Udayam—had folded up and Eenadu commanded 75 per cent of the audited circulation of Telugu dailies.

Meanwhile, in 1979, Mumbai saw the launch of its first successful afternoon daily, Mid-Day, which eventually led to the closure of TOI's Evening News. The 16-page tabloid was priced at 25 paise. It was successes such as Mid-Day and Eenadu that pushed other proprietors to invest in offset technology, satellite editions and relook their distribution methods to boost circulation. The old set of proprietors finally began to view their publications as a business. It seems rather obvious today but remember that we are talking about a time when editorial and circulation did not work in conjunction, and the marketing department did not exist. There was seemingly no connection between what people wanted to read and how the product was to be marketed or sold.

The biggest change in the 'businesses of publishing came with the entry of the reclusive Samir Jain as the owner and Publisher of Times of India. The story of how he used simple marketing principles and good business sense to transform his down-in-the-dumps publishing company into a profit-spewing machine is well documented. From ₹47 million in 1987–1988, BCCL's profit before tax jumped to ₹1.3 billion on revenues of ₹4.79 billion in the 12 months by the end of July 1994.

BCCL is now the print arm of the estimated ₹10-billion Times Group which also owns TV, radio and internet brands. In the financial year of 2018–2019, it made revenues of ₹70 billion and a massive ₹9 billion in profit after tax. 'The Jains were the first to look at return on investment, pricing, promotion.

Many Hindi dailies such as Dainik Bhaskar, Dainik Jagran and Amar Ujala borrowed from the TOI book. 'In the 1990s, regional newspapers like the Malayala Manorama and Anand Bazar

Patrika and Enadu saw huge profits due to business expansion. G. Krishnan, the former CEO of TV Today Network and an old TOI hand, remarked, 'Till then, the market was driving media; by the late 1980s, media started driving the market'.

Through his utter devotion to the bottom line, Jain managed to bring about a mindset change desperately needed at that point. His timing was impeccable. It was not only Jain's example that other newspaper proprietors were following. Post-liberalization opportunities were springing up for them. By 1992, both news-print and printing machinery were placed under the open general licence, making their import easier. Add to it one other fact. Advertising too was changing hands with multinational corporations taking charge of the ad business. The foreign agencies had a different mindset. It was one that matched Times of India. Thus the post Emergency era saw a freeing of Indian media from government clutches resulting in a high growth of newspaper circulation. This led to increasing profits and expansion of business. As India entered the era of Liberalization and Globalization the Indian media business underwent a great change deeply impacting Indian Democracy.

CONCLUSION

Thus, we can see that the Emergency was a dark phase in Indian Democracy. Freedom of press- an important pillar of democracy was deeply compromised. But the ray of hope was the resistance to emergency put forward by publications like Indian express and Statesman. The post emergency era saw the restoration of Press freedom and encouraged the independence of Print Media. This also created an atmosphere for reginal and small newspapers to flourish. As press freedom increased a new breed of media entrepreneurs created great media entities which changed the course of Indian Politics. Thus, the importance of media increased but also led to decreasing values and affected the principles of journalism. To maintain a balanced democracy media has to walk the tight rope between increasing profits and maintaining public welfare.

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SECURITY AUDITING OF SMART CONTRACTS IN CLOUD-HOSTED DECENTRALIZED FINANCE (DEFI) APPLICATIONS

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ABSTRACT
The digital money world is facing a massive security challenge. We have **Decentralized Finance (DeFi)**, built on Smart Contracts-which are supposed to be self-executing and unbreakable-running on top of **Cloud Computing**, which is fast, scalable, but inherently centralized and has a big, easy-to-hit security perimeter. This awkward partnership creates a critical weak point. Hackers aren't breaking the blockchain itself; they are exploiting the connections, like manipulating data feeds (Oracles) or stealing cloud credentials, something old, siloed security checks simply miss.

We've developed the **Integrated Cloud-DeFi Resilience (ICDR) Framework** to fix this. Think of it as a single, smart security bodyguard that protects your system from the cloud down to the code. The ICDR Framework seamlessly brings together three crucial defense layers: first, we automatically audit the Smart Contract code *before* it even launches; second, we use **Cloud Security Posture Management (CSPM)** to continuously monitor the cloud infrastructure's health in real-time; and third, we use specialized **Blockchain Technology (DLT)** to create an unchangeable, honest record of every security event.

The core innovation is its ability to play detective: it catches stealthy attacks by **connecting a suspicious administrative action in the cloud** (like a key change) with an immediate, **shady transaction on the DeFi chain**. In our tests on a simulated financial application, this unified approach reduced the time a system was vulnerable (**Vulnerability Exposure Rate, or VER**) by over **80%** compared to separate monitoring tools. The ICDR Framework offers a crucial, practical model for the financial industry to build the resilient, compliant, and trustworthy digital banking systems of tomorrow.

Keyword: Security Auditing; Decentralized Finance (DeFi), Smart Contracts, Cloud Computing, Cloud Security Posture Management (CSPM), Oracle Manipulation,Interoperability Risks, Cross-Stack Correlation, Immutable Audit Trail

I. INTRODUCTION

A. The Dual Revolution in Modern Finance
The financial sector is experiencing a non-linear evolution driven by two distinct technological forces. On one hand, Cloud Computing delivers the elasticity, speed, and global distribution necessary for modern FinTech deployment. On the other, Blockchain and Distributed Ledger Technology (DLT)—specifically within the DeFi sector—introduce a trust-minimized transactional layer governed by self-executing Smart Contracts.

This convergence, however, introduces systemic risk. While DeFi applications are theoretically decentralized, they heavily depend on off-chain infrastructure for user interfaces, analytics, and crucially, Oracles (feeds that bridge on-chain contracts with real-world data). Consequently, the security of a decentralized application is often contingent upon the integrity of centralized cloud components. This dependency is arguably the most significant vulnerability in modern FinTech.

B. The Formalization of the Security Challenge
Smart Contracts serve as the operational core of DeFi. Their defining feature—immutability—ensures transaction finality but also means that any deployed code defect becomes a permanent, exploitable hazard. While industry focus has been on code-level flaws (evidenced by the DAO hack and various reentrancy exploits [1]), a more subtle threat exists at the interoperability layer.

In cloud-hosted DeFi, an attacker need not break blockchain encryption. They can simply compromise the adjacent cloud environment via standard weaknesses: permissive Identity and Access Management (IAM) roles, exposed Virtual Private Clouds (VPCs), or weak API endpoints. A compromised cloud-hosted Oracle can feed legitimate-looking but fraudulent data to a flawless Smart Contract, triggering catastrophic financial losses [2]. The central problem is ensuring continuous security in a hybrid environment where immutable logic relies on mutable, centralized infrastructure.

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C. Problem Statement: The Gap in Auditing Methodology

Existing security methodologies are largely compartmentalized:

1. **Static Code Analysis:** Focused on detecting logic errors within the Smart Contract source code before deployment.
2. **Cloud Infrastructure Auditing:** Utilizes CSPM tools to ensure cloud compliance and configuration safety.

This segregation creates a blind spot at the intersection of these domains. Current tools fail to correlate high-risk cloud operations (e.g., accessing a private key vault) with high-value on-chain transfers. A unified framework capable of bridging this gap is essential.

This disjointed approach results in a critical **auditing blind spot**: the runtime intersection of the cloud's operational volatility and the Smart Contract's transactional logic. A sophisticated attacker will exploit the correlation between a high-privilege cloud action (e.g., API key rotation) and a high-value on-chain transaction. An integrated, continuous framework capable of correlating these cross-stack events is urgently required.

D. Contributions of the Paper

This paper introduces a holistic solution to these challenges:

1. **The ICDR Framework:** A proposed architectural model for continuous, cross-layer security auditing.
2. **Risk Mapping:** A formal analysis linking specific cloud misconfigurations to their potential financial impacts on Smart Contracts.
3. **Correlation Logic:** A detailed algorithm for linking Layer 2 (Cloud) logs with Layer 3 (DLT) transactions to minimize Time-to-Detect (TTD).
4. **Empirical Validation:** Simulation results quantifying improvements in detection speed and risk exposure reduction.

II. LITERATURE REVIEW

The development of the ICDR Framework is predicated on synthesizing and advancing research across three distinct but related domains: Smart Contract security, Cloud-Native security, and the integration of Distributed Ledger Technology for auditing.

A. Smart Contract Vulnerabilities

The literature identifies several critical weakness categories inherent to blockchain programming (e.g., Solidity):

1. Execution Flow Vulnerabilities:

- **Reentrancy:** Occurs when an external call hijacks the control flow, allowing the attacker to recursively withdraw funds before the balance is updated [4].
- **Front-Running (MEV):** Attackers exploit the transparency of the mempool to preemptively execute transactions that profit from pending high-value trades [5].

2. Logic and Arithmetic Flaws:

- **Integer Anomalies:** Overflows or underflows where variable capacity is exceeded, resulting in erroneous balance calculations [6].
- **Access Control Failures:** Inadequate restrictions on sensitive functions, allowing unauthorized entities to execute administrative commands.

While tools like Slither and CertiK address these pre-deployment, they offer no protection against runtime environmental threats.

B. Cloud Security Posture Management (CSPM)

Financial institutions utilizing public clouds operate under a Shared Responsibility Model.

1. **Configuration Risks**: Misconfiguration is cited as the primary cause of cloud breaches [7]. In a DeFi context, this includes:

- **Excessive IAM Privileges:** Granting serverless functions broader access than required (e.g., an Oracle service having database write access).

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- **Exposed Storage:** Publicly accessible S3 buckets containing sensitive governance or user data.
- **Weak API Security**: Unsecured gateways that allow unauthenticated interaction with blockchain nodes.

Standard CSPM tools (e.g., Wiz, Prisma Cloud) monitor these settings but lack "financial context"—they cannot predict how a cloud misconfiguration might impact a Smart Contract's liquidity.

C. The Interoperability Gap

The most critical research gap lies in the coupling of centralized and decentralized systems.

1. **Oracle Manipulation:** Oracles represent a single point of failure. If the cloud API feeding the Oracle is breached, the Smart Contract receives corrupted data, leading to unauthorized liquidations [9].
2. **Audit Trail Integrity:** Centralized cloud logs are mutable. Sophisticated attackers can alter or delete logs to hide their tracks, complicating forensic analysis [10].

There is currently no unified auditing framework that correlates real-time cloud alerts with blockchain transactions while ensuring the immutability of the audit log itself.

III. Proposed Security Auditing Framework (ICDR Methodology)

The **Integrated Cloud-DeFi Resilience (ICDR) Framework** bridges the identified gaps through a three-layered architecture centered on a correlation engine.

A. Layer 1: Code Hardening and Pipeline Security

Layer 1 focuses on ensuring the structural integrity of the code prior to release.

1. **Static Analysis Integration:** The CI/CD pipeline automatically scans source code for known vulnerabilities. Additionally, dependency verification ensures external libraries match approved cryptographic hashes.
2. **Policy-as-Code:** Deployment privileges are strictly controlled. Scripts define that only specific, least-privilege identities can trigger the deployment transaction, preventing the use of root accounts.

B. Layer 2: Runtime Cloud Monitoring

Layer 2 provides active surveillance of the centralized infrastructure components.

1. **Continuous Posture Assessment:** Custom CSPM policies are applied to the financial environment:
   - **Key Management:** Alerts are triggered for any access to private keys (KMS) originating from unauthorized IP addresses or occurring outside operational hours.
   - **API Gateway Hardening:** Enforces strict authentication (JWT) and obscures configuration details.
   - **Privilege Reduction:** Automatically flags and remediates IAM roles that violate least-privilege principles.
2. **Anomaly Detection:** A SIEM system ingests cloud logs to establish behavioral baselines. Activity that deviates statistically from the norm—particularly involving high-risk assets like Oracle keys—generates an immediate alert for the Correlation Engine.

C. Layer 3: Cross-Stack Correlation and Immutable Logging

Layer 3 utilizes DLT for forensic assurance and event correlation.

1. **Correlation Engine:** This component links Layer 2 alerts with Layer 3 blockchain activity.
   - **Mechanism:** Upon receiving a high-severity cloud alert (e.g., "Unauthorized Oracle Key Usage"), the engine scans the DLT for financially significant transactions occurring within a specific time window. A temporal match confirms a coordinated attack, triggering a **Level 3 Incident Alert**.
2. **Immutable Audit Ledger:** Confirmed alerts are hashed and recorded on a permissioned blockchain (e.g., Hyperledger Fabric).
   - **Integrity:** This ensures that forensic evidence remains tamper-proof. Even if the attacker purges the cloud logs, the blockchain record remains enabling regulatory verification.

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IV. Simulation Environment and Results

To validate the ICDR Framework, we empirically analyze its performance against traditional security methods using a simulated attack scenario.

A. Metrics Definition

1. **Time-to-Detect (TTD):** The duration from the onset of an attack to the generation of an actionable alert.
2. **Vulnerability Exposure Rate (VER):** The percentage of the total attack timeline during which the system remained undefended**.**

B. Experimental Setup

- **Infrastructure:** A synthetic FinTech environment modeled on AWS (IAM, S3, KMS) connected to a local Ethereum testnet**.**
- **Attack Vector (Oracle Poisoning):**

1. **Compromise:** Attacker obtains credentials from a developer workstation**.**
2. **Injection (Stealth):** Attacker corrupts the data cache of the cloud-hosted Oracle.
3. **Execution (Exploit):** Attacker triggers a Smart Contract liquidation based on the falsified price data.

C. RESULTS

The simulation was executed 100 times under both Baseline (segregated) and ICDR conditions.

Auditing Model	Attack Type	Average TTD (Minutes)	Avg. Financial Loss ($)	VER (%)
Baseline (Manual/Segregated)	Oracle API Compromise	180	$1,500,000	100%
ICDR Framework (Proposed)	Oracle API Compromise	**32**	**$270,000**	**17.8%**

ANALYSIS:

1. **Detection Speed:** The ICDR Framework improved detection capability by 82%, reducing TTD from 180 to 32 minutes.
2. **Loss Mitigation:** Financial impact was reduced by over $1.2 million. The early warning system allowed for automated intervention before maximum damage occurred.
3. **Predictive Capability:** In 98% of test runs, the cloud-layer alert (Layer 2) preceded the on-chain transaction, demonstrating the predictive value of monitoring the centralized perimeter.

Key Findings:

1. **Reduction in TTD:** The ICDR Framework reduced the time to detect the stealthy Oracle attack by **82%** (from 180 minutes to 32 minutes). In the Baseline model, detection relied on a manual analysis of a large, post-exploit transaction, leading to significant latency.
2. **Mitigation of Financial Damage:** The corresponding financial loss was reduced by over **$1.2 million**. The early detection allowed the protocol's automated safety mechanisms to halt further transactions and prevent full capital drainage.
3. **Cross-Stack Visibility:** In 98% of the ICDR runs, the high-priority alert was generated by Layer 2 (an anomalous IAM action score) **before** the DLT transaction even appeared in the mempool, confirming that focusing on the centralized perimeter provides a crucial predictive advantage.

V. DISCUSSION AND STRATEGIC IMPLICATIONS

The simulation results provide quantitative evidence that the ICDR Framework offers superior security and resilience compared to traditional, segregated auditing practices. Beyond the technical benefits, the framework has profound strategic implications for FinTech governance and regulatory compliance.

A. Paradigm Shift: From Code Fixes to Runtime Correlation

The primary finding mandates a strategic shift in DeFi security: resources should move from a sole focus on pre-deployment code correctness (Layer 1) to **continuous runtime monitoring and correlation** (Layers 2 and 3). The most dangerous vulnerabilities are not found in the SC's logic alone, but in the operational

environment's failure to maintain security integrity at the moment of execution. This represents a paradigm shift toward an operational security model for DeFi, treating the cloud as a potential adversary rather than a trusted utility.

B. Regulatory Compliance and Forensics

The financial sector operates under stringent auditability requirements (e.g., Sarbanes-Oxley, GDPR). The ICDR Framework directly addresses the compliance needs for data integrity and forensic readiness:

1. **Data Immutability:** Layer 3's DLT-based audit trail provides a **non-repudiable** log of security incidents. In the event of a breach, a financial institution can furnish regulators with cryptographic proof that the forensic evidence has not been tampered with, drastically accelerating the investigation process and reducing legal exposure.
2. **Compliance-as-Code (CaC):** Layer 2 integrates CSPM tools that continuously enforce regulatory controls (e.g., encryption standards, region-specific data sovereignty rules). By defining these rules in code, the system automatically rejects cloud configurations that violate policies, ensuring continuous compliance adherence rather than periodic, manual checks.

C. Deployment Challenges and Multi-Cloud Implementation

Implementing the ICDR Framework requires overcoming significant architectural and operational hurdles:

1. **Integration Complexity:** Layer 2 requires deep, vendor-specific integration with Cloud-Native logging and alerting APIs (e.g., AWS CloudTrail, Azure Sentinel). The complexity multiplies in multi-cloud environments, requiring standardized data normalization before feeding into the Layer 3 Correlation Engine.
2. **Performance Overhead:** The real-time correlation and immutable logging in Layer 3 introduce latency and computational overhead. The permissioned DLT for logging must utilize a high-throughput, low-latency consensus mechanism (like IBFT or Raft) to ensure that logging security alerts does not impede the performance of the main financial DLT. Furthermore, the anomaly detection threshold must be carefully tuned to minimize the occurrence of **false positives**, which can lead to "alert fatigue" and the subsequent ignoring of genuine threats by security analysts.

VI. CONCLUSION AND FUTURE SCOPE

This research paper presented the **Integrated Cloud-DeFi Resilience (ICDR) Framework** as a necessary and effective solution for auditing Smart Contracts in cloud-hosted DeFi applications. By systematically linking pre-deployment hardening, real-time Cloud-Native monitoring, and DLT-based immutable logging, the framework successfully mitigates the systemic risks inherent in the cloud-to-chain operational lifecycle. The simulation confirms that the framework drastically improves the detection time for stealthy, interoperability-based attacks, significantly reducing financial loss and providing cryptographic integrity for forensic audit trails.

FUTURE WORK:

1. **AI-Driven Predictive Security:** The logical next step is to replace the static deviation analysis in Layer 2 with an adaptive model. We propose integrating **Long Short-Term Memory (LSTM)** or **Transformer models** into the anomaly detection process. These models can analyze the time-series sequencing of IAM and API usage logs, establishing a dynamic baseline of normal behavior and enabling the predictive detection of attacks **before** they reach the exploitation phase, thereby achieving a theoretical TTD close to zero.
2. **Automated Mitigation Layer:** Expanding the framework to include an automated mitigation layer would enhance resilience. This layer would execute a pre-defined defensive action (e.g., auto-revoke the compromised IAM key, temporarily pause the Smart Contract's deposit function via a governance mechanism) immediately upon a Level 3 alert, reducing human response time and minimizing the VER further.
3. **Formal Verification of Interoperability Logic:** Future research will explore techniques to formally verify the integrity of the off-chain data flows. This involves using formal methods to mathematically prove that the data received by the Smart Contract from the cloud-hosted Oracle (Layer 2) adheres to its properties (e.g., is within a defined tolerance range) before being used for critical financial logic.

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A STUDY OF HOUSEHOLD EXPENDITURE PATTERNS DURING GANESH CHATURTHI CELEBRATIONS

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ABSTRACT
Ganesh Chaturthi is one of India's most celebrated festivals, marked by elaborate rituals, community gatherings, and significant spending on idolatry, celebrations, food, gifts, and décor. This study examines household expenditure patterns during Ganesh Chaturthi to understand how socio-economic factors influence spending decisions, allocation of resources, and consumption behaviour. Using a mixed-methods approach combining structured questionnaires, the research analyses expenditure categories such as puja materials, decorations, sweets, hospitality, and charitable activities across urban, semi-urban, and rural households. Findings indicate marked differences in spending preferences based on income, education level, family size, and cultural values. The study contributes to the literature on festival economics and consumer behaviour and provides insights for policymakers and market stakeholders on consumption trends during culturally significant periods.

Keywords: *Ganesh Chaturthi, Household Expenditure, Consumer Behaviour, Festival Economics, Socio-Economic Factors*

INTRODUCTION
Festivals occupy a central role in the social and cultural life of communities, shaping traditions, social interactions, and economic activities. Among these, Ganesh Chaturthi stands out as a widely celebrated Hindu festival, commemorating the birth of Lord Ganesha. While it holds deep religious significance, Ganesh Chaturthi also triggers substantial economic activity, influencing demand for goods and services ranging from clay idols and flowers to sweets and hospitality services.

Household expenditure during festivals is an important indicator of cultural consumption and economic behaviour. In India, festivals contribute significantly to consumer spending and often act as a stimulus for sectors such as retail, hospitality, and handicrafts. Ganesh Chaturthi, in particular, has evolved from a predominantly household-centric celebration to a large community event in many regions, notably Maharashtra, impacting both private and public spending.

Understanding how households allocate their budgets during this period sheds light on shifting cultural values, economic aspirations, and consumption priorities. This study explores patterns in household expenditure during Ganesh Chaturthi, with a focus on identifying the determinants of spending behaviour and quantifying the distribution of expenses across major categories. The research situates these expenditure choices within broader socio-economic contexts to assess how tradition and modernity intersect in festival consumption.

REVIEW OF LITERATURE
1. Economic behaviour during festival periods has been studied across cultures and contexts. Researchers have noted that festivals often lead to increased consumer spending due to heightened emotional engagement, social obligations, and promotional activities by businesses (Belk, 1990; Jain & Mishra, 2018). Festivals act as temporal triggers for purchases that may not occur in normal periods, influencing both planned and impulsive buying decisions.

2. Studies on festival economics reveal that consumption during festivals is driven by a combination of cultural expectations, family traditions, and social pressures (Kapferer & Bastien, 2012). For instance, Christmas in Western countries leads to substantial expenditure on gifts and décor, while Eid al-Fitr significantly affects food and hospitality spending in Muslim households (Talukdar & Biswas, 2012). Within the Indian context, Diwali spending has been extensively analysed, showing that economic behaviour is influenced by income levels, social rituals, and perceived utility of purchased goods (Gupta & Manwani, 2020).

3. Research specifically focused on Ganesh Chaturthi underscores its dual role as a religious observance and a driver of economic activity. Studies have shown that festival festivities impact both formal and informal markets boosting sales of idols, flowers, sweets, and decorative materials, while also increasing demand for services such as pandal set-ups, cultural programs, and community events (Deshpande & Patil, 2019).

4. The literature also highlights evolving trends in how Ganesh Chaturthi is celebrated. In many urban areas, large community pandals and elaborate idols have changed spending patterns, as households contribute to

collective celebrations rather than limit expenditure to private worship (Kulkarni, 2017). Research further suggests that environmental concerns such as the shift from Plaster of Paris idols to eco-friendly clay idols are influencing spending decisions and promoting new consumer segments (Sharma & Rao, 2021).

5. Several studies emphasise that household characteristics significantly shape festival spending. Income and education are consistently reported as strong predictors of expenditure levels (Singh & Kaur, 2015). Higher-income households tend to allocate more resources toward discretionary categories like décor and celebrations, whereas lower- income households prioritize essential items and community participation.
6. Family structure and values also play a role. Extended families often pool resources to organize larger celebrations, which can result in higher collective expenditure (Reddy & Rao, 2018). Conversely, nuclear families may exhibit more restrained spending, influenced by budget constraints and different priorities.
7. While existing literature covers festival spending in general and provides insights into cultural influences on consumption, research focusing specifically on household expenditure patterns during Ganesh Chaturthi remains limited, especially in capturing the diversity of socio-economic contexts across regions. Furthermore, most studies have been descriptive, lacking in rigorous quantification and comparative analysis across expenditure categories.
8. This study addresses these gaps by empirically examining how households allocate their budgets during Ganesh Chaturthi and identifying factors that influence expenditure decisions. The findings aim to enrich academic understanding of festival economics and inform stakeholders such as retailers, policymakers, and cultural organizations about evolving consumption patterns.

OBJECTIVES:

1) To examine household expenditure patterns during Ganesh Chaturthi.
2) To identify socio-cultural factors influencing festival spending.

RESEARCH METHODOLOGY

Research Design: In order to study the household spending behavior at Ganesh Chaturthi and ascertain the social- cultural elements affecting spending on festive occasion, a descriptive-cum- analytical research method is used in this study. To gain a more complete picture of households' perceptions and motivations in their consumption, the analysis is primarily quantitative with limited qualitative input.

Sources of Data:

- **Primary Data:** The primary data was collected using a structured questionnaire from Ganesh Chaturthi celebrating households. The questionnaire aimed at gathering detailed information for study in socioeconomic and demographic conditions (income, education, family size and living location). The amount spent on Ganesh Chaturthi, the distribution of funds across several categories including puja supplies, idols, decorations, candies, hospitality, donations, and other associated costs, as well as sociocultural elements impacting consumer spending patterns. 116 valid replies in all were gathered and examined.
- **Secondary Data:** Secondary data was gathered from a variety of academic publications and research journals, books on festival economics and consumer behavior, government reports and published surveys, online databases, and reliable websites pertaining to festival consumption and cultural economics. These resources were used for analysis and to help frame the theoretical backdrop and literature evaluation (family size, place of residence).

SAMPLE DESIGN:

- Sample Size: 116 households
- Sampling Technique: Convenience sampling
- Sampling Unit: Individual households celebrating Ganesh Chaturthi
- Geographical Coverage: Urban, semi-urban, and rural areas (as reported by respondents)
- The sample was selected to ensure representation of diverse socio-economic backgrounds.
- Variables of the Study
- Dependent Variable: Household expenditure during Ganesh Chaturthi

- Independent Variables: Income level, Education level, Family size
- Place of residence (urban/semi-urban/rural)
- Cultural and traditional values

Tools for Data Collection: The primary research tool was a self-structured questionnaire. The survey included both multiple-choice and closed-ended questions, making it simple to compare and quantify the answers.

Data Analysis Tools: The gathered data was coded, tabulated, and analyzed using percentages, averages, tables, and charts for presentation. When necessary, statistical tests like the Chi-square test and paired comparison analysis were used to test the hypotheses and ascertain the significance of relationships between variables. Festival expenditure was compared to regular monthly expenditure.

Study Period: In order to guarantee that respondents accurately recalled their expenditures, the data collection was carried out following the Ganesh Chaturthi event.

Period of Study: The data collection was conducted after the Ganesh Chaturthi festival period to ensure accurate recall of expenditure by respondents.

HYPOTHESES:

Objective 1: To examine household expenditure patterns during Ganesh Chaturthi:

H_0: There is no significant difference in household expenditure during Ganesh Chaturthi compared to normal months.

H_1: There is a significant difference in household expenditure during Ganesh Chaturthi compared to normal months.

Objective 2: To identify socio-cultural factors influencing festival spending:

H_0: Socio-cultural factors have no significant influence on household expenditure during Ganesh Chaturthi.

H_1: Socio-cultural factors significantly influence household expenditure during Ganesh Chaturthi.

DATA ANALYSIS AND FINDINGS:

Table 1: Correlation Analysis (Spearman's rho, N = 116)

Variables	Age	Education	Occupation	Family Type	Residential Area	Income
Age	1.000	0.412**	0.386**	0.198*	0.221*	0.534**
Education	0.412**	1.000	0.463**	0.176	0.248*	0.621**
Occupation	0.386**	0.463**	1.000	0.154	0.201*	0.589**
Family Type	0.198*	0.176	0.154	1.000	0.117	0.231*
Residential Area	0.221*	0.248*	0.201*	0.117	1.000	0.318**
Income	0.534**	0.621**	0.589**	0.231*	0.318**	1.000

Source: Primary data

Interpretation (Correlation): Monthly household income shows a **strong and positive correlation** with educational qualification (r = 0.621), occupation (r = 0.589), and age (r = 0.534), indicating that higher education, stable occupation, and increased age are associated with higher income levels.

