



“Tilak Samvida”

Pioneering Research, Transforming Perspectives

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Editor-In-Chief

Dr. Shraddha M. Bhome

Principal,

J.K. College of Science and Commerce, Navi Mumbai, Maharashtra.



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Contents

A Comparative Analysis of Traditional Advertising and Digital Content Marketing on Consumer Purchase Decisions	11
Jiya Merin Thomas	11
Sakshi Jayvant Kamble, Diya Ghanshyam Agarwal, Bhumi Bhoir, Sarah Pagarkar	11
A Comparative Study on Bread-Oriented and Life-Oriented Education and Their Impact on Students' Financial Literacy and Overall Development.....	16
Dr. Shardul Buva	16
Mr. Girinath Nair, Miss. Prapti Patel, Miss. Renuka Pawade, Mr. Akhilesh Pillai	16
A Comparative Study on Ola V/S Uber in Navi Mumbai Region	22
Prof. Dr. Seema Somani	22
Vikrant Thale, Shreya Sawant, Shivam Thakur, Aryan Khutale	22
A Comprehensive Study on Inflation Trends in Essential Commodities in Navi Mumbai (2015–2025), Considering the Impact of COVID-19 and Global Conflicts	29
Dr. Abida Muntajar Khan.....	29
Mahek Garg, Janhvi Bagauli, Piyush Gaikwad & Komal Dingorkar	29
A Study on Changing Investment Awareness of Gen Z with Respect to Risk and Returns	36
Dr. Shardul Buva	36
Miss. Nair Gopika Satheesh, Mr. Patel Mohammed Shamil, Miss. Patel Nir Suresh, Miss. Patil Gauri Eknath	36
A Study on Consumer Behaviour Towards E-Commerce Platforms in Panvel.....	43
Dr. Abida Muntajar Khan.....	43
Jainam Jain, Dhruv Jain, Arshan Hamdulay & Gaurav Gitel	43
A Study on Customer Awareness and Satisfaction Towards Gold Loan Services of Muthoot Finance in Panvel	50
DR. SHARDUL BUVA	50
Shiv Nair, Pallavi Poojary, Afrah Potrick, Esha Ruplal.....	50
A Study on Customer Satisfaction Towards Amazon India.....	54
Ramya Kumar.....	54
Anish Chalke, Kunal Sah, Prakriti Arora, Harjas Singh Sukhala	54
A Study on Effect of Use of UPI Payments on Daily Expenses Tracking	58
Dr. Shardul Buva	58
Miss. Shruti Patil, Mr. Krunal Rambade, Miss. Prerana Patil, Miss. Gauri Balkrushna Patil	58
A Study of Gold as an Investment Avenue.....	65
Dr. Shardul Buva	65
Ms. Sanika Patil, Ms. Pooja Phalke, Ms. Harshali Rane, Ms. Sanjana Patil.....	65
A Study on Career Planning Among College Students.....	71
Ms. Pranjal Shinde, Ms. Mahek Solanki, Ms. Shradha Anil Soni, Ms. Kavita Thakur	71
A Study on Relationship Between CIBIL Score and Investment Opportunities	77
Dr. Abida Muntajar Khan.....	77
Sukhada Sachin Dhavale, Nidhi Divekar, Shardul Dongre & Dhruv Gandhi	77
A Study on Robo-Advisory Service In The Selection Of Life Insurance Policy.....	83
Barvadia Bhavtik Nanji, Bawane Riya Nitin, Bhagat Ketan Janardhan, Bheda Vatsal Nipul.....	83
Dr. Farhat Fatma Shaikh	83
A Study on Role of AI in Recruitment and Its Impact on Job Profile Offered	89
Dr. Shardul Kishor Buva	89

Ms. Arsalan Parkar, Ms. Ayman Parkar, Ms. Navnish Patil, Ms. Deepak Parmar	89
A Study on the Awareness Level of Personal Finance Among Gen-Z: A Comprehensive Study.....	95
Dr. Shardul Kishor Buva	95
Miss. Taniya Patil, Miss. Saniya Pawar, Miss. Vedika Samgir, Miss. Sneha Patil	95
A Study on the Comparative Analysis of SIP (Systematic Investment Plan) vs. LSI (Lumpsum Investment) in Mutual Funds.....	99
Dr. Abida Muntajar Khan.....	99
Kiran Dewasi, Vidya Disale, Krishika Erolla & Anushka Jadhav	99
A Study on the Digital Marketing Strategies Used by Small Businesses in Navi Mumbai	106
Prof. Dr. Seema Somani	106
Atharv Ramesh Chikane, Kirtika Sanjay Khatik, Adarsh Ankush Chikane, Aayush Avinash Mhatre	106
A Study on the Impact of Digital Payments on Degree Students of Pillai College of Arts, Commerce and Science	110
Prof. Dr. Seema Somani	110
Prachi Ithape, Anishtha Navik, Yashesh Jain, Poorva Pawar	110
A Study on the Impact of Finfluencers on Investment Decisions of Salaried Employees in Kamothe	116
Dr. Shardul Buva	116
Anirudha Mohan Pawar, Vinayak Mallikarjun Panderagera, Darpan Krishna Patil, Sohan Sharad Patil	116
A Study on the Influence of Inflation on Investment Decision in Mumbai and Navi-Mumbai Region	121
Dr. Abida Muntajar Khan.....	121
Divij Dhiraj Madhok, Pragati Gupta, Amey Gothivarekar & Rahul Devadiga	121
A Study on the Role of ICEGATE (Including e-Sanchit) and CANOFUS on Import Compliance among Navi Mumbai Importers	128
Prof. Dr. Seema Somani	128
Radhika Tanaji Kodag, Vaishnavi Vijay Bhor, Vaishnavi Dadasao Anbhule, Shubham Shamdev Sonkar... ..	128
A Study on UPI & OTP Scams: Awareness and Experiences of People in Panvel.....	132
Dr. Abida Muntajar Khan.....	132
Pooja Gupta, Diya Shivdasan, Mohan Gupta & Suraj Gunjal	132
Digital Identity Systems and Academic Visibility: A Comprehensive Empirical Study of Social Science Scholars in Taiwanese Universities	140
Namrata Kedari	140
Educational Hub Development and Urban Housing Stress: Evidence from Kota.....	143
Saloni Mhatre	143
Effectiveness of Virtual Laboratory Integration in Teaching Viscosity Experiments: A Secondary Data Study with Reference to Undergraduate Colleges in Navi Mumbai.....	149
Mrs. Priyanka Tushar More.....	149
Enhancing Research Validity and Reliability through Robust Research Design and Methodology.....	153
Shantilal Jadhav.....	153
Establishing a Standardized and Extensible Marathi Language Resource Infrastructure for Next-Generation AI Models.....	156
Mr. Yash Sandesh Karkhanis	156
Future of Work Through AR and VR: As Businesses Shift to Hybrid Work Models, the Next Stage of Work is Immersive Virtual Collaboration through Augmented Reality (AR) and Virtual Reality (VR)	159
Ramya Kumar.....	159
Mohammed Sameer Pathan, Vipul Yadav, Mohammed Anas Sheikh, Alekh Shukla.....	159
Generative AI Tools for Academic Writing, Summarization, and Idea Generation: Applications, Challenges, and Future Directions.....	162
Ms. Ashwini Sagar Patil.....	162

Evaluating Rapido's Impact on Last-Mile Connectivity in Vashi	165
Dr. Shardul Buva	165
Miss. Navya Nair, Mr. Noel Sam Roy, Mr. Nikhil Rajput, Miss. Diya Ramgharia	165
An Analytical Study on the Usage of Accounting Software by Small Companies in Navi Mumbai	171
Prof. Dr. Seema Soman	171
Sneha Avinash Patil, Sayali Haridas Bote, Amruta Santosh Rane, Roshni Somanatti	171
An Explainable Machine Learning Framework for Predicting Student Academic Performance Using Behavioural and LMS Data	175
Prof. Jyoti Shivade	175
Buy Now, Pay Later (BNPL) vs EMI: A Comparative Analysis of Consumer Payment Preferences in the Digital Credit Ecosystem	178
Himanshu Gaur.....	178
Lavanya Suradkar, Isha Rawat, Diksha Navghare	178
Data Privacy Regulations and Their Impact on Research Innovation.....	189
Madane Rutuja Ravindra	189
Designing an Intelligent Second Brain Using AI and Retrieval-Augmented Generation	192
Mr. Shinoj Mathew.....	192
Determinants of Effective Industry–Academia Collaboration: Funding Mechanisms and Incentive Structures in Emerging Innovation Ecosystems.....	195
Dr. Gajanan Prabhu Dagade	195
Higher Education Institutions as Catalysts for Innovation: Building an IPR-Driven Research Culture	199
Dr. Laxman V. Talnikar	199
Financial Literacy and Investment Behaviour	201
Himanshu Gaur.....	201
Mriyanj Kurup, Prince Rajpurohit, Arnav Pramod	201
Impact of Fast Fashion Trends on the Buying Behavior of Gen Z Students	206
Dr. Shardul Kishor Buva	206
Ms. Sapna Pandey, Ms. Kirtana Poojary, Ms. Riddhi Patil, Ms. Saloni Sah	206
Impact of Influencer Marketing on Generation Z Purchasing Decisions	210
Ramya Kumar.....	210
Diksha Mokul, Kashish Singh, Sanskar Bhoir, Chaitanya More	210
Institutional Autonomy and the Politics of Knowledge Production: A Qualitative Inquiry into Research Integrity, AI Mediation, and Innovation Cultures in Higher Education	213
Dr. Yogesh Dhanjani.....	213
Machine Learning-Driven Literature Mapping: Automated Knowledge Discovery in Interdisciplinary Research	216
Ms. Aarti Santosh Wani	216
Recent Trends in Web Development	218
Aarya Devendra Joshi	218
Dr. Pradhnya Maroti Wankhade.....	218
Application of Artificial Intelligence in Cybersecurity and Cyber Defense	220
Ms. Anita Nilesh Mhatre	220
Brand Loyalty Among Youth Towards Apple & Samsung.....	226
Aniesh.....	226
Mrunayi Patil, Rajkumar Yadav.....	226
Innovation in AI Tools for Research and Publication: A Study Focused on Today's Generation	229
Kranti Vartak.....	229

Review: Load Balancing Algorithm in WSN	232
Ms. Sonali P. Dagwar	232
Role of Artificial Intelligence in Transforming Business Operations	234
Ayush Walunj, Harsh Mohite, Aabid Kazi, Shreejit More	234
Aniesh.....	234
Simulation of the Brain–Computer Interface (BCI)	237
Rutuja Dilip Kondalkar	237
Skills Vs Degree: A Study on Changing Hiring Preferences in India	240
Aniesh.....	240
Disha Devani, Asha Chauhan, Aabida Rawoot, Muskan Vaishya.....	240
A Study on Brand Loyalty and Consumer Perception Towards Local vs Global Brands	243
Ramya Kumar.....	243
Ayush Chandorkar, Vineet Gupta, Gaurav Mhatre, Parth Matne	243
Socio-Economic Status (SES) and Career Risk-Taking among Generation Z: Implications for Innovation and Opportunity in Emerging Labour Markets	246
Himanshu Gaur.....	246
Aarnav Ashok Kaushal.....	246
Sustainable Consumption in India: A Study on Consumer Buying Behaviour Towards Eco-Friendly Products.....	252
Jiya Merin Thomas	252
Sanya Haladi, Ishwari Parab, Smiti Pawanarkar, Mihir Sathe	252
A Study on the Effect of Digital Payment Rewards (Cashbacks/Offers) on Spending Behavior in Navi Mumbai	256
Harshika Mahakal.....	256
Vinay Gadge, Elton Noble, Manthan Patil.....	256
The Influence of Social Media on Bank Selection and Financial Decisions.....	259
Harshika Mahakal.....	259
Bhavishya Prabhu, Siddhant Verma, Varsha Trivedi.....	259
The Pulse of Growth: How Financial Markets Drive India's Economy	262
Aniesh.....	262
Naitik Gupta, Prithvi Thoppil, Vaibhav Rao, Maria Shaikh	262
To Explore Consumer Buying Preference Towards Blinkit Vs Flipkart in New Panvel	265
Prof. Dr. Seema Somani.....	265
Sneha S. Jadhav, Vaishnavi S. Rane, Paree S. Sawant, Pranali R. Sutar	265
To Study the Preferences Among Mobile Users Between iPhone and Samsung in Navi Mumbai.....	270
Prof. Dr. Seema Somani	270
Parkhe Samruddhi, Chavan Khushi, Nishmita Shetty, Tannu Sharma	270
Urban Youth Underemployment and its Impact on Financial Well-Being and Future Aspirations: A Case Study of MMR (Mumbai Metropolitan Region)	274
Harshika Mahakal.....	274
Jaya Sahani, Sanjana Poojary, Vivek Jaiswal	274
Visualization Techniques for Error Analysis and Statistical Data.....	277
Mrs. Sarita Raj Pawar.....	277
Digital Competency Development and Human Capital Readiness in the Digital Era	280
Zainab Abdul Qadir Shaikh.....	280
A Study on Consumer Perspective Towards Saving and Their Investment Preferences	283

Jiya Merin Thomas	283
Gaurav Gawade, Sameer Lalge, Diraj Pawar, Saiel Pol	283
The Study on the Power of Social Media Influencers in Shaping Gen Z Buying Decisions in Navi Mumbai	286
Ms. Thejus Jackson Adhikarathil	286
Gunjan Yadav, Komal Yadav, Sampada Kadam, Eshwari Nandvikar	286
A Predictive Analytics Framework for Identifying High-Impact Research and Strengthening Intellectual Property Outcomes.....	290
Ms. Aishwarya Vinayak Mokal.....	290
Cross-Sector Analysis of Hidden and Invisible Forces Influencing Price Fluctuations in the Indian Market	293
Jiya Merin Thomas	293
Kush Jain, Omshree Patel, Yash Rajpal, Sujal Vaviya	293
Role of Intellectual Property Rights in Promoting International Trade: A Comparative Policy Analysis of Indian Laws and Global IPR Frameworks	296
Lionel Dcunha	296
A Study on Use and Awareness of Crowdfunding and P2P Lending Platforms Among College Students for Start-Ups	300
Sagarika Bhujbal, Shruti Birajdar, Kamal Bisht, Krish Bohra.....	300
Dr. Farhat Fatma Shaikh	300
Developing Transparent and Ethical Neural Architectures for Secure and Trustworthy Artificial Intelligence	305
Ms. Maria Raja John	305
Rethinking Peer Review: Principles, Contemporary Challenges, and a Conceptual Framework for Best Practice	308
Shantilal Jadhav.....	308
Dr. Rashmi Mate	308
Dr. Yogesh Bhowte	308
A Study on Impact of Social Media Finance Influencers on Investment Decision in Koparkhairane.....	312
Dr. Abida Muntajar Khan.....	312
Gaurav Gohil, Mehul Gandhi, Yusuf Dhepe & Adhiraj Jadhav	312
Higher Education Institutions as Hubs for Innovation and Intellectual Property Rights: Promoting Quality Research and Publication Practices.....	322
Neha Kumari	322
Dr. Vijyata.....	322
Transforming Academic Research and Scientific Publishing through Artificial Intelligence: A Lifecycle Governance Framework for Innovation, Quality, and Impact.....	326
Mrs. Sonali Sambare	326
Dr. Tushar Sambare.....	326
Cognitive Shadows in the Market: Behavioural Biases in Equity Research and Their Mitigation Through Artificial Intelligence-Assisted Tools.....	332
Rishika Bansal	332
Dr. Vijyata	332

A Comparative Analysis of Traditional Advertising and Digital Content Marketing on Consumer Purchase Decisions

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ABSTRACT:

The explosion of digital media has changed the face of consumer interaction with brands unlike before resulting in the transition of marketing strategies from traditional marketing to interactive content-driven marketing. Traditional advertising used to be the primary tool for brand building in the past. However, Digital Content Marketing (DCM), which includes social media, influencer collaborations, and online reviews, has added new layers to the buyer's decision-making process. This paper investigates the changes in the impact of traditional and digital marketing on consumer behavior in the Indian market today. Spending primary data collected through a structured Google Forms survey of 105 demographically diversified respondents this study examined consumer preferences, level of trust, and the influence of different advertising media on the purchase decisions of consumers. Statistical and qualitative analysis brought out significant changes in consumer behavior patterns in different age groups. The results show that DCM is mainly responsible for leading the consumers path to purchase as 71% of the respondents stated that it was the main source of influence on their purchases. Besides that, 83% of the respondents revealed that DCM had a substantial impact on their buying decisions within the last six months. Nearly 65% of the respondents either strongly agreed or agreed that digital content is more efficient than traditional advertising in today's market.

Keywords: Digital Content Marketing (DCM), Traditional Advertising, Consumer Behavior, Purchase Decision-Making, Social Media Marketing, Online Reviews, Integrated Marketing Communications (IMC), Indian Market

1. Introduction:

1.1 The Evolution of Marketing Paradigms

The changeover from the "Broadcasting Era" to the "Engagement Era" is not just about changing technologies; it also involves a deeper change in how brands and consumers relate to each other. During the Broadcasting Era, marketing was defined by Information Asymmetry — brands had all the information and they "pushed" their messages in a standardized way through non-personal media with a large audience, such as TV, radio, and print. This type of one-way communication depended on repetition and wide coverage to establish "Top-of-Mind Awareness" (TOMA), whereby the consumer was just seen as a passive recipient of content sponsored by the brand.

Subsequent to Web 2.0 and the widespread use of smartphones, the market moved into the Engagement Era. This time is marked by Digital Content Marketing (DCM), which is a strategy based on the "Pull" method. In contrast to traditional advertisements that break a consumer's experience (interruption marketing), DCM aims to integrate itself into the consumer's everyday life by offering value through educational blogs, entertaining videos, and interactive social media posts. The emphasis has shifted from "selling products" to "building relationships," where the content turns out to be a kind of service for the audience.

1.2 The Zero Moment of Truth (ZMOT) and Digital Dominance

A pivotal idea in this move forward is Google's "Zero Moment of Truth" (ZMOT). In the past, the consumer journey consisted of three steps: Stimulus (seeing a TV ad), First Moment of Truth (being at the store shelf), and Second Moment of Truth (using the product at home). However, in the digital economy, there is a new stage: the ZMOT. This is the exact moment when a consumer recognizes a need and takes a smartphone or laptop for going through online information, comparing prices, and reading reviews by peers.

Since DCM is right at the ZMOT, it can essentially change the choice of a consumer even before they get to see a physical product. This brings up a major academic question: Does the wide exposure of conventional advertising still give a Psychological Anchor? Though digital platforms provide data and speed, traditional venues such as billboards and TV commercials are usually linked with "Brand Prestige" and "Legitimacy."

1.3 Problem Statement and Research Scope

The dilemma that this paper addresses is the effectiveness of "Validation vs. Conversion". Is it that traditional advertising constructs the psychological basis of trust, whereas digital content acts as the functional sales trigger? This study, by examining the perceptions of 105 primary respondents, particularly their trust levels, information needs, and final purchase decision factors, intends to find out whether traditional advertising is a mere leftover from the past or a necessary psychological collaborator for modern digital strategies.

2. Review of Literature:

In order to have a theoretical groundwork, the present study is based on three contemporary research papers:

2.1 Precision and Conversion Metrics (IJFMR, 2025)

A research paper published in the International Journal for Multidisciplinary Research (IJFMR) discusses digital marketing's primary benefit which is basically its "granularity". Maurya (2021) points out that a TV advertisement might be seen by a million people, but very few of them may be actually interested. Digital content marketing employs SEO and social algorithms to help the content reach that specific "intent-driven" user. The research states that digitally based methods are 40% more efficient at transforming interest into action.

2.2 The Synergy of Hybrid Strategies (IJIRT, 2026)

The International Journal of Innovative Research in Technology (IJIRT) has a comparative study which strongly highlights the "Hybrid Model". According to their research, the consumers' journey is usually multi-staged: the first stage is brand discovery through traditional media (Mass Awareness) and the second stage is brand validation through digital content (Engagement and Trust). Their research shows that "brand prestige" still has a strong correlation with traditional advertising, especially in luxury/higher-value sectors.

2.3 E-Commerce and the Power of Social Proof (IJEEM, 2025)

The International Journal of Economics, Business and Management (IJEEM) features a paper that presents the new trends of marketing in the era of e-commerce. The research has pinpointed "Social Proof" — the psychological tendency to be influenced by the behavior or opinions of others — as the main factor of sales in the contemporary market. The paper draws a contrast between traditional advertisements that are generally considered as "company-sponsored propaganda" and content marketing in the digital space that features user reviews and videos of influencers, thus lending a sense of "authenticity" to the marketing material.

3. Need for the Study:

With rising advertising costs, companies are finding it hard to decide how to distribute their limited budget. The question of whether traditional media is "dead" has been repeatedly discussed in marketing science. This paper seeks to provide data-backed evidence on whether traditional ads that are highly visible still lead to consumer confidence and ultimately, sales, or whether the "digital-first" strategy has totally replaced the traditional one.

4. Objectives of the Study:

1. To compare the influence of the two advertising channels (Traditional Advertising and Digital Content Marketing) on the consumer's ultimate purchase decision.
2. To assess how a contemporary demographic views the "Trustworthiness" of each channel.
3. To find out which channel offers the highest level of "Detailed Information" necessary for making a high-involvement purchase decision.
4. To evaluate the significance of "Online Reviews" as a key factor in the Digital Marketing ecosystem.

5. Research Methodology:

Research Design: The research has been designed as a descriptive and analytical cross-sectional study.

Primary Data Collection: A structured questionnaire was created and shared through Google Forms. A total of 105 legitimate responses were obtained.

Secondary Data Collection: To set the stage for the research methodology and theoretical framework, information was obtained from reputed academic journals (IJFMR, IJIRT, IJEBM).

Sampling Technique: A mixture of convenience and snowball sampling was used to get responses from students, working professionals, and homemakers.

Statistical Tools: Data visualization and interpretation were done with the help of percentage analysis and comparative bar charts.

6. Data Analysis and Interpretation:

Here is a detailed breakdown of the primary data collected from 105 respondents. The analysis is aimed at understanding how demographics, online habits, and the characteristics of the advertisement together influence the consumer's purchase journey.

6.1 Demographic Overview and Consumer Profile

Age Dynamics: More than half of the respondents are youngsters, as 62% in total were in the 15–20 and 21–25 age ranges. A significant 28% of the participants were over 30, providing valuable insight from established working professionals.

Gender and Occupation: A fairly balanced gender distribution was maintained in the sample (58% Female, 42% Male). On the professional front, 52% were students, and 29% were working professionals.

6.2 Frequency of Online Purchases: The E-Commerce Norm

The figures make it clear that getting goods via the internet has gone from being a luxury to a requirement. More than half of the surveyed persons (51%) indicated that they purchase goods online "Frequently" or "Very Frequently," whereas another 35% buy "Sometimes." Such a high e-commerce literacy level (86% total active users) explains why conventional advertising is gradually losing its "point-of-sale" impact.

6.3 Traditional vs. Digital: A Head-to-Head Comparison

From the 105 responses analyzed, a comparative performance matrix was created over four major areas of marketing effectiveness:

- 1. Primary Influence:** A large proportion (70%) of respondents clearly indicated that they were more influenced by Digital Content Marketing (Social Media, YouTube, Blogs) than by traditional media. Only 10% said they were influenced only by traditional ads, and 20% are still balanced.
- 2. Trustworthiness (The Credibility Gap):** 71% of the respondents consider digital content "Somewhat" or "Very Trustworthy." On the other hand, 45% were Neutral and only 42% found traditional advertising trustworthy.
- 3. Information Depth:** 67% think Digital Content Marketing offers more detailed information, whereas only 7% think so of Traditional Advertising. The unchanging character of billboards and 30-second TV commercials can hardly compete with complete specs and "unboxing" videos in digital content.
- 4. Final Purchase Decision:** In the last six months, 83% of respondents acknowledged that it was Digital Content Marketing that influenced their final purchase. This clearly indicates that while traditional ads may initiate the "thought process," it is digital content that plays the role of the "closer," sealing the deal.

6.4 Factor Analysis: Triggers of Conversion

Product Reviews (The Ultimate Trigger): "Product Reviews" was picked as the biggest single factor by 60% of those surveyed. Besides, 78% of individuals either "Always" or "Often" look for reviews before making a purchase, illustrating the "Social Proof" idea — consumers are trusting the experiences of others rather than brand claims only.

Medium-Specific Impact: For Traditional Advertising, Television (64%) is still the only strong contender, with Newspapers (16%) far behind. For Digital Marketing, Social Media Ads (44%) and Online Reviews (42%) are virtually at the same level.

Psychological Triggers: Beyond reviews, Visual Appeal (15%) and Trust in the Content (12%) were chosen as leading secondary factors. This means that a review is the final factor that "closes" the sale; however, it is the "visual quality" of the digital content that first attracts the consumer's gaze.

7. Visual Analysis:

The figure below summarizes the comparative data from the 105 survey participants across four key marketing effectiveness dimensions:

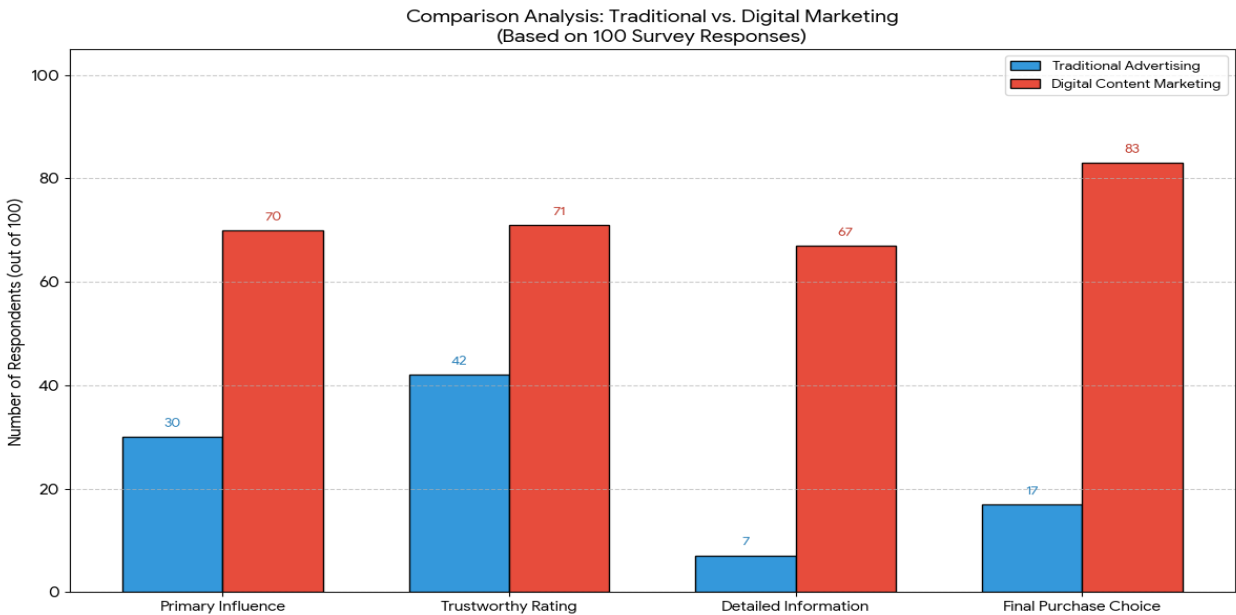


Figure 1: Comparative Efficacy Matrix — The chart clearly reveals that Traditional Advertising still holds some trust and influence as a baseline; however, Digital Content Marketing overwhelmingly leads in providing information depth and causing the final purchase decision.

8. Findings:

8.1 The "Closer" Effect of Digital Content

The data show that traditional advertising works perfectly for the "top of the funnel" (Awareness) stage. People come across billboards and TV ads "Often" (65%). However, it is at the "bottom of the funnel" (Purchase) that they rely on digital. The survey indicates that 72% of the choices come from Product Reviews, which is a characteristic feature of digital content marketing.

8.2 The Credibility Paradox

One wouldn't have thought that traditional media would still have a "Credibility" advantage in some cases. Several people said that they would "trust" a brand more if they saw it on TV even though they did purchase it due to an Instagram ad. This implies that Traditional Advertising is the "Validator," whereas Digital Content is the "Seller."

8.3 Information Depth

The biggest disparity spotted was in "Information." Traditional advertisements are restricted by time (30-second spots) or space (billboards). Digital content marketing (YouTube reviews, blogs, interactive posts) gives the consumer the opportunity to "deep dive" into product specs, which is the #1 need of today's shoppers.

9. Conclusion:

The research conclusively shows that Digital Content Marketing has successfully replaced traditional advertising to become the foremost influencer for consumer purchase decisions. The main reason for the change is the consumers' emphasis on authenticity, social proof (reviews), and comprehensive information. Yet the research additionally indicates that traditional advertising is not "dead" but has rather changed its function. It continues to be an effective tool for creating mass awareness and elevating brand "prestige." Therefore, to be most successful, companies should not decide between the two but rather utilize Traditional Advertising to create a "Legitimate Image" and Digital Content Marketing to "Close the Sale."

10. Suggestions:

1. Integrate Social Proof: Traditional ads might be made more effective by including elements like "QR codes" or "Review highlights" to link the stage of awareness with the stage of validation.
2. Focus on Detail: Companies should focus more on long-form digital content (blogs/YouTube) as a means to fully inform and satisfy the consumers' need for product knowledge.
3. Influencer Authenticity: Marketers should elevate those influencers who are able to present honest, in-depth reviews rather than just polished but empty endorsements.

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A Comparative Study on Bread-Oriented and Life-Oriented Education and Their Impact on Students' Financial Literacy and Overall Development

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Abstract:

This study examines how bread-oriented and life-oriented education compare in terms of their effects on students' financial literacy and general development at the higher secondary, undergraduate, and postgraduate levels. While life-oriented education places more emphasis on practical knowledge, value formation, behavioral skills, and personal growth, bread-oriented education mainly focuses on academic achievement, professional qualifications, and employment readiness. The study's goal is to assess how these two teaching strategies affect students' financial literacy, money management skills, financial behavior, and social growth. The study's foundation is primary data gathered from 101 students enrolled in particular Panvel and Vashi institutions. The results show that bread-oriented education helps students comprehend earning structures, income concepts, and financial knowledge related to careers. Nevertheless, the findings also show that career-focused education is insufficient to prepare students for real-world financial challenges. The development of fundamental financial habits, including consistent saving, budgeting, responsible spending, and future-oriented planning, has been found to be greatly aided by life-oriented education.

1. Introduction:

1.1 History

The demands of society have always influenced the evolution of education. In the past, it was primarily concerned with values, moral principles, discipline, and preparing people to be responsible members of the community. Learning was done not just to make money but also to develop social awareness and character. Specialized knowledge, technical skills, and professional credentials gradually became more important in education as economies and industries grew. As time went on, it became evident that academic credentials by themselves were insufficient for handling practical situations. Managing finances, making wise choices, and adjusting to social and emotional changes were challenges for many people. This circumstance prompted increased focus on life skills education, which fosters critical thinking, financial literacy, and practical knowledge.

1.2 Significance of Study

Students' financial knowledge, behavior, and general development are greatly influenced by their education. Students today must make financial decisions at an early age, including budgeting, saving, and goal planning, given the current economic climate. In order to determine which approach helps students better manage their finances and deal with day-to-day difficulties, this study compares bread-oriented and life-oriented education. The findings of this study can assist institutions and educators in redesigning curricula to support career development.

1.3 Statement of Problem

Academic achievement and career preparation are typically given more weight in the current educational system, which is known as bread-oriented education. This method helps students obtain credentials and

enhance their employment opportunities. Nevertheless, it might not always place enough emphasis on useful life skills like money management, making wise choices, and boosting self-confidence. Whether the kind of education students receive directly affects their financial literacy, money management practices, and social and personal growth is unclear. Thus, this study compares the effects of life-oriented and bread-oriented education on students.

2. Review of Literature:

Brimble, M., & Blue, L. (2015). The necessity of financial literacy was brought to light during the 2008 financial crisis since many people were ill-equipped to manage difficult financial decisions. Prior courses mostly covered fundamental subjects like understanding financial products and creating budgets. Effective financial education should take into account a person's life stage and social context, be ongoing, and connected to real-life situations.

Nandi, S. (2025). The knowledge, awareness, attitudes, and behavior necessary for efficient money management are all included in financial literacy. The article highlights national initiatives like the National Strategy for Financial Education (2020–2025). Life skills like communication, problem-solving, and decision-making promote financial independence by assisting students in making wise financial decisions.

Robb, C., & Chy, S. (2023). The study investigates how undergraduate students' financial behavior, knowledge, stress levels, and general well-being are affected by a Financial Life Skills program. Participating students displayed improved money management skills and greater confidence. Financial habits, self-confidence, and pre-existing financial pressures all had a greater impact.

Brauer, S. (2021). According to the article, higher education is shifting from emphasizing knowledge alone to cultivating employable practical skills. Being competent entails using knowledge responsibly, independently, and with practical skills. Employers seek not only subject-matter expertise but also more general abilities like problem-solving, communication, teamwork, and flexibility.

Durlak, J. et al. (2011). According to the study, students who took part in social and emotional learning programs improved their academic performance as well as their social skills, behavior, and attitudes. Programs that employed active and structured teaching techniques were more successful.

Hooda, M. (2023). Teaching students life skills helps them deal with everyday obstacles in a constructive way, which promotes their overall development. Training in life skills enhances behavior, confidence, and academic achievement.

3. Research Methodology:

3.1 Scope of the Study

The impact of Bread-Oriented Education and Life-Oriented Education on students' financial literacy and general development is examined in this study. Students enrolled in Higher Secondary, Undergraduate, and Postgraduate programs may participate. It seeks to comprehend how these two teaching strategies impact students' financial behavior, financial knowledge, money management techniques, and social and personal growth.

3.2 Limitations of Study

- Levels of Education:

A Comparative Study on Bread-Oriented and Life-Oriented Education and Their Impact on Students' Financial Literacy and Overall Development

- **Educational Approaches:** The study only compares two educational approaches: life-oriented education and bread-oriented education.
- **Geographical Limitation:** The study is exclusively conducted within institutions of Panvel and Vashi.

3.3 Objectives

1. To study the impact of bread-oriented education on students' financial literacy.
2. To understand the role of life-oriented education on students' financial literacy.
3. To compare the effects of both educational approaches on students' money management skills.
4. To examine how education influences students' overall personal and social development.
5. To suggest ways to balance career-oriented education and life-oriented learning for better students' development.

3.4 Hypotheses

Hypothesis 1

Ho: Bread-Oriented Education has no significant impact on students' financial literacy.

H1: Bread-Oriented Education has a significant impact on students' financial literacy.

Hypothesis 2

HO: Life-oriented Education has no significant influence on students' financial behaviour and decision-making.

H1: Life-Oriented Education has a significant influence on students' financial behaviour and decision-making.

Hypothesis 3

HO: There is no difference in money management skills between students exposed to bread-oriented and life-oriented education.

H1: There is a difference in money management skills between students exposed to bread-oriented and life-oriented education.

Hypothesis 4

HO: Education does not contribute to the overall personal and social development of students.

H1: Education contributes to the overall personal and social development of students.

Hypothesis 5

HO: A balanced combination of bread-oriented and life-oriented education does not improve students' financial literacy and overall development.

H1: A balanced combination of bread-oriented and life-oriented education improves students' financial literacy and overall development.

3.5 Data Collection

Primary Data: Higher Secondary, undergraduate, and graduate students from chosen institutions in Panvel and Vashi provided the study's primary data through a structured questionnaire. A total of 101 responses were gathered.

Secondary Data: Secondary data was gathered from government reports, books, research journals, and educational websites pertaining to career-oriented education, financial literacy, and life skills education.

4. Data Analysis and Interpretation:

4.1 Impact of Bread-Oriented Education on Financial Literacy (Hypothesis 1)

Ho: Bread-Oriented Education has no significant impact on students' financial literacy.

H1: Bread-Oriented Education has a significant impact on students' financial literacy.

Table 4.1.1: Impact of Bread-Oriented Education on Financial Literacy

Impact on Financial Literacy	Higher Secondary	Undergraduate	Postgraduate	Total
Strongly Agree	8	18	7	33
Agree	12	20	10	42
Neutral	5	6	4	15
Disagree	3	4	2	09
Strongly Disagree	1	1	0	02
Total	29	49	23	101

Data Analysis Using Simple Mean Method:

Mean for Higher Secondary = $(8+12+5+3+1)/3 = 29/3 = 9.67$

Mean for Undergraduates = $(18+20+6+4+1)/3 = 49/3 = 16.33$

Mean for Postgraduates = $(7+10+4+2+0)/3 = 23/3 = 7.67$

Interpretation: Students at all three levels believe that bread-oriented education enhances financial literacy, with undergraduates showing the strongest effect (mean 16.33). The Alternative Hypothesis H_1 is accepted — bread-oriented education has a significant impact on students' financial literacy.

4.2 Role of Life-Oriented Education in Developing Financial Habits (Hypothesis 2)

Table 4.2.1: Role of Life-Oriented Education in Developing Financial Habits

Financial Habit Learned	Higher Secondary	Undergraduate	Postgraduate	Total
Saving Money Regularly	9	14	6	29
Budgeting and Planning Expenses	8	12	5	25
Spending Money Wisely	6	10	4	20
Planning your Future Needs	6	13	8	27
Total	29	49	23	101

Mean for Higher Secondary = $29/3 = 9.67$ | Mean for Undergraduates = $49/3 = 16.33$ | Mean for Postgraduates = $23/3 = 7.67$

Interpretation: Life-oriented education aids in the development of sound financial practices in students including budgeting, saving, prudent spending, and future planning. The Alternative Hypothesis H_1 is accepted.

4.3 Comparison of Educational Approaches in Managing Money (Hypothesis 3)

Table 4.3.1: Comparison of Educational Approaches in Managing Money

A Comparative Study on Bread-Oriented and Life-Oriented Education and Their Impact on Students' Financial Literacy and Overall Development

Educational Approach	Higher Secondary	Undergraduate	Postgraduate	Total
Bread-Oriented Education	6	9	5	20
Life-Oriented Education	8	14	6	28
Both Equally	15	26	12	53
Total	29	49	23	101

Mean for Higher Secondary = 9.67 | Mean for Undergraduates = 16.33 | Mean for Postgraduates = 7.67

Interpretation: The majority of students prefer a combination of both educational approaches for better money management. The Alternative Hypothesis H_1 is accepted — students exposed to different educational approaches show different money management skills.

4.4 Impact of Education on Students' Social Behaviour (Hypothesis 4)

Table 4.4.1: Impact of Education on Students' Social Behaviour

Social Behaviour Impact	Higher Secondary	Undergraduate	Postgraduate	Total
Very Positive	10	18	7	35
Positive	9	17	6	32
No Change	5	8	4	17
Negative	3	5	2	10
Very Negative	2	3	2	7
Total	29	51	21	101

Mean for Higher Secondary = 9.67 | Mean for Undergraduates = $51/3 = 17$ | Mean for Postgraduates = $21/3 = 7$

Interpretation: Education has a positive impact on students' social behavior at all levels. Undergraduate students demonstrated the greatest impact, with many reporting improvements in social responsibility, communication, and interaction. The Alternative Hypothesis H_1 is accepted.

4.5 Opinion on Balanced Mix of Career Skills and Life Skills (Hypothesis 5)

Table 4.5.1: Opinion on Balanced Mix of Career Skills and Life Skills for Better Financial Literacy

Opinion	Higher Secondary	Undergraduate	Postgraduate	Total
Yes	20	34	15	69
No	4	7	3	14
Not Sure	5	10	3	18
Total	29	51	21	101

Mean for Higher Secondary = 9.67 | Mean for Undergraduates = 17 | Mean for Postgraduates = 7

Interpretation: The majority of students support a balanced combination of life and career skills for enhancing financial literacy. The Alternative Hypothesis H_1 is accepted — a balanced combination of bread-oriented and life-oriented education improves students' financial literacy and overall development.

5. Observations, Recommendations, Suggestions and Conclusion:

5.1 Observations

- Students have a favorable opinion of both forms of education.
- Financial awareness is higher among undergraduates.
- While career-focused education helps explain income, it is insufficient on its own.
- Budgeting and saving habits are developed through life skills.
- The majority of students favor a well-rounded strategy.

5.2 Recommendations

- Career courses and life skills instruction should be combined in schools.
- Starting in higher secondary school, financial literacy instruction should be implemented.
- Case studies and workshops should be incorporated as practical exercises.
- In addition to academics, social and decision-making skills should be developed.
- Colleges should evaluate their curricula on a regular basis.

5.3 Conclusion

The study looked at how students' financial literacy and general development at the Higher Secondary, Undergraduate, and Postgraduate levels are affected by bread-oriented and life-oriented education. The results demonstrate that bread-oriented education helps students comprehend earning concepts, income structure, and financial knowledge. Nonetheless, life-oriented education has a significant impact on the development of sound financial practices like budgeting, saving, and future planning. The majority stated that improved money management and personal development are supported by a well-balanced mix of career-focused education and life skills training. Overall, the study finds that improving financial literacy is more successful when both educational approaches are integrated.

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A Comparative Study on Ola V/S Uber in Navi Mumbai Region

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Abstract:

App-based cab services have transformed urban transportation in India. With the increasing use of smartphones and internet connectivity, ride-hailing platforms such as Ola and Uber have become popular travel options for daily commuters. These services offer convenient booking, digital payment options, GPS tracking, and quick ride availability. The objective of this study is to compare the services of Ola and Uber in the Navi Mumbai region and to understand customer preferences between the two platforms. The research methodology is based on primary data collected from 100 respondents through a structured questionnaire. The data collected were analyzed using percentage analysis and hypothesis testing. The results show that both Ola and Uber are widely used, but customer preference depends mainly on pricing, availability of cabs, service quality, and driver behavior. The study concludes that, although both platforms provide efficient transportation services, improvements in pricing transparency and driver behavior can further enhance customer satisfaction.

Keywords: *Ride-hailing, Customer preference, Service quality, Urban transportation*

1. Introduction:

Transportation plays an important role in the economic and social lives of people. With increasing urbanization and population growth, cities face a growing demand for efficient and convenient transport services. In India, traditional transport options such as buses, local trains, and auto-rickshaws are widely used but may involve waiting times and inconveniences.

With the growth of smartphones and internet connectivity, app-based cab services have emerged as a new solution for urban transportation. These services allow customers to book rides through mobile applications and track vehicle locations in real time. Ola and Uber are among the most popular cab aggregator companies operating in India. These platforms provide different categories of rides and offer digital payment options. In cities like Navi Mumbai, students and working professionals frequently use these services for daily commuting.

App-based cab aggregators like Ola and Uber provide features such as real-time tracking, estimated fare calculation, cashless payments, and ride-sharing options, which increase convenience for users. These platforms have also created employment opportunities for drivers while improving urban mobility. However, customers often compare these services based on factors such as pricing, availability of cabs, waiting times, driver behavior, and overall service quality.

1.2 Conceptual Framework

A conceptual framework explains the relationship between different variables involved in a research study. The major concepts considered in this study include the following:

- **Pricing:** The fare charged for rides, including discounts and surge pricing, which influences customers when selecting a cab service.

- **Service Quality:** The overall experience during the ride, including comfort, reliability, and efficiency of the service.
- **Driver Behavior:** The professional conduct, politeness, and driving skills of drivers while interacting with customers.
- **Safety Features:** The availability of safety options such as GPS tracking, emergency support, and secure ride monitoring.
- **Availability of Cabs:** The waiting time and ease of booking rides through the mobile application.

2. Review of Literature:

A review of literature refers to the analysis of previous research studies related to the topic. It helps researchers understand existing knowledge, identify important variables, and recognize research gaps.

Rayle et al. (2016) studied ride-hailing services and found that convenience, reduced waiting times, and smartphone accessibility are the main reasons for the popularity of app-based transportation services.

Clewlöw and Mishra (2017) analyzed the impact of ride-hailing platforms on urban transportation and concluded that services like Uber and similar platforms are increasingly used by young adults and working professionals due to their flexibility and ease of booking.

Gupta and Verma (2019) conducted a comparative study of Ola and Uber services in Indian cities and observed that pricing and service reliability significantly influence customer preference.

Singh (2020) examined customer satisfaction in ride-hailing services and found that driver behavior, safety features, and ride comfort are major factors affecting user experience.

Jaiswal Amit and Sharma Pooja (2021) studied consumer perception toward app-based cab services and concluded that digital payment options, availability of discounts, and ease of ride booking significantly influence customer usage.

Kumar Rahul (2022) analyzed customer satisfaction levels in online cab services and found that service quality, safety measures, and driver professionalism play an important role in building customer trust and loyalty.

The existing literature indicates that while both Ola and Uber provide convenient and efficient transportation services, customer preferences vary depending on factors such as pricing strategies, service quality, driver behavior, and availability of vehicles. However, limited research has focused specifically on the Navi Mumbai region. Therefore, the present study aims to fill this research gap.

3. Research Methodology:

3.1 Research Objectives

1. To investigate the connection between service quality and customer choice regarding cab services (Ola and Uber).
2. To investigate the link between pricing satisfaction and customer choice of cab services.
3. To examine the impact of driver behaviour and safety features on customer satisfaction with app-based cab services.

3.2 Research Design

Research Area: The study focuses on Navi Mumbai and examines customer preferences and satisfaction regarding app-based cab services such as Ola and Uber.

Sample Selection: A convenience sampling method was used for selecting respondents. The sample size consisted of 100 respondents who regularly use app-based cab services. Participants were selected based on their availability and willingness to respond to the survey conducted through Google Forms.

Data Collection: Primary data was collected through a structured questionnaire (Google Form) and direct responses from customers using Ola and Uber services. Secondary data was collected from company websites and online reports related to ride-hailing services.

Data Analysis Method: The collected data was analysed using percentage analysis and the Chi-Square test.

3.3 Limitations of the Study

- The study was limited to 100 respondents, which may not fully represent all cab users' preferences.
- The research was conducted only in the Navi Mumbai region, so findings may not reflect customer behavior in other cities.
- The study considered only a few factors, such as pricing and service quality, while other factors like promotional offers and app usability were not deeply analyzed.

4. Hypothesis of the Study:

The Chi-Square Test is a statistical technique for figuring out whether two categorical variables have a significant relationship. Comparing the observed and expected frequencies facilitates the discovery of any correlation between variables.

4.1 Hypothesis 1: Service Quality and Customer Choice

H₀: There is no notable relationship between service quality and customer choice for cab services.

H₁: There is a notable relationship between service quality and customer choice for cab services.

Table 4.1: Observed Frequency Table

Service Quality	Prefer Ola	Prefer Uber	Total
Excellent	10	18	28
Good	22	20	42
Average	15	10	25
Poor	3	2	5
Total	50	50	100

Chi-Square Result Table

Test	Chi-Square Value	df	p-value	Decision
Chi-Square Test	3.58	3	0.31	Accept H ₀

Interpretation: The null hypothesis is accepted since the p-value (0.31) is higher than 0.05. This suggests that there is no statistically significant correlation between customer preference for cab services and service quality in this sample.

4.2 Hypothesis 2: Pricing Satisfaction and Customer Choice

H₀: There is no notable relationship between pricing and customer choice regarding cab services.

H₁: There is a notable relationship between pricing and customer choice regarding cab services.

Table 4.2: Observed Frequency Table

Pricing Satisfaction	Prefer Ola	Prefer Uber	Total
Very Satisfied	14	8	22
Satisfied	20	15	35
Neutral	10	17	27
Dissatisfied	6	10	16
Total	50	50	100

Chi-Square Result Table

Test	Chi-Square Value	df	p-value	Decision
Chi-Square Test	6.21	3	0.10	Accept H ₀

Interpretation: The null hypothesis is accepted since the p-value (0.10) is higher than 0.05. This suggests that there is no statistically significant correlation between pricing and consumer preference in this sample.

5. Data Analysis & Interpretation:

5.1 Area-wise Distribution of Respondents in Navi Mumbai

Table 5.1: Area-wise Distribution

Area	Number of Respondents	Percentage
Vashi	8	8%
Nerul	12	12%
Belapur	15	15%
Kharghar	17	17%
Panvel	42	42%
Other	6	6%
Total	100	100%

Area of Residence in Navi Mumbai

100 responses

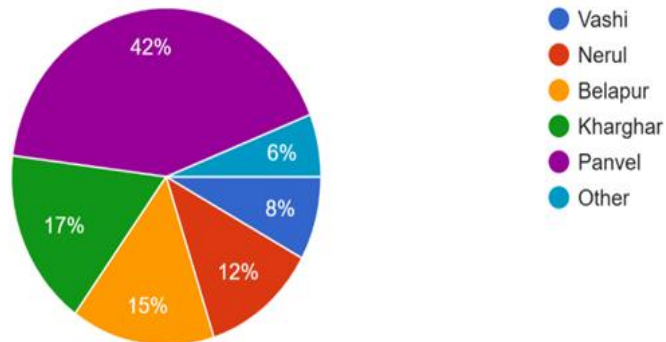


Figure 5.1: Area of Residence in Navi Mumbai — Source: Compiled from primary data

Interpretation: The highest number of respondents, 42%, belong to Panvel, indicating significant usage of app-based cab services in that area. Kharghar accounts for 17% of respondents, followed by Belapur (15%) and Nerul (12%). Vashi represents 8% of the respondents, while 6% belong to other areas of Navi Mumbai.

5.2 App-Based Cab Services Used by Respondents

Table 5.2: Cab Services Used

Cab Service	Number of Respondents	Percentage
Ola	22	22%
Uber	20	20%
Both	44	44%
Other	14	14%
Total	100	100%

Which app-based cab services do you use?

100 responses

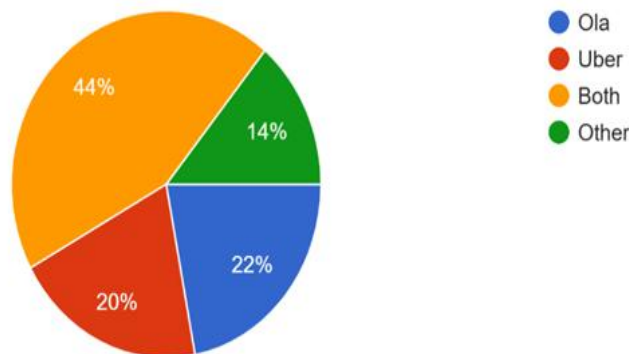


Figure 5.2: Cab Services Used by Respondents — Source: Compiled from primary data

Interpretation: 44% of respondents use both Ola and Uber services, indicating that a majority of customers prefer to keep both applications for better availability, price comparison, and convenience. Further, 22% use only Ola, while 20% use only Uber. Around 14% use other cab services.

6. Findings:

- The study indicates that app-based cab services such as Ola and Uber are widely used by respondents in Navi Mumbai for daily commuting.
- Both platforms have a strong user base, and customers choose between them based on convenience and availability.
- Uber is often preferred for its service quality, driver professionalism, and ride reliability, while Ola is frequently selected due to lower fares and promotional offers.
- The findings show that factors such as service quality, pricing, and availability of cabs significantly influence customer preference.
- Many users switch between the two platforms depending on fare differences and ride availability.

7. Suggestions:

- Ride-hailing platforms should focus on improving service quality, driver professionalism, and customer support.
- Pricing strategies should remain transparent and reasonable to maintain customer trust.
- Companies should also enhance safety features and ensure better cab availability during peak hours.
- Introducing loyalty programs and promotional offers may further encourage regular usage.

8. Conclusion:

The study concludes that app-based cab services such as Ola and Uber play a significant role in urban transportation in Navi Mumbai. Customer preference is influenced by factors such as pricing, service quality, availability of cabs, and driver behaviour. While Ola attracts users through competitive pricing and offers, Uber is often preferred for reliability and service quality. Improving these factors can enhance customer satisfaction and strengthen competitiveness.

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A Comprehensive Study on Inflation Trends in Essential Commodities in Navi Mumbai (2015–2025), Considering the Impact of COVID-19 and Global Conflicts

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ABSTRACT:

This paper investigates the effect of COVID-19 and international conflicts on the inflation of essential commodities in Navi Mumbai, during the years 2015–2025. The paper uses both primary and secondary data. The primary data was obtained from a structured Google Form survey conducted among 93 respondents. The survey targeted consumer perception about the price increase of essential commodities like food, dairy products, edible oil, and fuel. Secondary data consists of retail price changes of essential commodities like rice, wheat, milk, edible oil, vegetables, and petrol, on a year-by-year basis. Analysis of the data reveals a constant rise in prices over the decade, with substantial peaks in 2020–2022. Edible oil and vegetables topped the list with the highest percentage rise, particularly during the COVID period and after the global conflict of 2022. The results indicate that the inflation during this period was not temporary but caused a permanent change in the price level. This study also indicates that the COVID-19 pandemic and global conflicts have had a major effect on the inflation of essential commodities in Navi Mumbai.

Key Words: *Inflation, Essential Commodities, Global Conflict, Navi Mumbai, Covid-19*

1. Introduction:

Inflation can be defined as the rise in the general price level of goods and services in an economy over a period of time. In India, the main causes of inflation are food and fuel, as these commodities account for a substantial portion of a person's expenditure. During the period from 2015 to 2025, India witnessed major events like the COVID-19 pandemic and the Russia-Ukraine conflict.

Navi Mumbai is an urban area, and it is directly affected by changes in domestic as well as international prices. The essential commodities bought by people include rice, wheat, milk, edible oil, and vegetables. Hence, any change in the price of these commodities will directly impact the cost of living. This paper aims to understand the impact of inflation during this period.

2. Review of Literature:

From previous research, it has been observed that food inflation in India is driven by supply-side factors. Research during the COVID-19 pandemic has shown that lockdowns affected transportation and labor, causing a temporary increase in prices. It has also been observed that import-dependent products such as edible oil were severely impacted by international trade disruptions.

Reports from the Reserve Bank of India and the Ministry of Statistics have emphasized that fuel prices and international commodity prices are key factors that affect inflation in India. It has also been observed from literature that once prices rise during a period of crisis, they do not fall back to their original levels.

3. Objectives of the Study:

1. To study the trend of essential commodity prices from 2015–2025.

A Comprehensive Study on Inflation Trends in Essential Commodities in Navi Mumbai (2015–2025), Considering the Impact of COVID-19 and Global Conflicts

2. To examine the impact of COVID-19 on price movement.
3. To analyse the effect of global conflicts on inflation.
4. To study consumer perception regarding price rise.
5. To compare primary data with actual price trends.