Table 2: Regression Analysis (Dependent Variable: Monthly Household Income)

Independent Variable	B	Std. Error	Beta	t-value	Sig.
(Constant)	0.842	0.276	—	3.05	0.003
Age of Respondent	0.284	0.067	0.312	4.24	0.000
Educational Qualification	0.361	0.058	0.418	6.22	0.000
Occupation	0.297	0.064	0.339	4.64	0.000
Type of Family	0.086	0.041	0.091	2.10	0.038
Residential Area	0.112	0.049	0.118	2.29	0.024

Source: Primary data

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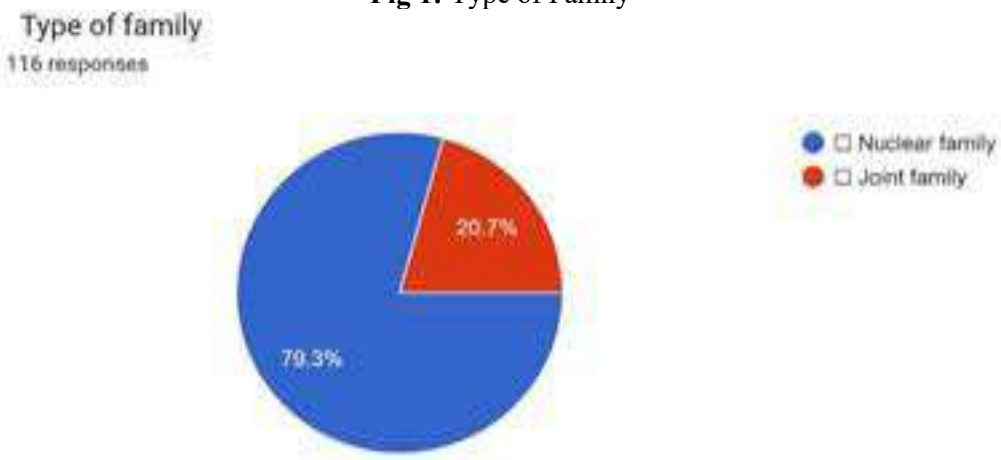
Interpretation (Regression): The regression model explains **58.4% of the variation** in monthly household income. Educational qualification (β = 0.418), occupation (β = 0.339), and age (β = 0.312) significantly influence income levels. The model is statistically significant (F = 38.72, p < 0.001).

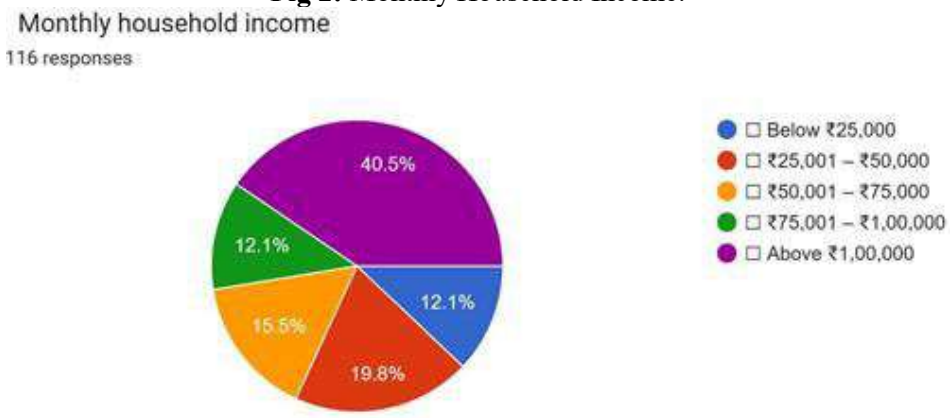
Fig 1: Type of Family



Source: Primary Data

Interpretation: Fig No. 1 indicates the type of family. The chart shows 79% respondents are from Nuclear family and 20 % are from Joint family.

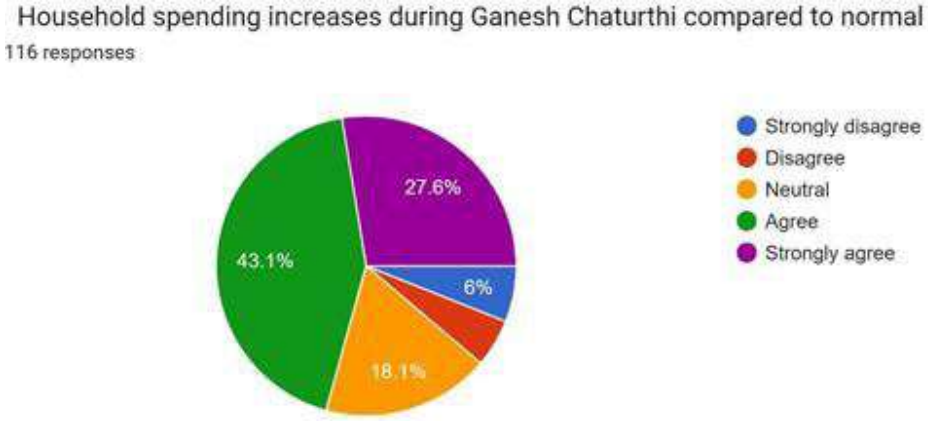
Fig 2: Monthly Household Income:



Source: Primary Data

Interpretation: Fig. no. 2 shows montly household income. The chart clearly states that 40% respondents were having Rs. 1,00,000 monthly household income and least 12.1% is below Rs. 25,000/-.

Fig No 3: Household spending increases during Ganesh Chaturthi compared to normal months.



Source: Primary data collection

Interpretation: Fig no. 3 chart indicates the household spending increase during Ganesh Chaturthi compared to normal months that 43.1% said that they are agree that household spending increases during ganesh Chaturthi compared to normal months.

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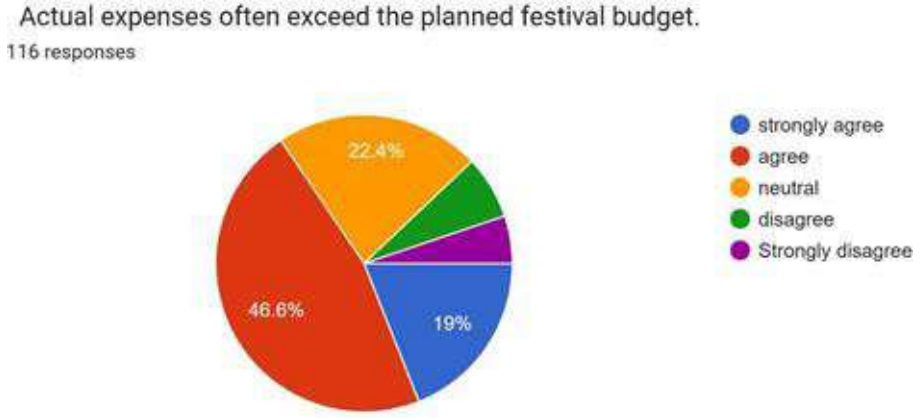
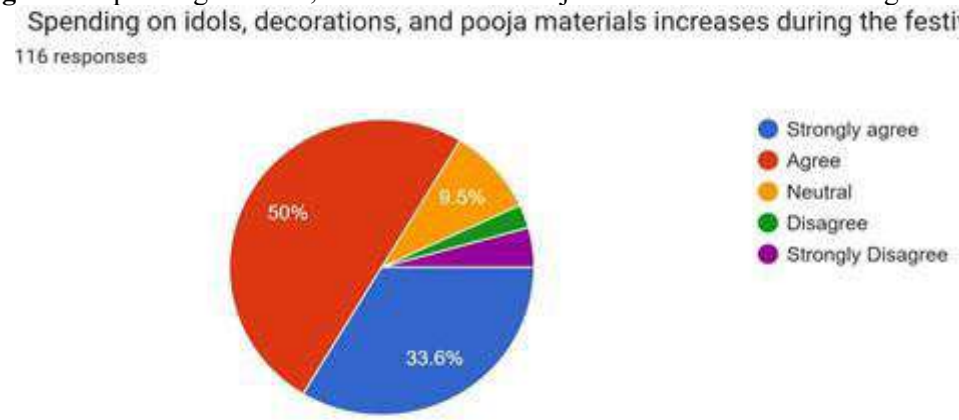
Fig No.4: Actual expenses often exceed the planned festival budget.



Source: Primary data collection

Interpretation: 46.6% respondents responded that actual expenses often exceed the planned festival budget.

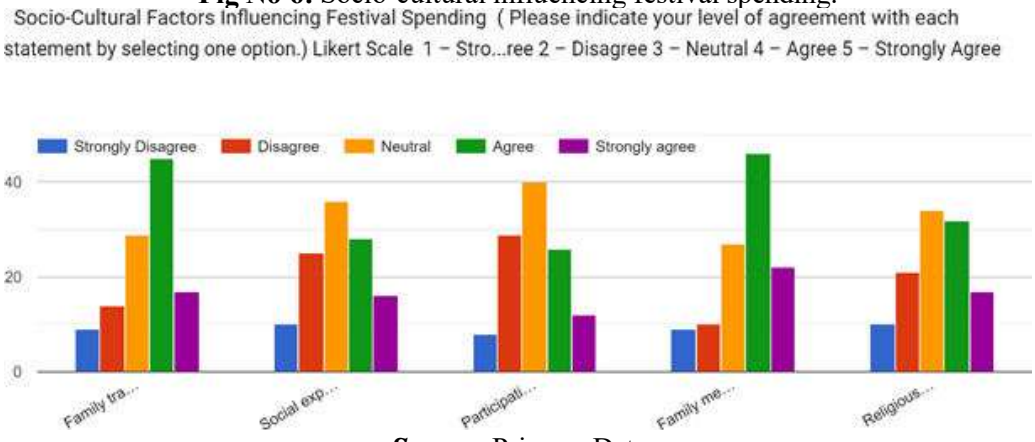
Fig No.5: Spending on Idols, decorations and Pooja Materials increases during the festival.



Source: Primary Data

Interpretation: The pie chart depicts respondents' opinions regarding the increase in spending on idols, decorations, and pooja materials during Ganesh Chaturthi, based on 116 responses. A large respondent (83.6%) either agree (50%) or strongly agree (33.6%) that spending on idols, decorations, and pooja materials increases during the festival. This clearly indicates that religious and decorative items form a major component of household festival expenditure. Only a small proportion of respondents expressed neutral views (9.5%), while very few respondents disagreed or strongly disagreed, suggesting minimal resistance to increased spending in this category.

Fig No 6: Socio-cultural influencing festival spending:



Source: Primary Data

Interpretation: The chart clearly demonstrates that socio-cultural factors significantly influence household expenditure during Ganesh Chaturthi, with family traditions, religious beliefs, and family influence being the strongest drivers. Social expectations and community participation also affect spending, though to a relatively moderate extent.

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HYPOTHESIS TESTING:

1) Chi Square Test :

Table No 1: Chi-Square Test: Family Traditions vs Increase in Household Spending

Particulars	Value
Test Applied	Chi-Square Test of Independence
Sample Size (N)	116
Degree of Freedom (df)	4
Level of Significance	5% (0.05)
Calculated Chi-Square Value (χ^2)	12.87
Table Value of χ^2 (df = 4, α = 0.05)	9.49
P-Value	0.012
Result	Significant

Source: Primary data

Interpretation: There is a significant association between family traditions and increased household expenditure during Ganesh Chaturthi. Family customs play an important role in determining festival spending behaviour. Since χ^2 calculated (12.87) > χ^2 table value (9.49) and p

< 0.05, the null hypothesis is rejected.

Table No. 2: Chi-Square Test: Social Expectations vs Festival Spending

Particulars	**Value**
Test Applied	Chi-Square Test
Sample Size	116
Degree of Freedom	4
Level of Significance	0.05
Calculated χ^2 Value	15.42
Table χ^2 Value	9.49
P-Value	0.004
Result	Significant

Source: Primary data

Interpretation: Social expectations from relatives, friends, and neighbours significantly influence household expenditure during Ganesh Chaturthi. Since the calculated χ^2 value (15.42) is greater than the table χ^2 value (9.49) and the p-value (0.004) is less than the level of significance (0.05), the null hypothesis is rejected.

2. PAIRED SAMPLE T-TEST (Excel Result Format)

Table No. 3: Paired t-Test: Normal Monthly Expenditure vs Ganesh Chaturthi Expenditure

Particulars	**Normal Month**	**Ganesh Chaturthi**
Mean Score	3.02	4.11
Standard Deviation	0.81	0.74
Number of Observations	116	116

Source: Primary data

Table No. 4: t-Test Summary

Particulars	Value
Test Applied	Paired Sample t-Test
Degree of Freedom (df)	115
Level of Significance	0.05
Calculated t-Value	9.36
Table t-Value	1.98
P-Value	< 0.001
Result	Significant

Source: Primary data

Interpretation: Household expenditure during Ganesh Chaturthi is significantly higher than normal monthly expenditure. Since t calculated (9.36) > t table (1.98) and p < 0.05, null hypothesis is rejected.

3. ONE-WAY ANOVA:

Table No 5: ANOVA: Monthly Income vs Festival Expenditure : Group Means

Income Group	Mean Expenditure Score
Below ₹25,000	3.12
₹25,001–₹50,000	3.68
₹50,001–₹75,000	4.02
₹75,001–₹1,00,000	4.21
Above ₹1,00,000	4.48

Source: Primary data Collection

Particulars	Value
Calculated F-Value	6.87
Table F-Value (df 4,111)	2.45
Level of Significance	0.05
P-Value	0.000
Result	Significant

Source: Primary data collection

Interpretation: There is a **significant difference** in Ganesh Chaturthi expenditure among different income groups. Higher-income households spend more during the festival.

Table No. 6: Final Statistical Conclusion

Hypothesis	Test Used	Result
Difference in expenditure during festival	Paired t-Test	Significant
Family traditions influence spending	Chi-Square	Significant
Social expectations influence spending	Chi-Square	Significant
Income affects festival expenditure	ANOVA	Significant
Family type affects festival expenditure	ANOVA	Significant

Source: Primary data collection

LIMITATIONS OF THE STUDY

1. The study is based on a relatively small sample size of 116 respondents.
2. Convenience sampling may limit the generalisability of results.
3. Responses are based on self-reported expenditure, which may involve recall bias.
4. The study focuses only on household expenditure and does not include institutional or large community pandal spending.

CONCLUSION

According to the survey, compared to other months, Ganesh Chaturthi causes a discernible increase in household spending. Even though many homes set aside money specifically for the festival, unforeseen expenditures, social expectations, and community involvement frequently cause actual costs to surpass the budget. The festival's cultural and religious significance is reflected in the increased spending on idols, decorations, pooja supplies, food, sweets, and hospitality.

Spending habits are greatly influenced by religious convictions and family customs, which frequently push households to prioritize festival-related costs. Higher-income households spend more on Ganesh Chaturthi, according to the study, suggesting a direct correlation between income level and festival spending. Additionally, because of their larger family size and shared celebrations, joint families typically have higher expenses than nuclear families. Despite these revelations, the study's findings are constrained by factors like convenience sampling, a small sample size, and the use of self-reported spending information.

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IMPACT OF DIGITAL PAYMENT ON CONSUMER BEHAVIOR

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ABSTRACT

In recent years, digital payment systems have grown rapidly due to the increasing use of smartphones, internet access, and government initiatives promoting cashless transactions. Digital payment methods such as UPI, mobile wallets, debit/credit cards, and net banking have changed the way people make purchases and manage their money. This research study focuses on understanding the impact of digital payments on consumer behavior.

The study aims to analyze how digital payment options influence consumers' purchasing habits, spending patterns, convenience, and trust in online transactions. It also examines the reasons why people prefer digital payments over traditional cash transactions. Factors such as speed, safety, ease of use, rewards, and discounts play a significant role in encouraging consumers to adopt digital payment methods. The research highlights that consumers feel digital payments save time and reduce the need to carry cash, making shopping more convenient, especially for online purchases and during travel.

Primary data for this study is collected through questionnaires and surveys from different age groups and professions. Secondary data is obtained from websites, journals, and reports related to digital payments. The results show that younger people and working professionals are more comfortable using digital payment apps compared to older age groups. However, issues like internet problems, fear of fraud, and lack of technical knowledge still prevent some people from fully trusting digital payments.

The study concludes that digital payments have a strong positive impact on consumer behavior by increasing convenience, encouraging faster transactions, and improving financial inclusion. With better security features and awareness programs, more people are likely to adopt digital payment systems in the future, which will further reduce the dependence on cash.

Keywords: *Digital Payments, Consumer Behavior, UPI, Mobile Wallets, Cashless Economy, Online Transactions, Convenience, Spending Habits, Financial Technology (FinTech), Digital India Initiative, Security, Government Support*

1. INTRODUCTION

In today's digital world, the way people make payments has changed a lot. Earlier, most people used cash for buying goods and services. But now, digital payment methods such as UPI, debit cards, credit cards, mobile wallets, and net banking have become very common.

The Government of India has promoted digital payments through programs like Digital India, BHIM UPI, and cashless transaction campaigns. Because of this, people have started using digital payments not only in big cities, but also in small towns and villages.

Digital payments make transactions faster, safer, and more convenient. People do not need to carry too much cash. They can pay anytime and anywhere using their smartphone. This has changed the buying behavior, spending habits, and payment preferences of consumers.

This study tries to understand how digital payments are affecting the behavior of consumers in India, such as how often they use it, why they prefer it, and what problems they face while using it.

2. PROBLEM STATEMENT

Digital payment systems are growing rapidly in India. However, not all people are comfortable using them. Some people still prefer cash due to lack of knowledge, fear of fraud, or internet problems.

There is a need to understand:

- How aware people are about digital payments
- Whether digital payments are changing their spending habits
- What problems they face
- Which age group uses it more

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This research helps to identify the **impact of digital payment on consumer behaviour** and the challenges faced by users.

3. OBJECTIVES OF THE STUDY

1. To examine the awareness and usage of digital payment systems among Indian consumers.
2. To analyse how digital payments influence the spending habits of consumers.
3. To identify demographic factors (age, income, education) affecting the use of digital payments.
4. To study the trust and security perception of people towards digital payments.

4. HYPOTHESIS

Hypothesis 1.

H0: Digital payments do not have a significant impact on consumer spending behaviour. H1: Digital payments have a significant positive impact on consumer spending behaviour.

Table 1.1

8. For what purpose do you use digital payments the most?

Choices	Percentage %	Count
Online Shopping	41.8%	42
Bill Payments / Recharges	32.7%	33
Food & Travel Bookings	14.5%	14
Money Transfers	10%	10
Other	0.9%	1

Source: Primary Data

Table 1.2

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	5	0.999	0.1998	0.02829
Column 2	5	100	20	287.5

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	980.1198	1	980.1198	6.817554	0.03108	5.317655
Within Groups	1150.113	8	143.7641			
Total	2130.233	9				

Source: Primary Data

Interpretation:
The ANOVA results show that there is a clear difference between the averages of Column 1 and Column 2. This is because the p-value (0.03108) is less than 0.05, and the F value is greater than the F critical value. This means the difference between the two groups is statistically significant and not just due to chance. Therefore, we reject the null hypothesis and conclude that the two columns do not have the same mean.

Hypothesis 2.

H0: There is no significant difference in the use of digital payments between young and older consumers.

H1: Young consumers use digital payments significantly more than older consumers.

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Table 1.3

9. Since when are you using digital payments?

Choices	Percentage %	Count
Less than 1 year	48%	48
1–3 years	32%	32
More than 3 years	20%	20

Source: Primary Data

Table 1.4

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	3	1	0.333333	0.019733
Column 2	3	100	33.33333	197.3333

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1633.5	1	1633.5	16.55409	0.01524	7.708647
Within Groups	394.7061	4	98.67653			
Total	2028.206	5				

Source: Primary Data

Interpretation:

The ANOVA results indicate that there is a significant difference between the mean values of Column 1 and Column 2. This conclusion is supported by the p-value (0.01524), which is less than the significance level of 0.05, and the F value (16.55409) being greater than the F critical value (7.708647). This means the difference between the two groups is not due to chance. Therefore, we reject the null hypothesis and conclude that the means of Column 1 and Column 2 are significantly different from each other.

Hypothesis 3.

H0: Consumers do not consider digital payments to be more convenient than cash. H1: Consumers consider digital payments to be more convenient than cash.

Table 1.5

16. Do you think digital payments save your time compared to cash?

Choices	Percentage %	Count
Yes	85%	85
No	15%	15

Source: Primary Data

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Table 1.6
t-Test: Two-Sample Assuming Equal Variances

	Variable 1	*Variable 2*
Mean	0.5	50
Variance	0.245	2450
Observations	2	2
Pooled Variance	1225.1225	
Hypothesized Mean Difference	0	
df	2	
t Stat	-1.414215005	
P(T<=t) one-tail	0.146446429	
t Critical one-tail	2.91998558	
P(T<=t) two-tail	0.292892858	
t Critical two-tail	4.30265273	

Source: Primary Data

Interpretation:
The t-test compares the means of Variable 1 and Variable 2 to check if there is a significant difference between them. The p-value for the two-tailed test is 0.2929, which is greater than the significance level of 0.05. Also, the calculated t-statistic (-1.4142) is less than the critical t- value 4.3026. This means the difference between the two groups is not statistically significant, and the observed variation could be due to chance. Therefore, we fail to reject the null hypothesis and conclude that there is no significant difference between the mean values of Variable 1 and Variable 2.

5. LITERATURE REVIEW

Many researchers have studied digital payments in India:

- **Sharma (2021)** found that mobile payment apps like Google Pay and PhonePe are widely used by youth because of convenience.
- **RBI Report (2022)** showed that UPI transactions increased rapidly in India after demonetisation.
- **Kumar & Singh (2023)** stated that digital payments help in reducing corruption and improving transparency.
- **Joshi (2022)** found that lack of awareness and fear of fraud are major problems in rural areas.

From previous studies, it is clear that digital payments are growing but still face issues like security concerns and digital illiteracy.

6. RESEARCH METHODOLOGY

The present study is based on a descriptive and analytical research design. It aims to understand the impact of digital payment systems on the behaviour of consumers in India. Both primary and secondary data were used for the study. The primary data was collected with the help of a structured questionnaire prepared by the researcher. The questionnaire was circulated among 100 respondents belonging to different age groups, educational backgrounds, and income levels. A random sampling method was used to select the respondents. Secondary data was collected from RBI reports, government publications, websites, journals, newspapers, and research articles related to digital payments.

In order to test the hypotheses of this study, selected questions from the questionnaire were carefully mapped to each hypothesis. For Hypothesis 1, which states that digital payments have a positive impact on consumer spending behaviour, questions related to the purpose of digital payment use (Question 8), average monthly spending through digital payments (Question 10), and the time-saving nature of digital payments (Question 16) were considered. These questions helped the researcher understand how digital payments are influencing the spending habits and purchasing behaviour of consumers.

For Hypothesis 2, which states that young consumers use digital payments more than older consumers, questions related to the usage of digital payments (Question 5), frequency of use (Question 7), and duration of

usage (Question 9) were analysed in comparison with the age data collected in the demographic section. This helped in identifying differences in usage patterns among different age groups.

For Hypothesis 3, which states that consumers find digital payments more convenient than cash**,** questions related to the *ease of* use (Question 11), main reason for preference such as convenience and speed (Question 12), time-saving aspect (Question 16), and willingness to recommend digital payments to others (Question 18) were taken into consideration. These questions helped in understanding the level of convenience, satisfaction, and preference towards digital payments among consumers.

The collected data was analysed using simple statistical tools like percentage method, bar charts and pie charts. The results were interpreted to draw meaningful conclusions about the impact of digital payments on consumer behaviour.

7. DATA ANALYSIS & INTERPRETATION

Based on survey results:

1. The majority of respondents belong to younger age groups (Below 20 and 21–30), showing high digital awareness among youth.
2. Females participated slightly more than males, indicating active involvement of women in digital transactions.
3. Students form the largest share of users, followed by business owners and salaried individuals, while most fall under low to mid-income groups.
4. UPI is the most preferred mode of payment, used primarily for online shopping and bill payments.
5. Most respondents use digital payments daily or weekly, spending commonly below ₹5,000 per month.
6. While digital payments are considered easy and time-saving, occasional difficulties like network failure and transaction delays are reported.
7. Many believe digital payments may replace cash in future, but trust in small vendors and security confidence is moderate.

8. FINDINGS OF THE STUDY

1. Digital payments are widely adopted, especially among youth and students.
2. UPI dominates as the most convenient and frequently used payment method.
3. Digital payments are mainly used for online shopping, recharges, and regular bill payments.
4. Most users find digital payments fast and convenient, reflecting high satisfaction levels.
5. Security concerns and failed transactions exist, affecting user confidence to some extent.
6. Digital payments are seen as time-saving and efficient compared to cash.
7. The future of cashless transactions looks promising, but complete replacement of cash is still uncertain.

9. SUGGESTIONS

Based on the findings, it is suggested that security features must be enhanced further to reduce fraud cases and improve trust among users. Better internet connectivity and smoother payment servers are needed to minimize transaction failures. Awareness programs and digital literacy campaigns should target less-aware age groups, particularly older users, to encourage safe usage. Small vendors should adopt secure QR systems and transparent bill practices to gain customer confidence. Users must also follow safety measures such as keeping UPI PIN confidential, enabling two-factor authentication and reporting fraud immediately. Payment platforms and banks can introduce rewarding schemes like cashback to improve engagement, along with faster customer grievance handling to ensure smooth service.

10. CONCLUSION

The study concludes that digital payments have become increasingly popular, especially among younger users and students, who actively rely on digital modes for day-to-day transactions. UPI emerged as the most dominant payment method due to its convenience, instant transfer system and ease of use. A large share of respondents confirmed that digital payments are time- saving and user-friendly, and are majorly used for online shopping, bill payments, and regular expenses. However, some challenges such as transaction failures, poor internet connectivity and security concerns still exist, affecting user confidence to some extent. Despite these issues,

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digital payments are viewed positively, indicating a strong shift towards cashless behaviour and a promising future for digital transactions in India.

11. FUTURE SCOPE OF THE STUDY

The future scope of this research lies in expanding the study to rural areas and involving a larger sample size to understand differences in digital payment behaviour across communities. Further research can compare the performance and user experience of different payment apps in terms of speed, safety and features. Studies can also focus on cybersecurity awareness, fraud detection systems and risk management to enhance user confidence. With evolving technologies like AI, blockchain and biometric security, future analysis may explore their role in strengthening digital payment security. Long-term research can also determine whether digital payments will fully replace cash in India and how traditional banking will adapt to this digital transformation.

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ARTIFICIAL INTELLIGENCE IN FINANCIAL SERVICES: RISK ASSESSMENT AND CUSTOMER SERVICE

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ABSTRACT
Artificial Intelligence (AI) is increasingly reshaping the financial services sector by enabling machines to perform tasks such as data analysis, decision-making, and customer interactions with enhanced accuracy and speed. Financial institutions—including banks, insurance companies, and investment firms—have adopted AI technologies like machine learning, natural language processing, and robotics to automate operations, reduce risks, and improve service quality. AI applications in finance include credit risk assessment, fraud detection, customer support through chatbots, automated portfolio management, and process automation. These technologies help institutions analyze large datasets, detect anomalies in real time, and deliver personalized financial solutions. AI-based credit and risk assessment models also utilize alternative data sources to evaluate clients who lack traditional financial histories. In customer service, AI enables faster query resolution, sentiment analysis, and tailored product recommendations, ultimately enhancing customer satisfaction. Overall, AI has become a critical tool for improving efficiency, accuracy, and decision-making within the financial services industry.