4. Hypothesis of the Study:

H₀: There is no significant impact of COVID-19 and global conflicts on essential commodity inflation in Navi Mumbai.

H₁: There is a significant impact of COVID-19 and global conflicts on essential commodity inflation in Navi Mumbai.

5. Research Methodology:

The research work is based on both primary and secondary data. The primary data was collected through a Google Form survey, and 93 responses were received from Navi Mumbai. The questionnaire had 17 questions based on price perception and factors of inflation.

The secondary data was collected from retail websites, government price publications, and official sources of inflation data. The time period for the study is from 2015 to 2025. The percentage growth and comparative trend analysis were used for evaluation.

6. Impact of Inflation on Essential Commodities:

The study clearly reveals that the prices of essential commodities in Navi Mumbai have been steadily rising from 2015 to 2025. The trend analysis clearly reveals that the prices of rice, wheat, milk, edible oil, and vegetables have been rising in an upward trend with substantial peaks during the COVID era and the global conflict phase. The prices of edible oil and vegetables recorded the steepest rise, and fuel prices had an indirect but significant influence on the inflation process.

The survey results also validate the findings. A vast majority of respondents agreed that the prices of staple food, dairy products, and fuel have substantially risen. Several respondents also acknowledged the influence of global events and transportation costs on price escalation. The perception gathered from primary data is remarkably similar to the actual price trends in secondary data.

Another crucial observation is that prices did not revert to their pre-COVID state even when the supply conditions were improved. This indicates that the effect of inflation during the crisis period was not temporary but had a long-run impact. The combined analysis of data and public perception overwhelmingly supports the alternative hypothesis that COVID-19 and global conflicts have had a significant effect on essential commodity inflation in Navi Mumbai.

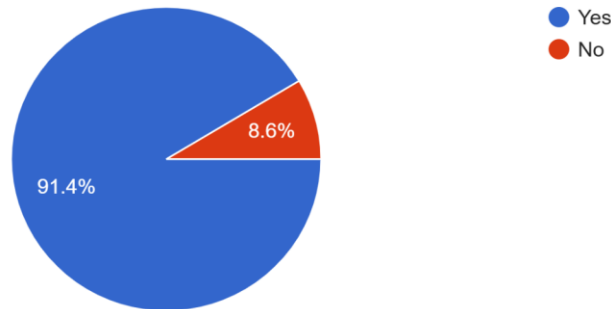
7. Data Analysis and Interpretation:

7.1 i) Primary Data Collected from Respondents in Navi Mumbai

7.1 Compared to 2015, do you feel the price of rice and wheat has increased significantly?

3. Compared to 2015, do you feel the price of rice and wheat has increased significantly?

93 responses

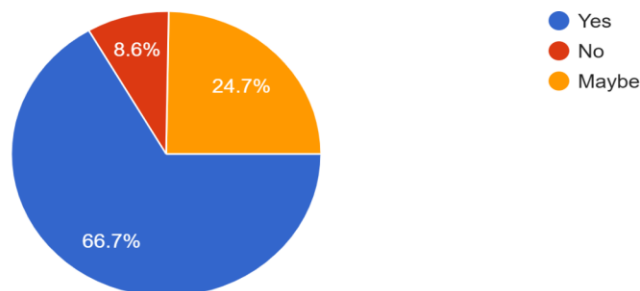


Interpretation: A strong majority of respondents (91.40%) believe that rice and wheat prices have increased significantly since 2015. This shows a clear public perception of staple food inflation. Since rice and wheat are daily-use items, consumers easily notice price changes. Only 8.60% did not feel a major increase.

7.2 Do you think the price of edible oils (sunflower, soybean, palm oil) increased sharply after 2020?

5. Do you think the price of edible oils (sunflower, soybean, palm oil) increased sharply after 2020?

93 responses



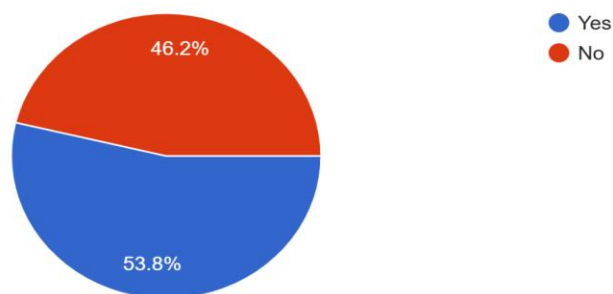
Interpretation: About 66.70% of respondents observed a sharp increase in edible oil prices after 2020, while 24.70% were unsure. This suggests that the price spike during the COVID period was clearly visible to most households. This perception supports the trend data showing a major rise during 2020–2022.

7.3 During COVID lockdowns, did you face shortages or limited availability of any food items?

A Comprehensive Study on Inflation Trends in Essential Commodities in Navi Mumbai (2015–2025), Considering the Impact of COVID-19 and Global Conflicts

6. During COVID lockdowns, did you face shortages or limited availability of any food items?

93 responses

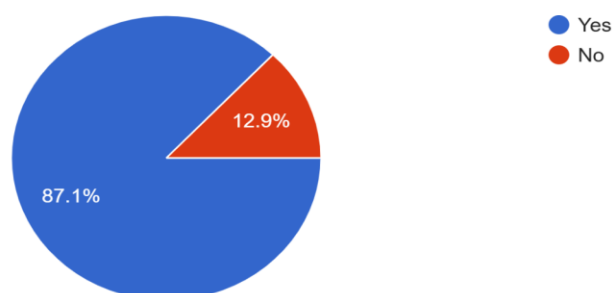


Interpretation: More than half of the respondents (53.80%) reported facing shortages or limited availability of food items during lockdown, indicating that supply chain disruptions were experienced at the consumer level. However, 46.20% did not face major shortages, showing that the impact was not equal for all households.

7.4 Import-dependent items like edible oil are more affected by global events?

8. Import-dependent items like edible oil are more affected by global events?

93 responses

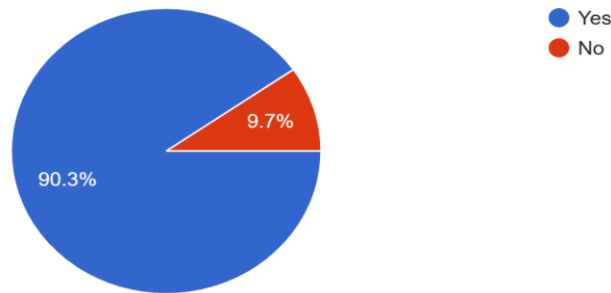


Interpretation: A large majority (87.10%) agreed that import-dependent items are affected by global events. This shows strong awareness among consumers about the connection between international issues and domestic prices. Only 12.90% disagreed. This perception supports the idea that global conflicts influence inflation in India.

7.5 Compared to 2015, do you feel petrol and diesel prices have increased significantly?

9. Compared to 2015, do you feel petrol and diesel prices have increased significantly?

93 responses

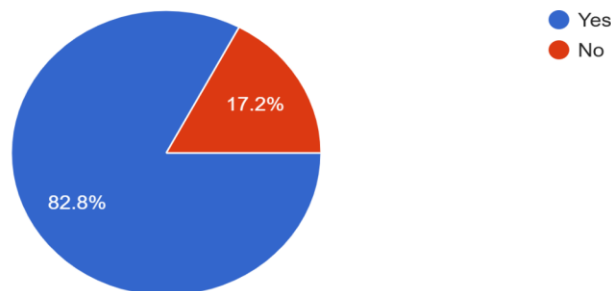


Interpretation: An overwhelming 90.30% of respondents believe petrol and diesel prices have increased significantly. Fuel prices are highly visible and directly affect daily expenses. The strong agreement indicates that fuel inflation was clearly experienced by consumers. This is important because fuel prices also impact transportation costs.

7.6 Does rising fuel prices have indirectly increased food prices (transport, logistics cost)?

11. Does rising fuel prices have indirectly increased food prices (transport, logistics cost)?

93 responses



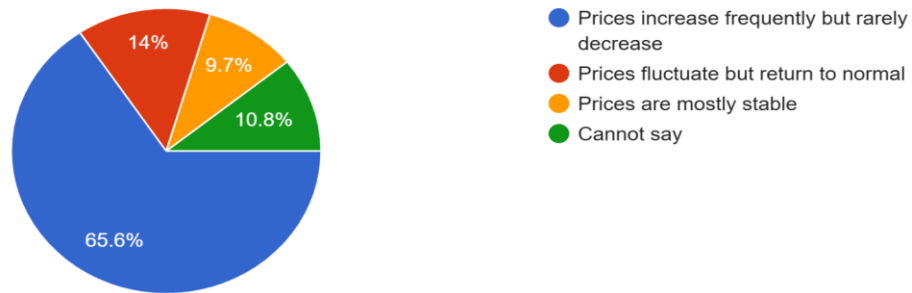
Interpretation: A large majority (82.80%) agreed that rising fuel prices indirectly increase food prices through transport and logistics costs. This shows that consumers understand the cost-push effect of inflation. The response supports the link between fuel price rise and food inflation observed in trend analysis.

7.7 Which statement best describes today's price behaviour of essential commodities?

A Comprehensive Study on Inflation Trends in Essential Commodities in Navi Mumbai (2015–2025), Considering the Impact of COVID-19 and Global Conflicts

17. Which statement best describes today's price behaviour of essential commodities?

93 responses



Interpretation: About 65.60% of respondents believe that prices increase frequently but rarely decrease. This indicates a strong perception of long-term inflation. This perception matches the actual trend data, which shows that prices did not return to pre-COVID levels after rising.

7.2 ii) Secondary Data – Trend Analysis

The trend analysis of essential commodities in Navi Mumbai from 2015 to 2025 shows a clear and consistent upward movement in prices. The analysis was conducted using yearly retail price data of rice, wheat, milk, edible oil, petrol, and selected vegetables.

Pre-COVID Period (2015–2019): Most commodities showed gradual and stable price growth. The price of rice went up from ₹60 in 2015 to ₹75 in 2019, while wheat went up from ₹24 to ₹30. Milk increased from ₹36 to ₹42. Petrol also registered an increase from ₹74 to ₹92. The inflation rate during this phase was normal and under control.

COVID Period (2020–2021): Edible oil registered a steep rise from ₹85 in 2019 to ₹160 in 2021 — one of the steepest rises in the entire study period. Wheat and rice prices also rose during this period. Petrol prices crossed ₹100 during this period, thereby raising transport costs. This phase clearly indicates the effect of supply chain disruptions, lockdowns, and labor shortages.

Post-COVID and Global Conflict Period (2022–2025): In 2022, wheat prices rose considerably to ₹55, linked to global supply issues and export restrictions. Edible oil prices remained high even after the extreme spike. Rice continued to rise to ₹110 in 2025. Milk prices rose to ₹57. Petrol remained above ₹100 after 2021.

Comparative Growth (2015–2025):

Commodity	Approximate Price Increase (2015–2025)
Tomatoes & Potatoes	~166%
Edible Oil	~158%
Wheat	~150%
Rice	~83%
Milk	~58%

Petrol	~42%
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Food commodities experienced higher long-term inflation compared to fuel, although fuel played an indirect role. Perishable vegetables showed the highest volatility, while milk showed steady and moderate growth. Edible oil showed both volatility and structural increase due to import dependence.

8. Conclusion:

The study clearly indicates that the prices of essential commodities in Navi Mumbai have risen substantially from 2015 to 2025. The impact of the COVID-19 pandemic and international conflicts on inflation is evident from the survey and trend analysis. The price of edible oil and vegetables has risen substantially, while fuel prices have indirectly contributed to the rise in food prices. The prices have not fallen to the pre-COVID level even after the end of the crisis periods. Hence, the alternative hypothesis (H_1) is accepted.

9. Limitations of the Study:

- The study is limited to Navi Mumbai only.
- Sample size is limited to 93 respondents.
- Price data is based on available retail sources.
- The study does not use advanced statistical tools.
- Responses are perception-based and may vary individually.

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A Study on Changing Investment Awareness of Gen Z with Respect to Risk and Returns

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Abstract:

The current research titled 'A Study on Changing Investment Awareness of Gen Z with Respect to Risk and Returns' aims to explore the evolving investment behaviors, level of financial knowledge, and views on risk and returns among Generation Z. This group, typically considered to include people born between 1997 and 2012, is known for its strong connection to digital technology and its ability to access financial information through online platforms, social media, and investment apps. The study focuses on understanding the financial literacy of Gen Z, the types of investments they prefer, their willingness to take on risk, and how their expectations about returns influence their investment decisions. The findings show that Gen Z investors have a good understanding of various investment options such as mutual funds, stocks, and cryptocurrencies. They are generally willing to take on moderate to high levels of risk but are still careful about the possibility of losing money.

Keywords: *Generation Z, Investment Awareness, Risk, Returns, Financial Literacy, Digital Platforms, Fintech*

1. Introduction:

Investment refers to the act of allocating money into financial assets with the expectation of achieving future returns. Every investment involves a trade-off between risk and return. Generally, higher returns are associated with greater risk. Generation Z is increasingly becoming a significant group of investors in the financial market. Compared to earlier generations, Gen Z has grown up in a digital environment where financial information is easily accessible. Mobile trading apps, online platforms, and social media influencers have made investing more convenient and popular. In contrast to older generations who relied on savings accounts and fixed deposits, Gen Z shows a preference for market-linked instruments like stocks, mutual funds, exchange-traded funds (ETFs), and even digital assets.

Understanding Gen Z's investment awareness is important for several reasons: they represent the future of investing; their investment behavior differs from that of earlier generations; they are exposed to greater financial risk due to easy access to online information; and their investment choices can have a significant impact on capital markets. This study explores how Gen Z manages the balance between risk and return in their investment decisions.

2. Purpose of the Study:

The main goal of the study is to understand how Generation Z's understanding of risk and returns in investments is changing. It aims to assess the level of financial literacy among Gen Z and how this knowledge affects their investment decisions. The study looks at their preferred investment options, their expectations regarding returns, and their attitudes toward taking risks. It also examines how digital platforms, social media, financial influencers, and fintech applications influence the investment behavior of Gen Z. Ultimately, the study emphasizes the importance of organized financial education and

awareness programs to help young investors make informed, responsible, and sustainable investment choices that enhance their long-term financial security.

3. Review of Literature:

Reshmi V Suresh et al. (2026) This research investigates the impact of financial literacy and investment experience on the investment choices of Generation Z. It highlights that these factors improve their financial self-efficacy and risk tolerance, leading to more rational and confident investment behavior. Using the Theory of Planned Behavior and Prospect Theory, the study presents a model indicating that knowledge and experience influence investment decisions both directly and indirectly.

Annabella Claudia Kurniadi & Christian Herdinata (2024) Since 2019, there has been a noticeable increase in the number of young investors in Indonesia. This research examines the effects of financial literacy and investment experience on investment decisions, with risk tolerance acting as a mediating variable. Using data from 185 young stock investors, both financial literacy and investment experience were found to positively impact investment decisions.

Kiandra Putri Susanto et al. (2025) This research explores how technological improvements, financial literacy, and financial attitudes influence the investment choices of Generation Z in Jakarta, using data from 125 participants. The results show that both financial literacy and financial attitudes have a significant impact on investment decisions.

Irappa Alagur & Prayag Gokhale (2025) This exploratory research examines differences in investment awareness, preferences, and risk tolerance between Generation Z and Generation Y. Gen Z investors exhibit a greater propensity for risk, favouring liquid and unconventional investment opportunities. Conversely, Gen Y investors tend to be more risk-averse, opting for stable, long-term investments.

4. Objectives of the Study:

1. To analyse the change in perception towards investment risk and return over time.
2. To study the use of digital platforms for investment-related information earlier and at present.
3. To understand the change in investment attitude of Generation Z.
4. To measure the improvement in understanding of how investment returns are generated.

5. Research Methodology:

Research Design: Descriptive and analytical research design to investigate how Generation Z's understanding of risk and returns is evolving.

Data Collection: Primary data collected through a structured survey questionnaire targeting Gen Z respondents (aged 18–29 years). 101 valid responses were collected.

Statistical Tools: Percentage analysis and graphical representation using charts.

6. Scope of the Study:

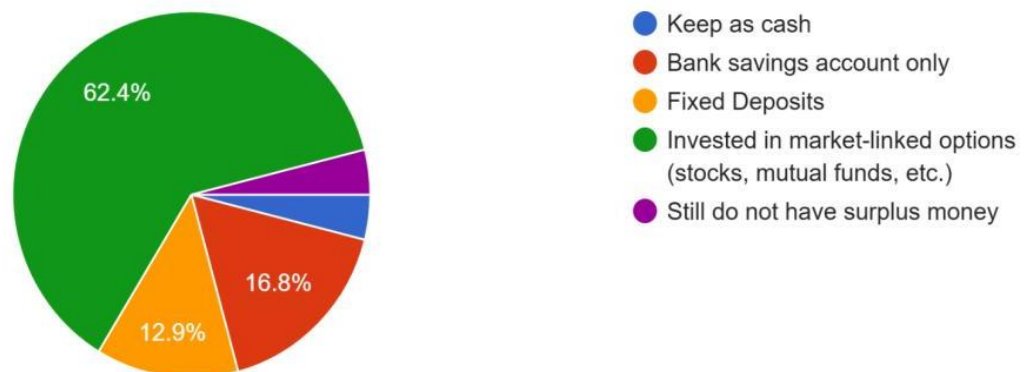
- The study covers Gen Z's aged 18 years – 29 years.
- It investigates Gen Z's degree of financial literacy.
- It studies the investment options they prefer.
- It examines how investment decisions are influenced by return expectations and risk tolerance.
- It studies the role of digital platforms and financial knowledge in influencing investment decisions of Generation Z.

7. Data Analysis and Interpretation:

7.1 How do you usually use your surplus money now?

2. How do you usually use your surplus money now?

101 responses

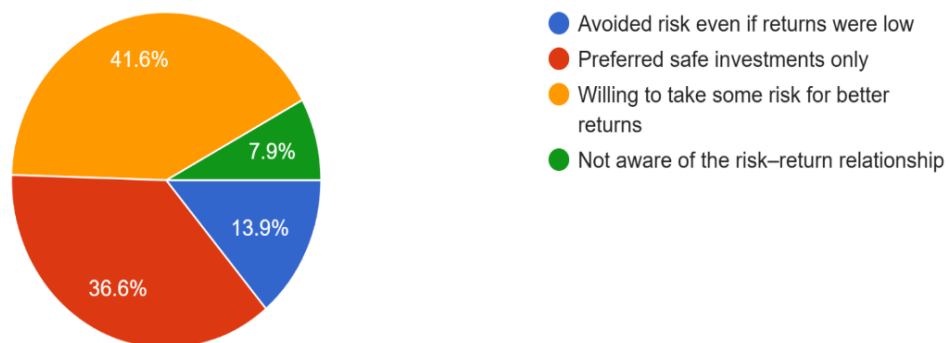


Interpretation: Currently, 62.4% of respondents engage in market-linked investments, whilst merely 16.8% utilize savings accounts and 12.9% favor fixed deposits. Few individuals maintain their capital in an inactive condition. This signifies a significant transition from conventional saving to investment, highlighting enhanced financial knowledge.

7.2 Around 2–3 years ago, which statement best described your attitude toward investment risk and return?

5. Around 2-3 years ago, which statement best described your attitude toward investment risk and return?

101 responses



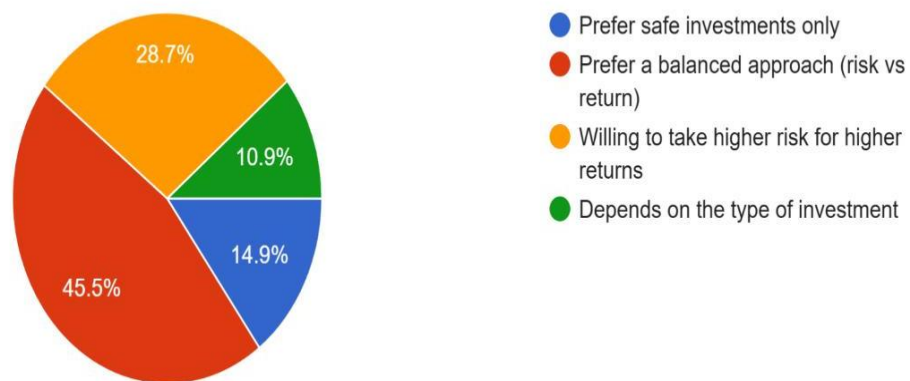
Interpretation: In the past, 36.6% invested only in safe options, 41.6% were willing to take a moderate amount of risk, 13.9% avoided risk altogether, and a small number were unaware of the risk-return relationship. This indicates a relatively conservative investment approach due to lack of knowledge and fear of loss.

7.3 Currently, which statement best describes your attitude toward investment risk and return?

A Study on Changing Investment Awareness of Gen Z with Respect to Risk and Returns

6. Which statement best describes your current attitude toward investment risk and return?

101 responses

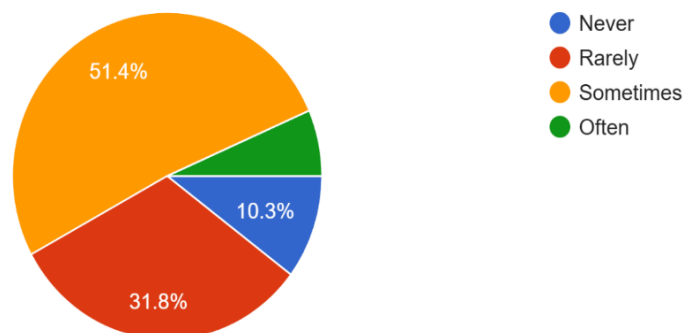


Interpretation: Presently, 45.5% of participants favor a balanced risk-return strategy, but 28.7% are willing to take on increased risk for superior returns. A limited proportion of individuals continue to favor investments that are entirely secure. This indicates that respondents now possess a superior understanding of the risk-return concept and a more practical perspective on investment.

7.4 How often did you use digital platforms for investment information 2–3 years ago?

7. About 2-3 years ago, how frequently did you use digital platforms for investment-related information?

107 responses

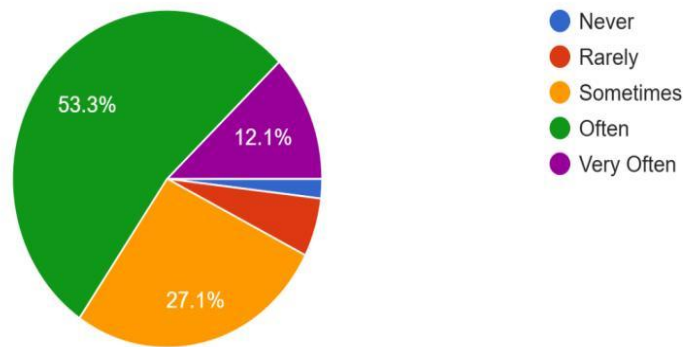


Interpretation: Formerly, 51.4% of respondents indicated that they occasionally utilized digital networks for investment information, 31.8% reported limited usage, and 10.3% stated they never utilized such platforms.

7.5 How often do you currently use digital platforms for investment information?

8. How frequently do you use digital platforms for investment-related information now?

107 responses

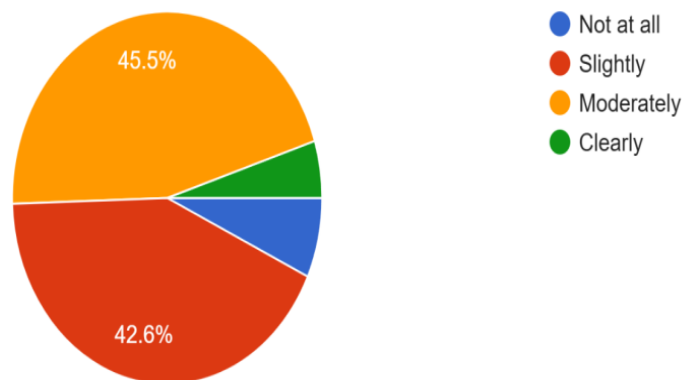


Interpretation: 53.3% of respondents now frequently seek investment information on digital platforms, while 27.1% do so occasionally. This indicates that digital platforms have become the primary medium via which individuals gain knowledge about investing.

7.6 What was your past level of understanding of how investment returns are generated?

11. Approximately 2 years ago, how clearly did you understand how investment returns are generated (interest, dividends, capital gains)?

101 responses

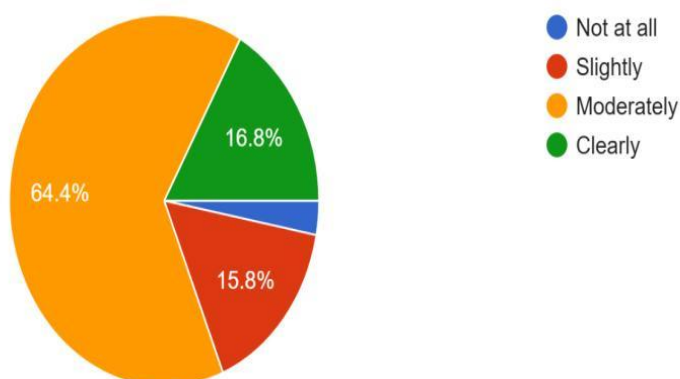


Interpretation: In the past, 42.6% of respondents displayed limited comprehension, and 45.5% showed moderate comprehension of the returns process. Few persons possessed conclusive knowledge. This signifies that individuals previously possessed an inadequate comprehension of financial concepts.

7.7 What is your current level of understanding of how investment returns are generated?

12. How clearly do you understand how investment returns are generated now?

101 responses

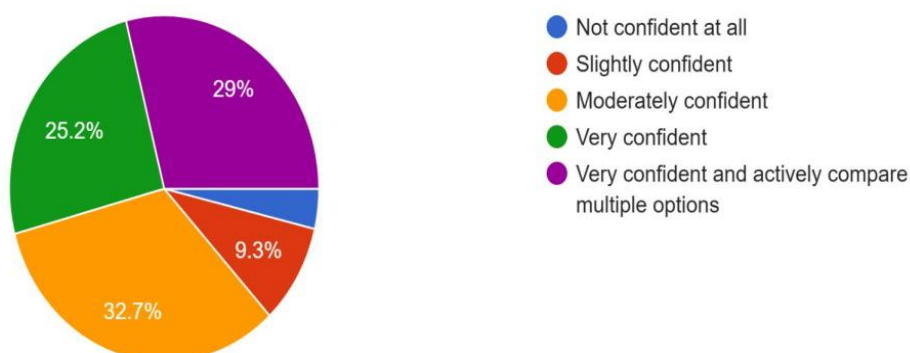


Interpretation: Currently, 64.4% of respondents possess a moderate grasp, 16.8% have a clear understanding, and merely 15.8% exhibit a slight understanding. This indicates that individuals are increasingly conscious of investments and financial principles.

7.8 How confident are you in evaluating and comparing investment options?

20. How confident are you now in comparing different investment options before choosing one?

107 responses



Interpretation: 32.7% of respondents exhibit moderate confidence, 25.2% demonstrate high confidence, and 29% possess strong confidence while actively evaluating several possibilities prior to investment. Merely 9.3% exhibit slight confidence. This indicates that the majority of respondents possess enhanced financial awareness and decision-making skills.