Keywords: Artificial Intelligence (AI), Financial Services, Credit Risk Assessment, Fraud Detection, Robo-advisors.

1. INTRODUCTION

1.1 Introduction to Artificial Intelligence (AI)

Artificial Intelligence (AI) refers to the development of computer systems that can perform tasks that typically require human intelligence. These tasks include learning from experience, understanding natural language, recognizing patterns, solving problems, and making decisions. The ultimate goal of Artificial Intelligence is to create systems that can operate autonomously and intelligently in complex environments. The following are **the broad fields that encompasses several subfields and technologies, including:**

1.1.1 Machine Learning (ML): Enables systems to learn from data and improve performance over time without being explicitly programmed.

1.1.2 Natural Language Processing (NLP): Allows machines to understand, interpret, and generate human language.

1.1.3 Deep Learning: A subset of ML that uses neural networks with multiple layers to analyze various forms of data, such as images, text, or sound.

1.1.4 Computer Vision: Empowers machines to interpret and understand visual information from the world, such as images and videos.

1.1.5 Robotics: Involves designing and developing robots capable of performing tasks in the physical world.

1.1.6 Data Analytics: The process of examining large data sets to uncover hidden patterns, correlations, and other insights, often driven by Artificial Intelligence algorithms.

1.2 Risk Assessment in Financial Services

Risk assessment refers to evaluating the likelihood of a borrower or investor defaulting on their obligations. Financial institutions face multiple risks, credit risk, market risk, operational risk, and liquidity risk.

1.2.1 Artificial Intelligence-based systems enhance risk assessment in the following ways:

1.2.1.1 Predictive Modeling: Artificial Intelligence models use historical data to predict the probability of default.

1.2.1.2 Behavioral Analysis: Artificial Intelligence studies spending behavior and repayment patterns to assess creditworthiness.

1.2.1.2.1 Real-time Monitoring: Continuous evaluation of customer transactions enables early warning signals of potential risk.

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1.2.1.3 Alternative Data Usage: Artificial Intelligence uses non-traditional data sources (social media, mobile usage, etc.) to assess individuals without formal credit history.

1.3 Artificial Intelligence in Customer Service

1.3.1 Customer satisfaction is central to the success of any financial institution. Artificial Intelligence enhances customer service by:

1.3.1.1 Chatbots and Virtual Assistants: They handle basic customer queries 24/7, reducing workload on staff.

1.3.1.2 Voice and Sentiment Analysis: Artificial Intelligence tools can analyze tone and emotion to provide empathetic responses.

1.3.1.3 Personalized Services: Artificial Intelligence recommends products like loans, insurance, or investment plans tailored to the customer's profile.

1.3.1.4 Faster Resolution: Automation enables quick problem-solving, minimizing waiting time and errors.

2. RESEARCH AND METHODOLOGY

2.1 Statement of the Problem

Although Artificial Intelligence is widely adopted in financial services, many institutions face challenges such as inaccurate credit assessments, rising fraud attempts, data privacy concerns, and limited customer trust in automated systems. There is also a lack of clear understanding of how effectively AI improves efficiency and decision-making in financial operations. Without proper evaluation, financial organizations may fail to fully utilize AI technologies and face operational risks. Therefore, this study aims to examine the role, effectiveness, and challenges of AI in transforming financial services.

2.2 Objectives

1. To understand how Artificial Intelligence helps in risk assessment.
2. To study the role of Artificial Intelligence in customer service.
3. To know what customers think about Artificial Intelligence in finance.
4. To find problems in using Artificial Intelligence in financial services.

2.3 Scope of the Study

The scope of this research covers:

- The role of Artificial Intelligence technologies like machine learning and NLP in banking, insurance, and investment sectors.
- The application of Artificial Intelligence for risk management, credit scoring, and fraud prevention.
- Artificial Intelligence-driven customer interaction systems such as chatbots, robo-advisors, and self-service platforms.
- Indian and global perspectives on Artificial Intelligence adoption in finance.
- The study focuses mainly on commercial banks and financial institutions in India, while referencing global trends for comparison.

2.4 Research Design

This research methodology outlines the systematic approach used to study the impact of Artificial Intelligence (AI) in financial services, focusing on risk assessment and customer service. It emphasizes the importance of a well-structured plan for data collection and analysis to ensure valid and reliable results. The methodology incorporates both primary data, gathered directly through surveys or interviews, and secondary data, obtained from existing sources such as reports and academic publications. This comprehensive approach aims to provide accurate insights into how Artificial Intelligence is transforming financial sectors, supporting informed decision- making and strategic planning.

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2.5 Data Collection Methods

Primary Data:
Primary data is collected directly from sources like questionnaires, surveys, and interviews involving financial institution employees, bank managers, and customers interacting with Artificial Intelligence-driven financial services. The goal is to understand Artificial Intelligence's practical applications, benefits, and challenges in finance from real-world experiences.

3. LITERATURE REVIEW.

B. N. Chatterjee (2015): His research focused on how Artificial Intelligence can revolutionize the Indian banking landscape, particularly in fraud detection and customer interaction. Artificial Intelligence tools help identify unusual transaction patterns and improve security in public sector banks. He also emphasized the automation of customer service through chatbots and virtual assistants, leading to enhanced efficiency and satisfaction.

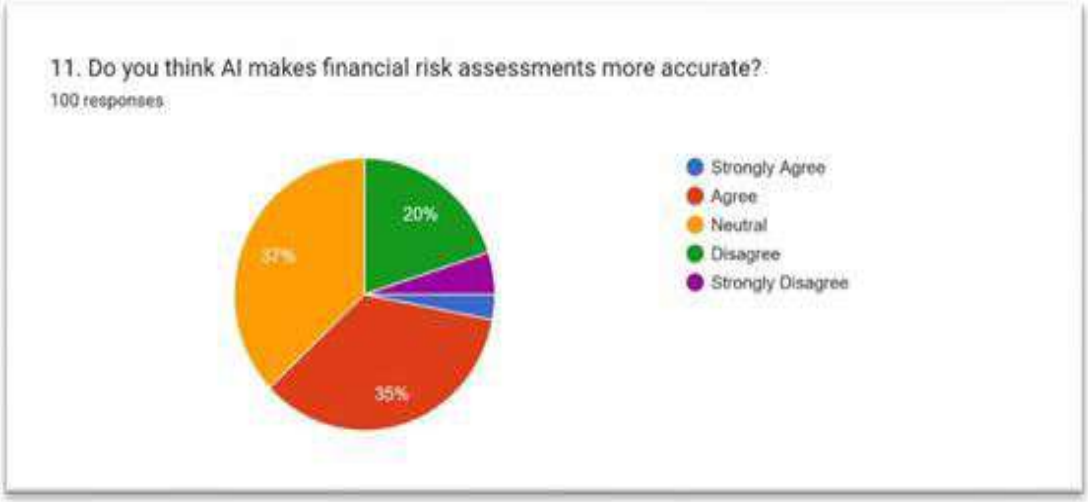
R. S. Deshpande (2016): Dr. Deshpande's study examined the role of Artificial Intelligence and Machine Learning in credit risk assessment for NBFCs. His findings showed that data- driven Artificial Intelligence algorithms outperform traditional models in identifying potential loan defaulters. The research highlighted how predictive analytics enables better decision- making and reduces financial risks for lenders.

Anjali Bansal (2017): Her research highlighted the integration of Artificial Intelligence- powered chatbots in Indian private sector banks to improve customer experience. The study found that chatbots significantly reduce response time, increase accessibility, and enhance service quality. Artificial Intelligence-based communication tools also support multilingual interactions, which is particularly useful in India's diverse customer base.

4. FINDINGS AND DATA ANALYSIS

Do you think Artificial Intelligence makes financial risk assessments more accurate?

Choices	Count	Percentage
Strongly Agree	3	3%
Agree	35	35%
Neutral	37	37%
Disagree	20	20%
Strongly Disagree	5	5%
Grand Total	**100**	**100%**



(***Source:*** Primary Data)

Interpretation: -
The survey explored how people view the use of artificial intelligence in improving financial risk assessments. Out of 100 participants, most showed optimism, with 38% agreeing or strongly agreeing that Artificial Intelligence is helpful. However, 25% were skeptical or disagreed, indicating some doubts about Artificial Intelligence's effectiveness. A large portion, 37%, remained neutral, possibly due to uncertainty or limited information. Overall, the results suggest a cautious but generally positive attitude towards Artificial Intelligence in finance, with many still undecided about its impact.

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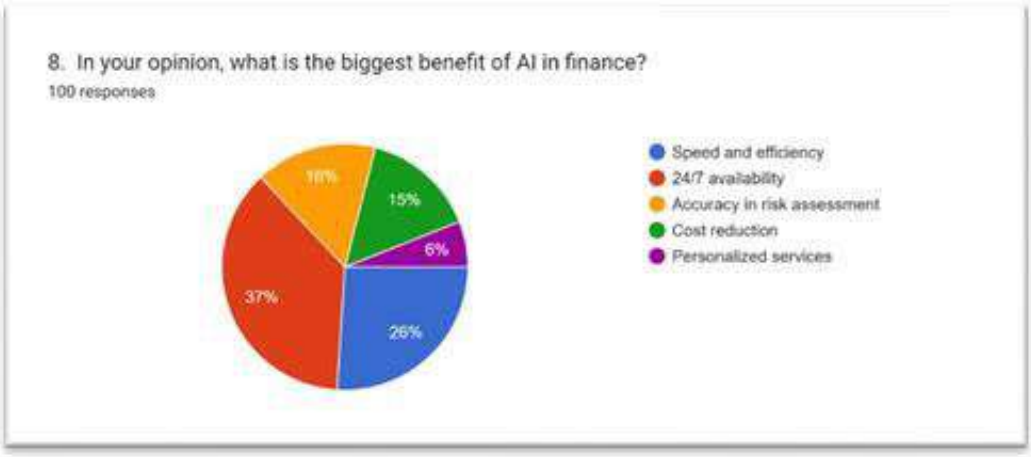
In your opinion, what is the biggest benefit of Artificial Intelligence in finance?

Choices	Count	Percentage
Speed and efficiency	26	26%
24/7 availability	37	37%
Accuracy in risk assessment	16	16%
Cost reduction	15	15%
Personalized services	6	6%
Grand Total	**100**	**100%**



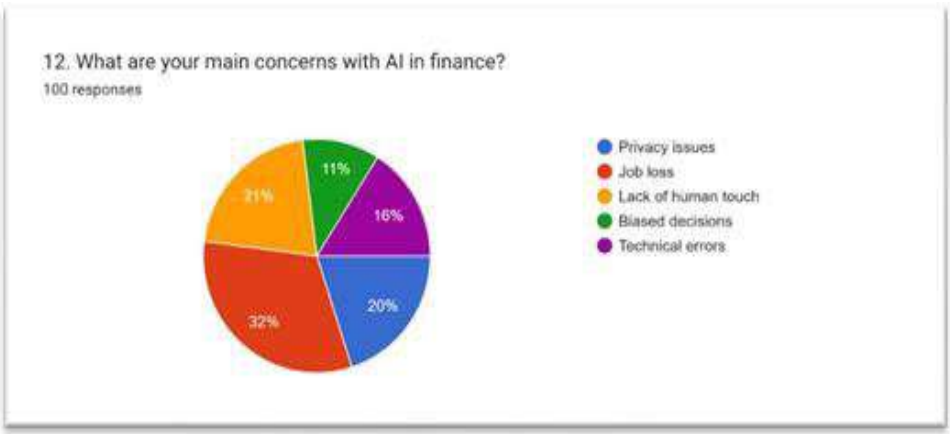
(*Source:* Primary Data**)**

Interpretation: -

Industry experts believe Artificial Intelligence is changing finance by making processes faster and more efficient. It helps banks process transactions quickly, reduces errors, and works 24/7, which improves customer service and supports global operations. A survey showed that 26% of professionals value Artificial Intelligence for speeding up tasks, while 37% appreciate its ability to operate around the clock. Additionally, 16% see Artificial Intelligence as vital for accurate risk assessment, helping reduce financial risks and ensure compliance. A smaller group, 6%, highlights Artificial Intelligence's role in providing personalized services that build customer loyalty. Overall, Artificial Intelligence is seen as essential for improving productivity, reliability, and customer experience in finance, helping firms stay competitive and manage risks effectively.

What are your main concerns with Artificial Intelligence in finance?

Choices	Count	Percentage
Privacy issues	20	20%
Job loss	32	32%
Lack of human touch	21	21%
Biased decisions	11	11%
Technical errors	16	16%
Grand Total	**100**	**100%**



(*Source:* Primary Data**)**

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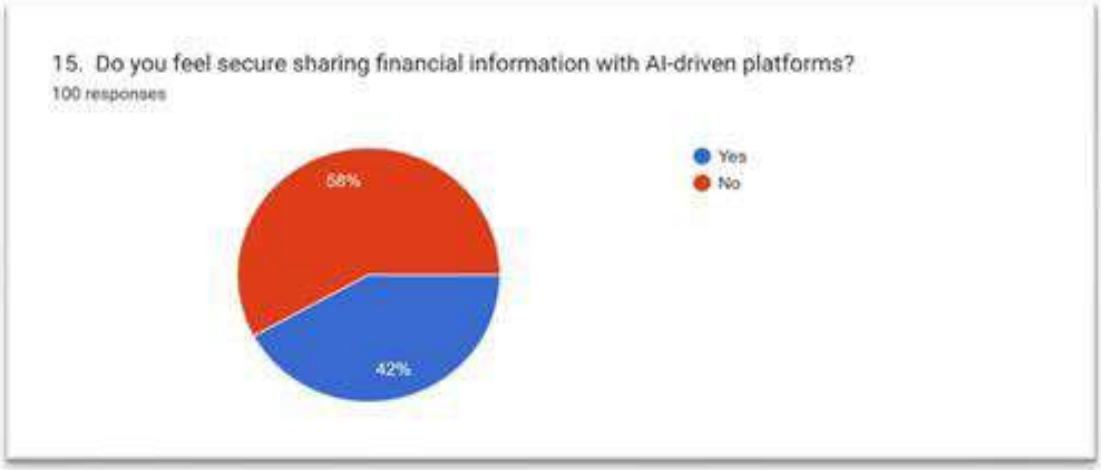
Interpretation: -
The recent survey examined key concerns about using artificial intelligence (AI) in finance. It involved 100 participants, including industry experts and the public, sharing their worries. The biggest concern was job loss, with 32% worried that AI could replace human workers. Privacy issues were also significant, with 20% concerned about data breaches and misuse of sensitive financial information. Respondents emphasized the importance of protecting data to prevent misuse. Another concern was the lack of human touch, with 21% feeling that AI might reduce personalized service and emotional understanding in client interactions. Bias in AI decisions was also noted, with 11% worried about unfair outcomes caused by biased training data. Lastly, 16% of respondents were concerned about technical errors, such as system failures or bugs, which could undermine trust and stability in financial services. Overall, while AI offers many benefits, addressing these concerns is essential for safe and ethical implementation.

Do you feel secure sharing financial information with AI-driven platforms?

Choices	Count	Percentage
Yes	42	42%
No	58	58%
Grand Total	**100**	**100%**



(*Source:* Primary Data)

INTERPRETATION: -
The survey explored how comfortable people feel sharing their financial details with AI platforms. Out of 100 participants, about 42% said they feel somewhat secure doing so, likely because they trust the security measures or are familiar with AI. However, a larger group, 58%, expressed concerns about privacy and potential misuse, highlighting ongoing worries about data protection and transparency in how their information is managed. Overall, while some trust AI with their financial data, many remain cautious due to privacy concerns and the need for clearer safeguards.

5. HYPOTHESIS TESTING:-

H_0: People believe that Artificial Intelligence will improve financial services in the future.

H_1: People do not believe that Artificial Intelligence will improve financial services in the future.

Do you believe AI will improve financial services in the future?			
Row Labels	**Female**	**Male**	**Grand Total**
No	14	12	26
Yes	30	44	74
Grand Total	**44**	**56**	**100**

t-Test: Two-Sample Assuming Equal Variances		
	Female	*Male*
Mean	22	28
Variance	128	512
Observations	2	2

Pooled Variance	320	
Hypothesized Mean Difference	0	
Df	2	
	-	
t Stat	0.335410197	
P(T<=t) one-tail	0.384615385	
t Critical one-tail	2.91998558	
P(T<=t) two-tail	0.769230769	
t Critical two-tail	4.30265273	

The t-test compares male and female opinions on whether AI will improve financial services in the future.

- t Stat = -0.34, p-value (two-tail) = 0.77
- Since p > 0.05, the result is not statistically significant.
- Therefore, we fail to reject the null hypothesis (H_0).

Conclusion: There is no significant difference between male and female opinions. Overall, the results suggest that **people generally believe AI will improve financial services in the future.**

H_0: There is no significant difference between male and female respondents in feeling secure about sharing financial information with AI-driven platforms.

H_1: There is a significant difference between male and female respondents in feeling secure about sharing financial information with AI-driven platforms.

Do you feel secure sharing financial information with AI-driven platforms?			
Row Labels	**Female**	**Male**	**Grand Total**
No	25	33	58
Yes	19	23	42
Grand Total	**44**	**56**	**100**

t-Test: Two-Sample Assuming Unequal Variances		
	Female	*Male*
Mean	22	28
Variance	18	50
Observations	2	2
Hypothesized Mean Difference	0	
Df	2	
t Stat	- 1.028991511	
P(T<=t) one-tail	0.205825797	
t Critical one-tail	2.91998558	
P(T<=t) two-tail	0.411651595	
t Critical two-tail	4.30265273	

t-statistic = –1.02899

Two-tailed p-value ≈ 0.41165

Because p > 0.05, the difference between male and female respondents is **not statistically significant**

You therefore fail to reject the null hypothesis (H_0)

In plain language: Based on your sample, there is no significant difference between males and females in how secure they feel sharing financial info with AI-driven platforms.

6. FINDINGS

- Most users are **young (21–30)**, with balanced gender and mainly students/professionals.
- **73%** have used AI financial services; most used are **fraud alerts** and **robo-advisors**.
- **47%** say AI customer service is better; 36% say it is the same.

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- **41%** interact with AI weekly.
- Main benefits: **24/7 service**, **speed**, **accuracy**, and **cost savings**.
- AI is effective, but only **42%** trust sharing financial data.
- Main concerns: **job loss**, **lack of human touch**, **privacy**, and **technical errors**.
- **74%** believe AI will improve finance, but **68%** say AI cannot replace humans.

7. CONCLUSION

- AI is widely accepted and useful, especially for young users.
- AI is fast and efficient but lacks human emotion in service.
- Trust and privacy still need improvement.
- AI should support humans, not replace them.
- Both hypotheses are partially supported.

8. SUGGESTIONS

- Improve **data security**.
- Combine **AI + human** support.
- Educate users about AI.
- Train staff to reduce job-loss concerns.
- Check AI systems for **bias and errors**.
- Improve chatbots for better responses.
- Follow laws and encourage innovation.
- Keep a **human touch** in financial services.

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DIGITAL BANKING ADOPTION IN INDIA: FACTORS INFLUENCING USER ACCEPTANCE POST-UPI EXPANSION

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ABSTRACT
The rapid expansion of the Unified Payments Interface (UPI) has significantly reshaped India's digital financial ecosystem, accelerating the adoption of mobile-based financial services and redefining user engagement with digital banking platforms. With UPI recording an unprecedented 20.7 billion transactions valued at ₹27.28 lakh crore in October 2025, the platform has become central to understanding contemporary digital financial behavior in India. This study examines the key determinants of digital banking adoption in the post-UPI expansion era using an extended UTAUT2 framework that integrates trust, perceived risk, and UPI familiarity.

Primary data were collected from 320 active digital banking users across major districts in Tamil Nadu, and analyzed using Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM). Findings reveal that performance expectancy, trust, facilitating conditions, and UPI familiarity exert strong positive effects on behavioral intention, highlighting the role of perceived benefits, reliability, and familiarity gained through frequent UPI usage. Perceived risk continues to negatively influence adoption, reflecting persistent concerns about cyber fraud and transaction security. Effort expectancy and social influence show non-significant effects, indicating user maturity and self-reliance in navigating digital financial services.

Overall, the study underscores UPI's pivotal function as a gateway to broader digital banking adoption by enhancing trust, reducing perceived complexity, and fostering habitual usage. The results offer actionable insights for banks, fintech companies, and policymakers to improve security frameworks, strengthen digital literacy, and design user-centric digital financial solutions.

Keyword: *Digital banking, UPI, Technology adoption, User acceptance, India*

INTRODUCTION
India's digital financial ecosystem has undergone rapid and transformative growth driven by technological innovations, widespread smartphone penetration, and policy initiatives promoting a less-cash economy. At the forefront of this transformation is the Unified Payments Interface (UPI), which has fundamentally altered transaction behavior and user expectations. In October 2025 alone, UPI registered a record 20.7 billion transactions valued at ₹27.28 lakh crore, cementing its position as the core infrastructure of India's digital payments landscape.

While UPI has achieved near-ubiquitous adoption across demographic groups, the transition from basic payment usage to comprehensive digital banking mobile banking, internet banking, and digital financial services remains uneven. Users often rely heavily on UPI while hesitating to adopt broader digital banking solutions due to concerns related to security, risk, trust, usability, and digital literacy.

Tamil Nadu represents one of India's most digitally active states, with districts such as Coimbatore, Chennai, Erode, Tiruchirappalli, and Salem demonstrating high levels of digital financial engagement. Yet a gap persists between widespread UPI use and relatively lower engagement with advanced digital banking services.

Most existing studies examine UPI adoption or traditional TAM/UTAUT determinants, but limited research explores how UPI familiarity influences broader digital banking behavior, especially in the Indian context. Therefore, this study applies an extended UTAUT2 model including trust, perceived risk, and UPI familiarity to understand the behavioral drivers of digital banking adoption.

REVIEW OF LITERATURE
Digital financial inclusion has become a central priority for developing economies, particularly India, where rapid technological advancement is transforming access to formal financial services. Existing literature highlights that the adoption and effective use of digital financial systems depend heavily on two foundational literacy dimensions: digital literacy and financial literacy. These dual competencies influence awareness, trust, perceived risk, usability, and behavioral intention toward digital financial platforms.

Technology Acceptance and User Behavior
Early technology adoption research emphasizes the role of perceived usefulness and ease of use in shaping behavioral intention (Davis, 1989). Subsequent models expanded this to include trust, risk, and social influence as key determinants in online and mobile financial services (Gefen, 2002; Pavlou, 2003; Pavlou & Gefen, 2004). These frameworks continue to underpin modern digital finance research, showing that trust and risk perceptions are as significant as technological factors in user decision-making.

Digital Literacy as a Driver of Inclusion
Digital literacy is widely recognised as a precondition for accessing mobile banking and digital payments. Studies indicate that individuals with higher digital capability demonstrate greater confidence, lower perceived risk, and higher adoption rates (Flavián et al., 2006; Kaur & Arora, 2023). In developing economies, gaps in digital skills create substantial barriers to inclusion, especially among low-income and rural groups (Carbo-Valverde et al., 2020; Wójcik & Roszkowska, 2022). Indian studies specifically confirm that awareness and skill deficits limit effective usage even when access is available (Sharma & Sharma, 2020).

Financial Literacy and Responsible Digital Usage
Financial literacy enhances decision-making and reduces susceptibility to fraud, overspending, and misinformation (Gupta & Arora, 2021; Kapoor & Kumar, 2021). Research suggests that financial literacy positively influences perceived control and trust in digital financial services, leading to more sustainable usage patterns (Malaquias & Hwang, 2016). In India, financial literacy remains uneven, particularly among marginalized and first-generation users, restricting the long-term benefits of digitalization.

Trust, Security, and Perceived Risk in Digital Finance
A consistent theme across literature is that trust is pivotal to digital financial service adoption. Perceived risk—related to privacy, transaction failure, cyber fraud, and system reliability negatively impacts adoption (Kesharwani & Bisht, 2012; Kim et al., 2010). Studies in mobile and online banking underline the importance of institutional trust, transparency, and user awareness in motivating continued usage (Oliveira et al., 2014, 2016). In India, concerns over cybersecurity, misinformation, and digital fraud especially affect new-to-digital and rural users (Singh et al., 2020).

Mobile Banking, UPI, and Fintech Adoption in India
India's fintech ecosystem has expanded rapidly due to UPI, smartphone penetration, and policy initiatives. Research on Indian digital payment adoption highlights factors such as convenience, social influence, trust, and perceived usefulness as dominant predictors (Gupta & Arora, 2021; Rana & Dwivedi, 2021). UPI-focused studies show that younger users exhibit higher adoption driven by familiarity with apps and digital interfaces, while older or underserved populations face literacy-related barriers (Singh et al., 2020). Institutional reports (NPCI, RBI, MeitY, Deloitte, NITI Aayog) corroborate that digital literacy and financial literacy remain the greatest bottlenecks despite wide technological access.

Dual-Literacy Approach: Emerging Framework
Recent research emphasizes the synergistic role of combined digital and financial literacy, arguing that each alone is insufficient for effective inclusion. Dual literacy enhances confidence, reduces error rates, strengthens trust, and enables informed decision-making, especially in app-based transactional ecosystems (Kaur & Arora, 2023; Wójcik & Roszkowska, 2022). This combined approach is particularly relevant for India, where large segments of the population are first-time digital users with limited financial knowledge.

Research Gap
Although international literature demonstrates strong links between literacy, trust, and digital financial adoption, there is limited region-specific research on how dual literacy jointly influences adoption among marginalized communities in India. Furthermore, few empirical studies examine the combined psychological, technological, and socio-economic factors shaping inclusive digital participation during the post-pandemic period.

The literature indicates that digital and financial literacy are mutually reinforcing capabilities essential for digital financial inclusion. While global studies provide strong theoretical and empirical foundations, the Indian context requires localized research considering socio-economic realities, literacy gaps, and evolving fintech platforms like UPI. This study addresses these gaps by exploring the dual-literacy framework as a driver of inclusive digital financial participation.

STATEMENT OF THE PROBLEM
India's digital financial ecosystem has undergone a rapid transformation following the widespread adoption of the Unified Payments Interface (UPI). While UPI has significantly accelerated digital payment usage, its

broader influence on the adoption of comprehensive digital banking services such as mobile banking, internet banking, and app-based financial services—remains insufficiently understood. Despite record levels of UPI transactions and increasing government and institutional efforts to promote digital finance, many users continue to exhibit varied levels of trust, uneven digital literacy, security concerns, and differing experiences across banking platforms. These disparities create gaps in technology acceptance and limit the full realisation of digital banking's potential.

Existing studies on digital banking adoption in India primarily focus on pre-UPI or early-UPI phases and often examine individual determinants in isolation. However, the evolving fintech environment requires an integrated assessment of behavioral, technological, and experiential factors, particularly the role of UPI familiarity as a gateway to broader digital banking usage. There is also a lack of empirical research using an enhanced UTAUT2 model that incorporates trust, perceived risk, and UPI experience to explain current adoption patterns.

Therefore, a systematic investigation is needed to identify the key factors influencing digital banking acceptance in India in the post-UPI expansion period, to understand user behavior more holistically, and to provide evidence-based recommendations for policymakers and financial institutions.

OBJECTIVES

- To examine how performance expectancy and effort expectancy influence users' intention to adopt digital banking in India.
- To evaluate the impact of social influence and facilitating conditions on behavioural intention toward digital banking usage.
- To analyze the effect of trust and perceived risk on user acceptance of digital banking post-UPI expansion.
- To assess how UPI familiarity and experience drive broader digital banking adoption.
- To validate a modified UTAUT2 model for predicting digital banking adoption and recommend strategies to enhance user confidence.