8. Findings:

The results show a distinct change in Generation Z's financial habits, transitioning from conventional saving tools to investments linked to the market. Most respondents currently favor alternatives like mutual funds, stocks, and other growth-focused investments, indicating a heightened awareness of the risk-return relationship. In contrast to previous trends where safety was prioritized, participants now exhibit a more balanced perspective, revealing an openness to embrace moderate risk for improved returns. This change indicates that young investors are growing more financially inquisitive, profit-oriented, and strategically minded.

Furthermore, the findings emphasize the increasing importance of digital platforms in influencing investment understanding and choices. Participants are increasingly dependent on online platforms, financial applications, and social media for insights, leading to better comprehension and assurance in assessing investment options. Although many individuals have improved from basic to a moderate or clear grasp of financial literacy, some gaps in knowledge and hesitant attitudes still persist.

9. Conclusion:

The research underscores a significant change in Generation Z's understanding of investments, inclinations, and views on risk and return. The results indicate that young people are progressively shifting from conventional saving approaches to investment alternatives tied to the market, highlighting enhanced financial knowledge and increased familiarity with contemporary financial tools. Gen Z investors exhibit a more measured stance towards risk, with choices shaped not just by safety but also by potential returns, liquidity, and their long-term financial objectives.

Nonetheless, the findings indicate that a significant number of participants remain in the initial phases of their investment path. Although digital platforms and online resources have significantly contributed to raising awareness, there are still gaps in comprehensive financial knowledge and strategic planning. Consequently, the research emphasizes the significance of organized financial education, actionable investment advice, and risk management awareness to assist Gen Z in making knowledgeable, responsible, and sustainable investment choices.

10. Limitations:

- The small sample size and geographic focus may make it difficult to extrapolate the results to the whole Generation Z population.
- Since the information gathered is self-reported, answers could be skewed by individual prejudices or lack of understanding of financial concepts.
- The study does not cover all available financial instruments as it concentrates on specific investment avenues.
- Since Gen Z investment trends are still changing quickly, the findings' long-term applicability may be affected by the dynamic nature of financial markets.

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A Study on Consumer Behaviour Towards E-Commerce Platforms in Panvel

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Abstract:

The rise of digital shopping has changed how people in Panvel meet their daily needs. Consumers are moving from local markets to smartphones. E-commerce platforms like Amazon, Flipkart, and Zepto provide a wide range of products and door-to-door delivery. Discounts, convenience, and growing trust in digital payments drive this trend. However, concerns about product quality, online scams, and the lack of a physical shopping experience still cause hesitation. This study looks into the financial and emotional factors affecting consumers in Panvel, such as price sensitivity and reliable service. The goal is to help e-commerce businesses build better trust and meet local expectations. The study also highlights changing consumer preferences and the effect of technology on buying habits to improve customer satisfaction and strengthen connections between digital platforms and local shoppers.

Keywords: *Panvel, E-commerce, Online shopping behaviour, Amazon, Flipkart, Consumer trust*

1. Introduction:

E-commerce has changed the retail sector by offering consumers more convenience, accessibility, and clear pricing. In India, the rapid growth of internet access, smartphone usage, digital payment systems, and logistics has sped up the rise of online shopping. Major platforms like Amazon, Flipkart, and Myntra have significantly influenced consumer purchasing habits in both metropolitan and developing urban markets.

Panvel, a quickly developing semi-urban area, has seen an increase in e-commerce adoption due to better connectivity, expanding neighbourhoods, and higher income levels. However, consumer behaviour in Panvel is different from that in larger cities because of varying levels of trust, digital awareness, and shopping habits. This study aims to analyse consumer behaviour towards e-commerce platforms in Panvel by exploring factors such as shopping frequency, preferred platforms, payment methods, trust and security, price sensitivity, convenience, and satisfaction after purchase.

2. Review of Literature:

Sonkar & Kumawat (2025): This study investigated how social media affects young consumers' e-commerce behaviour in Panvel. It revealed that platforms like Instagram and YouTube shape online purchase decisions and attitudes toward online shopping. The paper emphasises social influence and digital engagement as key factors in e-commerce adoption among youth in Panvel.

Devi (2023): This study reviewed key factors impacting internet shopping behaviour, highlighting trust, perceived risks, and convenience as central elements in e-commerce purchase decisions among Indian consumers.

Hingad et al. (2022): This research focuses on social commerce, which is e-commerce through social platforms, and its effect on consumer buying behaviour in India. It shows that online social interactions and recommendations greatly influence purchase choices.

Shukla (2021): The study identifies ease of use, mobile adoption, and interactions across channels as major drivers for consumers switching from traditional retail to online platforms.

3. Scope of the Study:

Conceptual Scope: This study aims to understand how people in Panvel use and feel about e-commerce platforms. It seeks to discover how often consumers shop online, what products they prefer, and which platforms they choose. The study also examines the reasons behind online shopping preferences, including convenience, price offers, product variety, and home delivery.

Geographical Scope: The geographical area for this study is limited to Panvel. Respondents were selected from various parts of Panvel, including students, working individuals, homemakers, and small business owners who use e-commerce platforms for shopping.

4. Objectives of the Study:

1. To understand the factors that influence consumers in Panvel to shop on e-commerce platforms.
2. To identify the most preferred e-commerce platforms among Panvel's consumers.
3. To assess the shopping frequency and spending patterns of consumers on online platforms in Panvel.
4. To analyse the main issues consumers face when using e-commerce platforms in Panvel, such as delivery problems, product quality, and return policies.

5. Hypothesis of the Study:

H₀₁: Discounts and offers do not significantly influence consumer online shopping behaviour in Panvel.

H₁₁: Discounts and offers significantly influence consumer online shopping behaviour in Panvel.

6. Research Methodology:

Research Design: Descriptive and exploratory research design.

Primary Data: Structured questionnaire distributed to 100 respondents in Panvel.

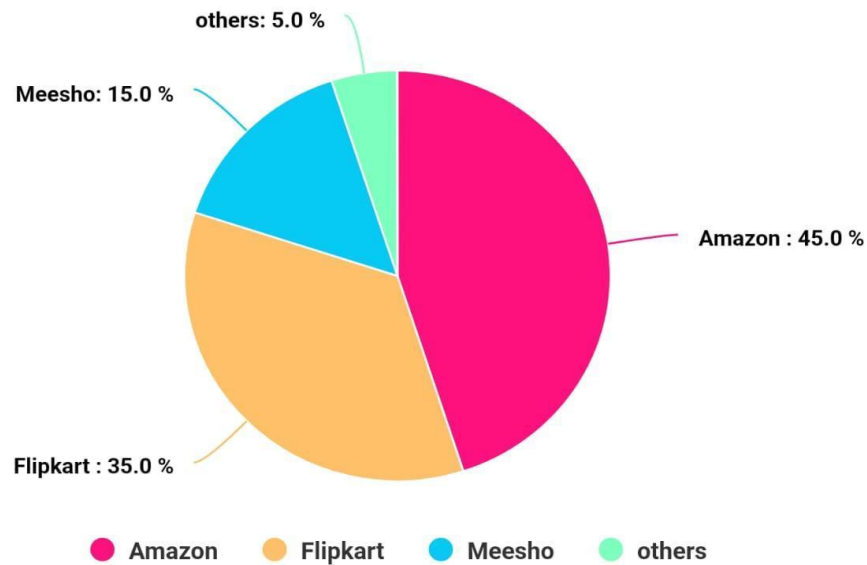
Secondary Data: Books, journals, company reports, and online sources.

Statistical Tools: Percentage analysis and Chi-square test.

7. Data Analysis and Interpretation:

7.1 Which e-commerce platform do you use most frequently?

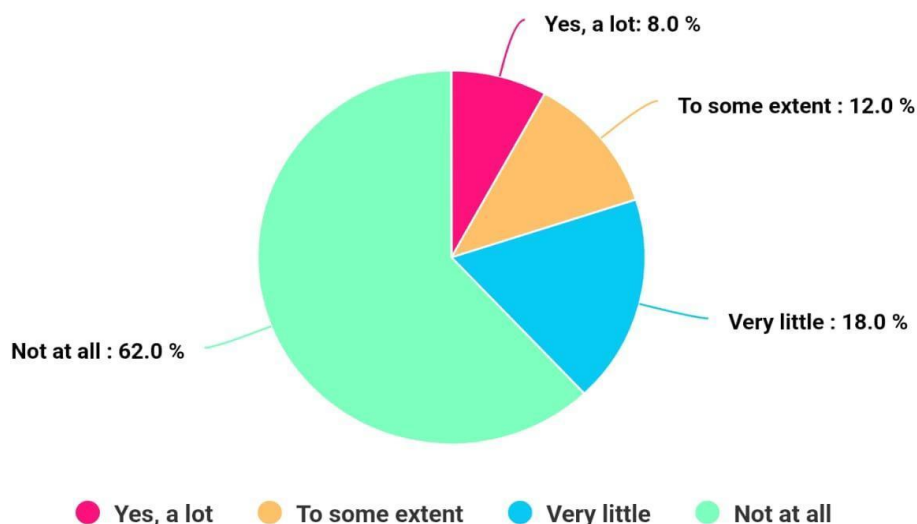
Which E-commerce platform do you prefer the most?



Interpretation: The chart shows consumer preferences for e-commerce platforms in Panvel. Amazon is the most preferred platform, followed by Flipkart. Meesho and other platforms have relatively smaller user bases, indicating that established platforms with strong trust and service records dominate the local market.

7.2 How often do you shop online?

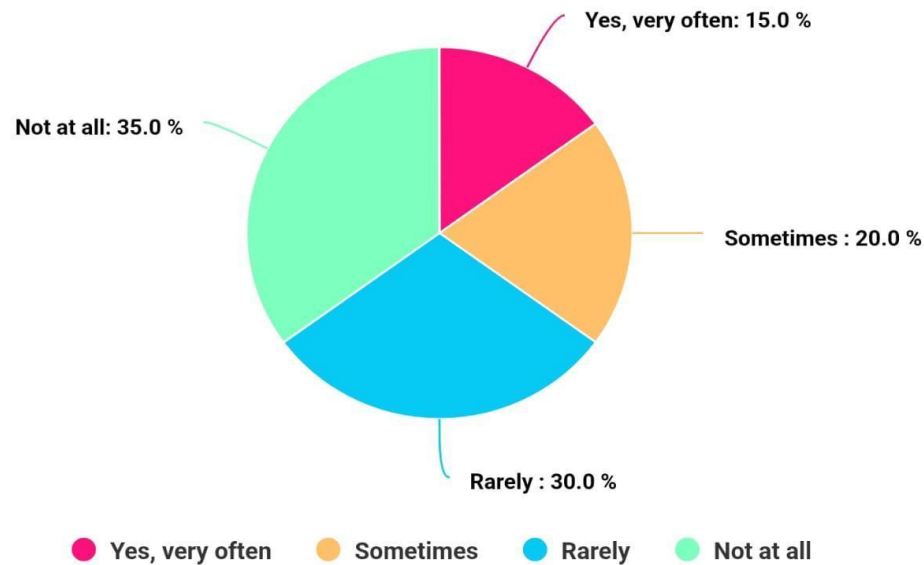
Do online advertisements influence your choice of e-commerce platform?



Interpretation: The chart shows the frequency of online shopping among Panvel consumers. A significant proportion shop online regularly (weekly or monthly), indicating e-commerce has become a routine part of consumer behaviour. A smaller segment shops only occasionally or during sale events.

7.3 What is the primary reason you prefer online shopping?

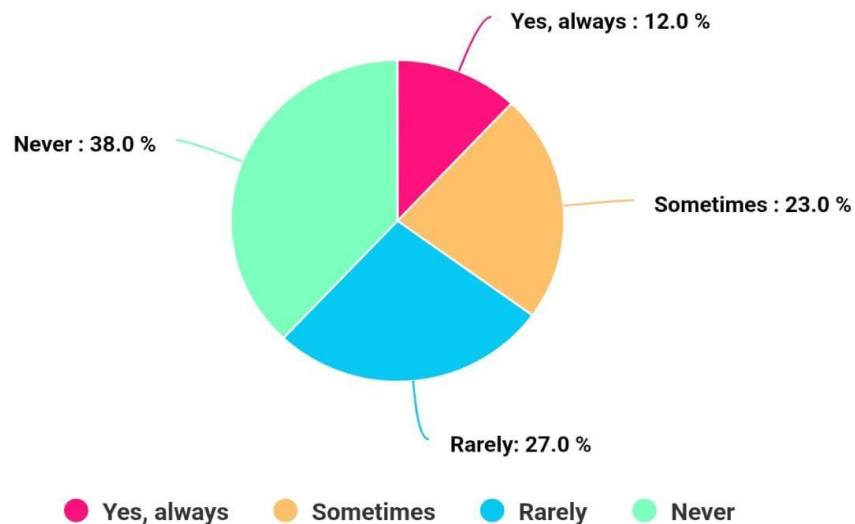
Do ads on e-commerce platforms encourage you to try new products?



Interpretation: Convenience is the most cited reason for preferring online shopping, followed by better prices and wider product variety. This indicates that the primary drivers of e-commerce adoption in Panvel are practical benefits rather than entertainment or social factors.

7.4 What is the most common problem you face while shopping online?

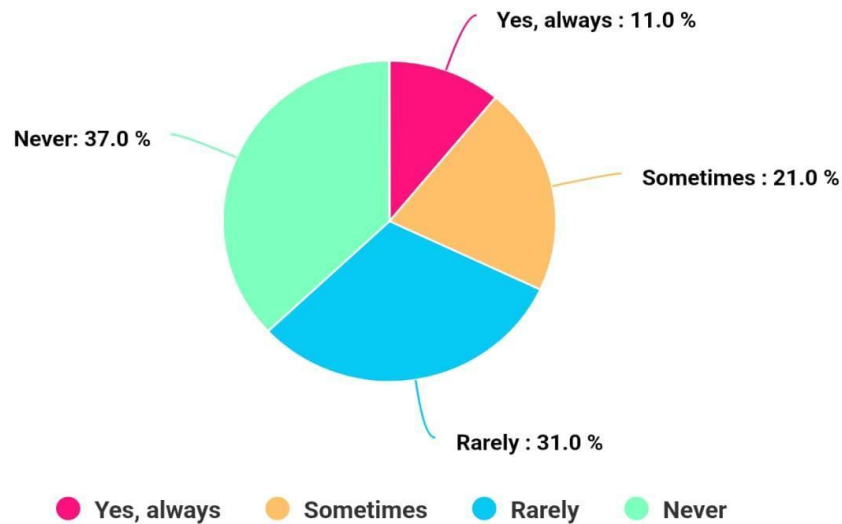
Do festive sales (Diwali, Big Billion Days, Great Indian Festival) influence your purchases?



Interpretation: Delivery delays and incorrect products are the most commonly reported problems. Return policy issues and payment security concerns also feature significantly. This highlights key areas where e-commerce platforms need to improve their service quality for Panvel consumers.

7.5 To what extent do discount offers affect your online buying decisions?

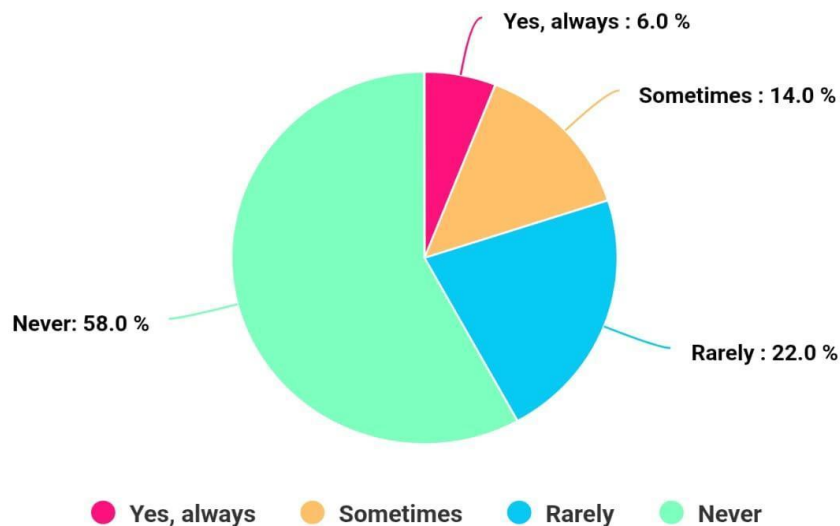
Do discounts and offers on e-commerce platforms attract you to buy more



Interpretation: The chart suggests that discounts and offers have a low impact on buying decisions, with most respondents never or rarely influenced (68%). Only a small percentage are significantly influenced, indicating that consumers in Panvel focus more on quality and trust than discounts.

7.6 Do advertisements make products appear more worthy to you?

Do advertisements make products on e-commerce platforms look worth their price?



Interpretation: The chart indicates that advertisements have minimal impact on how consumers perceive product value. 68% of respondents reported being never or rarely influenced by ads. Instead, most consumers focus more on factors like quality, reviews, and price when making purchase decisions.

8. Hypothesis Testing:

A Chi-square analysis was performed to test the relationship between discount offers and online shopping behaviour.

Category	Observed (O)	Expected (E)	(O-E) ² /E
Never Influenced	37	25	$(37-25)^2/25 = 5.76$
Rarely Influenced	31	25	$(31-25)^2/25 = 1.44$
Sometimes Influenced	21	25	$(21-25)^2/25 = 0.64$
Always Influenced	11	25	$(11-25)^2/25 = 7.84$
Total χ^2 Value			15.68

Degrees of Freedom = 3 | Critical χ^2 value at 5% significance = 7.815 | Calculated χ^2 = 15.68

Decision: Since the calculated value (15.68) exceeds the critical value (7.815), the null hypothesis H_{01} is rejected. The alternative hypothesis H_{11} is accepted — discounts and offers have a significant relationship with online shopping behaviour. However, the results also show that discounts are not the main factor influencing purchases.

9. Findings:

- Most consumers prefer shopping on Amazon, followed by Flipkart, while Meesho and other platforms are less used.
- Online advertisements have very little influence on consumers' buying decisions.
- Consumers mainly focus on product quality, reviews, and price comparison before purchasing.
- Discounts and festive offers are not the main reason for shopping; most people buy based on need.
- Consumers show a positive attitude toward online shopping due to convenience, but delivery and refund issues remain concerns.

10. Conclusion:

This study aimed to understand consumer behaviour in Panvel regarding e-commerce platforms. The results show that online shopping has become popular and convenient for many people. Most shoppers choose online shopping because it saves time, offers better discounts, and provides a wide selection of products. Many customers check reviews and compare prices before buying, indicating they are becoming more informed and cautious while shopping. Popular platforms like Amazon, Flipkart, and Meesho attract consumers in Panvel due to offers, return policies, and delivery services. However, issues like delayed delivery, incorrect products, or refund delays still affect customer satisfaction.

11. Suggestions:

- E-commerce companies should work on improving delivery speed and ensuring that the right products reach customers.
- Companies should simplify the return and refund process to help customers feel more secure while shopping online.
- Clear product descriptions, accurate images, and truthful customer reviews should be provided to avoid confusion.
- More awareness programs about digital payments and online safety can help customers feel more confident when shopping online.

12. Limitations:

- The study focuses only on consumers in Pannel, so the results may not reflect those of people in other cities or rural areas.
- The research used a limited number of respondents, so the findings may not fully reflect the views of the entire population.
- The study was conducted over a short period, which may not have captured changing consumer behaviour driven by new trends.

13. References:

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A Study on Customer Awareness and Satisfaction Towards Gold Loan Services of Muthoot Finance in Panvel

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Abstract:

This research paper examines the gold loan services offered by Non-Banking Financial Companies (NBFCs) with special reference to Muthoot Finance. Gold loans have emerged as one of the fastest-growing secured lending products in India, driven by their quick disbursement, minimal documentation requirements, and rising gold prices. The study adopts a descriptive research design and collects primary data from 100 respondents through a structured questionnaire. The research evaluates customer awareness, satisfaction levels, usage purposes, perceptions regarding interest rates, and the overall effectiveness of Muthoot Finance in the gold loan market. The findings reveal that gold loans are primarily used to meet emergency financial needs, and customers are moderately satisfied with the services. The study concludes that while Muthoot Finance holds a strong position in the gold loan segment, improvements in digital awareness and interest rate transparency can enhance customer satisfaction further.

Keywords: *NBFC, Gold Loan, Muthoot Finance, Customer Satisfaction, Financial Inclusion*

1. Introduction:

Non-Banking Financial Companies (NBFCs) play a significant role in the Indian financial system. They provide financial services similar to banks but do not hold a banking license. NBFCs are regulated by the Reserve Bank of India under the RBI Act, 1934. NBFCs contribute to financial inclusion by offering loans to individuals and small businesses that may not qualify for traditional bank loans. Among various products offered by NBFCs, gold loans have gained considerable importance in recent years.

Gold loans are secured loans where borrowers pledge gold ornaments as collateral. These loans are easy to access and provide instant liquidity, making them popular among middle-income households. Muthoot Finance is one of the leading players in the gold loan market in India with a vast branch network and strong brand recognition.

2. Review of Literature:

Kannan (2017): Analysed the procedural guidelines of gold loans in Urban Cooperative Banks and emphasised the need for proper guidelines and structuring of gold loaning entities.

Kannan (2020): Compared Chola Mandalam Finance with Muthoot Finance using a CAMEL model to measure capital adequacy, asset quality, management efficiency, earnings, and liquidity, highlighting the importance of financial soundness and risk management.

Deepti Shastri Gupta (2020): Conducted a CAMELS based performance analysis of Manappuram Finance and Muthoot Finance concluding that both have a better capital position but opinions differ on earnings ratios, liquidity ratios, and debt-equity ratios.

3. Scope of the Study:

The study compares gold loan products that Muthoot Finance provides with those of other NBFCs and evaluates customer perception and satisfaction levels. The scope includes an assessment of branch network, service accessibility, interest rates, loan-to-value (LTV) ratios, loan tenure, processing fees, and prepayment charges.

4. Objectives of the Study:

1. To study customer awareness about gold loan services offered by Muthoot Finance.
2. To assess the level of customer satisfaction with Muthoot Finance's gold loan services.
3. To identify the main purposes for which customers avail gold loans from Muthoot Finance.
4. To evaluate customer perception regarding interest rates charged by Muthoot Finance.
5. To suggest improvements in Muthoot Finance's gold loan services.

5. Research Methodology:

Research Design: Descriptive research design.

Data Collection: Primary data collected from 100 respondents through a structured questionnaire. Secondary data from company reports, RBI publications, and financial databases.

Statistical Tools: Percentage analysis and graphical representation.

Sampling Method: Convenience sampling from Muthoot Finance customers in Panvel.

6. Data Analysis and Interpretation:

6.1 Purpose of Taking a Gold Loan from Muthoot Finance

[Chart: Purpose of gold loan — Emergency fund (34.8%), Buy property (27%), Investment (19.1%), Other (17.4%)]

Purpose	Percentage (%)
Investment	19
Buy Property	27
Emergency Fund	34.8
Other	17.4

Interpretation: A significant portion of borrowers (34.8%) use Muthoot Finance gold loans to meet emergency fund needs. Buy Property accounts for 27%, Investment for 19.1%, and Other purposes for 17.4%. This data suggests that gold loans are primarily used as a quick liquidity source for urgent financial requirements.

6.2 Primary Reason for Taking Gold Loan

Purpose	Percentage (%)
Urgent Short-term Loan	25
Willing to Pledge Gold Ornaments	23
Reduce Borrowing (avoid extensive paperwork)	25
Other	24

Interpretation: The responses are fairly evenly distributed. 25% seek quick financial assistance for immediate needs, 23% are comfortable pledging gold ornaments as collateral, 25% prefer the convenience of avoiding extensive paperwork, and 24% have other reasons. This indicates that customers have multiple motivations for availing gold loans from Muthoot Finance.

6.3 Customer Rating of Interest Rate Charged by Muthoot Finance

Interest Rate Perception	Percentage (%)
Low	13
Average	54
High	25
Very High	5

Interpretation: The majority of respondents (54.8%) perceive the interest rates as average, indicating a balanced view of the rates charged by Muthoot Finance. 25% rate them as high and 5% as very high, while 13% consider them low. This diversity in perceptions reflects varying customer expectations and benchmarks.

6.4 Are Muthoot Finance Interest Rates Competitive Compared to Other Lenders?

Response	Percentage (%)
Yes	82
No	18

Interpretation: A large majority (82.2%) find the interest rates offered by Muthoot Finance competitive compared to other players in the market, suggesting that they perceive Muthoot Finance's interest rates as favourable and attractive. This reflects a positive perception of the company's pricing strategy and market positioning.

7. Hypothesis Testing:

The study examined the relationship between customer awareness and satisfaction levels. Various response patterns were analyzed to determine whether there was statistical significance in customer perceptions. The results suggest that customer awareness about gold loan features significantly influences satisfaction levels. Customers who are aware of the Loan-to-Value ratio, interest rate structure, and repayment options tend to report higher satisfaction than those with limited awareness.

8. Conclusion:

Gold loans have become an important short-term financing tool in India. NBFCs like Muthoot Finance play a crucial role in providing quick and accessible credit. The study concludes that Muthoot Finance maintains strong brand recognition and service efficiency. However, better transparency in pricing and improved digital communication strategies can enhance customer trust and satisfaction.

Muthoot Finance Ltd. operates in a highly competitive market characterised by changing consumer preferences and evolving regulatory frameworks. The company's ability to adapt to these changes while maintaining its core strengths — a strong customer base and a wide network of branches — will be crucial

for its long-term success. Leveraging technological advancements to streamline processes and enhance customer experience could provide a competitive edge in the industry.

9. Limitations:

- Many respondents refused to share complete financial details due to privacy concerns.
- Some participants completed the questionnaire quickly, resulting in less accurate responses.
- The sample size may not fully represent the entire population of gold loan customers.
- The study is limited to a specific time period and geographic area, restricting broader generalization.

10. References:

Muthoot Finance Limited — <https://www.muthootfinance.com>

Reserve Bank of India (RBI) — <https://www.rbi.org.in>

National Bank for Agriculture and Rural Development (NABARD) — <https://www.nabard.org>

Economic Survey of India — <https://www.indiabudget.gov.in/economicsurvey/>

World Gold Council — <https://www.gold.org>

ICRA Reports (Gold Loan Industry Reports) — <https://www.icra.in>

CRISIL Reports — <https://www.crisil.com>



A Study on Customer Satisfaction Towards Amazon India

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Abstract:

In today's world, online shopping has become a necessity in everyone's day-to-day life. Many customers choose online shopping because it is convenient and saves time, offering a large variety of products at a price. Amazon India is one of the most preferred and trusted e-commerce sites in India. The purpose of this research project is to study and analyse the level of customer satisfaction towards Amazon India, understanding client experiences, anticipations, and aspects of the platform. The study aims to determine the key factors affecting customer satisfaction — ranging from quality of product and pricing, delivery speed and availability, to ease of using the website and mobile application. The results indicate that because of a wide selection, great prices, speed of delivery, safe payment options and ease of return, most customers are satisfied with Amazon India. Nevertheless, the research identified that some buyers suffered from delayed deliveries, damaged packages, and defective goods on occasion.

Keywords: *E-Commerce, Amazon, Customer Satisfaction, B2C Business Model*

1. Introduction:

People's shopping and business operations have changed with the growth of the internet. Consumers favour shopping online due to convenience and saving time, plus there are plenty of options available. Customers are able to compare prices and reviews, check out product details, and order from home. By expanding internet services, digital payment systems, and increasing smartphone penetration, e-commerce in India has grown significantly.