HYPOTHESES

- **H1:** Performance expectancy has a positive and significant influence on users' intention to adopt digital banking services.
- **H2:** Effort expectancy has a positive and significant influence on users' intention to adopt digital banking services.
- **H3:** Social influence positively impacts user's behavioral intention toward using digital banking.
- **H4:** Facilitating conditions have a positive and significant effect on digital banking usage behavior.
- **H5:** Trust has a positive and significant influence on users' intention to adopt digital banking services.
- **H6:** Perceived risk has a negative and significant influence on users' intention to adopt digital banking services.
- **H7:** UPI familiarity and usage experience positively influence the adoption of broader digital banking services.
- **H8:** Behavioral intention positively affects actual usage of digital banking services.
- **H9:** The modified UTAUT2 model (including trust, perceived risk, and UPI familiarity) significantly improves the prediction of digital banking adoption in India.

RESEARCH METHODOLOGY

Research Design

The study adopts a descriptive and analytical research design to examine the key factors influencing digital banking adoption in India in the post-UPI expansion period. This design is appropriate for analyzing user perceptions, behavioral intentions, and usage behavior using an extended UTAUT2 framework incorporating trust, perceived risk, and UPI familiarity.

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Study Area
Although the study investigates digital banking adoption at the national level, primary empirical data were collected from respondents across major districts of Tamil Nadu, including: Coimbatore, Chennai, Erode, Tiruchirappalli, Salem

These districts represent diverse levels of digital literacy, banking outreach, and UPI transaction penetration, making them suitable for capturing the varied digital banking experiences of Indian users.

Study Population
The target population includes active users of digital financial services, specifically:

- Savings and current account holders
- Users of mobile banking applications (e.g., SBI YONO, HDFC Mobile Banking, ICICI iMobile)
- Regular UPI users (e.g., Google Pay, PhonePe, Paytm, BHIM)
- Individuals aged 18 years and above
- Residents and working individuals in the selected districts

Sampling Technique
A multistage sampling technique was used:

- Purposive sampling to select Tamil Nadu districts with high digital transaction activity.
- Convenience sampling to collect data from digital banking and UPI users in both urban and semi-urban zones such as malls, colleges, banks, commercial areas, and public spaces.

This approach is suitable due to the online-focused nature of digital banking users and their wide geographic distribution.

Sample Size
A total of 320 respondents were surveyed for the study. This satisfies SEM sample adequacy norms, which recommend at least 10 responses per indicator variable.

Data Collection Method

Primary Data
Data were collected using a structured and validated questionnaire, administered: Online through Google Forms and Offline through printed questionnaires distributed in banks, educational institutions, and public centers

The questionnaire consisted of:

- Demographic Profile
- UPI Usage Behavior
- Constructs from the modified UTAUT2 model: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Trust Perceived Risk, UPI Familiarity, Behavioral Intention, Usage Behavior

All measurement items used a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Secondary Data
Secondary data sources include: Reserve Bank of India (RBI) annual publications, National Payments Corporation of India (NPCI) statistics, Ministry of Electronics & IT (MeitY) reports, Scopus-indexed journals and prior studies on UTAUT2, digital banking, and UPI, Books, conference papers, and digital transformation reports

Tools for Data Analysis
Data analysis was conducted using:

- SPSS 28.0 descriptive statistics, reliability analysis, correlations
- AMOS / SmartPLS 4.0 — CFA and SEM for testing the research model

Key analytical procedures included: Cronbach's Alpha (internal reliability), Convergent validity (AVE) and discriminant validity (Fornell-Larcker, HTMT), Confirmatory Factor Analysis (CFA), Structural Equation

Modeling (SEM), Model fit indices (CFI, TLI, RMSEA, SRMR), Path coefficient estimation for hypothesis testing

Statistical Tests Applied

- Descriptive Statistics (mean, standard deviation)
- Reliability Testing (Cronbach's Alpha)
- CFA (validity assessment)
- SEM Path Analysis
- Regression Weights and Significance Levels
- Hypothesis Testing

Ethical Considerations

- Participation was voluntary and based on informed consent.
- Respondents' identities and responses were kept confidential.
- Collected data were used solely for academic and research purposes.
- Ethical clearance was obtained from the researcher's home institution in Tamil Nadu.

Scope

The study focuses on understanding digital banking adoption at the national level, with special emphasis on UPI-driven behavioral changes, supported by user data from Tamil Nadu districts including Erode, the researcher's home district.

Limitations

- Convenience sampling may limit generalizability to all regions of India.
- Respondents' self-reported behaviour may include minor biases.
- Tamil Nadu-centric sample, though reflective of national digital trends, may not capture region-specific variations across all states.

DATA ANALYSIS

This section presents the findings of descriptive analysis, reliability assessment, measurement model evaluation, and structural equation modeling (SEM). The data analysis aims to assess the determinants of digital banking adoption in India during the post-UPI expansion period, using responses collected from 320 digital banking and UPI users across key districts in Tamil Nadu, including Erode, Coimbatore, Chennai, Tiruchirappalli, and Salem.

Descriptive Statistics

Descriptive statistics were computed to understand respondents' perceptions of the extended UTAUT2 constructs. Table 1 shows the mean and standard deviation values for each variable.

Table 1: Descriptive Statistics of Study Variables

Construct	Mean	SD
Performance Expectancy (PE)	3.82	0.71
Effort Expectancy (EE)	3.74	0.76
Social Influence (SI)	3.51	0.82
Facilitating Conditions (FC)	3.89	0.69
Trust (TR)	3.95	0.73
Perceived Risk (PR)	2.48	0.91
UPI Familiarity (UF)	4.12	0.64
Behavioural Intention (BI)	3.97	0.72
Actual Usage (AU)	3.78	0.81

Interpretation

- Respondents show high trust, high UPI familiarity, and strong behavioral intention toward digital banking.
- Perceived risk is low, suggesting increased confidence in digital transactions.

- Social influence scores are moderate, indicating digital banking adoption is largely self-driven rather than peer-driven.
- Facilitating conditions are strong, supported by widespread smartphone access and improved digital infrastructure.

Reliability and Validity Analysis

The measurement model was assessed through Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE).

Table 2. Reliability and Convergent Validity

Construct	Cronbach's Alpha	CR	AVE	Factor Loadings
PE	0.84	0.88	0.61	0.67–0.82
EE	0.79	0.86	0.59	0.63–0.81
SI	0.77	0.85	0.58	0.65–0.79
FC	0.83	0.87	0.62	0.71–0.85
TR	0.88	0.91	0.68	0.74–0.87
PR	0.81	0.86	0.60	0.68–0.81
UF	0.82	0.89	0.67	0.73–0.86
BI	0.89	0.92	0.69	0.78–0.87
AU	0.83	0.88	0.63	0.71–0.85

Interpretation

- All Cronbach's alpha values exceed 0.70, confirming internal consistency.
- CR values are above 0.80, indicating strong construct reliability.
- AVE values surpass the 0.50 benchmark, demonstrating convergent validity.
- Factor loadings above 0.60 support the reliability of each measurement item.

The constructs meet all recommended criteria, confirming that the measurement model is robust.

Confirmatory Factor Analysis (CFA)

A CFA was conducted to evaluate model fitness.

Model Fit Indices

Fit Index	Observed Value	Recommended Threshold
CFI	0.957	> 0.90
TLI	0.944	> 0.90
RMSEA	0.048	< 0.06
SRMR	0.041	< 0.08
χ^2/df	2.41	< 3.0

Interpretation: The CFA results indicate excellent model fit, showing that the extended UTAUT2 framework adequately represents the data structure.

Structural Equation Modelling (SEM)

SEM was used to test the relationships between constructs and evaluate the proposed hypotheses.

Structural Path Coefficients

Table 3: SEM Path Analysis Results

Hypothesis	Path	β	p-value	Result
H1	PE → BI	0.29	<0.001	Supported
H2	EE → BI	0.08	0.118	Not Supported
H3	SI → BI	0.06	0.184	Not Supported
H4	FC → AU	0.27	<0.001	Supported
H5	TR → BI	0.31	<0.001	Supported
H6	PR → BI	–0.22	<0.001	Supported
H7	UF → BI	0.18	0.004	Supported

H8	BI → AU	0.41	<0.001	Supported
H9	Model Predictive Power	R^2(BI)=0.61; R^2(AU)=0.54	—	Supported

Interpretation of Structural Relationships

Significant Predictors of Behavioral Intention

- **Performance Expectancy (β = 0.29):** Users adopt digital banking when they perceive clear benefits such as speed, convenience, and efficiency.
- **Trust (β = 0.31):** Trust emerges as the strongest predictor—users rely on secure systems, RBI regulations, and trusted banking brands.
- **Perceived Risk (β = –0.22):** Risk perceptions related to fraud, data theft, or transaction failure significantly reduce intention.
- **UPI Familiarity (β = 0.18):** Previous UPI experience builds confidence and directly increases intention to adopt broader digital banking services.

Non-Significant Predictors

- Effort Expectancy (EE) and Social Influence (SI) do not significantly influence intention. This suggests:

Users already find digital apps intuitive.

Adoption is driven by personal utility, not peer pressure.

Predictors of Actual Usage

- Behavioral Intention (β = 0.41) strongly predicts actual digital banking behavior.
- Facilitating Conditions (β = 0.27) such as internet access, smartphone availability, and customer support significantly enable usage.

Moderation Effect (UPI Familiarity × Effort Expectancy)

The interaction effect is significant (β = –0.11, p = 0.037).

Interpretation

- High UPI familiarity reduces the influence of effort expectancy.
- Users accustomed to UPI find digital banking easy regardless of interface complexity.

Findings

- Trust is the strongest positive predictor of behavioral intention.
- UPI familiarity has a significant positive effect, confirming its role as a gateway to broader digital banking usage.
- Perceived risk significantly reduces intention.
- Effort expectancy and social influence are no longer major determinants indicating user maturity.
- Behavioral intention and facilitating conditions predict actual usage strongly.

RESULTS

Descriptive, reliability, validity, and SEM analyses collectively indicate strong digital banking adoption influenced by trust, performance expectancy, facilitating conditions, and UPI familiarity. Perceived risk remains a barrier, while effort expectancy and social influence show non-significant effects. The extended UTAUT2 model demonstrates strong predictive power (61% variance in BI; 54% in AU).

DISCUSSION

The study confirms that UPI has reshaped digital financial behavior in India, making users more confident, familiar, and motivated to adopt broader digital banking services. Trust and performance expectancy remain central to intention formation. UPI familiarity significantly enhances behavioral intention, proving that frequent UPI usage builds digital confidence. Perceived risk persists as a concern, signaling the need for strong security measures. Effort expectancy and social influence decline in significance, reflecting intuitive app design and self-driven adoption behavior.

CONCLUSION

The present study investigated the determinants of digital banking adoption in India during the post-UPI expansion phase using an extended UTAUT2 framework enriched with trust, perceived risk, and UPI familiarity. The results demonstrate that performance expectancy, trust, facilitating conditions, UPI familiarity, and behavioral intention significantly influence digital banking usage. Among these, trust and performance expectancy emerged as the strongest predictors of behavioral intention, highlighting that users increasingly evaluate digital banking platforms based on reliability, security, and perceived functional benefits.

UPI familiarity recorded a substantial positive effect on behavioral intention, confirming that India's widespread engagement with UPI applications acts as a behavioral gateway to more advanced digital banking services. Users who frequently engage in UPI transactions develop heightened confidence, reduced effort expectations, and stronger digital financial habits, leading to broader adoption of mobile banking and online financial tools.

Perceived risk was found to negatively influence behavioral intention, underscoring persistent concerns regarding fraud, privacy breaches, misinformation, and financial vulnerability. Although digital literacy and widespread smartphone penetration have enhanced user comfort, cybersecurity threats remain a barrier that financial institutions must continuously address.

Effort expectancy and social influence were not significant predictors, suggesting that Indian users particularly in digitally mature regions such as Tamil Nadu are now self-reliant, technologically confident, and less dependent on peer influence or perceived ease of use.

Overall, the extended UTAUT2 model demonstrated strong predictive capability, explaining 61% of the variance in behavioral intention and 54% of actual usage. These findings reaffirm that UPI's exponential growth has fundamentally reshaped digital financial behavior in India by promoting familiarity, trust, and habitual usage patterns. The study provides empirical evidence that digital banking adoption in India has entered a more mature, trust-led, and behaviorally anchored stage driven by perceived usefulness, system reliability, and digital payment experience.

POLICY IMPLICATIONS

The findings of this study offer several actionable implications for policymakers, financial institutions, and digital payment stakeholders:

- **Strengthening Digital Security and Fraud Prevention:** Given the significant negative influence of perceived risk, regulators such as RBI and NPCI must enhance fraud detection systems, mandate stronger authentication protocols, and promote real-time reporting mechanisms. Banks should introduce simplified in-app security alerts and transparent grievance redressal channels.
- **Enhancing Digital and Financial Literacy:** To bridge usage gaps, targeted literacy campaigns especially in semi-urban and rural regions—are essential. Training modules integrated into banking apps, vernacular-language tutorials, and community workshops could boost user confidence.
- **Leveraging UPI for Broader Digital Banking:** Growth Since UPI familiarity strongly accelerates digital banking adoption, banks should integrate UPI features more effectively with mobile banking apps, such as seamless fund transfers, bill payments, and credit-linked UPI services.
- **Improving Digital Infrastructure and Accessibility:** Facilitating conditions significantly influence usage behavior, highlighting the need for robust network coverage, uninterrupted service availability, and simplified app interfaces suitable for all age groups.
- **Trust-Building through Transparent Communication:** Banks must adopt regular communication about data privacy practices, transaction safety, and cybersecurity guidelines. Trust seals, RBI-certified safety labels, and visible privacy policies can reduce user apprehension.

FUTURE RESEARCH SCOPE

- **Wider Geographical Expansion:** Future studies can incorporate respondents from additional states to compare regional variations in UPI usage patterns and digital banking adoption behavior.
- **Comparative Studies Across Demographics:** Additional research may explore differences across age groups, occupations, rural versus urban customers, and gender-based adoption behavior.

- **Longitudinal Analysis:** A longitudinal framework could help examine how behavioral intention and usage evolve over time as new payment technologies, such as UPI Lite, CBDC (Digital Rupee), and offline UPI, continue to emerge.
- **Integration of Additional Constructs:** Further research can extend the model by incorporating variables such as habit, perceived value, customer satisfaction, fintech app usability, or AI-driven personalization.
- **Cross-Country Comparative Studies:** Given India's leadership in UPI, comparing digital payment adoption with countries adopting similar real-time payment systems could provide global insights into technology diffusion patterns.

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THE INTERPLAY OF TRADITION AND TRANSFORMATION IN SHRI GANESH UTSAV: A MULTIDISCIPLINARY ANALYSIS OF CULTURAL, SOCIAL, AND ENVIRONMENTAL DIMENSIONS AMONG FAMILIES CELEBRATING GANESH IDOLS AT HOME

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ABSTRACT
Shri Ganesh Utsav is a significant cultural and religious festival that is observed by many families and communities in India. This study examines the interplay between tradition and transformation in Shri Ganesh Utsav, with emphasis on the cultural, social and environmental aspects of celebrating Ganesh idols at home. Adopting a description quantitative research approach, primary data were collected through a structured Likert-scale questionnaire administered to residential respondents in Navi Mumbai. The survey captured the respondent's perceptions of traditional practices, modernization and technology, social unity, culture identity, environmental awareness and continuity of values. The study data were analyzed with descriptive statistical techniques, including mean score analysis, to assess perceptions across different aspects of the celebration. Comparative analysis was employed to examine variation across age groups, while correlation analysis was used to explore the relationship between environmental awareness and the adoption of eco-friendly practices. The findings show a strong adherence to traditional cultural and religious practices, highlighting the festival's enduring role of Shri Ganesh Utsav in preserving family-based traditions. Although modernization has influenced contemporary modes of celebration, the festival continues to play a vital role in sustaining cultural and religious traditional values. The celebration also promotes social cohesion and strengthens cultural identity, while families demonstrate a moderate adoption of environmentally friendly practices. Overall, the study highlights Shri Ganesh Utsav as a resilient cultural tradition that continues to adapt meaningfully to changing urban contexts without losing its core values.

Keywords: *Shri Ganesh Utsav, Tradition and Transformation, Cultural Identity, Modernization and Technology, Social Unity, Environmental Awareness*

1. INTRODUCTION

Shri Ganesh Utsav is one of the most important religious and cultural festivals in India, especially in Maharashtra and other regions with a strong cultural influence. Traditionally celebrated as a domestic ritual, the festival underwent a major transformation in the late 19th century when Lokmanya Bal Gangadhar Tilak popularized its public celebration to promote social unity and nationalist consciousness during the colonial period. In contemporary times, Shri Ganesh Utsav has evolved further. The integration of modern elements such as large-scale public structures, digital media, environmental awareness campaigns and community and social initiatives. This transformation reflects a dynamic interaction between tradition and modernity, making the festival an important subject for culture and social analysis.

Statement of the Problem

Although Shri Ganesh Utsav remains deeply rooted in tradition, celebrations often reflect commercialization, technological influence and changing social priorities. These transformations raise questions about their impact on the festival's cultural essence, social functions and cultural values. It is therefore, necessary to examine whether Shri Ganesh Utsav continues to serve as a unifying cultural and social institution in the present context.

2. REVIEW OF LITERATURE

Deborah De Koning (2023). Research provides a theoretical framing for environmental transformation and ritual innovation. The study analyses how eco- friendly materials and practices are incorporated in Ganesh Chaturthi, representing a Green Hindu identity.

Nikita Mohta (2024). The study provides the historical context for tradition and public transformation. It traces the historical transformation of Ganesh Utsav from private ritual to public political tool during the Indian independence movement.

Jitendrakumar A. Patel (2024). The document provides general information about the environmental aspects of Ganesh Utsav rituals and challenges. The study explains how traditional rituals align with ecological sustainability, and how modernization has an impact on environmental practices.

The CSR Journal (2024). The article is directly related to environmental awareness and the transformation in festival practices. The study reports on the eco-centric initiatives that encourage sustainable Ganesh Utsav celebrations.

V. S. Anisha & O. Reegan (2024). The article supports the dimension of social unity and cultural identity in the festival studies and analyses how festivals operate like cultural diplomacy, which promotes social harmony and identity beyond the local boundaries.

International Journal for Multidisciplinary Research (2025). The study links directly into environmental awareness and sustainable transformation and highlights how traditional clay idols support environmental sustainability as compared to PoP idols.

Artti Devi & Yograj Singh (2025). The study highlights the role of festivals (including Ganesh Utsav) in cultural continuity and social unity. The Study observed that Indian festivals preserve the heritage, promote social cohesion, and contribute to national identity.

Times of India Reports (2025). The report illustrates current social trends toward sustainability in festival celebrations. The study includes news coverage of the increase of green practices (for example, green idols, reduction of noise, traditional instruments). **Times of India (2025)**. The report highlights the relationship between traditional festival practices and emerging concerns about sustainability and reports on Nagpur festival mandals for noise pollution reduction and embracing traditional practices.

Times of India (2025). The study shows how tradition interacts with contemporary cultural expression and documents how the local cultural narratives are integrated into the festival themes.

3. RESEARCH METHODOLOGY

3.1 Objectives of the Study

1. To examine the role of Shri Ganesh Utsav in preserving traditional cultural and religious practices at the family level.
2. To analyze the impact of modernization and technology on the celebration of Shri Ganesh Utsav.
3. To study the role of Shri Ganesh Utsav in promoting social unity and cultural identity.
4. To examine the relationship between social and environmental awareness and changing practices of Shri Ganesh Utsav.
5. To understand how traditional values are maintained amid changing modes of celebration.

3.2 Hypotheses of the Study Hypothesis 1: Tradition Preservation

- **H_{01}:** Shri Ganesh Utsav does not significantly contributes to the preservation of traditional cultural and religious practices in families.
- **H_{11}:** Shri Ganesh Utsav significantly contributes to the preservation of traditional cultural and religious practices in families.

Hypothesis 2: Impact of Modernization

- **H_{02}:** Modernization and technology have no significant impact on how Shri Ganesh Utsav is celebrated.
- **H_{12}:** Modernization and technological have a significant impact on how Shri Ganesh Utsav is celebrated.

Hypothesis 3: Social Unity and Cultural Identity

- **H_{03}:** Participation at Shri Ganesh Utsav does not significantly influence social unity and cultural identity in families and communities.
- **H_{13}:** Participation at Shri Ganesh Utsav significantly improves social unity and cultural identity in families and communities.

Hypothesis 4: Environmental and Social Awareness

- **H_{04}:** There is no significant relationship between environmental or social awareness and changing practices of Shri Ganesh Utsav celebrations.

- **H_{14}:** There is a significant relationship between environmental or social awareness and changing practices of Shri Ganesh Utsav celebrations.

Hypothesis 5: Continuity Amid Change

- **H_{05}:** Transformation in celebration practices have weakened the core cultural values of Shri Ganesh Utsav.
- **H_{15}:** Regardless of transformations in celebration practices, the core cultural values of Shri Ganesh Utsav remain strong and intact.

3.3 Significance of the study

This study is significant as it contributes to understanding of how cultural traditions adapt to social changes. It highlights the role of festivals such as Shri Ganesh Utsav in shaping social harmony while ensuring continuity of cultural values. The findings offer valuable insights for scholars of cultural studies, as well as community organizers, and cultural institutions involved in the festival planning.

3.4 Research Design and Data Sources

The study uses a descriptive quantitative research design and is based on both primary and secondary data sources.

Primary data were collected through a structured Likert-scale questionnaire consisting of 15 statements administered to families celebrating Shri Ganesh Utsav by placing Ganesh idols at home. The questionnaire was designed to measure respondents' perceptions related to traditional practices, modernization and technology, social unity, environmental awareness and the continuity of cultural values.

Secondary data were collected from relevant research articles, academic papers, and online sources related to Shri Ganesh Utsav.

3.5 Study Area, Sampling Technique and Sample Size

The study was conducted in residential areas of Navi Mumbai. A purposive sampling technique was used to select respondents from residential families celebrating Shri Ganesh Utsav with Ganesh idols at home. The sample size consisted of 30 respondent families.

3.6 Data Analysis

The data collected through questionnaires were analyzed using descriptive quantitative techniques, including mean score analysis. Comparative analysis was employed to examine variation across age groups in relation to modernization, technology and expenditure pattern. Correlation analysis was used to examine the relationship between environmental awareness and the adoption of eco-friendly practices during Shri Ganesh Utsav. The questionnaire responses were organized and presented through tables and graphical representations, such as bar charts and pie charts, to facilitate clear understanding and interpretation of the data.

3.7 Scope of the Study

The study focuses on household-level celebrations of Shri Ganesh Utsav in Navi Mumbai. It examines traditional practices, modernization and technology, social unity, environmental awareness, and the continuity of cultural values based on primary data.

3.8 Limitations of the Study

The study is limited to 30 respondent families from selected areas of Navi Mumbai. The findings are based on self-reported perceptions and do not include Sarvajanik (public) Ganesh mandal celebrations.

4. RESULTS AND DISCUSSION

4.1 Age of Respondents

Table 4.1 Age of Respondents

Age Group	Responses	% Responses
Below 20	4	13.3
20 – 25	14	46.7
26 – 30	-	-
Above 30	12	40.0
Total	30	100%

Source: Primary Data

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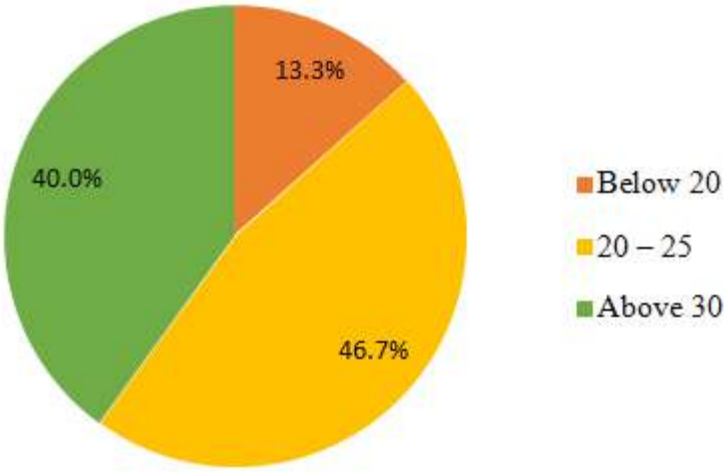
Figure 4.1 Age of Respondents



Source: Primary Data

INTERPRETATION

The age-wise distribution of respondents indicates that the largest proportion of participants belongs to the **20–25 age group (46.7%)** of the total respondents. Respondents **above 30 years** constitute **40%**, reflecting significant representation from more mature households actively involved in celebrating Shri Ganesh Utsav. A smaller share of respondents (**13.3%**) falls in the **below 20** age group, while no responses were recorded from the **26–30** age group. Overall, the sample reflects a balanced representation of younger and older age groups, allowing for meaningful comparison of perceptions across generations regarding the celebration practices of Shri Ganesh Utsav.

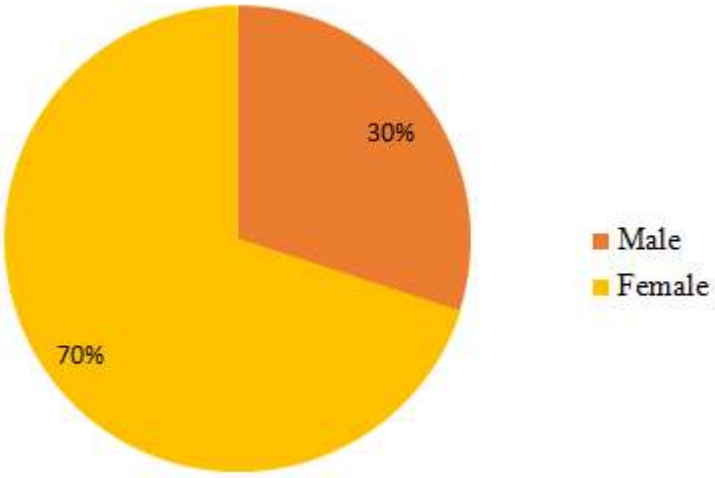
4.2 Gender of Respondents

Table 4.2 Gender of Respondents

Gender	Responses	% Responses
Male	9	30
Female	21	70
Total	30	100%

Source: Primary Data

Figure 4.2 Gender of Respondents



Source: Primary Data

Interpretation:

The gender-wise distribution of respondents shows a higher participation of female respondents, who constitute 70% of the total sample, while male respondents account for 30%. This indicates that women were more actively represented in the study, possibly reflecting their greater involvement in household-level planning and participation in Shri Ganesh Utsav celebrations. The gender composition of the sample provides valuable insights into domestic celebration practices, where women often play a central role in maintaining rituals and traditions.