Amazon India has gained massive success since its launch in India in 2012. By offering a trusted platform to its users, it has also become one of the most trusted e-commerce platforms in India. Amazon India is providing consumers very attractive pricing on their products. Fast delivery, easy-return policy, secured payment options, website and app are major strengths of the company. The success and growth of companies or businesses largely depend on customer satisfaction. Customer satisfaction explains how happy the customer feel after buying and using a particular good or service.

2. Research Methodology:

Data Collection: Primary data collected through a structured questionnaire distributed to 102 regular customers of Amazon India using a simple random sampling method.

Secondary Data: Books, journals, websites, and articles.

Statistical Tools: Percentage analysis method.

3. Objectives of the Study:

1. To study the level of customer satisfaction towards Amazon India.
2. To understand the perception and expectations of customers regarding online shopping services provided by Amazon India.
3. To identify the key factors which influence customer satisfaction towards Amazon India.

4. To study the overall experience of customers regarding online shopping on Amazon India's website and mobile app.
5. To analyse the loyalty and willingness of customers towards recommending Amazon India to others.
6. To identify the common problems faced by customers regarding online shopping on Amazon India.
7. To provide appropriate suggestions to enhance the service quality and customer satisfaction.

4. Hypothesis of the Study:

Hypothesis 1: There is a significant relationship between service quality and customer satisfaction towards Amazon India.

Hypothesis 2: Pricing and discounts provided by Amazon India have a significant impact on customer satisfaction.

Hypothesis 3: Delivery speed and reliability play a significant role in influencing customer satisfaction.

Hypothesis 4: Easy return and refund policy have a positive effect on customer satisfaction.

Hypothesis 5: Overall shopping experience has a significant effect on customer loyalty and recommendation intention.

5. Scope of the Study:

- The main focus of the study is to analyse customer satisfaction towards Amazon India in the Indian market.
- The main factors of customer satisfaction, such as product quality, price, delivery, returns, and customer service, have been taken into consideration.
- The study only considers customers who have prior experience in shopping at Amazon India.

6. Significance of the Study:

- The study helps us understand the level of customer satisfaction towards Amazon India.
- The study helps us understand the factors affecting customer satisfaction.
- The findings of the research can prove to be very helpful to Amazon India and other organizations.
- The findings of the research can prove to be very helpful to the field of e-commerce.

7. Literature Review:

Krishnaveni & Dr. P. Devi: A recent comparative study of customer satisfaction and service quality of Amazon and Flipkart found that customer satisfaction depends on the quality of service, operational efficiency, and transparency. Consumers assess platforms based not only on product pricing but also on the efficiency of supply and control of expectations.

Tarannum Jahan: The study explored various factors influencing satisfaction such as delivery speed, website interface, product quality, and customer service. It concluded that effective service delivery and ease of use significantly contribute towards customer satisfaction.

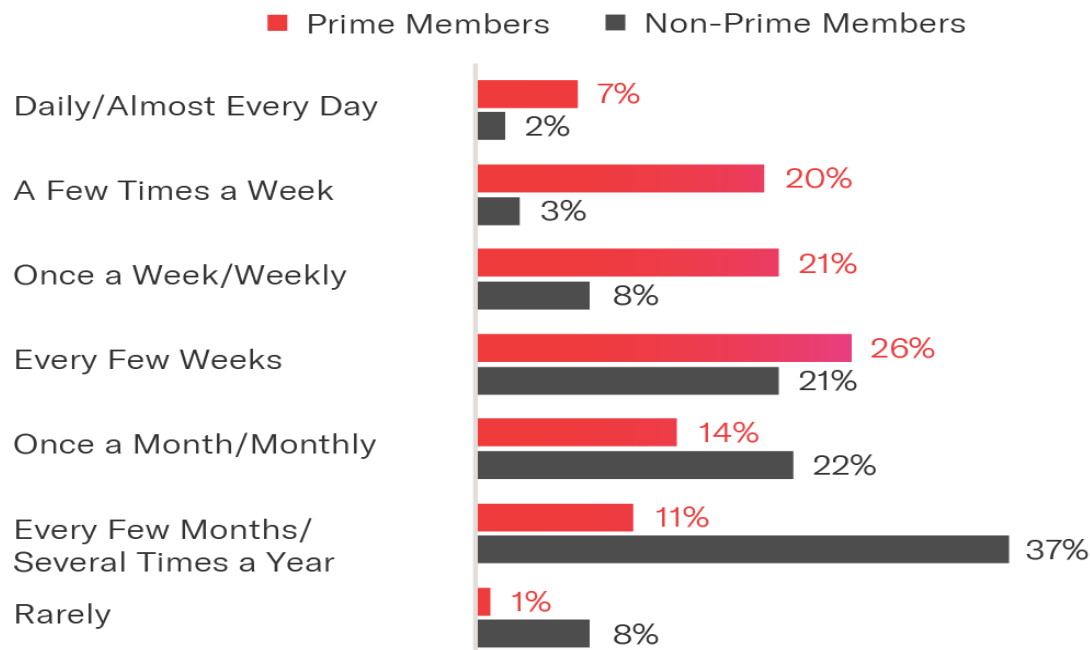
Sonu Anand: A comparative study on customer satisfaction between Amazon and Flipkart showed that customers' satisfaction level with the service is dependent on convenience, product range, and reliability of delivery.

Himanshu Tiwari: This study had 506 respondents. Researchers found product availability and secure payment options to be the most important variables influencing satisfaction. It also pointed out that stock availability and reliable product info are dissatisfiers when lacking.

8. Data Analysis and Interpretation:

The present study is based on entirely primary data collected with the help of a structured questionnaire. A total of 102 respondents having the experience of shopping on Amazon India filled the questionnaire. The feedback was taken through an online form, duly checked and organized before analyzing.

How Often Amazon Prime Members Buy Products Online



Feedvisor

Figure 1: Customer Satisfaction Levels towards Amazon India — Source: Compiled from primary data

Upon analyzing the responses, it was found that both male and female respondents participated in the survey almost equally. The findings reveal that a large number of respondents frequently or occasionally shop on Amazon India. The majority of respondents stated that their orders mostly or always get delivered on time. The replies about packaging quality were a bit mixed — while many customers gave high ratings, some respondents gave lower ratings, indicating scope for improvement in packaging standards.

9. Results and Findings:

- Most respondents are satisfied with the quality of products offered by Amazon India.
- Timely delivery is a strong point of Amazon India that helps keep the customers happy.
- The easy return and refund process contributes positively to customer satisfaction.
- Customers find the Amazon India website and app easy to use and convenient.
- Some customers have experienced occasional issues with packaging quality and delivery delays.
- Overall, the analysis shows that customers have a positive opinion about Amazon India.

10. Recommendations:

Amazon India should maintain its high service quality and work to improve areas where customers face minor issues. The company can improve packaging standards for the safe delivery of products in good condition. Devoting more customer service resources to complaint resolution can also increase customer satisfaction. To attract customers, Amazon India should offer the best prices, discounts, and product ranges that suit consumer needs. Regularly collecting customer feedback to understand changing expectations is also recommended.

11. Conclusions:

To sum up the study, customer satisfaction towards Amazon India is generally positive. Most customers are satisfied with the quality and price of products, delivery, and return services. The research confirms the role of customer satisfaction to create loyalty over the long term in business. Some consumers have experienced issues but overall, most have a pleasant shopping experience. If Amazon India continuously improves the quality of its services and support, it will maintain its strong relationship with customers. Consequently, customer satisfaction is a key factor for the growth and success of Amazon India in the competitive e-commerce industry.

12. Limitations:

- The sample size of customers may be small and may not represent all customers.
- The study was based on primary data only. Results may differ depending on the responses.
- The study was done within a limited period of time.
- The results may only represent customers of a specific area and may not represent customers of the whole country.

13. Bibliography:

Krishnaveni, T., & Dr. P. Devi. Comparative Insights into Customer Satisfaction and Service Quality of Amazon and Flipkart.

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Tiwari, H. A Study on Customer Satisfaction from Amazon Online Shopping during Covid-19 Pandemic.

Amazon India — <https://www.amazon.in>



A Study on Effect of Use of UPI Payments on Daily Expenses Tracking

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Abstract:

The rise of digital payment systems has significantly changed the way individuals handle their financial transactions, offering convenience, security, and efficiency. One notable innovation gaining momentum in the Indian financial landscape is the Unified Payments Interface (UPI). This study explores how digital payments contribute to a country's economy and GDP. Our research specifically examines how the introduction of UPI has influenced spending behavior among Indian individuals. We collected 235 valid responses covering various demographics and surveyed 20 participants. Approximately 75% of the participants reported an increase in spending due to UPI, with only 7% indicating a decrease. Notably, 91.5% of the respondents expressed satisfaction with their UPI experience. Additionally, 95.2% of the participants found UPI easy to use for making payments.

Keywords: *UPI, Digital Payments, Daily Expenses, Expense Tracking, Financial Literacy, Spending Behaviour*

1. Introduction:

The Unified Payments Interface (UPI) is a fast and user-friendly digital payment system developed by the National Payments Corporation of India (NPCI). It enables users to send and receive money instantly using their mobile phones. Whether sending money to a friend (P2P) or making a purchase at a store (P2M), UPI simplifies and expedites the process. UPI operates on top of the Immediate Payment Service (IMPS) and is regulated by the Reserve Bank of India (RBI), ensuring that transactions are secure, reliable, and available 24/7.

To use UPI, a user needs a bank account linked to their registered mobile number. After registration, users can create a unique UPI ID, also known as a Virtual Payment Address. This ID allows users to send or receive money without sharing bank account details, using a UPI ID, mobile number, or QR code.

1.1 History

In April 2009, the National Payment Corporation of India was established with the aim of integrating all payment mechanisms in the country and making them standardized for retail payments. By March 2011, the Reserve Bank of India noted that in India, only six non-cash transactions occurred per individual citizen. Around 145 million families had no access to any form of banking. The rapid proliferation of smartphones and affordable internet connectivity laid the foundation for UPI's eventual widespread adoption.

1.2 Significance of Study

This study is important because digital payments, especially UPI, are widely used by students, working professionals, and households. Understanding its impact on daily expenditure tracking helps individuals become more financially aware and responsible. The study will help identify whether UPI makes expenditure tracking easier through transaction history or whether it encourages overspending due to the ease of payment.

1.3 Statement of Problem

In today's digital era, the use of UPI has become a common method for making daily payments such as grocery shopping, transportation, food orders, and bill payments. While UPI makes transactions fast, accessible, and cashless, it also alters the way individuals manage and track their daily expenses. Many people make multiple small UPI payments throughout the day, which can sometimes make it difficult to keep track of spending. As a result, individuals may lose awareness of how much they spend daily, leading to poor budgeting habits.

2. Review of Literature:

Dev, H., Gupta, R., & Kumar, D. (2024): The growth of digital payment systems has transformed the way people conduct financial transactions. This study focuses on how the introduction of UPI has influenced individual spending habits in India. About 75% of those surveyed said their spending increased because of UPI, while only 7% noted a decrease. Importantly, 91.5% of the respondents were satisfied with their experience using UPI.

Haque, M. I. et al. (2025): The Unified Payments Interface (UPI) has significantly transformed financial transactions in India. Using logistic regression analysis, the study investigated factors affecting UPI usage in rural Aligarh. Key predictors of UPI adoption included being younger, male, having higher education, and higher income.

Edburg, B. F. et al. (2024): This study explores reasons why users choose UPI applications and ways to reduce fraud. Digital payment platforms like Google Pay, PhonePe, and Paytm handle over 90% of all online transactions in India. Users are mainly attracted due to ease of use, convenience, and influence from friends and family.

Neema, K. & Neema, A. (2016): The demonetization initiative created a unique foundation for acceptance of digital payments among Indian consumers. This paper examines the UPI method of digital payment, detailing its architecture, technologies, operations, and parties involved in UPI transactions, along with its benefits and challenges.

Shahid, M. (2022): The UPI has emerged as a leading mobile payment system in India, providing substantial benefits to both customers and banks. This research redirects focus to the factors influencing the adoption of UPI, including reliability, transparency, and ease of use.

3. Research Methodology:

3.1 Scope of Study

This study focuses on understanding how the use of UPI payments influences the way individuals track their daily expenses. It mainly examines the spending behaviour of users who regularly use UPI for routine transactions such as food, travel, shopping, and bill payments. The study covers students, working professionals, and general users who rely on digital payment applications for their day-to-day financial activities.

3.2 Objectives

1. To study the impact of UPI payments on tracking daily expenses among individuals.
2. To analyse how UPI transaction records help in maintaining accurate expense records.
3. To identify challenges faced by users while tracking expenses through UPI apps.
4. To evaluate the role of UPI apps in budgeting and financial planning.

5. To understand the convenience of UPI payment compared to cash for expense tracking.

3.3 Hypotheses

Hypothesis 1

H0: There is no meaningful relationship between the use of UPI payments and how users track their daily expenses.

H1: There is a meaningful relationship between the use of UPI payments and how users track their daily expenses.

Hypothesis 2

H0: Using UPI frequently does not have a noticeable effect on users' spending habits.

H1: Using UPI frequently has a noticeable effect on users' spending habits.

Hypothesis 3

H0: UPI transaction records do not help users manage their daily budget effectively.

H1: UPI transaction records help users manage their daily budget effectively.

Hypothesis 4

H0: The convenience of UPI payments does not encourage overspending among users.

H1: The convenience of UPI payments encourages overspending among users.

3.4 Data Collection

Primary Data: Structured questionnaire through Google Forms. 100 responses collected from students, working professionals, and general UPI users.

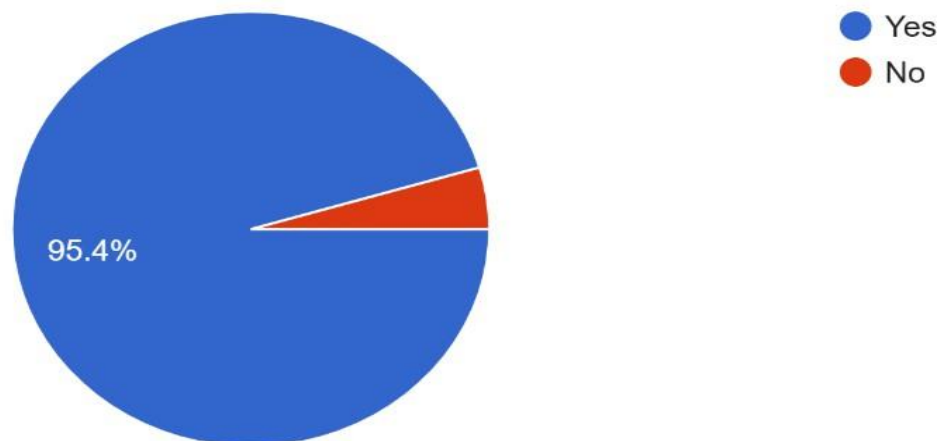
Secondary Data: Research articles, journals, books, websites, and previous studies related to digital payments, UPI usage, and personal finance management.

4. Data Analysis and Interpretation:

4.1 Do you use UPI payment applications for daily transactions?

1. Do you use UPI payment applications for daily transactions?

109 responses

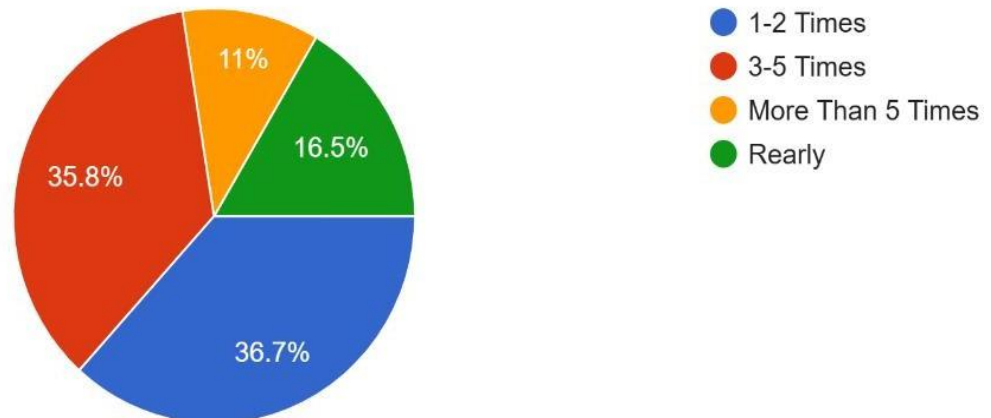


Interpretation: Almost everyone in the survey uses UPI for their daily payments. Only a very small number of people still prefer not to use it. This clearly shows that UPI has become a regular part of people's everyday lives, replacing cash for many common transactions.

4.2 How often do you use UPI payments in a day?

3. How often do you use UPI payments in a day ?

109 responses

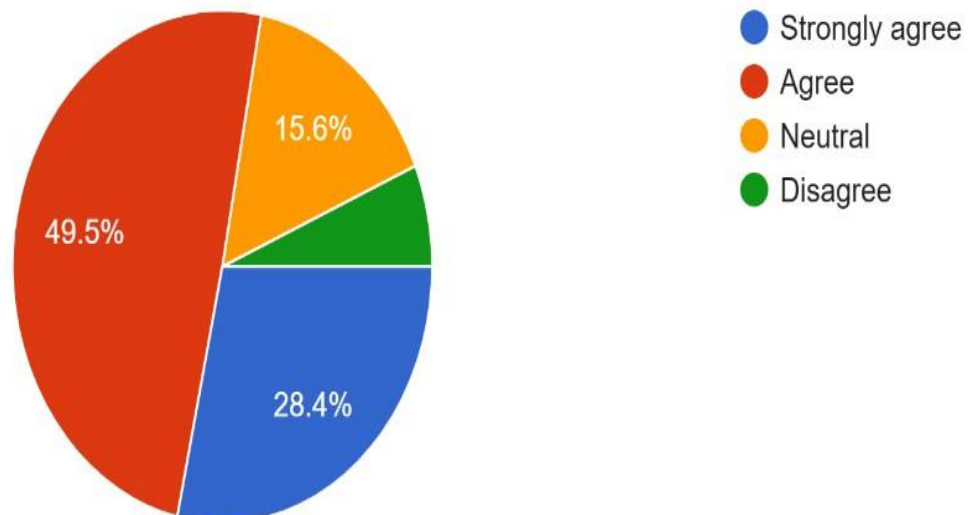


Interpretation: Most people use UPI at least 1–5 times a day, meaning UPI is used regularly for small and routine payments. Some people even use it more than 5 times daily, showing how dependent users have become on digital payments.

4.3 Has the use of UPI payments improved your awareness of daily spending?

8. Has the use of UPI payments improved your awareness of daily spending?

109 responses

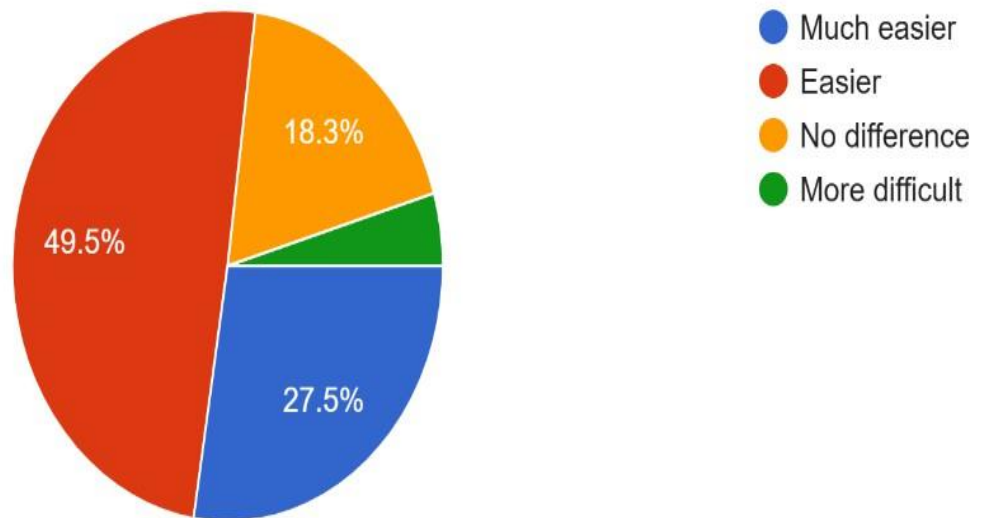


Interpretation: A large number of respondents feel that using UPI helps them keep track of their expenses. Because every transaction is recorded, it becomes easier to see where the money is going. Overall, UPI seems to help in better money management.

4.4 Compared to cash payments, UPI payments make expense tracking...

10. Compared to cash payments, UPI payments make expense tracking ?

109 responses

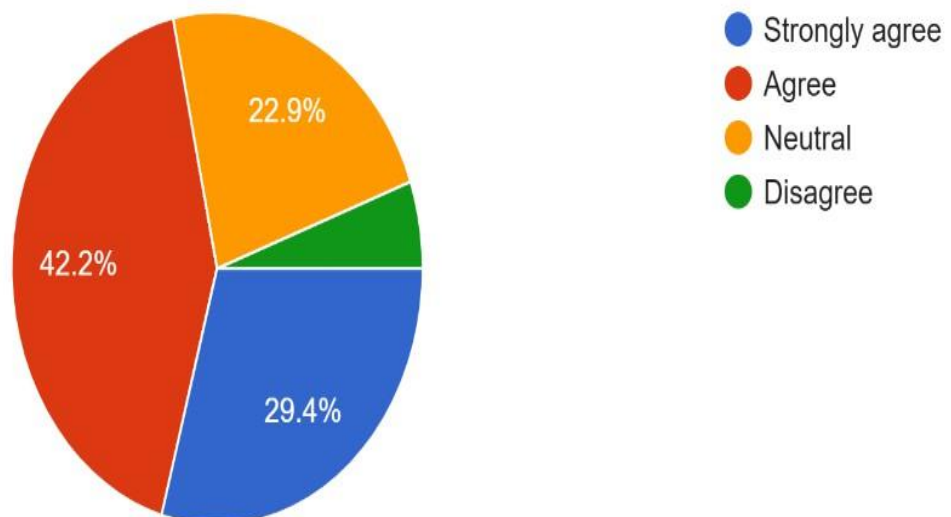


Interpretation: Most respondents believe that tracking expenses is easier with UPI than with cash. Since UPI automatically saves transaction history, users don't need to remember or write down expenses. This makes UPI more convenient for financial tracking.

4.5 Do you feel UPI payments encourage impulsive or unnecessary spending?

11. Do you feel UPI payments encourage impulsive or unnecessary spending ?

109 responses

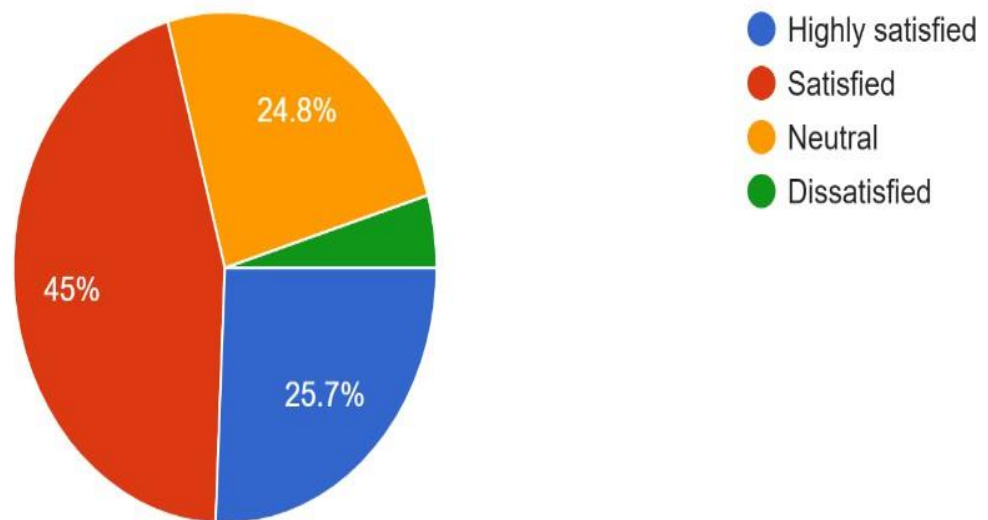


Interpretation: Many respondents feel that the ease of UPI payments may lead to impulsive buying. Because payments are quick and cashless, people may spend without thinking much. However, some people are neutral about this, suggesting that while UPI is convenient, it may also increase spending habits for some users.

4.6 How satisfied are you with UPI apps for managing daily expenses?

13. How satisfied are you with UPI apps for managing daily expenses ?

109 responses



Interpretation: Most people are satisfied or highly satisfied with UPI apps. They find them useful for making payments and managing daily expenses. Very few users are unhappy with the apps, showing that overall, UPI apps provide a positive and helpful experience to users.

5. Observations, Recommendations and Suggestions:

5.1 Observations

- UPI payments have become a regular part of people's daily lives. Most respondents prefer using UPI for small and routine transactions because it is fast, convenient, and cashless.
- UPI helps users stay aware of their spending. Since every transaction is automatically recorded, people find it easier to track where their money is going.
- The study also indicates that the ease of UPI payments may sometimes encourage impulsive spending. Because payments can be completed instantly, users may spend without much planning.

5.2 Recommendations

- UPI service providers should continue improving features that help users manage expenses more effectively, such as spending summaries, budget alerts, and monthly reports.
- Awareness programs should be conducted to educate users about responsible digital spending and how to set limits and track expenses.
- UPI apps should focus on improving security features and user trust, especially for new users who may hesitate to adopt digital payments.

5.3 Suggestions

- Users should make use of transaction history and budgeting features available in UPI apps to monitor their spending regularly.
- Future researchers can expand the study by including a larger and more diverse sample from different age groups, professions, and geographical areas.
- Further studies can explore the long-term impact of UPI usage on saving habits, financial planning, and consumer behaviour.

6. Limitations:

- Sample Limitation: The study mainly focuses on students and young individuals who actively use UPI payments. Other groups were not widely included.
- Geographical Limitation: The research was conducted within a limited geographical area (Panvel and nearby regions). Results cannot be generalized to all regions.

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A Study of Gold as an Investment Avenue

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Professor

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Abstract:

Gold has always been considered a safe and sound investment option, especially in India, where it has immense cultural and economic significance. The purpose of this study is to evaluate gold as an investment opportunity by understanding investor preferences, awareness, and the factors that impact investment choices. This study concentrates on different investment options in gold, such as physical gold, Gold ETFs, Sovereign Gold Bonds, and digital gold. The research was conducted using both primary and secondary information, where primary information was obtained from 105 respondents using a structured questionnaire. The results show that physical gold is the most popular investment option, and paper gold investment options are slowly gaining popularity. Market fluctuations, inflation, and economic uncertainty are the key factors that impact investment choices.

Keywords: *Gold Investment, Physical Gold, Gold ETFs, Sovereign Gold Bonds, Digital Gold, Investment Awareness, Financial Planning*

1. Introduction:

Gold has always been the backbone of wealth, savings, and financial security in Indian society. For decades, gold has been an essential part of every Indian household, not only in the form of ornaments but also as a reliable investment option. With increasing income and price expectations, the demand for gold jewellery and investment instruments has been steadily rising. Today, Indian investors are increasingly realizing that gold should not only be kept in bank lockers or home cabinets but also be a part of their investment portfolio, as gold helps in diversifying investments and protecting them from inflation.