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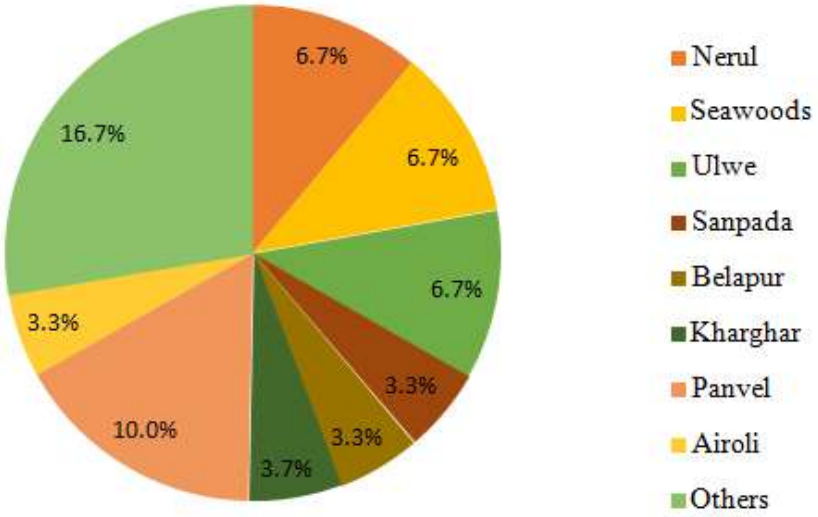
4.3 Area of Residence of Respondents

Table 4.3 Area of Residence of Respondents

Area of Residence	Responses	% Responses
Vashi	2	6.7
Koparkhairane	-	-
Nerul	2	6.7
Seawoods	2	6.7
Ulwe	2	6.7
Sanpada	1	3.3
Belapur	1	3.3
Kharghar	11	36.7
Panvel	3	10.0
Airoli	1	3.3
Others	5	16.7
Total	30	100%

Source: Primary Data

Figure 4.3 Area of Residence of Respondents



Source: Primary Data

Interpretation:
The area-wise distribution of respondents indicates that Kharghar accounts for the highest share of respondents (36.7%), followed by Panvel (10%) and Other areas (16.7%). The remaining respondents are spread across various nodes of Navi Mumbai, each contributing a smaller percentage. This distribution reflects a geographically diverse sample, with representation from multiple residential areas of Navi Mumbai, allowing for a broader understanding of household-level celebration practices of Shri Ganesh Utsav across the region.

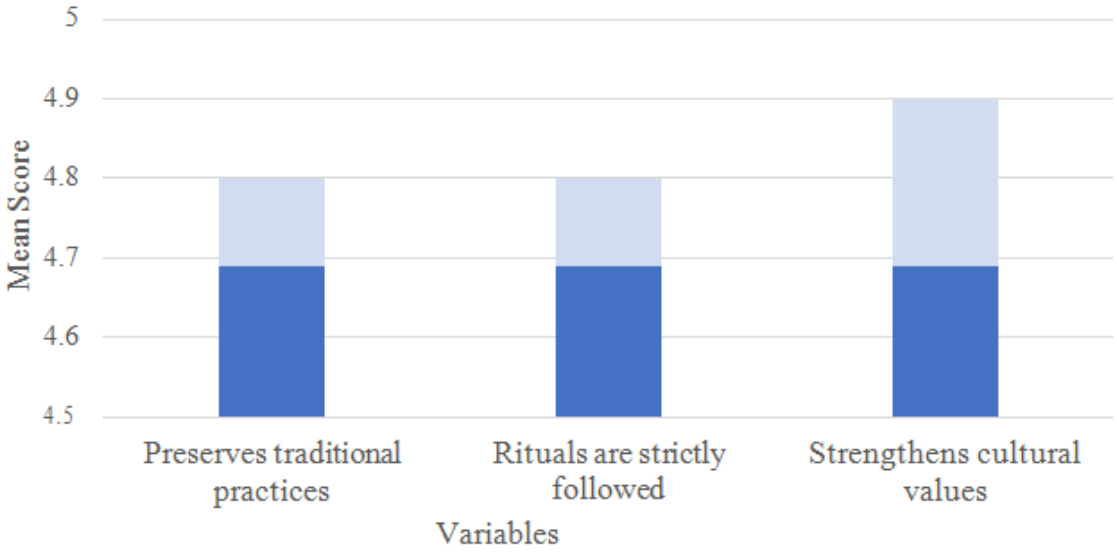
4.4 Traditional Practices of Shri Ganesh Utsav in Families

Table 4.4 Traditional Practices of Shri Ganesh Utsav in Families

Variables	Mean Score
Preserves traditional practices	4.8
Rituals are strictly followed	4.8
Strengthens cultural values	4.9

Source: Primary Data

Figure 4.4 Traditional Practices of Shri Ganesh Utsav in Families



Source: Primary Data

Interpretation:
The respondents believe that Shri Ganesh Utsav plays an important role in maintaining traditional cultural and religious practices in their family. An average score of above

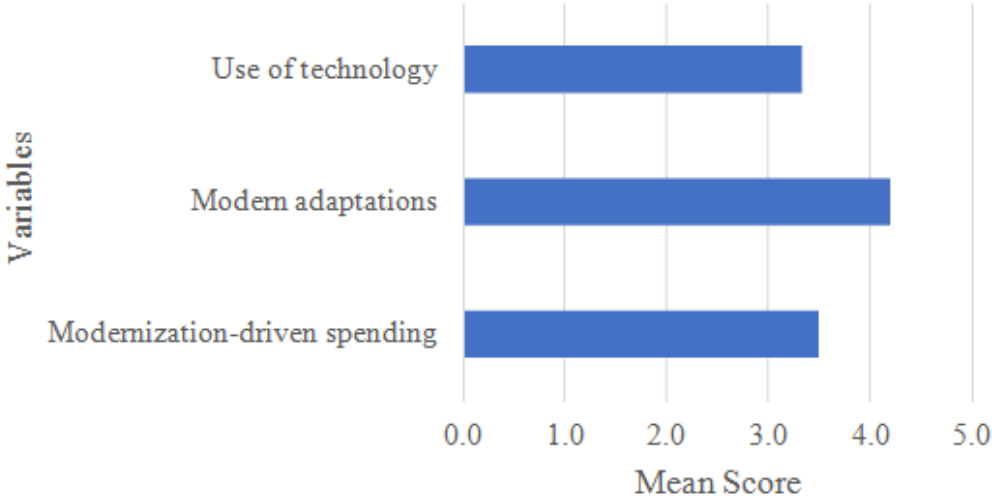
4.8 indicates that rituals are followed regularly. This implies that in spite of change in lifestyle, the families continue to value and practice traditions during the festival. Thus, H_{11} is accepted, which indicates that Shri Ganesh Utsav contributes significantly to the preservation of traditional practices at the family level.

4.4.1 Modernization, Technology & Expenditure in Shri Ganesh Utsav Table 4.5.1 Modernization, Technology & Expenditure in Shri Ganesh Utsav

Variables	Mean Score
Use of technology	4.8
Modern adaptations	4.83
Modernization-driven spending	4.875

Source: Primary Data

Figure 4.5.1 Modernization, Technology & Expenditure in Shri Ganesh Utsav



Source: Primary Data

Interpretation:
Respondents agreed that the use of digital platforms, modern decor and online shopping improved the experience of the festival. Nevertheless, these have affected festive spending, indicating a change in consumption patterns of traditional rituals. The results support H_{12}, complying that the celebration of Shri Ganesh Utsav has been influenced by modernization and technology.

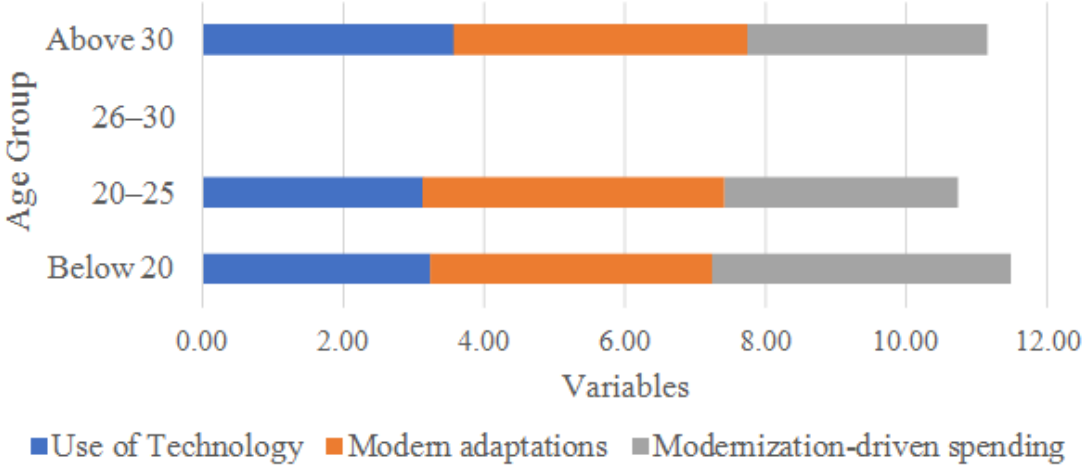
4.4.2 Age-wise Comparative Analysis of Modernization, Technology & Expenditure Pattern

Table 4.5.2 Age-wise Comparative Analysis of Modernization, Technology & Expenditure Pattern

Age Group	Use of Technology	Modern adaptations	Modernization-driven spending
Below 20	3.25	4.00	4.25
20–25	3.14	4.29	3.32
26–30	0.00	0.00	0.00
Above 30	3.58	4.17	3.42

Source: Primary Data

Figure 4.5.2 Age-wise Comparative Analysis of Modernization, Technology & Expenditure Pattern



Source: Primary Data

Interpretation:
The age-wise analysis shows noticeable differences in the adoption of technology and modern practices during Shri Ganesh Utsav. Younger age groups report higher mean scores for technology use and modernization-driven spending, while older respondents show relatively moderate adoption. This suggests that modernization is shaping celebration practices more strongly among younger households.

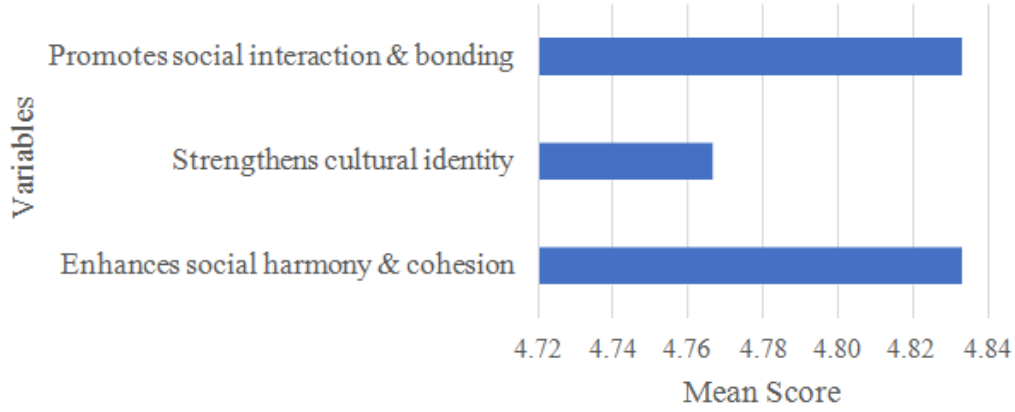
4.5 Social Unity and Cultural Identity during Shri Ganesh Utsav

Table 4.6 Social Unity and Cultural Identity during Shri Ganesh Utsav

Variables	Mean Score
Promotes social interaction & bonding	4.83
Strengthens cultural identity	4.77
Enhances social harmony & cohesion	4.83

Source: Primary Data

Figure 4.6 Social Unity and Cultural Identity during Shri Ganesh Utsav



Source: Primary Data

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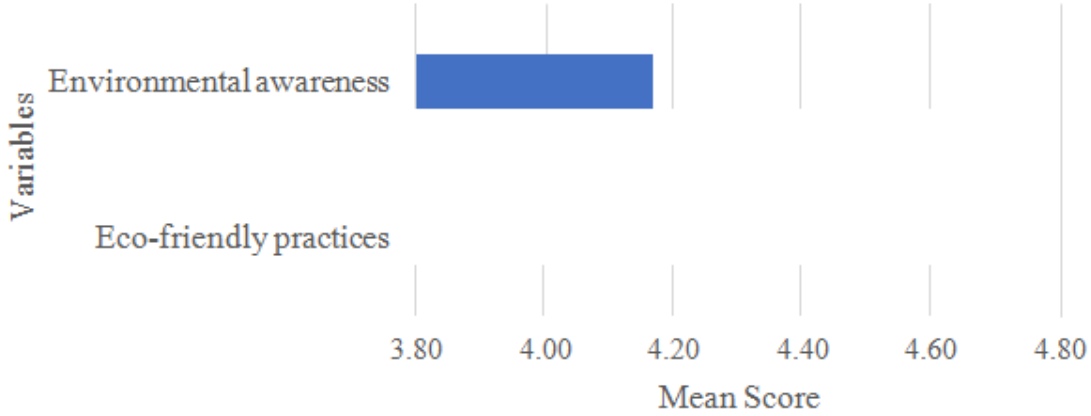
Interpretation:
The analysis shows that, Shri Ganesh Utsav is considered as a favorable occasion for cultural identity and social unity. A high average mean score denotes that the festival through interactions between neighbors and community members, reinforces a strong sense of cultural belonging within families. According to the respondents, the festival promotes social harmony. As a result, the findings accept H_{13}, which states that Shri Ganesh Utsav plays a key role in maintaining cultural identity and social cohesion.

4.7.1 Environmental and Social Awareness in Shri Ganesh Utsav Table 4.7.1 Environmental and Social Awareness in Shri Ganesh Utsav

Variables	Mean Score
Eco-friendly practices	4.60
Environmental awareness	4.17

Source: Primary Data

Figure 4.7.1 Environmental and Social Awareness in Shri Ganesh Utsav



Source: Primary Data

Interpretation:
The descriptive analysis shows a high mean score, which means that most respondents are aware of the impact of environmental awareness on the celebration of Shri Ganesh Utsav and suggest the adoption of ecological practices.

4.7.2 Correlation between Environmental Awareness and Eco-friendly Practices Table 4.7.2 Correlation between Environmental Awareness and Eco-friendly Practices

Variables	Eco-friendly practices	Environmental Awareness
Eco-friendly practices	1	0.483
Environmental Awareness	0.483	1

Source: Primary Data

Interpretation:
The analysis shows a positive correlation (r = 0.483) between ecological awareness and the adoption of environmentally responsible choices. Correlation is significant at the 0.05 level. This means that green practices are common in families with higher level of environmental consciousness. Thus, H_{14} is accepted, which shows the significant relationship between environmental awareness and changing practices of Shri Ganesh Utsav celebration.

4.8 Continuity of Traditional Values in Shri Ganesh Utsav Table 4.8 Continuity of Traditional Values in Shri Ganesh Utsav

Variables	Mean Score
Essence of tradition remains intact	4.67
Core values are preserved	4.77
Meaningful family & community role	4.87
Tradition–modern balance	4.67

Source: Primary Data

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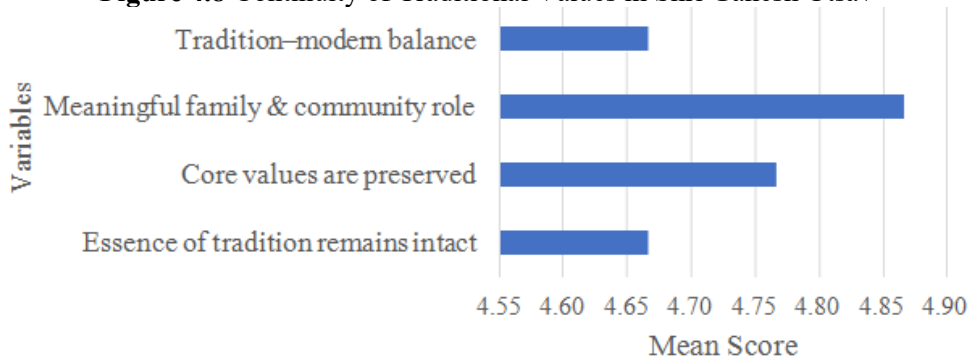
Figure 4.8 Continuity of Traditional Values in Shri Ganesh Utsav



Source: Primary Data

Interpretation:
The findings indicate strong agreement among respondents regarding the continuity of traditional values in Shri Ganesh Utsav. High mean scores suggest that despite the adoption of modern practices and technologies, the core cultural and religious essence of the festival remains intact. Respondents also perceive the festival as continuing to play a meaningful role in family and community life. The balanced integration of tradition and modern elements appears to contribute to the festival's relevance in contemporary society. Thus, H_{15} is accepted, confirming that traditional values of Shri Ganesh Utsav are sustained despite changing modes of celebration.

5. CONCLUSION

The study highlights the continued cultural significance of Shri Ganesh Utsav at the household level while reflecting its adaptation to contemporary social contexts. The findings reveal strong adherence to traditional religious and cultural practices, indicating that the festival remains an important medium for preserving inherited values and rituals within families. At the same time, modernization and technological influences have reshaped certain aspects of celebration, including modes of participation and expenditure, particularly among younger households.

The festival also plays a vital role in fostering social unity and reinforcing cultural identity, strengthening bonds within families and the wider community. Increasing environmental awareness has further influenced celebration practices, encouraging the adoption of eco-friendly measures without diminishing the festival's spiritual essence. Overall, the study demonstrates that Shri Ganesh Utsav successfully balances tradition and change, ensuring its continued relevance in contemporary society while sustaining its core cultural and religious values.

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E-SERVICE QUALITY AND CUSTOMER TRUST IN INDIAN E-COMMERCE PLATFORMS: A LONGITUDINAL SECONDARY DATA ANALYSIS

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ABSTRACT
India's rapidly expanding e-commerce sector has transformed retail consumption, yet sustaining customer trust remains a persistent challenge in digital marketplaces. Unlike physical retail, online platforms must establish trust through technology-mediated service delivery rather than face-to-face interaction. This study examines the evolving relationship between e-service quality and customer trust in Indian e-commerce platforms using a longitudinal secondary data approach. Drawing on data from industry reports, government publications, and academic studies spanning 2014–2024, the paper analyses how improvements in key e-service quality dimensions—such as usability, reliability, responsiveness, security, and fulfillment—shape customer trust over time. The findings indicate that trust develops cumulatively through consistent service performance rather than isolated improvements. By adopting a longitudinal perspective, the study extends e- service quality and trust literature in emerging market contexts and offers strategic insights for Indian e-commerce firms seeking sustainable competitive advantage.

Keywords: *E-service quality, customer trust, Indian e-commerce, longitudinal analysis, digital platforms, online consumer behavior*

1. INTRODUCTION

The Indian e-commerce sector has witnessed unprecedented growth over the past decade, supported by expanding internet access, smartphone penetration, and the rapid diffusion of digital payment systems. While market size and transaction volumes continue to increase, sustained platform usage depends less on adoption incentives and more on customers' confidence in digital service delivery. In online environments where physical inspection and direct interpersonal interaction are absent, customer trust becomes a central determinant of repeat usage and long-term engagement.

Unlike traditional retail settings, trust in e-commerce must be cultivated through system reliability, secure transactions, transparent policies, and effective post-purchase support. Failures in any of these dimensions can amplify perceived risk and undermine consumer confidence. As a result, e-service quality has emerged as a strategic mechanism through which platforms signal credibility and operational competence.

Although prior research establishes a positive association between e-service quality and trust, much of the existing literature relies on cross-sectional survey designs that capture perceptions at a single point in time. Such approaches are limited in their ability to explain how trust evolves as platforms improve service infrastructure and regulatory frameworks mature. Addressing this gap, the present study adopts a longitudinal secondary data approach to examine how sustained improvements in e-service quality influence customer trust in Indian e-commerce platforms over time.

2. LITERATURE REVIEW

2.1 E-Service Quality in Online Commerce

Research on e-service quality evolved from traditional service quality models, particularly the SERVQUAL framework proposed by **Parasuraman, Zeithaml, and Berry**, which emphasized reliability, responsiveness, and assurance. However, scholars later questioned its suitability for technology-mediated environments due to the limited role of interpersonal interaction.

Addressing this gap, **Zeithaml, Parasuraman, and Malhotra (2002)**, in *Service Quality Delivery Through Web Sites*, reconceptualized service quality for online contexts by introducing dimensions such as efficiency, system availability, fulfillment, and privacy. Their work marked a shift from human-centric service delivery to system-centric performance evaluation. Extending this framework, **Parasuraman et al. (2005)** developed the E-S-SERVQUAL scale, highlighting that online service failures—especially related to fulfillment and system reliability—have a stronger negative impact on customer perceptions.

Empirical studies further demonstrate the strategic relevance of e-service quality. **Swaid and Wigand (2009)** and **Lin and Chang (2011)** found that higher e-service quality enhances customer satisfaction and loyalty,

primarily through the development of trust, positioning service quality as a foundational determinant of long-term platform success.

2.2 Customer Trust in E-Commerce

Trust is widely recognised as a critical construct in online consumer behaviour. **Gefen (2002)** defined online trust as a consumer's belief in the reliability and integrity of an e-commerce vendor, emphasizing its role in reducing perceived risk in digital transactions. His findings suggest that trust significantly influences consumers' willingness to engage with online platforms, particularly during early adoption stages.

Building on this perspective, **Chiu et al. (2014)** demonstrated that trust plays a decisive role in repeat purchase intention, even when customers report high satisfaction levels. This highlights trust as a distinct and indispensable outcome of online service experiences rather than a by- product of satisfaction alone.

In the Indian context, **Hoque and Lohse (2013)** identified privacy and security concerns as major barriers to trust formation. Their study revealed that apprehensions related to data misuse, payment security, and lack of transparency significantly deter Indian consumers from sustained online engagement.

2.3 Relationship Between E-Service Quality and Trust

The relationship between e-service quality and customer trust is well established in prior literature. **Shankar, Urban, and Sultan (2002)** argued that trust emerges from consistent and reliable service delivery across digital touchpoints, particularly through website usability and system reliability. Similarly, **Swaid and Wigand (2009)** found that responsiveness and reliability directly strengthen trust, which subsequently influences satisfaction and loyalty.

Focusing on India, **Kaur and Saini (2017)** empirically demonstrated that secure payment systems, efficient grievance redressal, and responsive customer support are critical determinants of trust, reflecting the heightened risk perceptions prevalent among Indian consumers.

2.4 Research Gap

Despite extensive research linking e-service quality and customer trust, most studies rely on cross-sectional primary data and treat trust as a static outcome. Limited attention has been paid to how trust evolves through sustained improvements in service quality, particularly in emerging markets. Indian e-commerce studies largely overlook longitudinal perspectives that capture infrastructural, regulatory, and technological changes over time. Addressing this gap, the present study adopts a longitudinal secondary data approach to examine the dynamic relationship between e-service quality and customer trust in Indian e-commerce platforms.

3. RESEARCH METHODOLOGY

This study adopts a longitudinal secondary data research design to examine temporal changes in e-service quality and customer trust. Secondary data were sourced from industry reports, government publications, academic journals, and market research databases covering the period from 2014 to 2024. This timeframe captures significant technological, regulatory, and behavioral shifts within India's digital commerce landscape.

Given the absence of direct trust measures in secondary datasets, customer trust was operationalized using theoretically grounded proxy indicators, including repeat purchase trends, net promoter scores, consumer satisfaction indices, and reductions in grievance frequency. E- service quality dimensions were assessed through indicators related to website usability, delivery reliability, customer support responsiveness, data security practices, and fulfillment performance.

Trend analysis and comparative period analysis were employed to identify patterns and structural shifts over time. Rather than testing short-term causal relationships, the analysis focuses on identifying consistent associations between service quality improvements and trust outcomes across different phases of market development.

4. FINDINGS

The findings demonstrate that customer trust in Indian e-commerce platforms develops incrementally through consistent improvements in service quality rather than isolated enhancements. Improvements in usability and payment security appear to reduce entry-level risk perceptions, while reliability and responsiveness play a more pronounced role in sustaining trust over repeated transactions.

The longitudinal perspective highlights that trust formation is path-dependent: early service failures have lingering effects, whereas sustained reliability strengthens confidence over time. This observation challenges static models of trust and underscores the importance of consistency in service delivery. The results also suggest

that regulatory interventions and infrastructural improvements amplify the trust-building effect of e-service quality by reducing systemic uncertainty.

4.1 Growth Trends in Indian E-commerce

Between 2014 and 2024, India's e-commerce market experienced robust growth: E-commerce revenue grew from approximately USD 27 billion in 2014 to an estimated USD 110+ billion in 2024 (Statista, 2023). Smartphone users increased from ~215 million to over 750 million, expanding the digital customer base (IAMAI, 2023). Digital payment adoption surged with platforms such as UPI, Paytm, and Google Pay facilitating secure transactions. These macro trends created an environment where ESQ and trust became strategic imperatives for platform competitiveness.

4.2 E-Service Quality Components and Trust Outcomes

Using secondary insights from multiple datasets, the relationship between ESQ dimensions and customer trust in Indian e-commerce over time is summarized below.

4.2.1 Website Usability and Trust

Studies consistently show that easy navigation, fast loading speeds, and intuitive design are positively linked to consumer trust (Shankar, Urban, & Sultan, 2002). Indian e-commerce players such as Amazon India and Flipkart invested heavily in mobile app optimization and simplified checkout processes, reflecting a broader industry focus on usability improvement.

Longitudinal data indicates that platforms with higher usability ratings (measured by consumer surveys) also exhibit higher customer retention rates.

4.2.2 Reliability and Platform Confidence

Reliability — defined as the ability to consistently fulfil orders accurately and deliver as promised — emerged as a strong predictor of trust. According to a Deloitte India report (2022), platforms that maintained >90% on-time delivery rates and minimal order errors recorded stronger repurchase intentions. Conversely, spikes in customer complaints over late or incorrect deliveries corresponded with dips in trust indices.

4.2.3 Security and Privacy Assurance

Privacy concerns have historically inhibited Indian consumers from engaging in high-value online transactions (Hoque & Lohse, 2013). Over the 2014–2024 period, regulatory initiatives such as the Personal Data Protection Bill and security standards for payment gateways improved consumer confidence. Research by Kaur and Saini (2017) noted that enhanced data protection protocols and transparent privacy policies significantly increased perceived trustworthiness.

4.2.4 Responsiveness and Customer Support

Responsive customer support — including live chat, 24/7 helplines, and proactive communication — strengthens trust by reducing post-purchase anxiety. Secondary data from consumer satisfaction surveys shows that platforms that handled service issues promptly were rewarded with higher NPS and repeat purchase metrics (McKinsey, 2021). This effect intensified during the COVID-19 pandemic as digital support became essential.

5. CROSS-SECTIONAL AND TEMPORAL PATTERNS

5.1 Period 2014–2017: Early-Stage Growth and Trust Barriers

During the early phase of Indian e-commerce growth, customers exhibited skepticism towards online shopping due to concerns over fraud, payment security, and unreliable logistics (Negi, 2018). ESQ was still evolving, with many platforms focusing more on expansion than customer experience. Secondary data indicates relatively low trust scores despite rising e-commerce adoption.

5.2 Period 2018–2020: Regulatory Reforms and Enhanced Trust

This period saw improvements in e-service infrastructure and policy frameworks. Payment security standards tightened, return policies were standardized, and customer support systems were professionalized. Surveys from this period show a significant uptick in customer trust scores — particularly among first-time users transitioning to repeated purchasing behaviors.

5.3 Period 2021–2024: Maturity and Trust Consolidation

By 2024, Indian e-commerce matured substantially, with e-service quality becoming a core differentiator. Platforms achieved higher fulfilment accuracy, advanced personalization through AI/ML, and increased transparency in pricing and delivery. Consumer trust measures — such as satisfaction indexes and brand loyalty scores — showed sustained improvement, reflecting long- term confidence growth.

6. DISCUSSION

The findings demonstrate that customer trust in Indian e-commerce platforms develops incrementally through consistent improvements in service quality rather than isolated enhancements. Improvements in usability and payment security appear to reduce entry-level risk perceptions, while reliability and responsiveness play a more pronounced role in sustaining trust over repeated transactions.

The longitudinal perspective highlights that trust formation is path-dependent: early service failures have lingering effects, whereas sustained reliability strengthens confidence over time. This observation challenges static models of trust and underscores the importance of consistency in service delivery. The results also suggest that regulatory interventions and infrastructural improvements amplify the trust-building effect of e-service quality by reducing systemic uncertainty.

7. LIMITATIONS AND FUTURE RESEARCH

7.1 Scope of Secondary Data

While the longitudinal approach offers broad insights, reliance on secondary data limits the ability to capture real-time customer sentiments or granular behavioral drivers. Future research should integrate primary data analysis and experimental designs to validate causality more strongly.

7.2 Evolving Consumer Expectations

Customer trust dynamics evolve rapidly in response to new technologies (e.g., AI assistance, virtual try-ons). Longitudinal data must be updated continuously to reflect these trends. Further studies may focus on emerging markets within India such as tier II and tier III cities where trust dynamics differ from urban centers.

8. CONCLUSION

This study advances understanding of e-service quality and customer trust by adopting a longitudinal secondary data approach in an emerging market context. The findings confirm that trust in Indian e-commerce platforms is not an immediate outcome of service quality but a cumulative result of sustained performance across multiple dimensions. By extending service quality theory to a dynamic trust formation framework, the study offers both theoretical and practical insights relevant to digital platforms operating in developing economies

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A STUDY ON IMPACT OF ONLINE SHOPPING ON CONSUMER BUYING BEHAVIOUR

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I. ABSTRACT:

This study investigates the evolving landscape of consumer behavior in the context of online shopping compared to traditional retail. It explores how online shopping influences consumer preferences regarding product selection and brand loyalty, revealing a shift towards greater diversity in choices and a tendency to favor brands with strong online presences.

Key factors influencing online purchase decisions, such as price, convenience, and product variety, are identified, emphasizing their critical role in shaping consumer habits. The impact of online reviews and ratings is also examined, highlighting their significance in fostering consumer trust and influencing buying behavior. Furthermore, demographic variations—specifically age, gender, and income—are analyzed to understand their effects on online shopping preferences.

Keywords: *Online shopping, consumer buying behavior, e-commerce, pricing, product variety, trust and security, online reviews, social media.*

II. INTRODUCTION

Studying how online shopping affects the way people buy things is important to understand how quickly retail and shopping habits are changing. Online shopping has become a normal part of how people shop today, changing how they find, think about, and buy products. This shift has influenced many parts of consumer behavior, including how people make decisions, how loyal they are to

brands, how often they buy things, and what they expect from stores. In recent years, the convenience of online shopping platforms has changed the usual shopping experience. Improvements like secure payment options, personalized product recommendations, and different delivery choices have made online shopping not only easier but also more enjoyable for consumers. This ease, along with lower prices and a larger selection of products, has led to a change in how often people shop online, often reducing the need to visit physical stores.

This study will look into different factors that influence how people behave when shopping online, including psychological, social, and economic factors. By understanding these areas, we can see how online platforms meet consumer needs, how digital marketing shapes buying habits, and how people view value when shopping online

III. OBJECTIVES OF THE STUDY

1. To Analyze Consumer Preferences: Examine how online shopping influences consumer preferences for product selection and brand loyalty compared to traditional retail.
2. To Assess Factors Influencing Online Purchase Decisions: Identify key factors (e.g., price, convenience, product variety) that affect consumers' decisions to shop online.
3. To Evaluate the Role of Online Reviews and Ratings: Investigate how online reviews.
4. Ratings impact consumer trust and buying behavior.
5. To Explore Demographic Variations: Analyze how demographic factors (age, gender, income) affect online shopping behaviors and preferences

IV. REVIEW OF LITERATURE

A review of literature on the impact of online shopping on consumer buying behavior involves examining existing studies, theories, and findings to gain a comprehensive understanding of how online platforms influence consumer decisions and preferences. Key themes emerge in this area, including the convenience of online shopping, the influence of digital marketing and personalized recommendations, the role of trust and security, and demographic factors that affect online shopping behavior.

1. ANKIT MALE

This study on the impact of online shopping on consumer preferences and satisfaction offers valuable insights for businesses entering the online retail market. It explores key factors influencing customer decisions and gathers data through primary and secondary sources. Findings show that travel is the most frequently purchased item online, while tickets and apparel remain less popular among online shoppers.

2. PROF. PRITAM P. KOTHARI
This study examines the attitudes of Indian consumers towards online shopping, focusing on factors influencing their purchasing decisions. Findings suggest that limited consumer awareness of various online services is a major barrier to e- commerce growth in India.

V. RESEARCH METHODOLOGY:

The research methodology for studying the impact of online shopping on consumer buying behavior involves a combination of primary and secondary data collection methods. Primary data will be gathered through surveys and structured questionnaires distributed to a diverse sample of online shoppers, aiming to capture insights into their preferences, motivations, and decision- making processes. Secondary data, including existing research articles, market reports, and relevant e-commerce statistics, will support an understanding of established trends and patterns in online consumer behavior. Both qualitative and quantitative approaches will be used to analyze factors such as convenience, price sensitivity, trust in online security, and demographic influences. This methodology ensures a comprehensive view of how online shopping affects buying behavior, providing valuable insights for both academic understanding and practical applications for businesses.

VI. DATA COLLECTION:

Data for this study will be collected through a combination of surveys and online questionnaires distributed to a diverse group of consumers who shop online. The survey will include questions about shopping frequency, factors influencing purchase decisions, trust in online platforms, and satisfaction levels. This mixed- method approach will provide a comprehensive view of the impact of online shopping on consumer behavior.

1. COLLECTION OF PRIMARY DATA

Primary data for this study will be collected through surveys and interviews with online shoppers to gain direct insights into their buying behavior. The survey will include questions on factors like convenience, trust, product selection, and digital marketing influences. Additionally, focus group discussions may be conducted to explore deeper psychological and emotional aspects of online shopping decisions.

2. COLLECTION OF SECONDARY DATA:

The collection of secondary data for this study on the impact of online shopping on consumer buying behavior involves gathering relevant information from existing sources to provide insights and context for the research. The secondary data for this study will be collected from the following sources:

a) Academic Journals and Research Papers:

b) Industry Reports and Market Analysis

c) Company Websites and E-commerce Platforms:

d) Books and Textbooks on Consumer Behavior and E-Commerce:

e) Surveys and Case Studies from Previous Research:

VII. FINDINGS AND DATA ANALYSIS:

1. Gender –wise distribution of the employees:

What is your gender?	18-30	31-45	More than 45	Under 18	Grand Total
Female	22	6		8	36
Male	11	4	2	10	27
Grand Total	**33**	**10**	**2**	**18**	**63**

Interpretation: The table shows that younger consumers (mainly aged 18-30) are the most active in online shopping, with a higher representation of females. This suggests that online shopping appeals more to young people, especially young women. Older age groups participate less, with minimal engagement from those over 45.

2. Count of How often do you shop online compared to in-store shopping?

Count of How often do you shop online compared to in-store shopping	Gender Female	Male	Grand Total
Frequently	6	6	12
Never	2	3	5

Occasionally	16	10	26
Rarely	12	8	20
Grand Total	**36**	**27**	**63**

Interpretation: The data shows that most consumers shop occasionally (26 people) or rarely (20 people) online, with a smaller number shopping frequently (12 people). Gender-wise, the patterns are similar, though slightly more females shop online occasionally (16 vs. 10 males). Overall, online shopping is popular but not dominant, with many consumers balancing it with in-store shopping. This suggests a complementary rather than a replacement relationship between online and in-store shopping.

3. What factors do you consider most important when deciding to make an online purchase?

What factors do you consider most important when deciding to make an online purchase?	Gender Female	Male	Grand Total
Convenience	11	8	19
Delivery options	12	11	23
Price	8	4	12
Return policy	5	4	9
Grand Total	**36**	**27**	**63**

Interpretation: The most important factors for online shopping are delivery options (23 responses) and convenience (19 responses). Price (12 responses) and return policy (9 responses) are less important. Consumers prioritize ease and reliable delivery when shopping online

VIII. LIMITATION:

The rapid rise of online shopping has transformed consumer buying behavior, presenting new challenges and opportunities for both consumers and businesses. While online shopping offers unparalleled convenience, broader product selection, and personalized experiences, it also brings complexities in

understanding what drives consumer decisions and preferences in this digital space. As consumers increasingly turn to online platforms, factors like trust in online security, influence of digital marketing, and user experience play pivotal roles in shaping their behavior. However, gaps remain in understanding how demographic factors, psychological influences, and the perceived value of online shopping impact long-term buying patterns, brand loyalty, and overall satisfaction. This study aims to address these gaps by exploring the specific ways in which online shopping affects consumer behavior, examining how these factors interact to influence purchasing decisions, and providing insights for businesses to enhance their online strategies.

IX. CONCLUSION

The study reveals that younger consumers, particularly females, are among the most active online shoppers. They tend to prioritize convenience and flexible delivery options, which significantly influence their shopping choices. For this group, the ease of browsing products, comparing prices, and receiving orders at home is highly appealing. However, despite the popularity of online shopping, it has not completely replaced in-store shopping. Many consumers still appreciate the experience of physical shopping, where they can directly view and try products before buying. This dual preference suggests that most shoppers use a "hybrid" approach, combining the benefits of both online and in-store shopping to meet their needs. While factors like competitive pricing and favorable return policies are important, they are generally secondary to the convenience and accessibility that online shopping provides.

X. RECOMMENDATIONS:

- **E-commerce Focus on Delivery:** Online retailers should prioritize flexible and fast delivery options to attract and retain customers.
- **Tailored Marketing:** Brands should target younger, especially female, consumers with convenient and user-friendly shopping experiences.
- **Improve In-Store Integration**: Retailers should offer a seamless blend of online and in-store shopping to cater to consumers who balance both channels.

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THE IMPACT OF 5G TECHNOLOGY ON COMMUNICATION INFRASTRUCTURE

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I. ABSTRACT

Purpose: The main objective of this study was to investigate the impact of 5G technology on communication infrastructure.

Methodology: The study adopted a desktop research methodology. Desk research refers to secondary data or that which can be collected without fieldwork. Desk research is basically involved in collecting data from existing resources hence it is often considered a low cost technique as compared to field research, as the main cost is involved in executive's time, telephone charges and directories. Thus, the study relied on already published studies, reports and statistics. This secondary data was easily accessed through the online journals and library. Findings: The findings revealed that there exists a contextual and methodological gap relating to the impact of 5G technology on communication infrastructure. Preliminary empirical review revealed that the significance of equitable access to 5G technology. As demonstrated, the adoption and impact of 5G can vary widely depending on factors such as geographic location, socioeconomic status, and cultural diversity. Bridging the digital divide and ensuring that underserved communities have access to advanced communication infrastructure remains a critical challenge. Policymakers, telecommunication companies, and community leaders must work collaboratively to address these disparities and ensure that the benefits of 5G are inclusive and accessible to all. Unique Contribution to Theory, Practice and Policy: The Diffusion of Innovations theory, Resource Dependency theory and the Structuration theory may be used to anchor future studies on 5G technology. The study emphasized the need for equitable expansion of 5G network coverage, particularly in underserved rural areas. Second, it calls for robust network security measures and data privacy regulations to safeguard user information. Third, the study promotes innovation and publicprivate partnerships to harness the full potential of 5G technology. Fourth, it highlights the importance of integrating 5G capabilities into disaster preparedness and response plans to enhance communication infrastructure resilience. Finally, the study stresses environmental sustainability by advocating for energy-efficient network components and eco-friendly deployment practices.

II. BACKGROUND

Overview of Mobile Communication Evolution (2G to 4G)

The evolution of mobile communication from 2G to 4G has revolutionized how we interact, communicate, and access information. Each generation marks a leap in technology, offering improvements in data speed, capacity, network performance, and connectivity options, enabling new applications and enhancing user experience. Here's a detailed review of the key milestones and characteristics of each generation.

1. Second Generation (2G)

Introduced in the early 1990s, 2G networks shifted from analog to digital communication. The primary goals were improving voice quality, enabling basic data services like SMS, and offering more efficient spectrum usage.

Technology: GSM (Global System for Mobile Communications) was the most prominent 2G standard, alongside CDMA (Code Division Multiple Access).

2. Third Generation (3G)

Launched in the early 2000s, 3G was a significant improvement, enabling mobile internet access for the first time. This marked the beginning of data-centric mobile networks, with a focus on multimedia applications and faster data transmission.

Technology: UMTS (Universal Mobile Telecommunications System), WCDMA (Wideband CDMA), and HSPA (High-Speed Packet Access).

3. Fourth Generation (4G)

Deployed from 2010 onward, 4G brought an unprecedented leap in mobile data speeds, supporting high-definition video streaming, online gaming, and other bandwidth-intensive applications. The emphasis was on packet-switching networks optimized for IP-based communication.

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III. INTRODUCTION:

5G technology marks a transformative leap in communication infrastructure, offering significantly faster data transfer speeds, lower latency, and enhanced connectivity compared to previous generations like 4G. With speeds potentially reaching up to 100 times faster than 4G, 5G is poised to support an unprecedented number of connected devices, enabling the growth of the Internet of Things (IoT), smart cities, and autonomous vehicles. This technological advancement is set to improve various industries, from healthcare and education to entertainment and logistics, fostering real-time data processing, remote services, and interactive experiences.

However, the deployment of 5G also presents new challenges and considerations for communication infrastructure. Its rollout requires the installation of a dense network of small cell towers and fiber optic cables to ensure consistent coverage and speed. This infrastructure overhaul demands significant investment and presents logistical challenges in both urban and rural areas. Additionally, the higher frequency bands used in 5G may have a limited range, requiring more base stations to be built. As a result, governments, telecommunication companies, and regulatory bodies must work collaboratively to address issues related to spectrum allocation, cybersecurity, and public health concerns while ensuring equitable access to the benefits of 5G technology.

IV. OBJECTIVE:

1. To analyze the key improvements in speed, latency, and connectivity offered by 5G technology
2. To evaluate the role of 5G in supporting emerging technologies, including IoT (Internet of Things) and AI (Artificial Intelligence) applications
3. To assess the infrastructure challenges and requirements for implementing 5G networks
4. To study the potential impact of 5G on traditional industries and communication models
5. To understand the cybersecurity implications and risks associated with 5G adoption

V. LITERATURE REVIEW

Theoretical Review

1 **Diffusion of Innovations Theory**

Originating from Everett Rogers in 1962, this theory explains how innovations, like 5G technology, are adopted within society. It categorizes adopters into innovators, early adopters, early majority, late majority, and laggards. In the context of 5G technology's impact on communication infrastructure, this theory helps researchers understand how different groups embrace 5G and how adoption spreads, shedding light on factors like infrastructure and community dynamics (Rogers, 1962).

2 **Resource Dependency Theory**

Proposed by Pfeffer and Salancik in 1978, this theory focuses on how organizations depend on external resources, such as technology or capital. In the case of 5G technology, it explains how telecom companies and governments rely on 5G for improving communication infrastructure. The theory highlights the interdependencies among stakeholders and how they shape the development and accessibility of 5G networks (Pfeffer & Salancik, 1978).

3 **Structuration Theory**

Developed by Anthony Giddens in the late 1970s, this theory examines how social structures and individual actions interact. In the case of 5G technology, it explores how this technology influences and is influenced by social structures within communities. The theory allows for analysis of how 5G impacts communication, information access, and community dynamics, while also emphasizing the agency of individuals and organizations in shaping 5G deployment (Giddens, 1984).

VI. RESEARCH METHODOLOGY

The study adopted a desktop research methodology. Desk research refers to secondary data or that which can be collected without fieldwork. Desk research is basically involved in collecting data from existing resources hence it is often considered a low cost technique as compared to field research, as the main cost is involved in executive’s time, telephone charges and directories. Thus, the study relied on already published studies, reports and statistics. This secondary data was easily accessed through the online journals and library.

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VII. FINDING DATA ANALYSIS:

T-TEST

What is your level of familiarity with 5G technology?

Count of 1. What is your age?	Column Labels		
Row Labels	Female	Male	Grand Total
Familiar	12	12	24
Not familiar	3	4	7
Somewhat familiar	17	16	33
Very familiar	7	6	13
Grand Total	**39**	**38**	**77**

INTERPRETATION

The data shows that among 77 respondents, familiarity with 5G technology varies, with most participants indicating they are either somewhat familiar or familiar with 5G. Specifically, 33 respondents (42.9%) are somewhat familiar, while 24 (31.2%) are familiar. Only a smaller segment is very familiar (13 people, or 16.9%), and the fewest group indicated they were not familiar (7 people, or 9.1%). The distribution is relatively balanced by gender, with 39 females and 38 males, showing similar familiarity levels across genders. Overall, the data suggests moderate awareness of 5G technology, with opportunities to increase deeper understanding among respondents.

How important is 5G connectivity for the functioning of your smart devices?

Count of 1. What is your age?	Column Labels		
Row Labels	Female	Male	Grand Total
Important	17	15	32
Not important	5	2	7
Somewhat important	8	16	24
Very important	9	5	14
Grand Total	**39**	**38**	**77**

INTERPRETATION

The data shows the varying opinions on the importance of 5G connectivity for smart devices, categorized by gender. A total of 77 respondents were surveyed, with 39 females and 38 males. Among the participants, 32 (17 females, 15 males) consider 5G connectivity important, while 7 (5 females, 2 males) find it not important. Additionally, 24 people (8 females, 16 males) deem it somewhat important, and 14 (9 females, 5 males) believe it is very important. Overall, the majority of respondents recognize the importance of 5G connectivity, with a slight gender difference in how strongly they emphasize its significance, especially among males who lean more towards "somewhat important."

How concerned are you about security and privacy issues related to 5G technology?

Count of 1. What is your age?	Column Labels		
Row Labels	Female	Male	Grand Total
Concerned	14	13	27
Not concerned	9	4	13
Somewhat concerned	11	16	27
Very concerned	5	5	10
Grand Total	**39**	**38**	**77**

INTERPRETATION

The data shows varying levels of concern about security and privacy issues related to 5G technology among males and females. Of the 77 respondents, a significant portion (27 people) is "somewhat concerned," representing the largest group, with a fairly even gender split (11 females and 16 males). Similarly, 27 people are simply "concerned," with close male-female representation (14 females and 13 males). A smaller number, 10 people, are "very concerned," equally split between genders. Lastly, 13 individuals are "not concerned," with a notable difference between genders: 9 females compared to only 4 males. Overall, the data indicates that most

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respondents have at least some level of concern about 5G security and privacy, with few people showing no concern at all.

VIII. LIMITATION:

While 5G technology promises faster speeds, lower latency, and greater connectivity, it also faces several limitations. The rollout of 5G networks requires significant infrastructure upgrades, which can be expensive and time-consuming. Additionally, the high-frequency bands used by 5G, though capable of faster data transfer, have shorter range and are more easily obstructed by physical barriers such as buildings and trees. This means that widespread 5G coverage may be limited in rural or densely populated areas where signal strength can degrade quickly. Furthermore, concerns regarding privacy and security also arise with the increased number of connected devices, as the expanded network surface may become more vulnerable to cyberattacks. These limitations can slow the global adoption and realization of 5G's full potential.

IX. CONCLUSION:

The data on 5G network usage reveals that younger adults, particularly those aged 18-34, are the primary adopters, with a significant drop-off in usage among older age groups. Familiarity with 5G is moderate, with most respondents indicating at least some familiarity. Gender-wise, the data shows similar levels of awareness, although females tend to notice improvements in network speeds and performance more than males, who report a higher percentage of no noticeable change. The majority of respondents recognize the importance of 5G for smart devices, with a slight gender difference, and express varying levels of concern about security and privacy issues, with males showing less concern than females. Overall, the data suggests that while many people see the potential benefits of 5G, mixed experiences and concerns about security remain prevalent.

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ETHICAL AUDITING PRACTICES AS A TOOL FOR PREVENTING CORPORATE MISCONDUCT

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ABSTRACT
Corporate misconduct remains a pervasive challenge across global markets, undermining stakeholder trust, financial stability, and judicial integrity. Ethical auditing practices have emerged as an essential mechanism for curbing such misconduct by reinforcing accountability, enhancing transparency, and fostering ethical organizational cultures. This study examines the role of ethical auditing in preventing corporate malpractice and evaluates how ethical norms, audit independence, professional skepticism, governance frameworks, and regulatory environments collectively influence audit effectiveness. Through a comprehensive review of academic literature, regulatory frameworks, and real-world audit failures, this paper argues that ethical auditing practices are not merely compliance mechanisms but foundational elements for sustainable, misconduct-resilient corporate governance. The findings underscore the need for stronger ethical standards, enhanced audit committee oversight, robust whistleblower protections, and continuous professional development among auditors.

Keywords: *Ethical auditing, corporate misconduct, audit independence, corporate governance, professional skepticism, regulatory compliance.*

1. INTRODUCTION
Corporate misconduct, defined as intentional or reckless deviations from accepted legal or ethical standards in pursuit of corporate objectives, has serious ramifications, including financial losses, reputational damage, regulatory penalties, and diminished investor confidence (Zheng & Koonce, 2020). High-profile corporate scandals such as Enron, WorldCom, and more recently, financial irregularities in global banking institutions highlight systemic vulnerabilities in corporate oversight mechanisms (Coffee, 2005; Healy & Palepu, 2003). These events underscore the need for robust ethical auditing practices designed not only to ensure compliance with financial reporting standards but also to detect, prevent, and deter unethical conduct.

Ethical auditing transgresses traditional audit approaches by incorporating ethical frameworks that guide audit procedures, auditor conduct, and corporate accountability. Ethical auditors extend beyond technical compliance to evaluate organizational culture, ethical decision-making processes, and governance practices. By anchoring audits in ethical principles, auditors can better identify signs of misconduct, promote integrity in financial reporting, and enhance stakeholder trust (PCAOB, 2018).

This paper explores how ethical auditing practices serve as effective tools for preventing corporate misconduct. The study synthesizes literature on audit ethics, examines the relationship between ethical audits and corporate behavior, and analyses mechanisms through which ethical auditing diminishes misconduct risk.

2. LITERATURE REVIEW

2.1 Corporate Misconduct and Its Consequences
Corporate misconduct encompasses actions such as financial misreporting, insider trading, bribery, embezzlement, environmental violations, and breach of fiduciary duties (Kaptein, 2015). The consequences of such misconduct are extensive. Economic losses can be substantial for investors and creditors, while societal trust in markets and institutions can erode, amplifying systemic risk (Ferri & Sandino, 2009).

Research indicates that misconduct often arises from weak governance structures, inadequate ethical leadership, flawed incentive systems, or cultural tolerance for rule bending (Trevino, Weaver, & Reynolds, 2006). These drivers suggest that conventional audits focused narrowly on financial metrics may be insufficient to detect underlying ethical risks.

2.2 Definition and Scope of Ethical Auditing
Ethical auditing refers to the process of evaluating an organization's adherence to ethical standards, codes of conduct, and moral principles in addition to financial and regulatory compliance (Sims & Brinkmann, 2003). Ethical audits may assess corporate values, employee behaviour, decision-making processes, incentive systems, and managerial accountability.

PCAOB (2018) emphasizes that ethical auditing confronts issues of integrity, objectivity, professional scepticism, confidentiality, and professional competence. Ethical auditors are tasked with identifying misalignments between reported financial information and underlying ethical risks, such as conflict of interest, manipulative accounting practices, or intentional misclassification.

2.3 Regulatory Framework and Audit Standards

Regulatory frameworks across jurisdictions set minimum standards for audit quality. The Sarbanes-Oxley Act (SOX) of 2002 in the United States, for instance, heightened auditor independence requirements, strengthened audit committee oversight, and mandated internal control assessments (Coates, 2007). International frameworks, including International Standards on Auditing (ISAs) and the International Ethics Standards Board for Accountants (IESBA) Code of Ethics, emphasize ethical behaviour and professional scepticism among auditors.

Despite robust standards, enforcement challenges and variations in regulatory effectiveness across jurisdictions have limited the ability of standard audits to prevent ethical breaches (Gray & Manson, 2011). This underscores the need for ethics-centered auditing beyond compliance checklists.

3. Theoretical Framework

3.1 Agency Theory

Agency theory illustrates the conflicts that can arise between corporate managers (agents) and shareholders (principals). In the absence of adequate oversight, managers may pursue self- interested behaviors that compromise fiduciary responsibilities (Jensen & Meckling, 1976). Ethical auditing acts as a governance mechanism that aligns managerial behaviour with shareholder interests by increasing transparency and reducing information asymmetry.

3.2 Ethical Decision-Making and Organizational Culture

Ethical decision-making frameworks anchor organizational behaviour in moral values and normative principles (Rest, 1986). Audits that evaluate ethical culture and behavioural norms help organizations identify and rectify settings where misconduct may flourish. By shifting focus from procedural compliance to ethical reasoning, auditors can uncover ethical lapses that traditional financial audits may overlook.

3.3 Stakeholder Theory

Stakeholder theory suggests that corporations have accountability not only to shareholders but also to broader stakeholder groups including employees, customers, regulators, and society (Freeman, 1984). Ethical auditing aligns with stakeholder expectations by assessing corporate conduct against ethical norms that safeguard diverse interests.

4. Ethical Auditing Practices

4.1 Auditor Independence and Objectivity

Independence is a cornerstone of ethical auditing. When auditors lack independence, they face pressure to acquiesce to managerial demands, potentially overlooking misconduct (Mutchler, 2003). Ethical auditing practices mandate rigorous safeguards against conflicts of interest, including rotation policies, restrictions on non-audit services, and transparent reporting to audit committees.

Studies show that auditor turnover and restricted consultative engagements enhance audit objectivity by reducing familiarity threats and financial dependence on clients (Carcello & Nagy, 2004). Audit firms must maintain structural independence and resist pressures that compromise professional judgement.

4.2 Professional Scepticism

Professional scepticism involves maintaining a questioning mindset and critically evaluating audit evidence. Ethical auditors avoid assumptions of honesty and probe incongruities, unusual transactions, and incentives that may indicate misconduct (Hurtt, 2010). Empirical research supports the link between scepticism and detection of intentional misstatements; auditors exhibiting higher scepticism are more likely to identify anomalies and aberrant behaviours (Albayati et al., 2021).

4.3 Ethical Codes and Continuing Professional Education

Audit firms and professional bodies establish ethical codes of conduct that define acceptable behaviours, conflict of interest management, confidentiality protocols, and accountability standards (IESBA, 2018). Continuous professional education reinforces ethical proficiency by updating auditors on evolving standards, regulatory developments, and ethical dilemmas.

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Training that emphasizes ethical reasoning and situational judgement enhances auditors' cognitive frameworks, enabling them to navigate complex ethical challenges.

4.4 Whistleblower Mechanisms and Confidential Reporting Lines

Ethical auditing frameworks often include protections for whistleblowers and confidential reporting channels. Whistleblower programmes incentivize internal reporting of misconduct without fear of retaliation (Miceli & Near, 1992). Organizations with strong whistleblower systems enhance early detection of ethical breaches and support auditor findings with corroborative internal information.

5. Ethical Auditing in Practice: Case Studies

5.1 Enron and Arthur Andersen

Perhaps the most cited audit failure in history, the collapse of Enron in 2001 exposed severe ethical lapses within both the corporation and its auditor, Arthur Andersen. Andersen's conflicts of interest arising from extensive consulting engagements with Enron compromised its independence (Healy & Palepu, 2003). Andersen's failure to exercise professional scepticism and challenge management's accounting treatments allowed fraudulent practices to persist undetected.

This scandal led to regulatory reforms including the Sarbanes-Oxley Act, reinforcing auditor independence and ethical accountability (Coates, 2007). The Enron case underscores how weak ethical auditing practices can enable corporate misconduct.