1.1 History of Gold

Gold has been used as an instrument of value and a medium of exchange since ancient times. Gold was used by ancient civilizations such as Ancient Egypt, Ancient Rome, and Ancient India for making coins, jewellery, and as a medium of exchange. Gold has always been more than a commodity — across centuries, it has functioned as a universal store of value, a hedge against uncertainty, and a symbol of enduring wealth. Various dynasties issued gold coins, showcasing their power. Gold continues to be cherished and valued as a precious metal in India.

2. Review of Literature:

Charugulla, S., & Saheb, S. (2025): Published in IRJMS, this article discusses the impact of AI on the gold market and investor behavior. AI-based trading systems, predictive analytics, and robo-advisory services are influencing gold investment patterns. The authors conclude that AI-based market insights are making the gold market more efficient but may also lead to short-term market speculation.

Malviya, G., & Ashok Soni (2025): This comparative study compares the risk and return of different investment options like mutual funds, equity shares, fixed deposits, gold, real estate, and post office schemes. The study concludes that gold investment provides moderate returns with relatively lower risk than equities, making it an attractive investment option for risk-averse investors.

Anuradha, M., & Ramesh, R. (2026): This research paper highlights the retail investor's behavior towards paper gold (Gold ETFs and Sovereign Gold Bonds). With growing financial literacy and technology, investors have been motivated to move from traditional gold to paper gold because of security, transparency, and convenience.

3. Objectives of the Study:

1. To evaluate different types of gold investment options available in India.
2. To understand investor preferences and awareness about gold investments.
3. To analyse the factors that influence the decision to invest in gold.
4. To assess the proportion of portfolio allocated to gold by investors.
5. To study awareness about government-backed gold investment schemes like Sovereign Gold Bonds.

4. Research Methodology:

Research Design: Descriptive research design.

Primary Data: Structured questionnaire administered to 105 respondents.

Secondary Data: Research journals, published articles, and government publications related to gold investment.

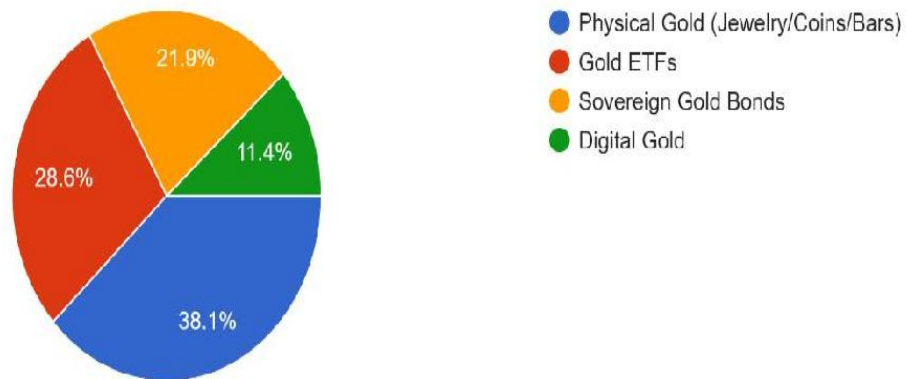
Statistical Tools: Percentage analysis and tabular representation.

5. Data Analysis and Interpretation:

5.1 Which type of gold investment do you prefer?

Which form of gold do you prefer for investment?

105 responses



Option	No. of Respondents	Percentage (%)
Physical Gold (jewellery, coins, bars)	53	50.5%
Gold ETFs	22	21%
Sovereign Gold Bonds	17	16.2%
Digital Gold	10	9.5%

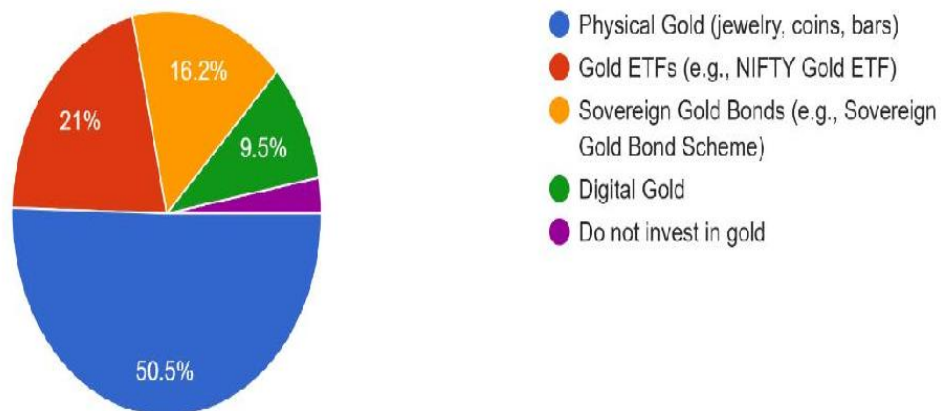
Do not invest in gold	3	2.9%
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Interpretation: The largest number of respondents (50.5%) prefer physical gold in the form of jewellery, coins, and bars. Gold ETFs are preferred by 21%, followed by 16.2% who prefer Sovereign Gold Bonds. Digital gold is preferred by 9.5% of respondents, and only 2.9% do not invest in gold at all.

5.2 What factors influence your decision to invest in gold?

In which form do you prefer investing in gold?

105 responses



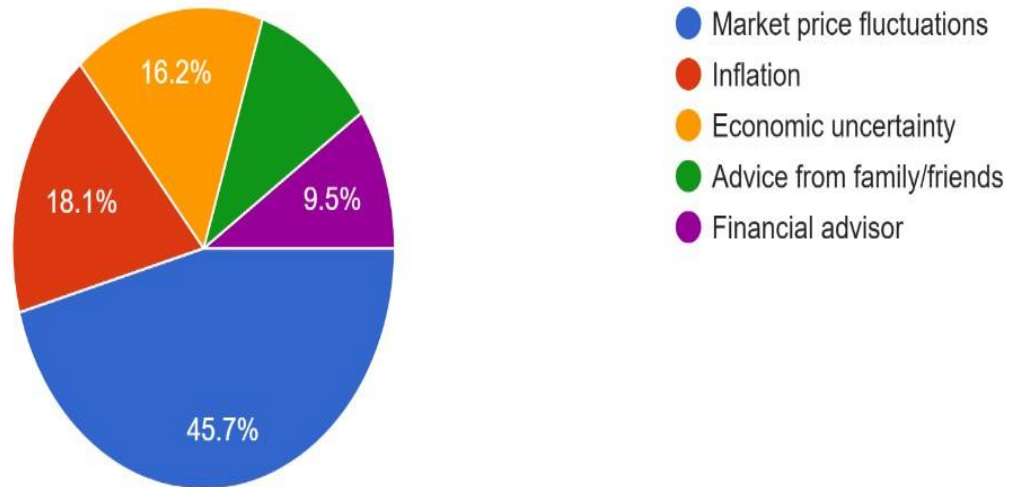
Option	No. of Respondents	Percentage (%)
Market price fluctuations	48	45.7%
Inflation	19	18.1%
Economic uncertainty	17	16.2%
Advice from family/friends	11	10.5%
Financial advisor	10	9.5%

Interpretation: The most common reason (45.7%) for investing in gold is market price variation. The next reasons are inflation (18.1%) and economic uncertainty (16.2%). Personal recommendations (10.5%) and professional advice (9.5%) play a less important role. Price variations are the most important factors that influence gold investment.

5.3 What percentage of your total investment portfolio is in gold?

What factors influence your decision to invest in gold?

105 responses



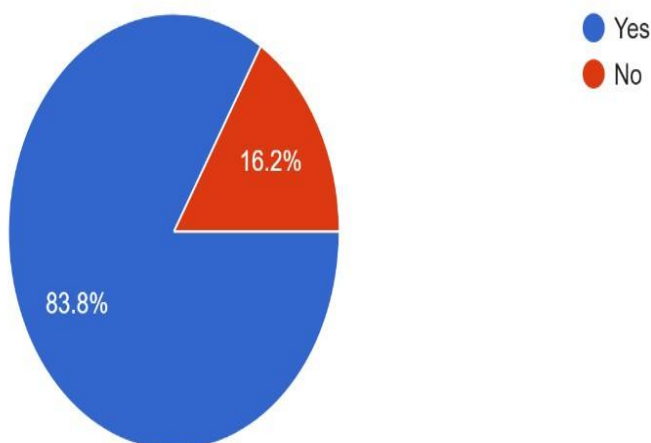
Option	No. of Respondents	Percentage (%)
Less than 10%	39	37.1%
10–25%	31	29.5%
25–50%	23	21.9%
More than 50%	12	11.4%

Interpretation: A significant number (37.1%) tend to invest less than 10% of their overall portfolio in gold. Approximately 29.5% invest between 10–25%, while 21.9% invest between 25–50%. Only 11.4% invest more than 50% of their portfolio in gold, indicating that gold is primarily used as a diversification tool.

5.4 Are you aware of government-backed gold investment options like Sovereign Gold Bonds?

Are you aware of government-backed gold investment options like Sovereign Gold Bonds issued by the Reserve Bank of India?

105 responses



Option	No. of Respondents	Percentage (%)
Yes	88	83.8%
No	17	16.2%

Interpretation: The majority of respondents (83.8%) are aware of government-supported gold investment schemes such as Sovereign Gold Bonds, whereas 16.2% are not aware of such schemes. This indicates a high level of awareness among investors, though investment in paper gold remains lower than physical gold.

6. Observations, Recommendations and Suggestions:

6.1 Observations

- Most people trust physical gold over paper gold or digital gold, indicating faith in the traditional way of investing.
- Market variations are the key factors that affect gold investment choices.
- Most people invest less than 25% of their portfolio in gold, indicating that gold is a diversification tool rather than a primary investment option.
- People are well aware of government-sponsored programs such as Sovereign Gold Bonds, but investment in such products is relatively less compared to physical gold.
- Inflation and economic uncertainty are key drivers for people to invest in gold as a safe haven.

6.2 Recommendations

- Organize financial awareness campaigns to educate investors on the advantages of paper gold options like Gold ETFs and Sovereign Gold Bonds.
- Advise investors to diversify their investment by mixing physical and financial gold investments.
- Use digital platforms to popularize government-sponsored gold investment schemes.
- Financial institutions should advise investors on how much of their portfolio should be allocated to gold investments based on risk profiles.

6.3 Suggestions

- Arrange seminars and workshops to enhance awareness regarding the latest investment options in gold.
- Create simple and easy-to-understand online material regarding the benefits and risks of gold investments.
- Motivate young investors to opt for digital and paper gold investments due to their safety and convenience features.
- Enhance coordination between financial advisors and investors to encourage informed decision-making.

7. Conclusion:

The study provides a comprehensive evaluation of gold as an investment avenue for Indian investors. Physical gold remains the most preferred form of investment due to its cultural significance, tangibility, and perceived safety. However, there is a gradual shift towards paper gold instruments such as Gold ETFs and Sovereign Gold Bonds, driven by growing financial literacy and awareness of the benefits of digital investment forms.

Market price fluctuations remain the primary factor influencing investment decisions, followed by inflation and economic uncertainty, reflecting the traditional role of gold as a hedge in times of economic

stress. The high awareness of government schemes like Sovereign Gold Bonds (83.8%) suggests that investor education is improving, though converting this awareness into actual investment requires targeted effort from financial institutions and policymakers.

8. References:

- Charugulla, S., & Saheb, S. (2025). *Impact of artificial intelligence on the gold market and investor behaviour.*
- Malviya, G., & Soni, A. (2025). *A comparative study of risk and return among various investment options: Mutual funds, equity shares, fixed deposits, gold, real estate, and post office schemes.*
- Anuradha, M., & Ramesh, R. (2026). *Retail investors' behaviour towards paper gold (Gold ETFs and Sovereign Gold Bonds): The role of financial literacy and technology.*



A Study on Career Planning Among College Students

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Abstract:

Career planning is an important process that helps college students understand their interests, abilities, and future job opportunities. It allows students to set goals and prepare themselves for professional life. This study examines how aware college students are about career planning and how they prepare for their future careers. The research is based on survey data collected from 82 college students using a questionnaire. Basic statistical tools such as tables and charts were used to analyze the responses. The study found that many students understand the value of career planning, but only a limited number take active steps to plan their careers. The research suggests that colleges should provide better career guidance and counseling services to support students.

Keywords: *Career Planning, College Students, Career Guidance, Employment, Financial Literacy*

1. Introduction:

Career planning refers to the process of identifying career goals and creating a clear path to achieve them. For college students, this process is essential because it connects education with employment opportunities. In today's competitive world, students need to make informed career decisions based on their skills, interests, and market demand.

However, many students feel confused about career choices due to lack of information, pressure from family, or uncertainty about job prospects. Proper career planning helps students gain confidence and direction. Educational institutions also play an important role in guiding students through workshops, counseling, and skill development programs. This study focuses on understanding how college students plan their careers and what factors influence their decisions.

2. Review of Literature:

Previous research shows that career guidance has a strong impact on students' future success. Many studies highlight that students who receive career counseling are better prepared to make career decisions. Researchers have also found that internships, mentorship, and exposure to industry help students gain clarity about their career paths.

Some studies suggest that lack of awareness and limited access to career resources can lead to poor decision-making among students. Overall, existing literature emphasizes the need for structured career planning support in educational institutions.

2.1 Research Gap

Although several studies discuss career awareness among students, there is limited research focusing specifically on how college students actively plan their careers. This study aims to fill that gap by examining students' awareness, preparation methods, and challenges in career planning.

3. Objectives of the Study:

1. To understand the awareness level of career planning among college students.
2. To examine the role of colleges and teachers in supporting students' career development.
3. To identify factors influencing career decisions.
4. To compare career planning behavior among different student groups.
5. To assess the challenges students face in planning their careers.

4. Research Methodology:

Research Design: Descriptive research based on primary data collected through a structured questionnaire.

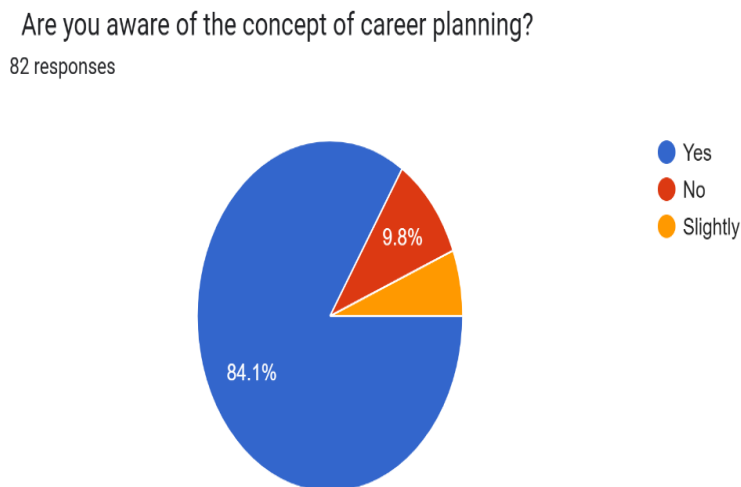
Sampling: Convenient sampling method from 82 college students of different academic backgrounds.

Statistical Tools: Descriptive statistics — percentages, charts, and tables. Inferential statistical tool: t-test for comparison between different student groups.

5. Data Analysis and Interpretation — Findings from Survey:

The survey collected responses from 82 participants to understand students' views on career planning and related factors. Most respondents were between 18 and 23 years old, with the largest group falling in the 18–21 age range. Regarding educational background, the majority of participants were undergraduate students, followed by graduates and a small percentage of postgraduates.

5.1 Career Planning Awareness Among Students

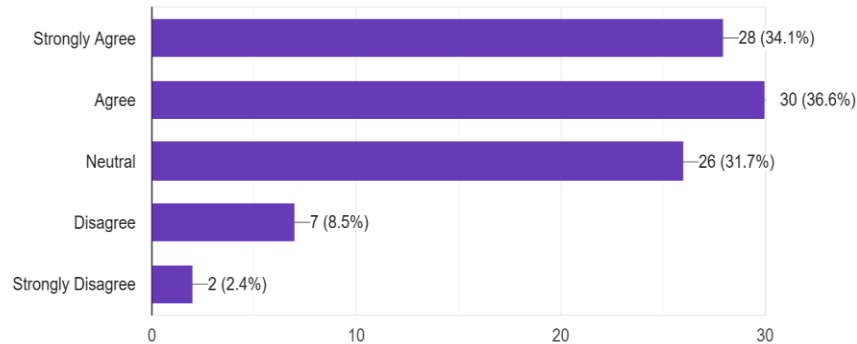


Interpretation: The survey shows that most college students have a general understanding of career planning. Many students are aware of the skills and qualifications needed for their preferred careers. However, a section of students still feels unsure and confused about their career direction. This suggests that although awareness exists, it is not equally strong for everyone, and more career education is needed to improve clarity.

5.2 Role of Colleges and Teachers in Career Guidance

Do you think teachers play an important role in students' career planning?

82 responses

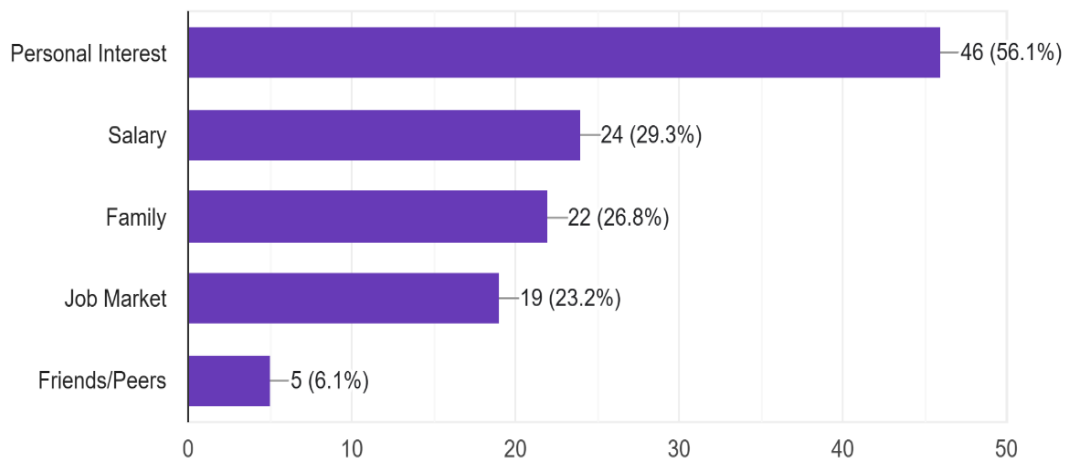


Interpretation: The results indicate that colleges and teachers play an important role in shaping students' career decisions. Many students feel that teachers provide useful guidance and motivation when it comes to planning their future. At the same time, some students believe that formal career counseling services are limited or not easily available. This shows that while students do receive some support, there is room to improve organized career guidance within colleges.

5.3 Factors Influencing Career Decisions

What is the most important factor influencing your career choice?

82 responses

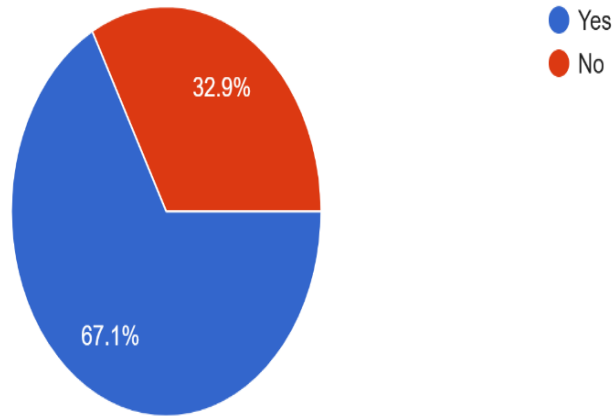


Interpretation: Personal interest is the strongest factor influencing career choices among students. Apart from this, salary expectations, future job opportunities, and family opinions also affect decision-making. Peer influence appears to have less impact compared to these factors. Overall, students tend to choose careers that match their interests while also considering financial stability and job security.

5.4 Career Planning Behaviour Across Different Student Groups

Have you participated in any internship, workshop or skill development program?

82 responses

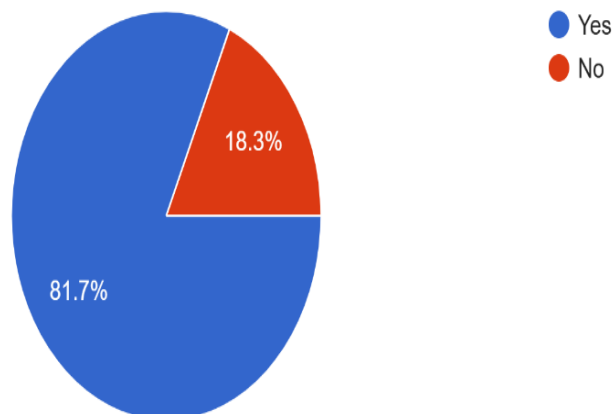


Interpretation: The analysis indicates that career planning behavior is largely consistent across different student groups. Most students demonstrate a positive attitude toward internships and skill development activities. Although minor differences exist in confidence levels and access to career guidance, the overall approach to career preparation is similar among students.

5.5 Importance of Internships in Career Planning

Does Internship Plays a Vital role for Career Planning ?

82 responses

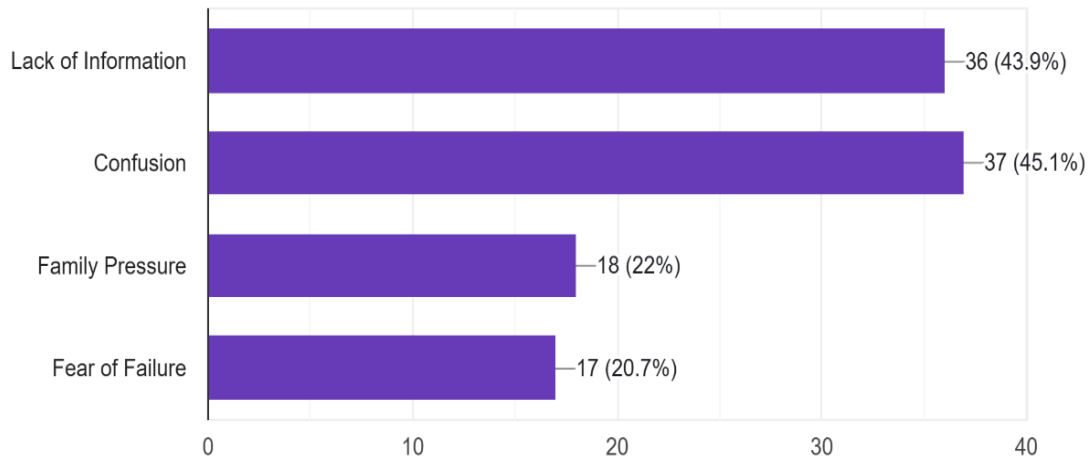


Interpretation: A large majority of students believe internships play an essential role in career planning. This indicates that most students recognize the importance of practical exposure and real-world experience in preparing for their future professions. The strong support for internships suggests that students value hands-on learning opportunities as an important part of career development.

5.6 Challenges Faced by Students in Career Planning

What is the biggest problem you face while planning your career?

82 responses



Interpretation: The main difficulties students face include lack of proper information, uncertainty about career options, and insufficient guidance. Some students also experience pressure from family expectations and fear of making the wrong choice. Many believe that better career counseling could reduce confusion and help them make more confident decisions.

6. Conclusion:

This study shows that career planning has become an important part of students' lives, especially in today's competitive world. Most college students are aware of the need to plan their careers and understand the skills and qualifications required for their chosen fields. However, some students still feel confused and unsure about their career direction because they do not always receive enough proper guidance or information.

The study also makes it clear that colleges and teachers play an important role in helping students with career decisions. Many students appreciate the support they get from their teachers, but there is still a need for more organized and easily available career counseling services in colleges. Better counseling can help students gain confidence and clarity about their future.

Students mainly choose careers based on their personal interests, while also considering job opportunities, salary, and family expectations. Most students strongly believe that internships and skill-development activities are very helpful because they provide real-world experience and improve career readiness. In conclusion, successful career planning depends on the combined efforts of students and educational institutions.

7. Limitations:

- The study is limited to a small group of college students and may not represent all institutions.

- The research relies on self-reported data, which may sometimes include personal bias.
- Time limitations affected the size of the sample.

8. References:

Source: ResearchGate — <https://share.google/emyDUMdWjJZVewQ0C>

Source: SPIE Digital Library — <https://share.google/hW0SkJRy0t6HIUzcS>

Shodh Sarita (2021): Career Choice Among College Students. Source: NGM College — Pollachi — <https://share.google/DTKxgzYHlctGWZzn7>



A Study on Relationship Between CIBIL Score and Investment Opportunities

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Abstract:

In today's modern financial world, a person's credit score has become an important indicator of their financial reliability and discipline. The CIBIL score reflects an individual's credit history and repayment behaviour. This study focuses on understanding how CIBIL scores indirectly influence investment opportunities by shaping an individual's financial credibility, borrowing ability, and overall financial confidence. The study suggests that while a CIBIL score does not directly determine investment success, it acts as a strong foundation that can support better financial opportunities and long-term financial growth.

Keywords: *CIBIL Score, Creditworthiness, Investment Opportunities, Financial Decision-Making*

1. Introduction:

A CIBIL score is a three-digit number that represents how responsibly a person manages their credit. It is calculated based on repayment history, outstanding loans, credit card usage, and number of credit inquiries. A high score usually shows that a person is financially disciplined and trustworthy, while a low score may indicate irregular payments or financial stress. Investment opportunities depend not only on knowledge and interest but also on financial capacity and access to funds. Individuals with higher credit scores often have better chances of getting loans or credit support, which can be used for investment purposes.

2. Review of Literature:

Dr. Neha Sharma (2023): Findings indicate that individuals with strong credit scores tend to experience fewer financial barriers and are more confident in exploring investment options like mutual funds, property, or starting a business.

Prof. Amit Verma (2022): Findings suggest that people with higher credit scores not only have better access to loans but also feel more financially secure while making investment decisions. Creditworthiness plays a significant role in shaping investment opportunities.

3. Scope of Study:

Conceptual Scope: Examines how credit behaviour influences chances of accessing different financial and investment options and highlights the importance of financial literacy in building creditworthiness.

Geographical Scope: Respondents residing in Khopoli — a developing town with growing working professionals, small business owners, and middle-income families.

4. Objectives:

1. To study the level of awareness about CIBIL scores among individuals.
2. To examine how CIBIL score influences access to investment-related financial products.
3. To understand the relationship between creditworthiness and investment behaviour.

4. To suggest ways to improve credit awareness and promote better investment planning.

5. Hypothesis:

H₀: Awareness of CIBIL score does not significantly influence the perceived access to investment opportunities.

H₁: Awareness of CIBIL score significantly influences the perceived access to investment opportunities.