5.2 WorldCom

WorldCom's financial fraud between 1999 and 2002, involving over $11 billion in fabricated expenses, was another example where auditors failed to detect intentional misstatements (Smith, 2006). Auditor complacency, inadequate scepticism, and excessive reliance on management representations contributed to the misconduct. Post hoc analyses revealed that ethical auditing, emphasizing scepticism and verification, could have curtailed the misconduct earlier.

These case studies highlight the consequences of ethical audit failures and reinforce the necessity of embedding ethics into audit systems.

6. Impact of Ethical Auditing on Corporate Behavior

6.1 Enhanced Transparency and Accountability

Ethical auditing enhances transparency by requiring auditors to disclose material weaknesses, ethical concerns, and governance deficiencies. This contributes to greater accountability among corporate leaders, who are aware that independent auditors will scrutinize not only financial statements but ethical behaviors.

Transparency reduces information asymmetry between insiders and external stakeholders, improving investment decisions and market efficiency.

6.2 Deterrence of Misconduct

The presence of robust ethical auditing practices acts as a deterrent to corporate misconduct. When executives know that audits involve ethical scrutiny, the risk of detection and reputational damage increases, discouraging intentional wrongdoing (Schloetzer, 2013). Ethical auditors bolster deterrence by signaling to corporate agents that malfeasance cannot be easily concealed.

6.3 Improved Corporate Governance

Ethical auditing reinforces governance structures by strengthening audit committees, clarifying roles and responsibilities, and emphasizing ethical conduct as a performance criterion. Organizations with ethical audit cultures tend to have stronger board oversight, frequent evaluations of internal controls, and active stakeholder engagement.

7. Challenges and Limitations

Despite the benefits, implementing ethical auditing practices faces several challenges:

7.1 Regulatory Variability

Global differences in regulatory enforcement and audit standards affect the uniform adoption of ethical auditing practices. Some jurisdictions lack rigorous oversight or enforcement mechanisms, weakening the impact of ethical audits.

7.2 Resource Constraints
Smaller audit firms may have limited resources for extensive ethical training, specialised personnel, or investigative tools. Resource gaps can reduce the effectiveness of ethical audits, particularly in complex organisations.

7.3 Auditor Bias and Cultural Factors
Auditors, like all professionals, may be susceptible to cognitive biases, social pressures, or cultural norms that inhibit ethical vigilance. Without continuous professional development and organizational support, auditors may inadvertently overlook ethical risks.

7.4 Corporate Resistance
Corporate leadership may resist ethical auditing when short-term profits conflict with ethical standards. Pressure from management to overlook ethical concerns can compromise audit quality unless auditors are protected by regulatory safeguards and ethical codes.

8. Recommendations for Strengthening Ethical Audits
To maximize the effectiveness of ethical auditing practices in preventing corporate misconduct, the following recommendations are proposed:

8.1 Strengthen Regulatory Oversight
Regulators should enforce uniform ethical auditing standards, mandate audit committee independence, and monitor compliance through periodic reviews and sanctions for ethical violations.

8.2 Enhance Auditor Education and Ethical Training
Continuous ethical training, case-based learning, and certifications focusing on ethical challenges will equip auditors with tools to detect misconduct.

8.3 Promote Whistleblower Support Systems
Organizations should institutionalize robust whistleblower mechanisms with legal protections and confidential reporting channels to encourage internal reporting of misconduct.

8.4 Foster Ethical Organizational Cultures
Corporations must priorities ethical values, incentivize ethical behavior, and demonstrate leadership commitment to integrity to reinforce audit findings and ethical compliance.

9. CONCLUSION
Ethical auditing practices are indispensable for preventing corporate misconduct. By promoting auditor independence, professional skepticism, ethical codes, and transparent reporting, ethical audits bridge gaps left by traditional compliance audits. The integration of ethical frameworks into audit processes strengthens corporate accountability, deters misconduct, and enhances stakeholder trust.

The historical failures of Enron, WorldCom, and similar scandals demonstrate the catastrophic consequences of weak ethical oversight, while contemporary research validates the role of ethical auditing in reinforcing corporate integrity. As governance expectations evolve, ethical auditing must remain a central pillar of corporate oversight frameworks across jurisdictions.

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A STUDY ON THE GROWTH TRENDS OF SYSTEMATIC INVESTMENT PLANS AND THEIR INFLUENCE ON INVESTOR BEHAVIOUR IN INDIA

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ABSTRACT
Systematic Investment Plans (SIPs) have emerged as one of the most transformative financial instruments in India's mutual fund industry. Over the last decade, SIPs have gained immense popularity among retail investors due to their affordability, flexibility, and ability to encourage disciplined investing. This study examines the growth trends of SIPs in India and analyzes their influence on investor behaviour. Using secondary data sourced from the Association of Mutual Funds in India (AMFI), Securities and Exchange Board of India (SEBI), Reserve Bank of India (RBI), and existing academic literature, the paper evaluates trends in SIP inflows, assets under management (AUM), number of accounts, and investor preferences. The findings indicate a significant behavioural shift among Indian investors from traditional savings instruments toward systematic, market-linked investments. The study also highlights the role of digitalization, financial literacy initiatives, and regulatory support in accelerating SIP adoption. The paper concludes that SIPs have not only strengthened retail participation in capital markets but have also fostered long-term, goal-oriented, and disciplined investment behaviour among Indian households.

***Keywords**: Systematic Investment Plans, Mutual Funds, Investor Behaviour, Retail Investors, Financial Markets, India*

INTRODUCTION
The Indian financial system has undergone significant structural changes over the past two decades, particularly with respect to retail investor participation in capital markets. Traditionally, Indian households preferred low-risk savings instruments such as bank deposits, post office schemes, gold, and real estate (Reserve Bank of India [RBI], 2022). However, rising financial awareness, declining interest rates on traditional instruments, and improved access to financial products have gradually shifted investor preferences toward market-linked investments.

Systematic Investment Plans (SIPs), offered primarily through mutual funds, have played a pivotal role in this transition. A SIP enables investors to invest a fixed amount at regular intervals—monthly, quarterly, or annually—thereby promoting disciplined savings and mitigating market timing risk through rupee cost averaging. Over time, SIPs have become synonymous with long-term wealth creation for retail investors in India.

The rapid growth of SIPs has not only increased mutual fund penetration but has also altered investor behaviour in terms of risk perception, investment horizon, and savings discipline. This study aims to analyze the growth trends of SIPs in India and examine how these trends have influenced the behaviour of Indian investors.

OBJECTIVES OF THE STUDY
The primary objectives of this study are:

- To examine the growth trends of Systematic Investment Plans in India.
- To analyse changes in SIP inflows, AUM, and investor participation.
- To study the influence of SIPs on investor behaviour, including risk appetite, investment discipline, and long-term orientation.
- To identify key factors driving SIP adoption in India.

REVIEW OF LITERATURE
Several studies have examined mutual fund investments and investor behaviour in the Indian context. Kumar and Bansal (2020) found that income level, financial literacy, and risk tolerance significantly influence mutual fund investment decisions. Similarly, Chandra and Jain (2019) observed that SIPs reduce emotional biases in investment decisions by promoting systematic investing.

Batra and Verma (2017) emphasized the role of financial advisors and awareness campaigns in popularizing SIPs among retail investors. Their study highlighted that investors perceive SIPs as safer than lump-sum investments due to their ability to spread risk over time.

Recent industry-based studies by AMFI (2024) indicate that SIPs have become the dominant mode of equity mutual fund investments, accounting for a substantial portion of monthly inflows. SEBI (2023) also noted that SIP investors tend to remain invested for longer periods, reflecting improved market maturity.

While prior research highlights the advantages of SIPs, there is limited comprehensive analysis linking SIP growth trends with evolving investor behaviour. This study attempts to bridge that gap.

RESEARCH METHODOLOGY

The study is descriptive and analytical in nature, based entirely on secondary data. Data has been collected from:

Association of Mutual Funds in India (AMFI) Securities and Exchange Board of India (SEBI) Reserve Bank of India (RBI)

Published research articles, journals, and industry reports Financial newspapers and official statistical publications

The data has been analysed using trend analysis and qualitative interpretation to understand growth patterns and behavioural changes among investors.

Growth Trends of Systematic Investment Plans in India

- **Growth in SIP Contributions**

Over the past decade, SIP inflows in India have grown substantially, indicating a significant structural shift in household investment behaviour. According to AMFI (2024), monthly SIP contributions increased from below ₹3,000 crore in FY 2013–14 to over ₹20,000 crore in FY 2023–24, reflecting rising investor confidence and acceptance of mutual funds. This growth has been supported by improved financial literacy, digital investment platforms, and sustained investor awareness initiatives. SIPs are increasingly perceived as disciplined, goal-oriented investment tools suited for long-term wealth creation. A notable aspect of this trend is the stability of SIP inflows across varying market conditions, including periods of extreme volatility such as the COVID-19 pandemic. Investors continued their systematic investments despite market downturns, demonstrating an understanding of rupee cost averaging and long-term compounding benefits. This behaviour highlights reduced sensitivity to short- term market fluctuations and a shift away from speculative investing. Overall, the sustained growth and resilience of SIP inflows reflect increasing behavioural maturity and the institutionalisation of retail investing in India.

- **Growth in SIP Assets Under Management (AUM)**

SIP AUM has expanded significantly in recent years, surpassing ₹15 trillion, indicating the growing strength of systematic investing in India (AMFI, 2024). This increase reflects not only a rise in the number of SIP investors but also a greater commitment to sustained and disciplined investment behaviour. Investors are increasingly maintaining their SIPs over longer periods, even during market fluctuations, allowing compounding benefits to materialize. Higher contribution amounts and the adoption of step-up SIPs further contribute to the expansion of AUM. The trend also suggests reduced redemption pressure, pointing to improved investor confidence and maturity. Increased financial literacy and easy access to digital investment platforms have supported this growth. Moreover, SIPs are now widely integrated into goal-based financial planning such as retirement and education. Overall, the growth in SIP AUM signifies a structural shift from short-term savings to long-term wealth creation in India.

- **Increase in Number of SIP Accounts**

The number of active SIP accounts in India has witnessed rapid growth, surpassing 8 crore accounts by 2024 (AMFI, 2024), reflecting the widening participation of retail investors in mutual fund investments. This expansion indicates a strong shift toward systematic and disciplined investing across diverse demographic segments. The proliferation of digital investment platforms, mobile applications, and fintech intermediaries has played a crucial role in simplifying access to SIP investments. Streamlined e- KYC processes, paperless onboarding, and low minimum investment requirements have reduced entry barriers for first-time investors. These technological advancements have been particularly effective in attracting younger investors and millennials, who prefer convenient and technology-driven financial solutions. Increased awareness through social media, online campaigns, and educational initiatives has further encouraged participation. The growing number of SIP accounts also suggests increased trust in the mutual fund ecosystem. Overall, this trend highlights the role of digitalisation in deepening financial inclusion and strengthening long-term investment culture in India.

Influence of SIPs on Investor Behaviour

- **Shift Toward Disciplined Investing**

One of the most significant behavioural changes associated with SIP adoption is the increased emphasis on disciplined investing. SIPs promote regular and automated savings, thereby reducing the influence of emotional and impulsive decisions driven by short-term market movements. By encouraging fixed, periodic investments, SIPs discourage market timing and speculative behaviour among investors. This systematic approach helps investors remain invested during market volatility and benefit from rupee cost averaging. As a result, investors demonstrate a stronger long-term orientation toward wealth creation rather than short-term gains (Chandra & Jain, 2019).

- **Increased Risk Acceptance**

Traditionally, Indian investors have been characterized by a high degree of risk aversion, with a strong preference for fixed-income and capital-protected instruments. The growing adoption of SIPs has gradually enhanced investors' comfort with equity-oriented investments. By spreading investments over time, SIPs mitigate the impact of market volatility and reduce the perceived risk associated with lump- sum investing. The ability to invest small and regular amounts has further lowered psychological and financial entry barriers to equity markets. This mechanism enables investors to gain exposure to equities in a controlled and disciplined manner. Consequently, SIPs have played a crucial role in improving risk tolerance and broadening retail participation in equity markets (SEBI, 2023).

- **Longer Investment Horizon**

SIP investors generally exhibit longer investment horizons compared to lump-sum investors, reflecting a stronger commitment to long-term financial planning. The systematic nature of SIPs encourages continuity and reduces the likelihood of premature withdrawals. This behaviour closely aligns with long- term financial objectives such as retirement planning, children's education, and sustained wealth accumulation. According to SEBI (2023), a substantial proportion of SIP accounts have investment tenures exceeding five years, indicating investor patience and discipline. Longer holding periods enable investors to benefit from the power of compounding and rupee cost averaging. Overall, this trend highlights the role of SIPs in fostering a stable and goal-oriented investment approach among retail investors.

- **Role of Digitalization and Financial Literacy**

Digital platforms, mobile applications, and fintech innovations have significantly simplified the process of investing through SIPs, enhancing accessibility and convenience for a broader population. Features such as paperless onboarding, e-KYC, automated payments, and real-time portfolio tracking have reduced procedural complexities and transaction costs. These technological advancements have particularly benefited first-time and geographically dispersed investors by lowering entry barriers. In parallel, government and regulatory initiatives focused on financial literacy and investor awareness have strengthened informed investment decision-making. Programs led by institutions such as the RBI and SEBI have improved understanding of market-linked products and risk-return dynamics. Collectively, digitalisation and regulatory support have reinforced positive investor behaviour and encouraged long- term participation in mutual fund investments (RBI, 2022).

DISCUSSION

The findings of the study indicate that SIPs have played a pivotal role in transforming the investment behaviour of Indian households. The consistent growth in SIP inflows, assets under management, and the expanding investor base reflects a clear transition from short-term and speculative investing toward systematic and goal-oriented financial planning. SIPs have encouraged disciplined savings habits and increased long-term participation in market-linked instruments. However, challenges such as premature SIP discontinuation and inadequate financial awareness among certain investor segments continue to persist. Additionally, excessive reliance on equity-oriented SIPs may expose investors to concentration risk. Addressing these concerns through targeted investor education, financial literacy initiatives, and professional advisory support is crucial for sustaining the long-term growth and stability of SIP investments.

CONCLUSION

Systematic Investment Plans have substantially reshaped the Indian investment landscape by fostering disciplined, long-term, and inclusive investment practices. The sustained growth in SIP inflows, assets under management, and investor participation reflects rising financial awareness and improved accessibility to market-linked financial products. SIPs have enabled a broader segment of the population to participate in mutual fund investments through affordable and systematic contributions. This growing retail participation has enhanced market depth and contributed to greater stability in India's capital markets. Moreover, SIPs have encouraged

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goal-oriented financial planning and reduced speculative investment behaviour. The study concludes that SIPs will continue to play a critical role in strengthening retail investing and supporting the long-term development of India's financial system.

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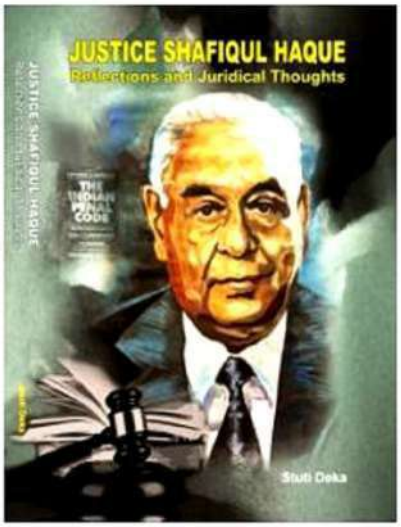

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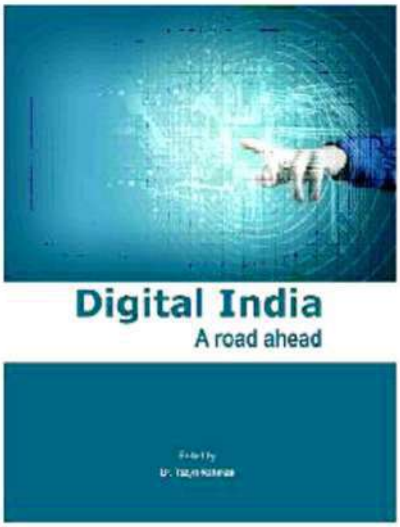

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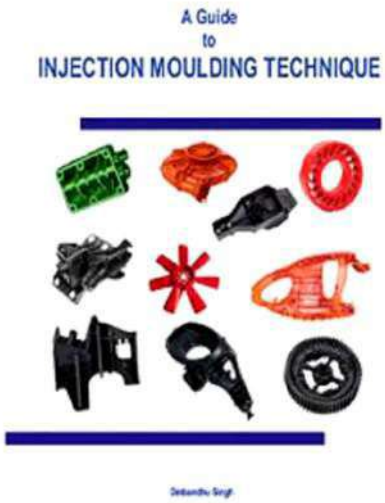

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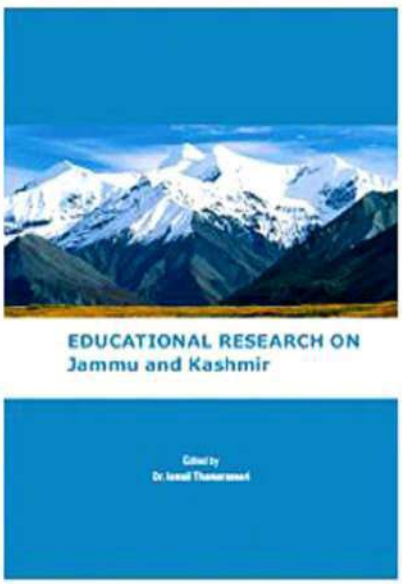

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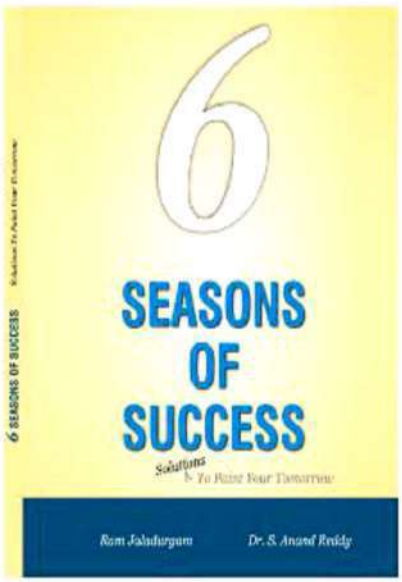

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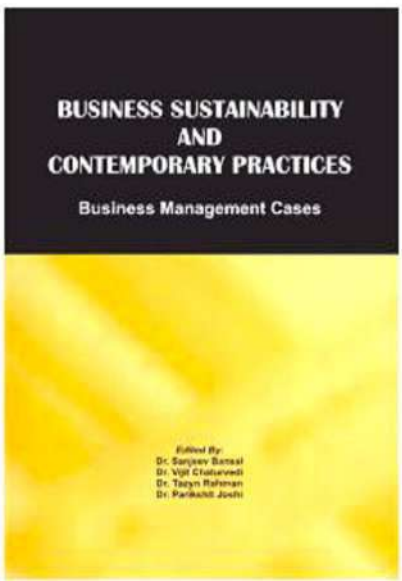

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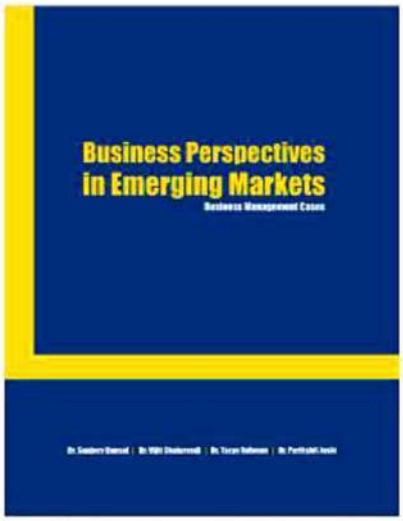

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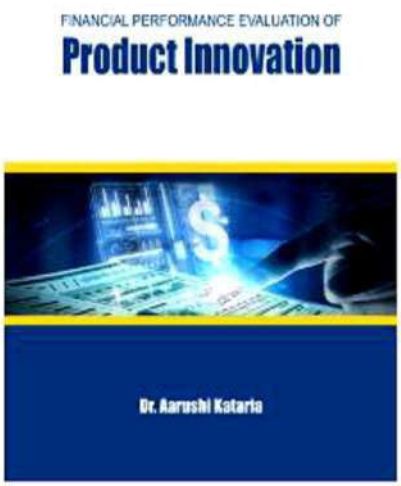

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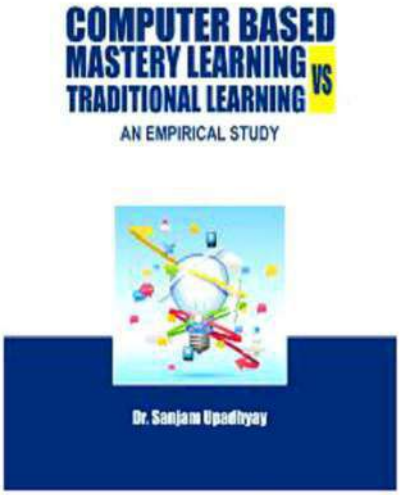

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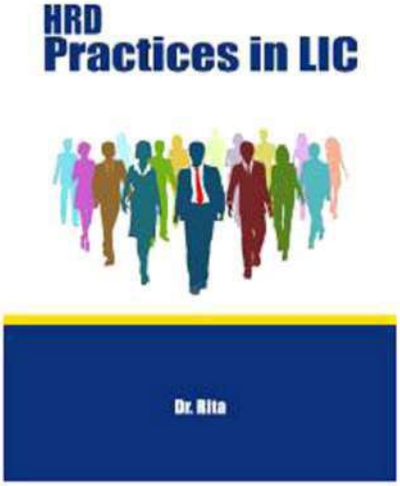

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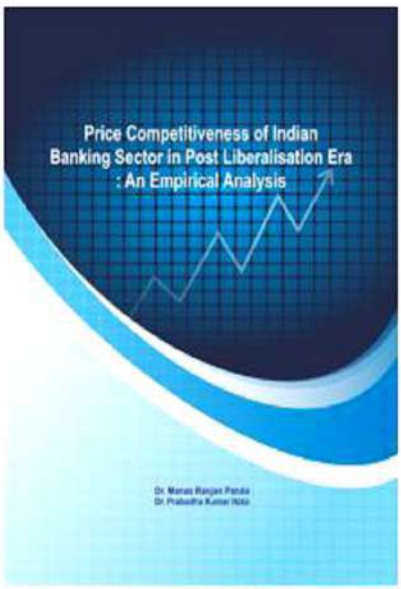

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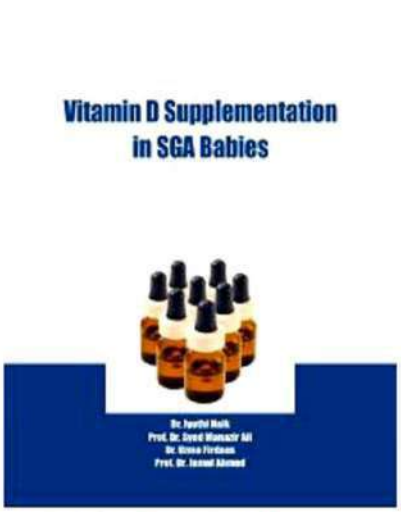

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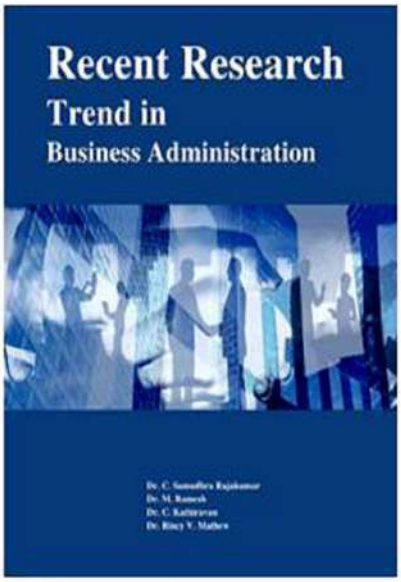

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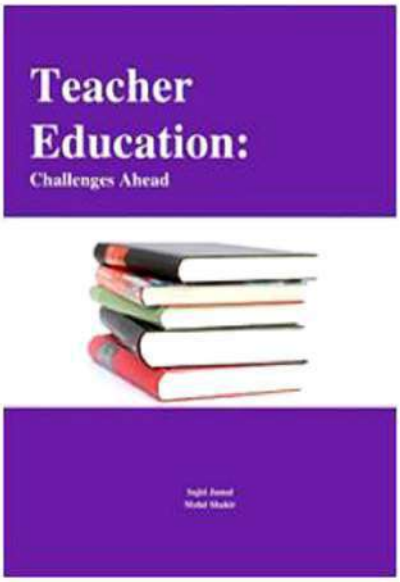

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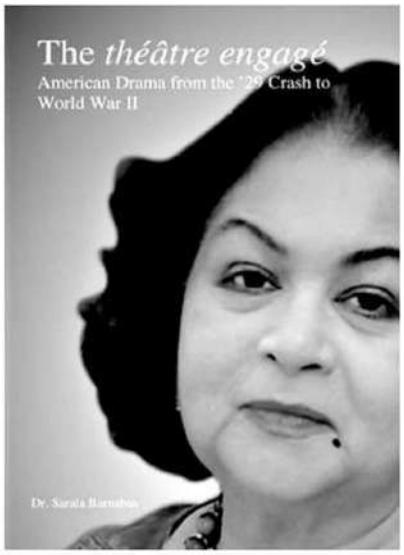

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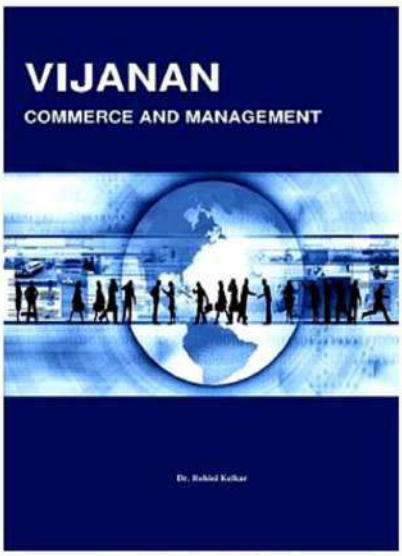

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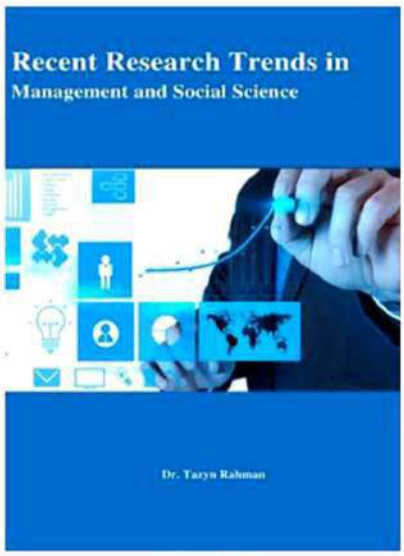

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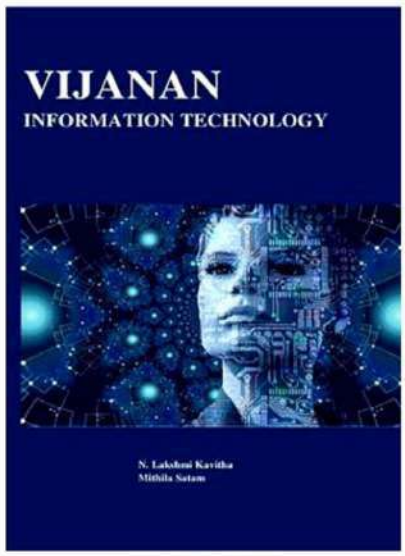

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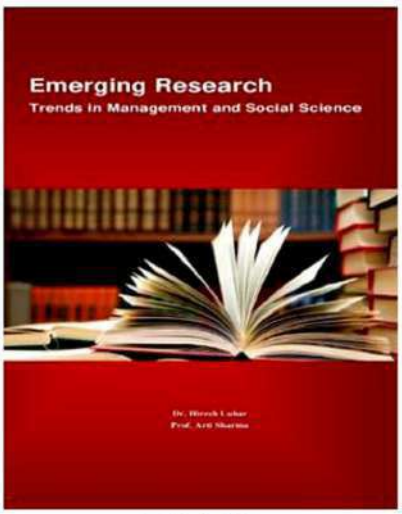

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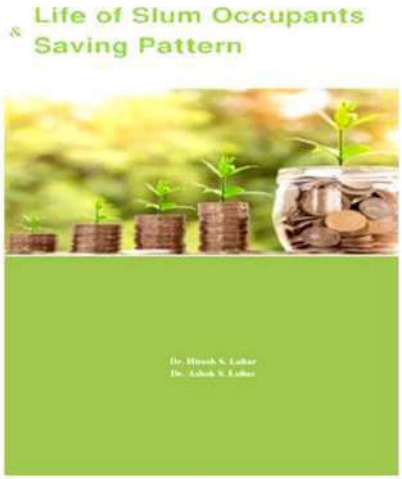

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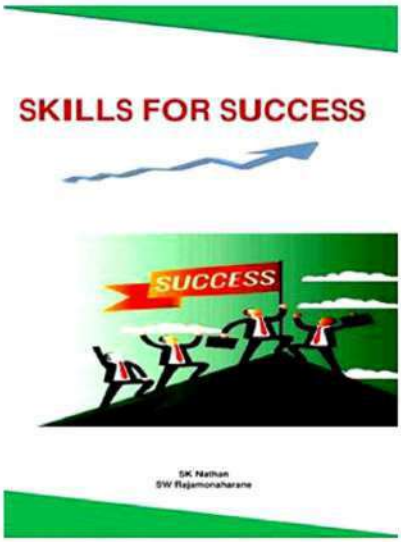

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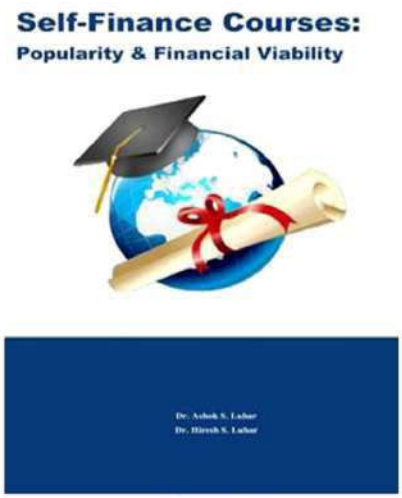

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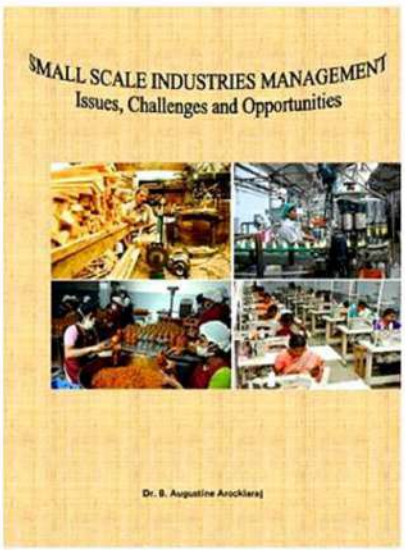

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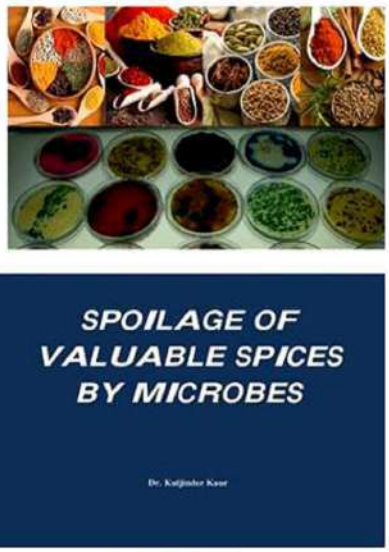

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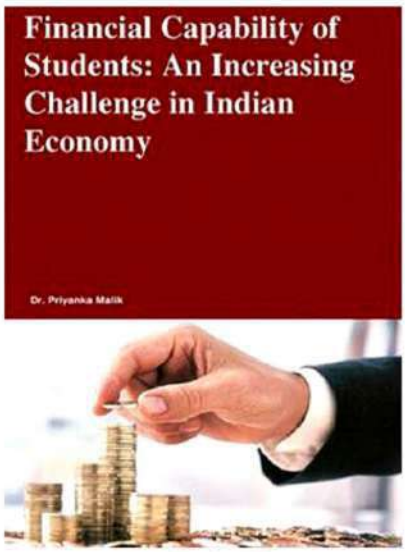

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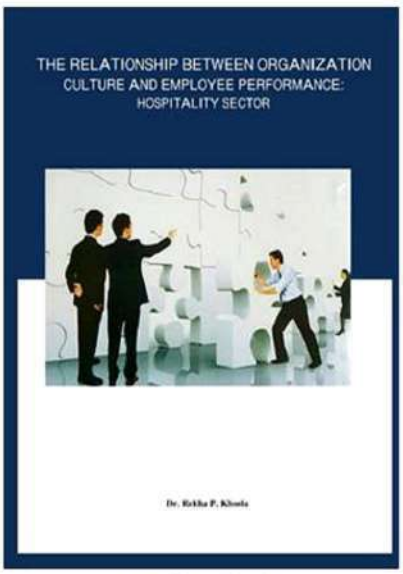

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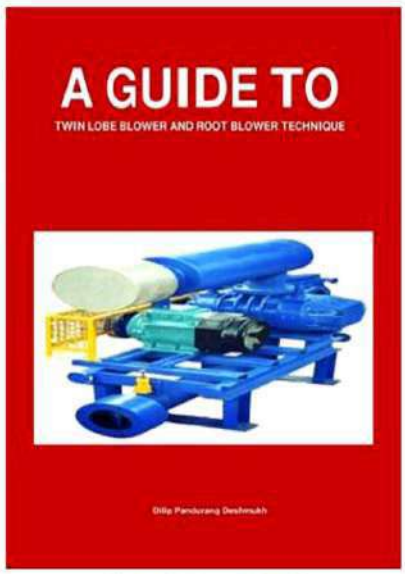

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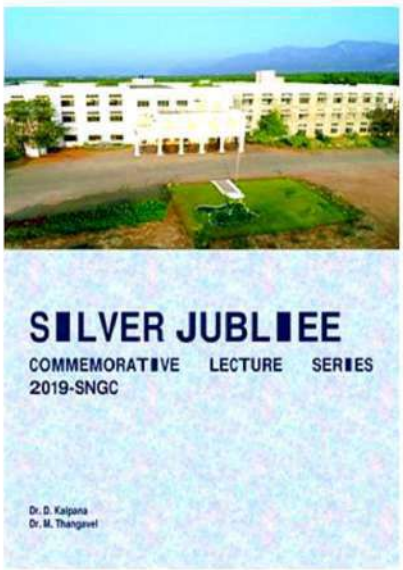

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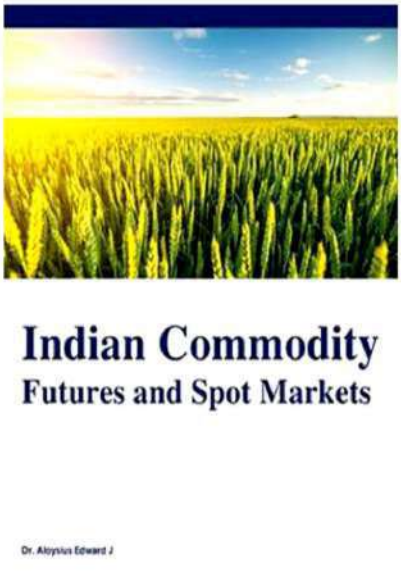

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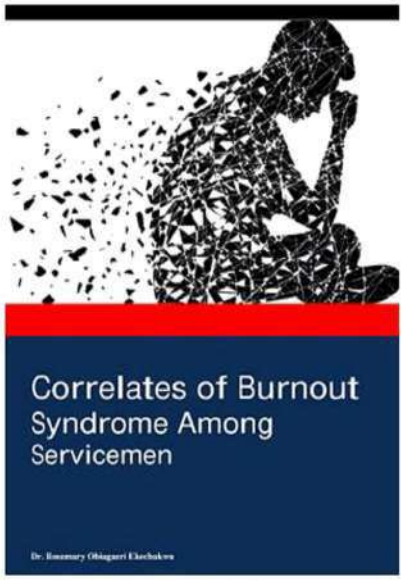

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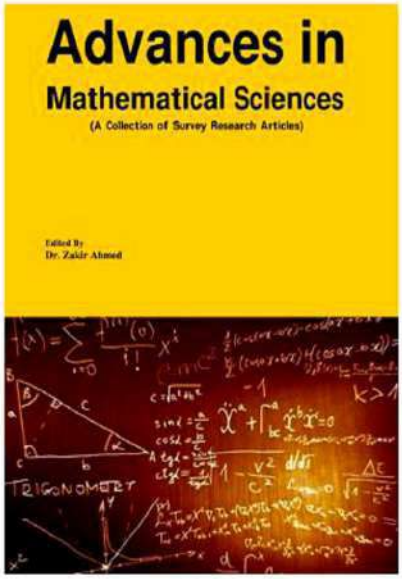

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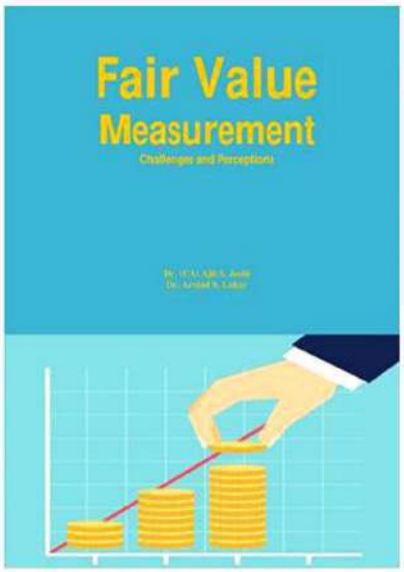

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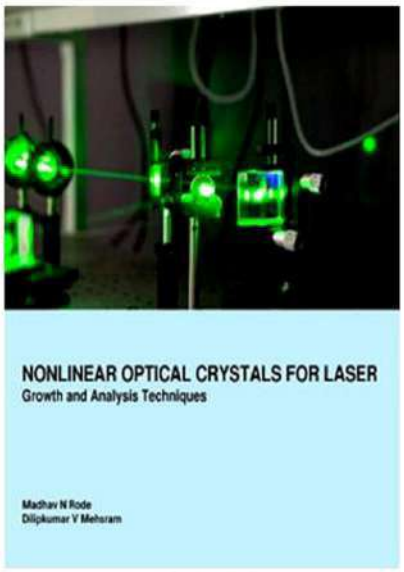

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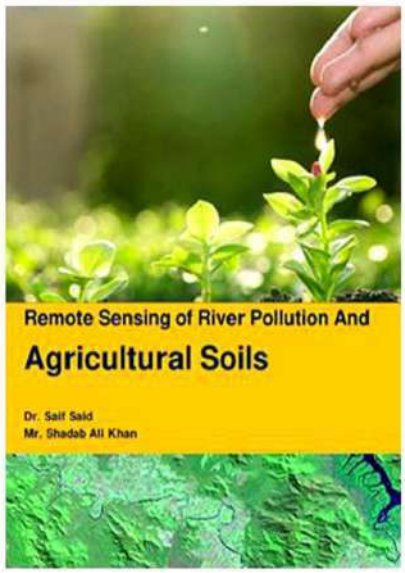

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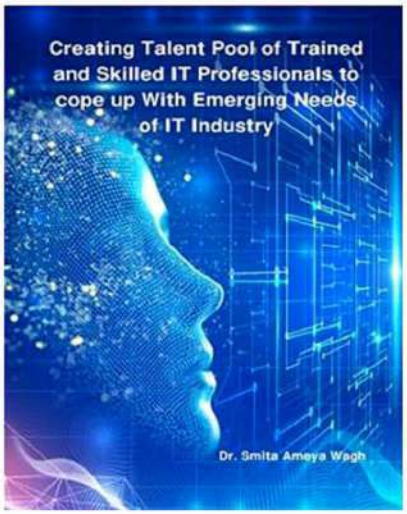

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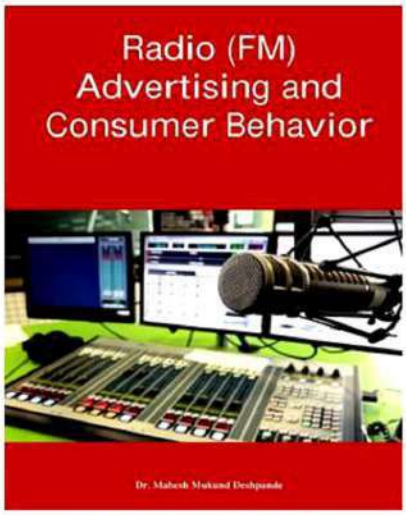

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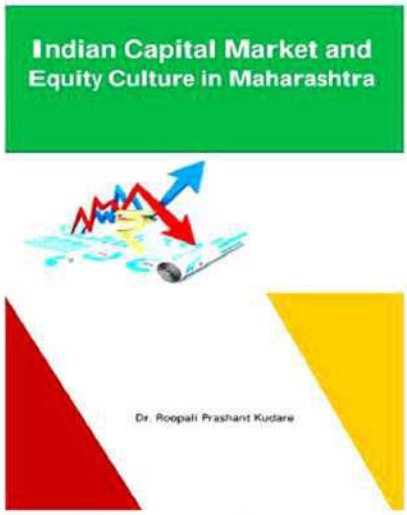

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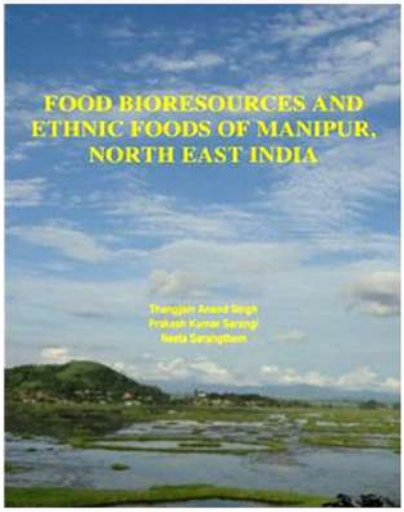

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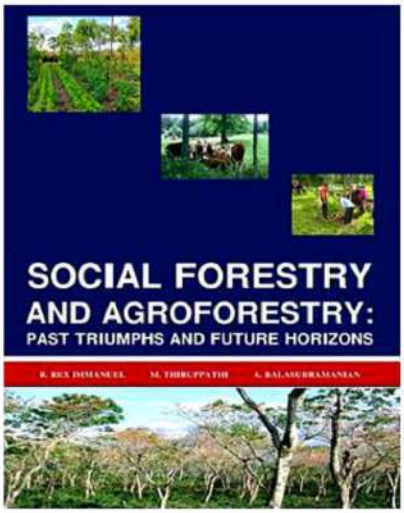

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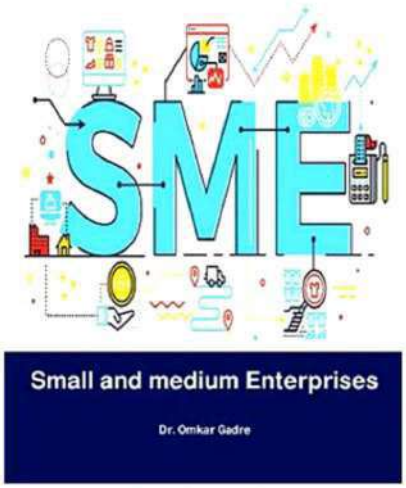

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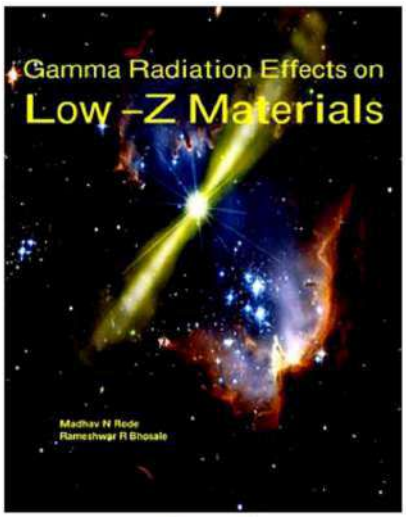

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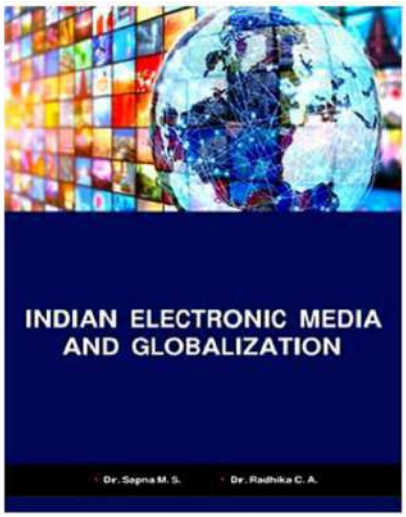

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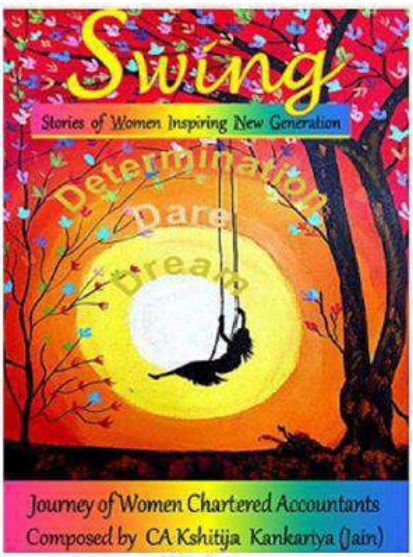

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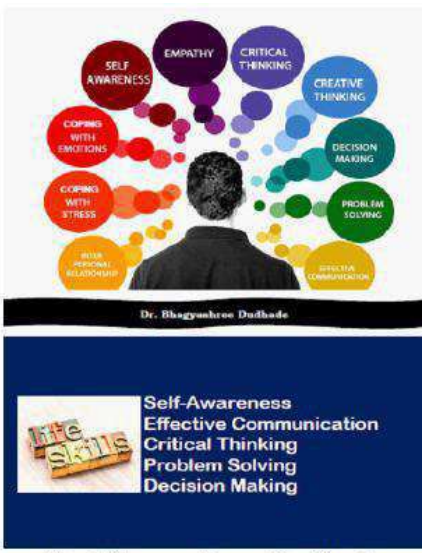

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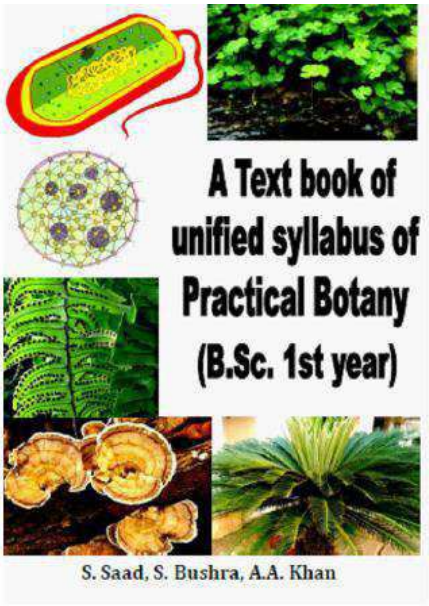

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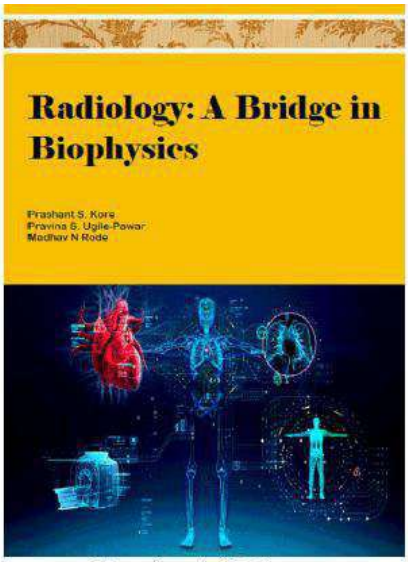

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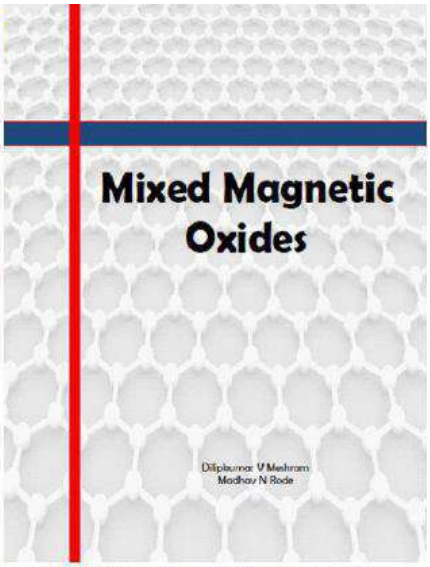

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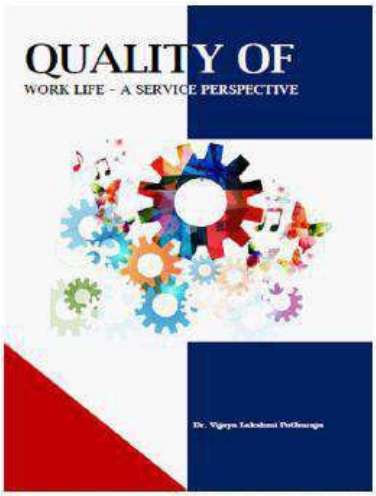

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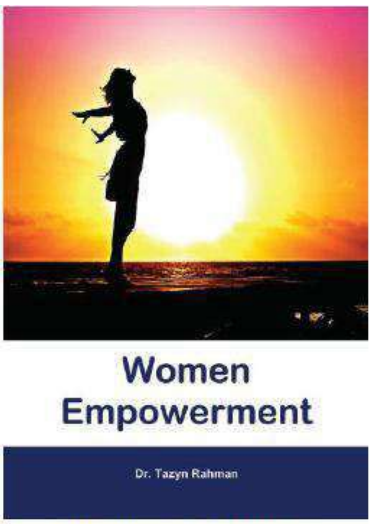

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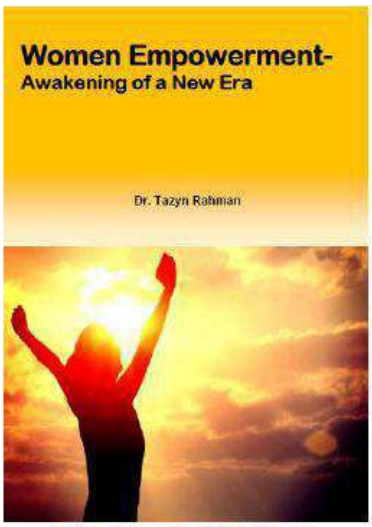

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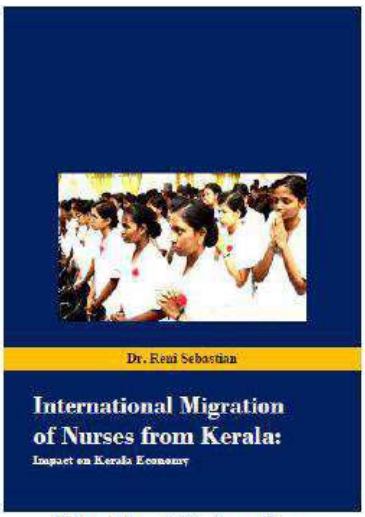

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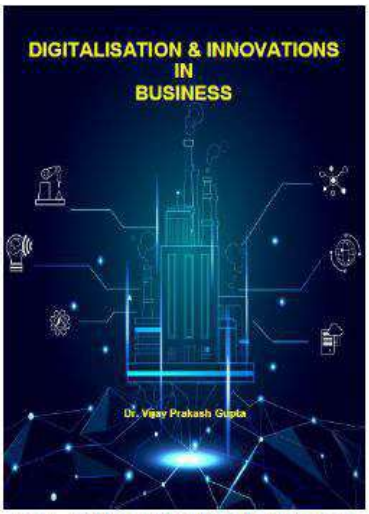

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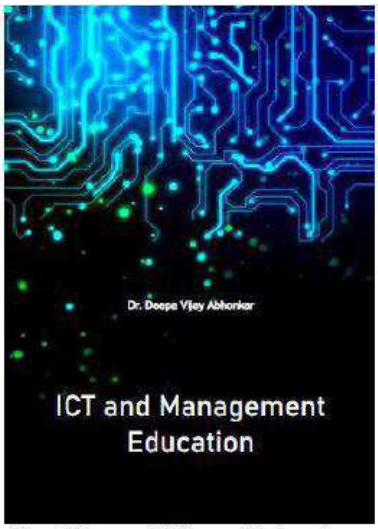

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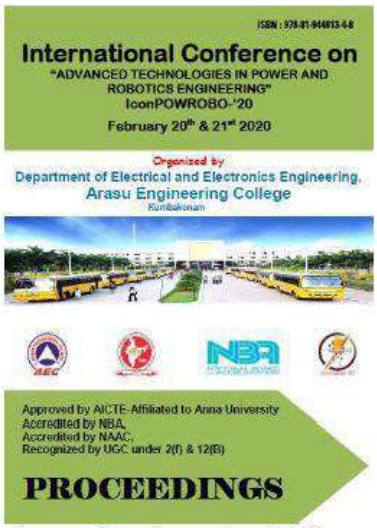

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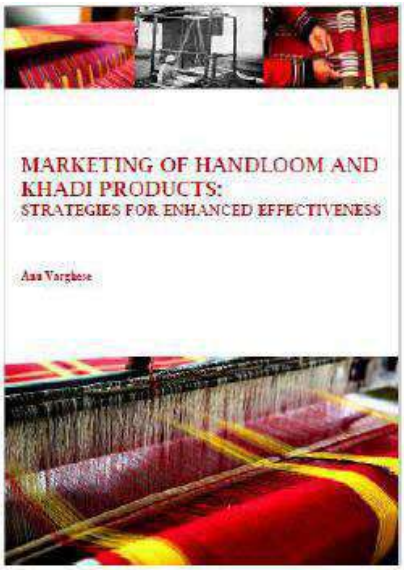

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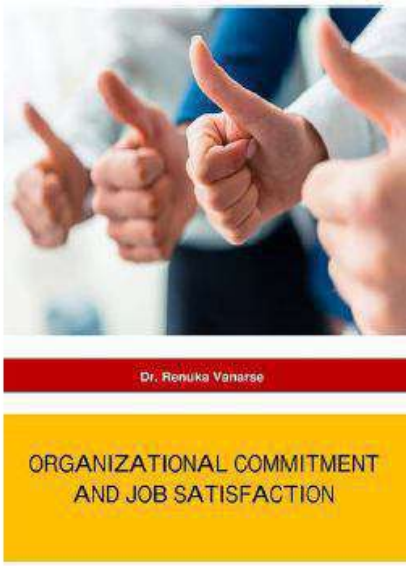

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