6. Research Methodology:

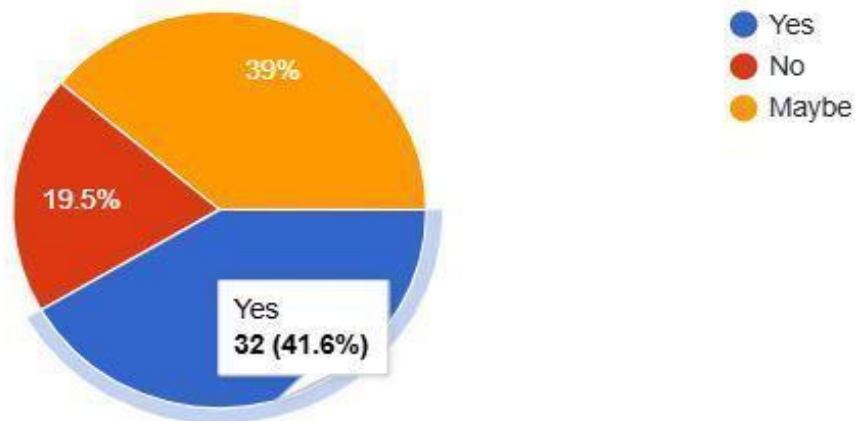
Research Design: Descriptive research using structured questionnaire. 77 respondents from Khopoli.

Statistical Tools: Simple Linear Regression analysis.

7. Data Analysis and Interpretation:

8. Do you feel a low CIBIL score limits participation in certain investment avenues?

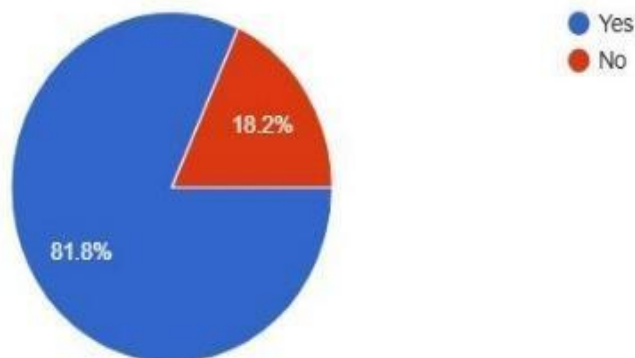
77 responses



Interpretation 1: Most respondents (81.8%) have at least heard about the CIBIL score. This shows that the concept is no longer unfamiliar, and people are becoming more financially aware.

1. Are you aware of the concept of a CIBIL score?

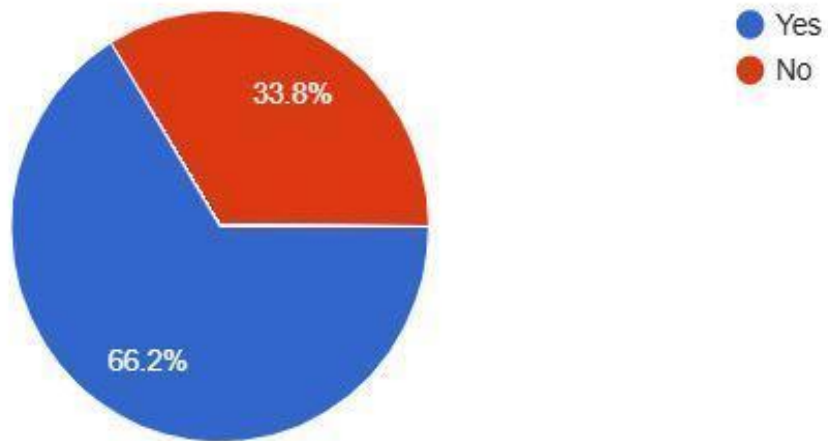
77 responses



Interpretation 2: While many respondents know the score range, a significant portion still doesn't. This tells us that awareness exists, but deeper financial understanding is still developing.

2. Do you know the approximate range of CIBIL scores?

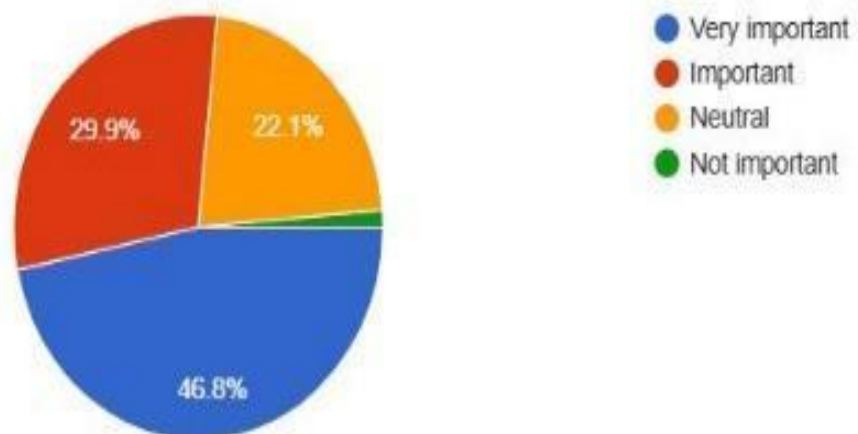
77 responses



Interpretation 3: Very few check their score regularly, even though many know it is important. This suggests that financial responsibility is recognized, but not always practiced consistently.

3. In your opinion, how important is a CIBIL score in financial decision-making?

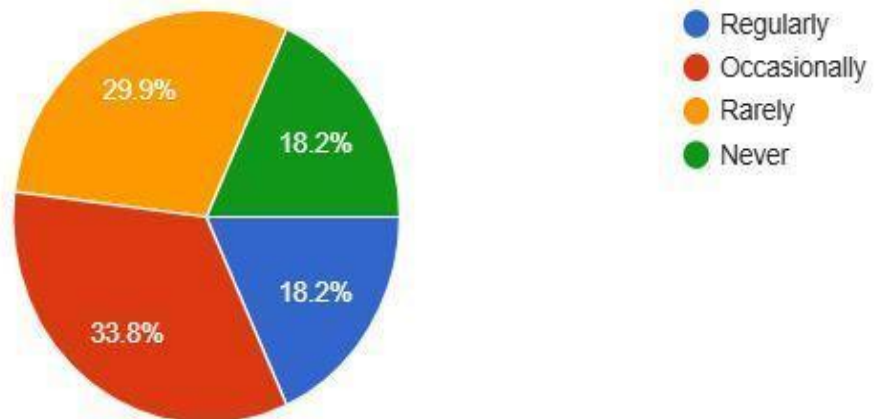
77 responses



Interpretation 4: Most people connect CIBIL score mainly with loans and credit cards. However, fewer respondents link it to investments, showing some confusion about its wider impact.

4. How often do you check your CIBIL score?

77 responses

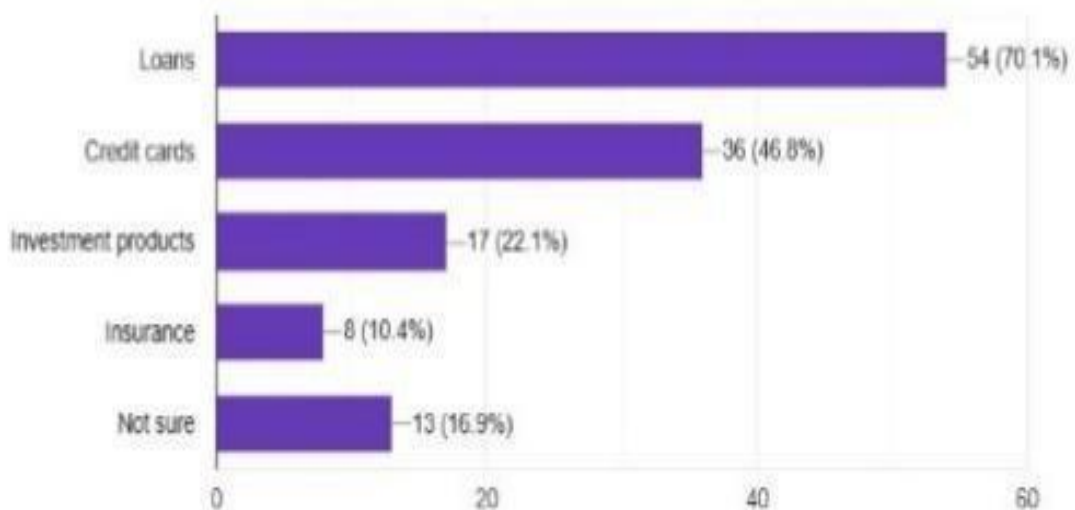


Interpretation 5: Many respondents are unsure whether banks consider CIBIL score for investment-related products. This uncertainty reflects a gap in understanding how credit profile may affect investment access.

5. Which financial products do you think are influenced by CIBIL score?

[Copy chart](#)

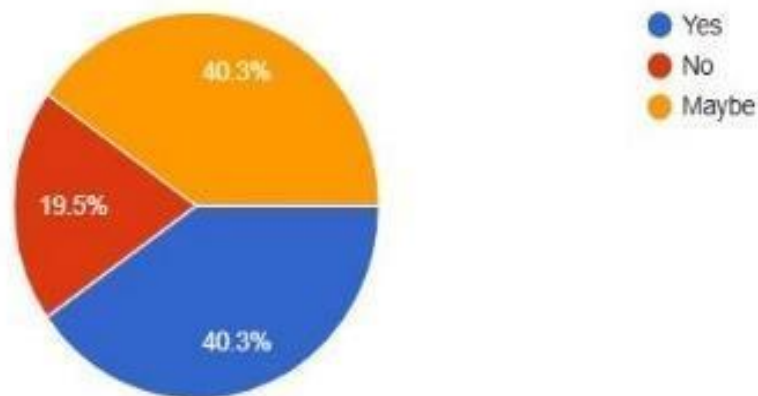
77 responses



Interpretation 6: Some believe a good CIBIL score makes certain investments easier, but many are not aware. This highlights limited clarity about the relationship between creditworthiness and investment benefits.

6. According to you, banks consider CIBIL score before offering investment-related products?

77 responses

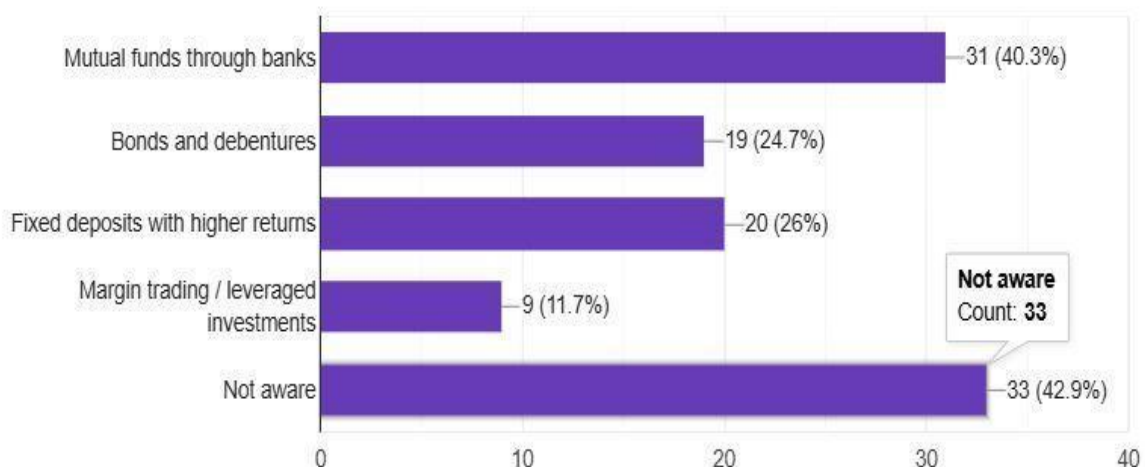


Interpretation 7: A noticeable number feel that a low CIBIL score can restrict investment opportunities. This shows that credit score is seen as a potential financial barrier.

7. Which investment options do you think are easier to access with a good CIBIL score?

[Copy chart](#)

77 responses



Interpretation 8: A strong majority believe the CIBIL score plays an important role in financial decisions. People clearly see it as something that can shape their financial opportunities and future.

8. Statistical Analysis — Regression:

Independent Variable	Dependent Variable	Beta (β)	R	R ²	Model Type
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A Study on Relationship Between CIBIL Score and Investment Opportunities

Awareness of CIBIL Score	Perceived Investment Accessibility	0.49	0.49	0.24	Simple Linear Regression
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Beta ($\beta = 0.49$) indicates a moderate positive relationship. $R^2 = 0.24$ implies that approximately 24% of the variation in investment access perception is explained by CIBIL awareness. The null hypothesis H_0 is rejected and H_1 is accepted.

9. Conclusion:

The study highlights the significant relationship between CIBIL scores and investment opportunities. Individuals with higher CIBIL scores enjoy wider access to investment avenues and demonstrate greater confidence in investment decisions. A strong credit score reflects disciplined financial behaviour, improving loan eligibility and supporting long-term investment planning. Encouraging responsible credit usage, timely repayments, and financial literacy can help individuals improve their credit scores and simultaneously enhance their investment opportunities.

10. Limitations:

- The study is limited to 77 respondents, which may not fully represent the wider population.
- Many respondents showed uncertainty in investment-related questions, indicating limited financial literacy.
- Responses are based on personal perceptions rather than verified financial behaviour.
- The study does not differentiate responses based on income, occupation, or financial background.

11. References:

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A Study on Robo-Advisory Service In The Selection Of Life Insurance Policy

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Abstract:

This study examines the awareness, usage, satisfaction, and perceived effectiveness of robo-advisory services in the context of life insurance policy selection. Robo-advisors are AI-powered platforms that provide automated, algorithm-based financial advice. The research is based on primary data collected through a structured questionnaire. The findings indicate that respondents have moderate awareness and show cautious interest in robo-advisory services, but still prefer a combination of human and digital guidance for critical financial decisions like life insurance selection.

Keywords: *Robo-Advisory, Life Insurance, Digital Finance, AI in Financial Planning, Insurance Selection*

1. Introduction:

Robo-advisory services represent a significant evolution in the financial services industry. These are digital platforms that use algorithms, artificial intelligence, and machine learning to provide automated, personalised financial advice with minimal human intervention. Originally developed for investment portfolio management, robo-advisors are now being applied across various financial domains including retirement planning, tax optimization, and increasingly, insurance selection. Life insurance is a critical financial product that provides financial security to individuals and their families. Selecting the right policy can be complex, involving careful evaluation of coverage amounts, premium costs, policy terms, and individual risk profiles.

2. Review of Literature:

Fisch, Labouré & Turner (2019): Examined the emergence of robo-advisors and their role in democratizing financial advice. Found that trust and algorithmic transparency remain key challenges for wider adoption.

Belanche, Casaló & Flavián (2019): Studied robo-advisory adoption in FinTech and found that perceived usefulness and ease of use are key adoption drivers, while concerns about data security act as barriers.

Jung, Dorner, Glaser & Morana (2018): Explored digital financial advisory and concluded that hybrid models combining human and digital advice are preferred by users for high-involvement financial decisions.

3. Objectives:

1. To study the awareness level of robo-advisory services among respondents.
2. To understand the level of trust and satisfaction with robo-advisory services.

3. To examine the perceived effectiveness of robo-advisory services in life insurance selection.
4. To assess future preferences for human versus robo-advisory services.

4. Hypothesis:

H₀₁: There is no positive relationship between satisfaction with robo-advisory services and future preference for such services.

H₁₁: There is a positive relationship between satisfaction with robo-advisory services and future preference for such services.

H₀₂: Robo-advisory services are not perceived as effective in selecting life insurance policies.

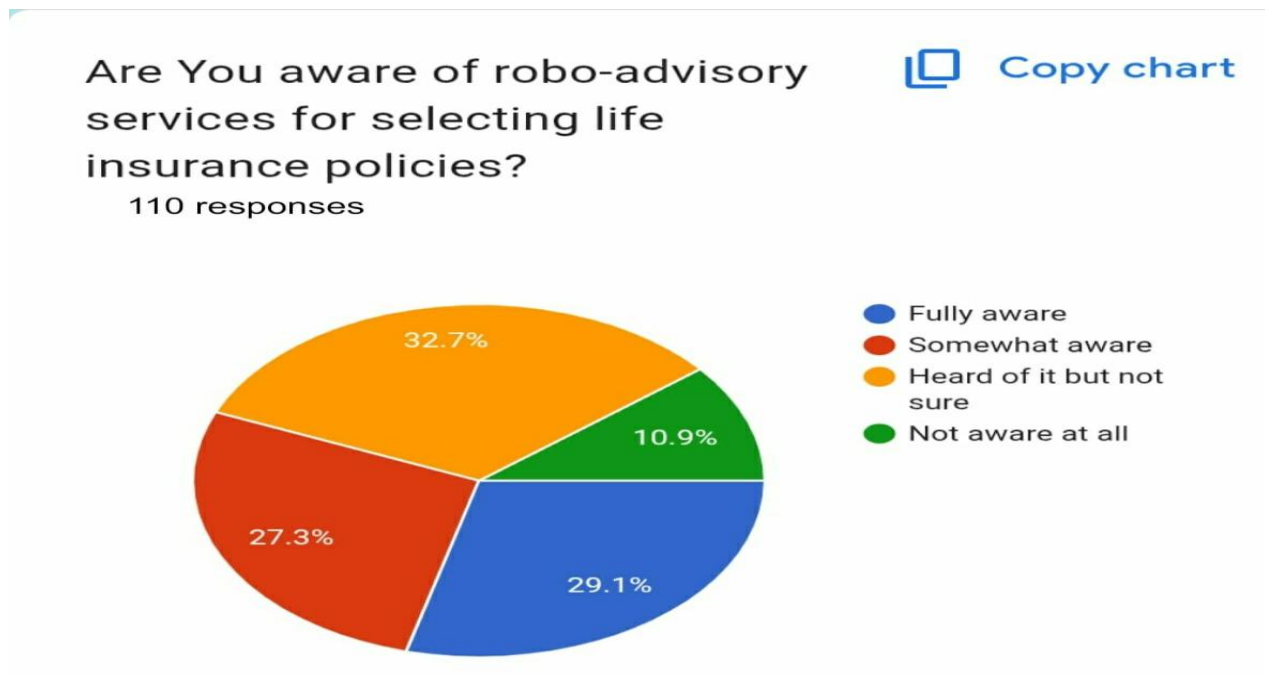
H₁₂: Robo-advisory services are perceived as effective in selecting life insurance policies.

5. Research Methodology:

Research Design: Descriptive research using structured questionnaire. Mean analysis on 4-point Likert scale.

6. Data Analysis and Interpretation:

6.1 Awareness of Robo-Advisory Services



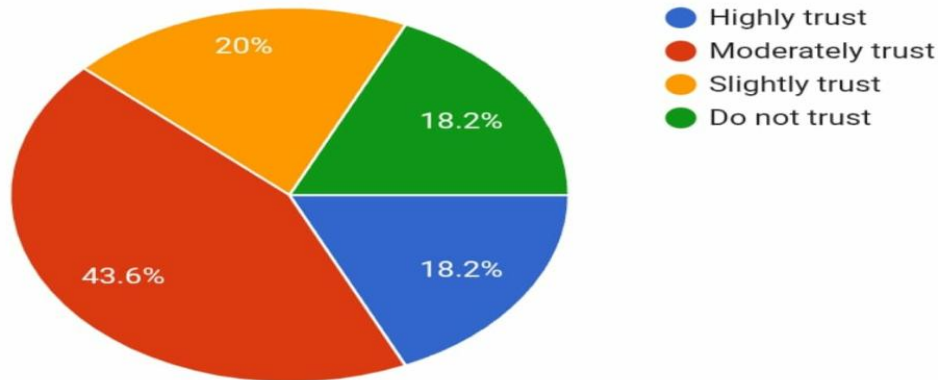
Interpretation: Many respondents have heard of robo-advisory services but have limited in-depth understanding. This moderate awareness indicates that these services are gaining visibility but have not yet achieved widespread recognition.

6.2 Level of Trust in Robo-Advisory Services

How much you trust robo-advisory recommendation for life insurance?

110 responses

 Copy chart



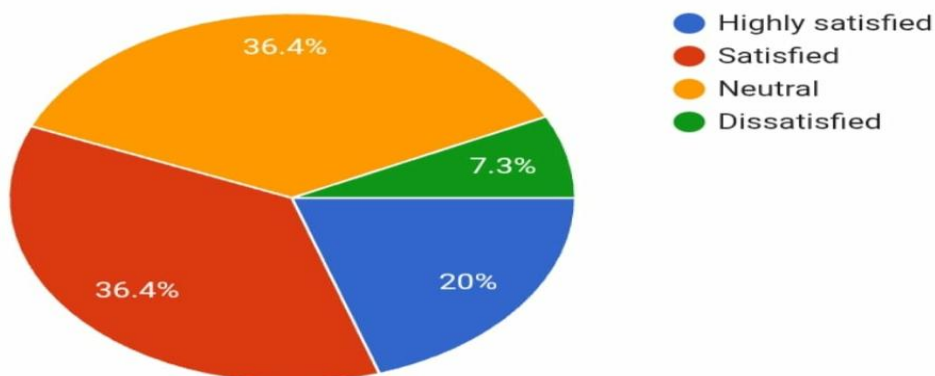
Interpretation: Respondents show cautious trust toward robo-advisory services. While a portion expressed confidence in algorithm-based advice, many remain hesitant, indicating that trust-building through transparency is crucial.

6.3 Satisfaction with Robo-Advisory Services

How satisfied are you with policy recommendations given by robo-advisors?

110 responses

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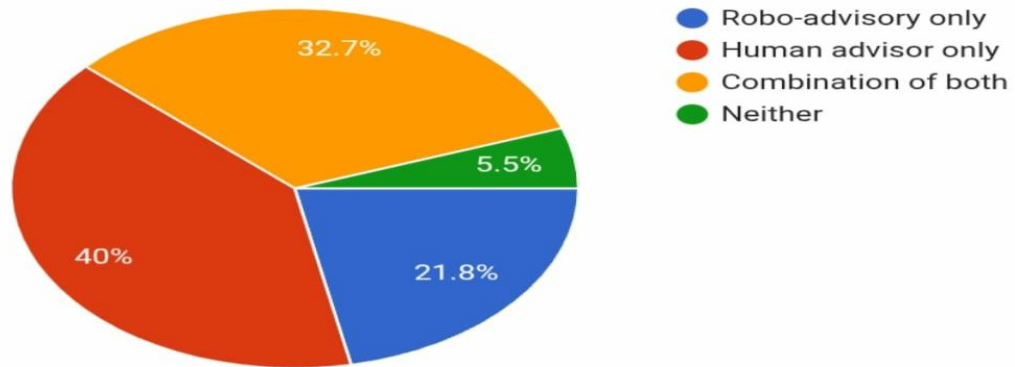


Interpretation: The satisfaction mean score of 2.65 on a 4-point scale indicates moderate satisfaction. Improvement in personalization and user experience could enhance satisfaction further.

6.4 Future Preference for Advisory Method

In the future, which advisory method would you prefer for life insurance?
110 responses

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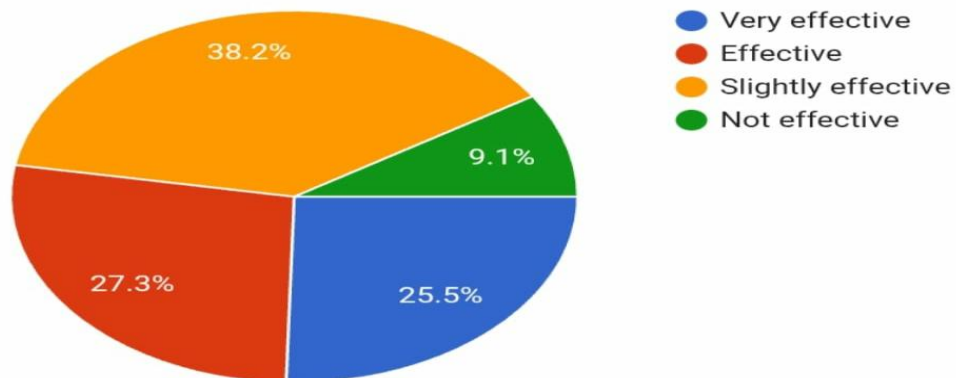


Interpretation: A substantial portion prefers hybrid models combining human and digital advice. Pure robo-advisory preference remains limited, suggesting personal human interaction remains valued for critical insurance decisions.

6.5 Perceived Effectiveness of Robo-Advisory Services

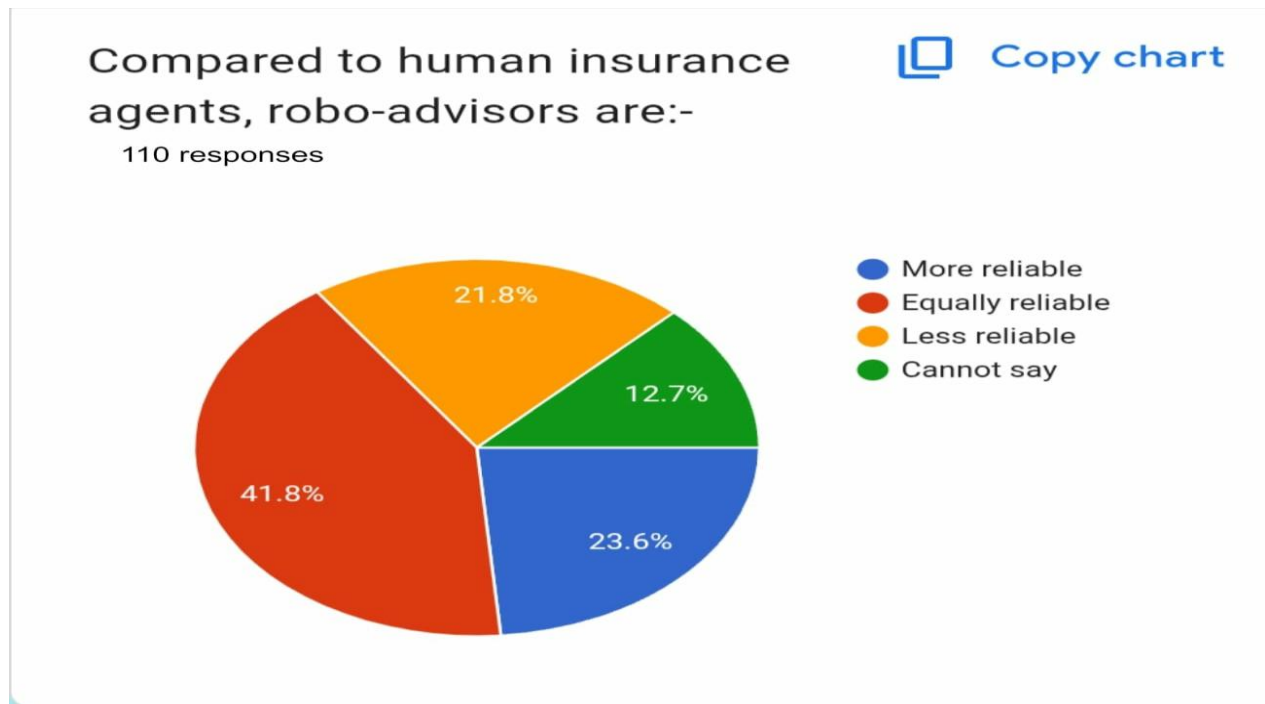
How effective are robo-advisors in understanding your insurance needs?
110 responses

 Copy chart



Interpretation: Mean effectiveness score of 2.69 — above the midpoint of 2.5. Over 52% rated robo-advisors as Effective or Very Effective, confirming positive perception of their effectiveness.

6.6 Preference: Human vs Robo-Advisory



Interpretation: A significant majority prefer either a human advisor or a hybrid model. This reflects that while digital tools are appreciated for efficiency, personal guidance remains important for life insurance decisions.

7. Hypothesis Testing:

Hypothesis 1: Mean satisfaction = 2.65, Mean future preference = 2.71 (both above midpoint 2.5). H_{01} is rejected; H_{11} is accepted.

Hypothesis 2: Mean effectiveness = 2.69, over 52% rated Effective or Very Effective. H_{02} is rejected; H_{12} is accepted.

8. Conclusion:

Overall, the study shows that robo-advisory services are slowly becoming a part of the life insurance decision process, but have not fully replaced human guidance. People generally show a moderate level of trust and satisfaction. A large number prefer either a human advisor or a mix of both. Robo-advisory services have promising potential, but improving awareness, confidence, and personalization will be important for their future growth.

9. Limitations:

- Limited Sample Size — results may not fully represent the wider population.
- Geographical Limitation — findings may not apply to other regions.
- Partial Awareness — some participants may not have complete knowledge about robo-advisory services.
- Response Bias — participants might have answered based on assumptions rather than actual experience.
- Time-Bound Study — attitudes toward technology may change in the future.

10. References:

Robo-Advisor - Wikipedia. <https://en.wikipedia.org/wiki/Robo-advisor>

Fisch, J. E., Labouré, M., & Turner, J. A. (2019). The Emergence of the Robo-Advisor. Oxford University Press.

- Belanche, D., Casaló, L. V., & Flavián, C. (2019). Artificial intelligence in FinTech. *Journal of Service Management*.
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A Study on Role of AI in Recruitment and Its Impact on Job Profile Offered

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Abstract:

Artificial Intelligence (AI) has rapidly transformed various business functions, including human resource management and recruitment. Organizations are increasingly adopting AI-driven tools to streamline hiring processes, improve efficiency, and reduce bias in candidate selection. This study examines the role of Artificial Intelligence in recruitment and its impact on the job profiles offered to candidates. The research focuses on how AI technologies such as automated resume screening, chatbots, predictive analytics, and video interview analysis are reshaping traditional recruitment practices.

Keywords: *Artificial Intelligence, Recruitment, Job Profiles, HR Technology, Digital Hiring, Automation*

1. Introduction:

The use of Artificial Intelligence in recruitment has evolved alongside the development of computer technology and digital human resource systems. AI in HR began with simple applicant tracking systems (ATS) in the 1990s, and has since expanded to include sophisticated tools like resume parsers, predictive analytics, chatbots, and video interview platforms. Today's AI recruitment tools can screen thousands of resumes in seconds, assess candidates through behavioural analysis, and even predict job performance based on historical data. As companies deploy more digital systems and data-driven decision-making, job profiles are evolving to emphasize technical skills, adaptability, and digital literacy.

2. Review of Literature:

Tambe et al. (2019): Highlighted that AI enables faster candidate screening and more accurate matching, but also raised concerns about algorithmic bias and lack of transparency in automated decision-making.

Raghavan et al. (2020): Found that AI-based hiring tools may perpetuate existing biases if trained on historically skewed data, emphasizing the need for regular auditing of AI recruitment systems.

Hmoud & Varallyai (2020): Concluded that AI enhances recruitment efficiency significantly but human oversight remains critical, particularly for senior positions requiring judgment and interpersonal skills.

3. Objectives:

1. To understand the role of AI tools in modern recruitment processes.
2. To examine how AI-based recruitment affects job skill requirements and profiles.
3. To assess perceptions of fairness, accuracy, and efficiency in AI-driven hiring.
4. To identify challenges faced by candidates in AI-based recruitment.

4. Research Methodology:

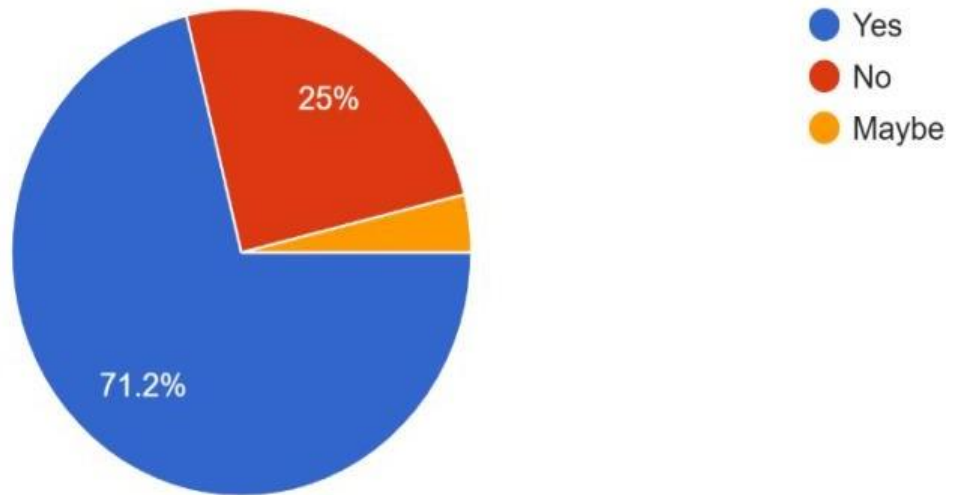
Research Design: Descriptive and analytical study using structured questionnaire. Primary data from students and working professionals.

5. Data Analysis and Interpretation:

5.1 Awareness of AI Usage in Recruitment

Are you aware that companies use AI in recruitment?

52 responses

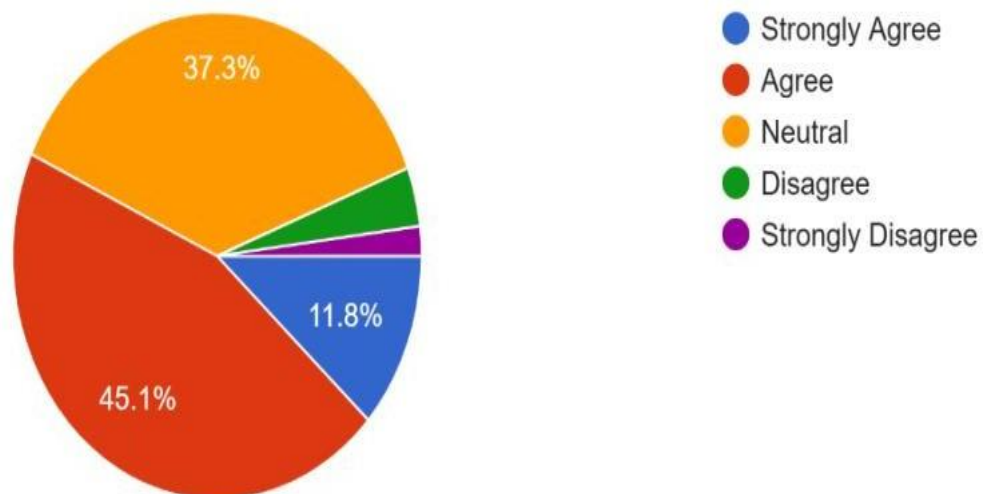


Interpretation: A large majority are aware that companies use AI in recruitment, indicating students and professionals understand the growing role of technology in hiring processes.

5.2 Perceived Improvement in Accuracy

Do you believe AI improves accuracy in candidate selection?

51 responses

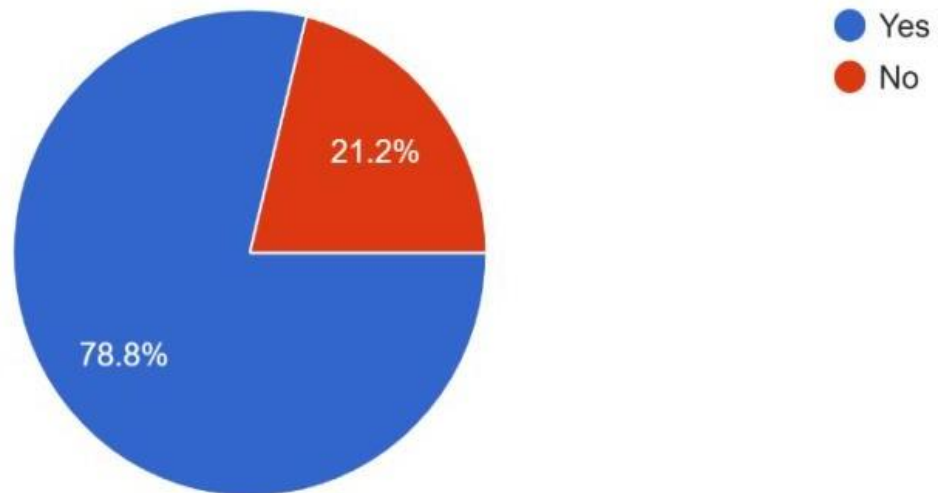


Interpretation: More than half believe AI improves the accuracy of candidate selection, suggesting trust in AI-based screening systems for objective evaluation of resumes and profiles.

5.3 Change in Job Skill Requirements Due to AI

Do you think AI has changed the skill requirements for jobs?

52 responses

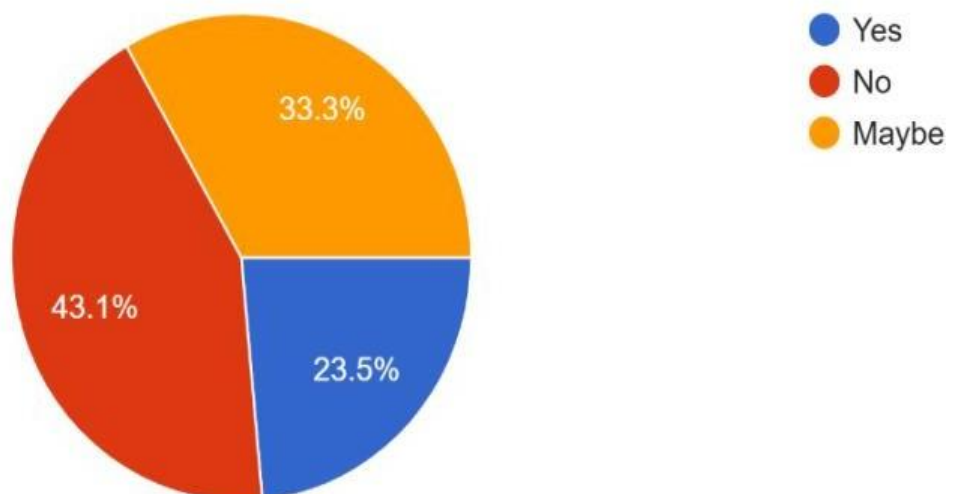


Interpretation: A strong majority believe AI has changed job skill requirements, recognizing the growing importance of digital and technical competencies in the modern job market.

5.4 Fairness of AI-Based Recruitment

Do you feel AI-based recruitment is fair?

51 responses

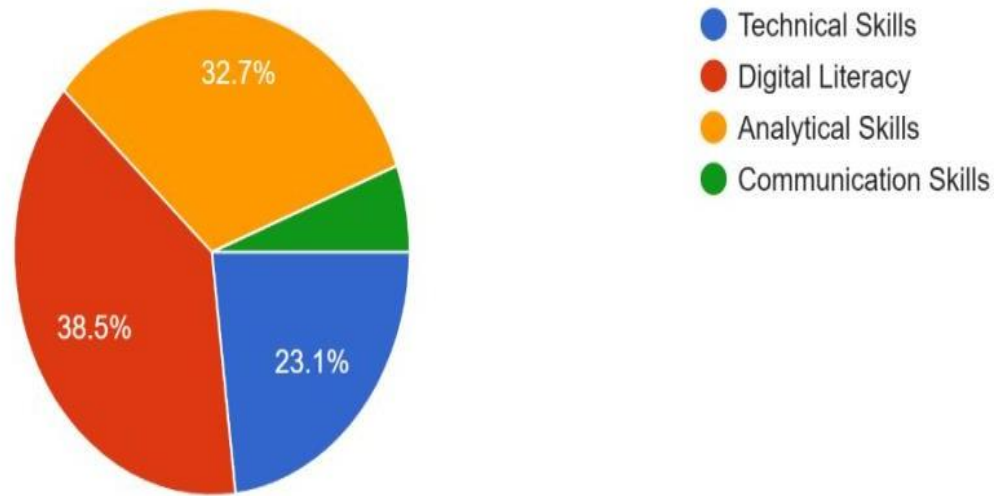


Interpretation: 43.1% feel AI-based recruitment may not be fair, indicating concerns about bias, transparency, or lack of human judgment in automated systems.

5.5 AI and Reduction of Human Judgment

According to you, which skills are more important due to AI?

52 responses

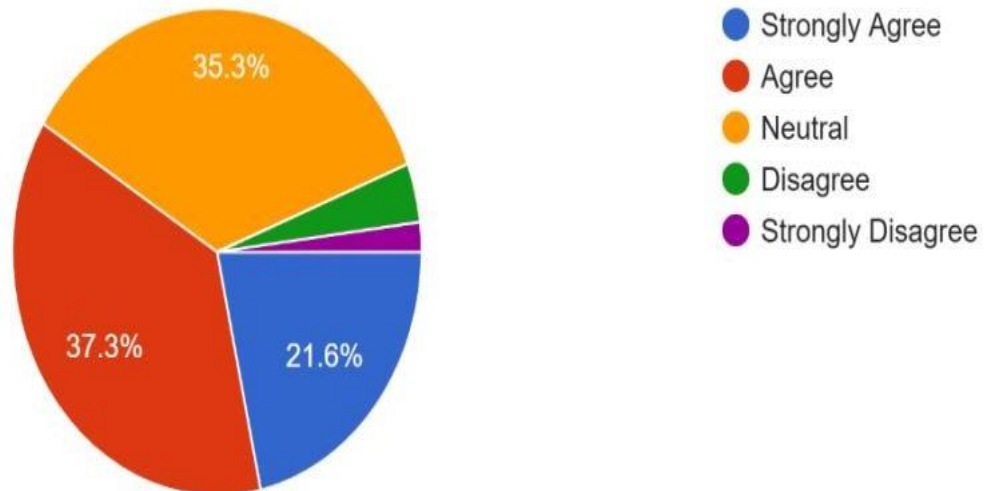


Interpretation: Nearly 59% agree that AI reduces human judgment in hiring, suggesting concern about decreased personal interaction and oversight in recruitment decisions.

5.6 AI's Impact on Recruitment Speed

Do you think AI may reduce human judgment in hiring?

51 responses

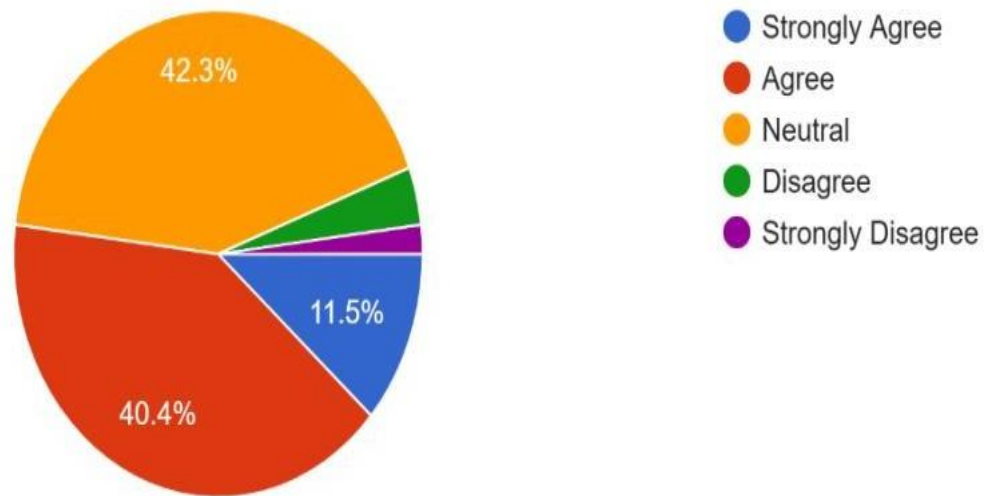


Interpretation: Around 52% believe AI makes recruitment faster, while 42% remain neutral, showing moderate confidence in AI's efficiency with some uncertainty about its actual impact.

5.7 Most Important Skills in AI-Driven Job Market

Do you think AI makes recruitment faster?

52 responses



Interpretation: Digital literacy and analytical skills are considered most important in the AI era, while communication skills received fewer responses — reflecting more technically oriented job expectations.

6. Overall Findings:

- Students are generally aware of AI in recruitment.
- Most believe AI improves accuracy and changes job skill requirements.
- Concerns exist regarding fairness and reduction of human judgment.
- Digital literacy and analytical skills are seen as most important in AI-driven job market.
- Respondents show mixed opinions about speed and fairness of AI-based recruitment.

7. Observations, Recommendations and Suggestions:

7.1 Observations

- High Awareness of AI Usage among respondents.
- Perceived Improvement in Accuracy — more than half believe AI improves candidate selection.
- Change in Skill Requirements — digital literacy and analytical thinking are now critical.
- Concerns About Fairness — many expressed doubts about algorithmic bias.
- Reduction in Human Judgment — significant portion believes AI limits personal interaction.

7.2 Recommendations

- Companies should combine AI tools with human decision-making to ensure fairness.
- Organizations should clearly explain how AI systems evaluate candidates to reduce fear.
- Regular audits of AI systems should be conducted to minimize algorithmic bias.
- Educational institutions should introduce training programs focusing on digital literacy and AI tools.
- Seminars and workshops should be organized to educate students about AI in recruitment.

7.3 Suggestions

- For Companies: Use AI for initial screening but involve HR professionals in final decisions.

A Study on Role of AI in Recruitment and Its Impact on Job Profile Offered

- For Students: Focus on developing technical, analytical, and digital skills. Stay updated with AI trends.
- For Educational Institutions: Include AI and digital skill training in curriculum. Provide career guidance related to emerging AI-based job roles.

References:

- Tambe, P., et al. (2019). *Artificial intelligence in recruitment: Opportunities, challenges, and implications for candidate selection.*
- Raghavan, M., et al. (2020). *Mitigating bias in AI-based hiring systems: Challenges and the need for algorithmic auditing.*
- Hmoud, B., & Varallyai, L. (2020). *Artificial intelligence in human resource management: Enhancing recruitment efficiency while maintaining human oversight.*



A Study on the Awareness Level of Personal Finance Among Gen-Z: A Comprehensive Study

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Abstract:

This study examines the level of personal finance awareness among Generation Z and their understanding of basic financial concepts such as budgeting, saving, and investing. The research is based on primary data collected through a questionnaire from 120 respondents along with secondary data. The findings show that many Gen Z individuals have basic financial knowledge but still lack deeper understanding of investment and long-term financial planning. The study highlights the importance of financial education programs and awareness initiatives to help young individuals make informed financial decisions.

Keywords: *Generation Z, Personal Finance, Financial Literacy, Budgeting, Saving, Investment Awareness*

1. Introduction:

1.1 History

The concept of personal finance has developed with the growth of banking systems, investment options, and digital financial services. After economic liberalization in India in 1991, financial products and services became more accessible. With the rise of digital platforms, Generation Z now has greater exposure to financial information, making financial awareness increasingly important.

1.2 Significance of the Study

This study is important as it helps understand the level of personal finance awareness among Generation Z. It highlights the need for financial literacy to help young individuals manage money and make better financial decisions.

1.3 Statement of the Problem

Although Generation Z has access to various financial services and information, many lack proper knowledge of financial planning, saving, and investment. This study aims to examine their level of awareness and identify gaps in their financial knowledge.

2. Review of Literature:

Lusardi, A. (2019): The study highlights the importance of financial literacy and its positive impact on financial decision-making, emphasizing that financial education helps individuals manage money effectively and improve financial wellbeing.

Atkinson & Messy (2020): Examined financial literacy across different demographics and found that younger generations often lack adequate financial knowledge, particularly in areas of investment and retirement planning.

NCFE-NISM Report (2021): India-specific study showing that financial literacy levels among urban youth are moderate, with higher awareness of basic savings but limited understanding of investment instruments.

3. Objectives:

1. To assess the level of personal finance awareness among Generation Z.
2. To examine the relationship between financial literacy and awareness levels.
3. To identify gaps in financial knowledge among Gen Z individuals.
4. To recommend strategies for improving financial education among young people.

4. Research Methodology:

Primary Data: Structured questionnaire from 120 Gen Z respondents.

Secondary Data: Journals, reports, and financial literacy surveys.

Statistical Tools: Mean analysis and graphical representation.

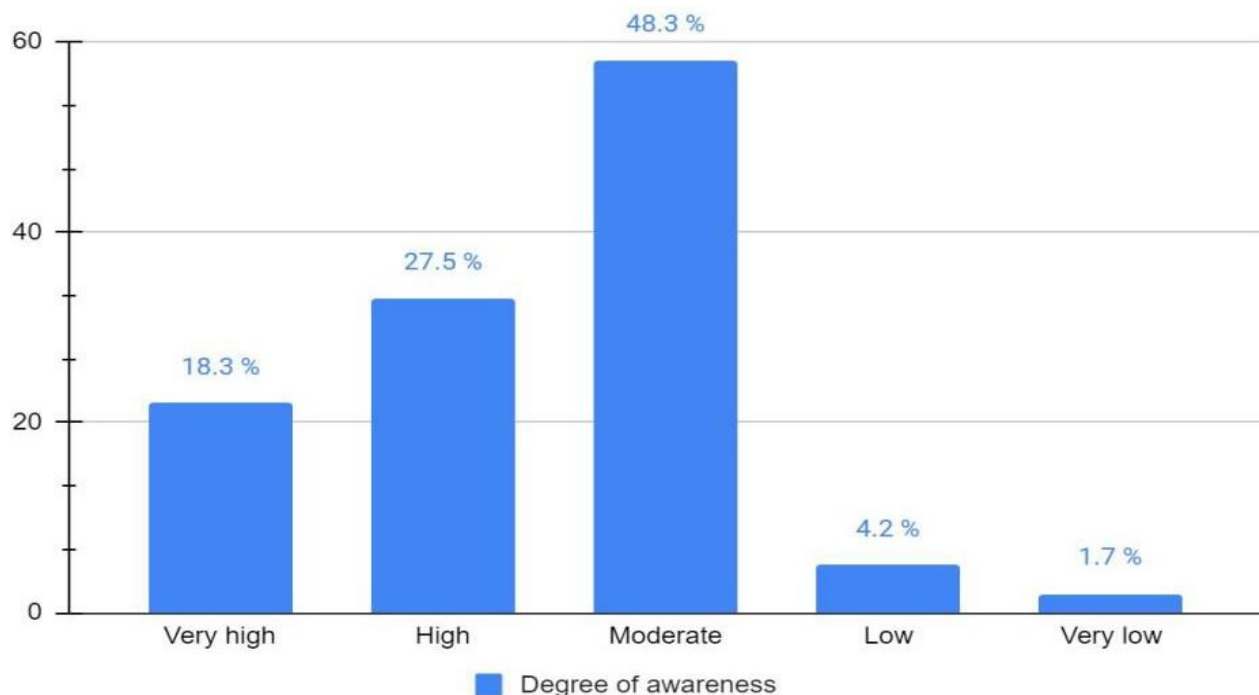
5. Hypothesis:

H₀: There is no significant relationship between financial literacy and personal finance awareness among Generation Z.

H₁: There is a significant relationship between financial literacy and personal finance awareness among Generation Z.

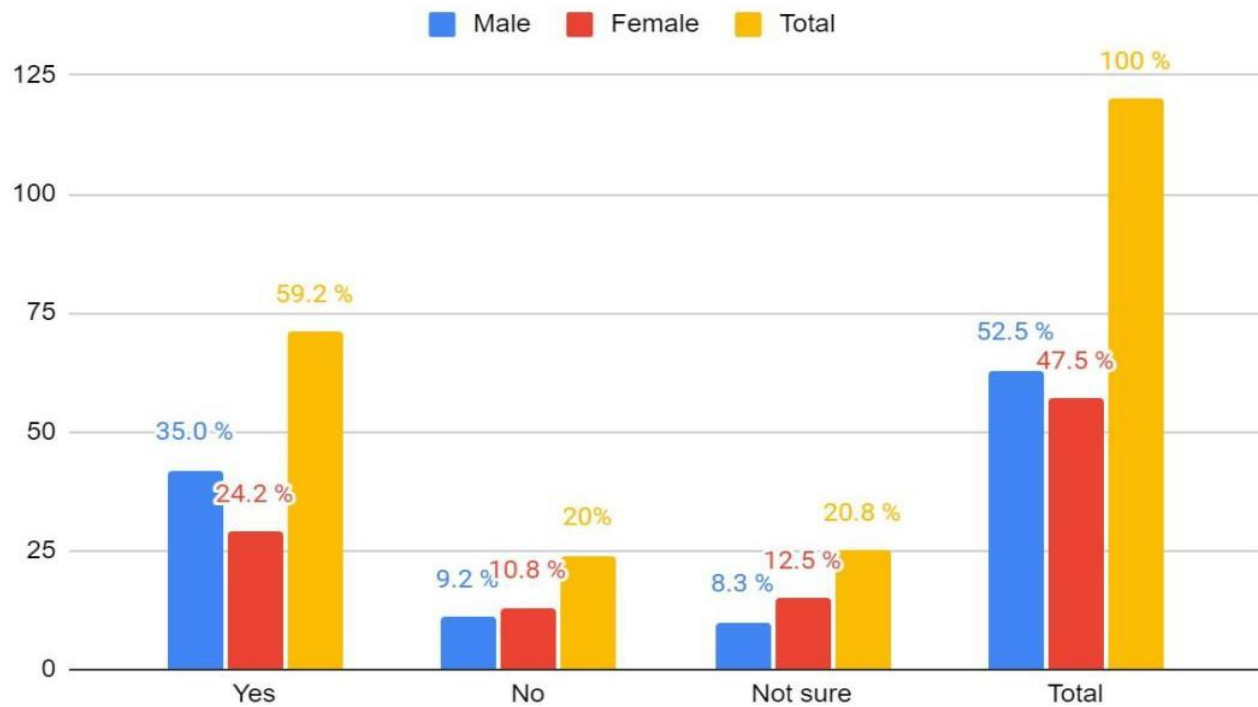
6. Data Analysis and Interpretation:

6.1 Personal Finance Awareness Level among Gen Z



Interpretation: Approximately 48.3% consider their awareness as Moderate, 27.5% as High, 18.3% as Very High. Only 4.2% express Low awareness and 1.7% Very Low — reflecting a predominantly moderate-to-high awareness level among Gen Z respondents.

6.2 Gender-wise Awareness of Personal Finance Among Gen Z



Interpretation: 59.2% affirm their understanding of Personal Finance concepts (35.0% male, 24.2% female). 20.8% express uncertainty. The segment indicating lack of awareness is smaller at 20%, with both genders collectively stating they are not informed.

7. Mean Analysis of Financial Knowledge:

Category	No. of Respondents	Mean
No Knowledge	20	20
Basic Knowledge	65	65
Good Knowledge	35	35
Total	120	120

Analysis: The highest number fall under basic knowledge (65), indicating most Gen Z individuals have some understanding of personal finance. Financial literacy plays an important role in improving personal finance awareness. H_0 is rejected; H_1 is accepted.

8. Observations, Recommendations and Suggestions:

8.1 Observations

- Most Gen Z respondents have basic knowledge of personal finance, but understanding of advanced concepts is limited.
- Social media and online platforms are major sources of financial information for young individuals.
- Many respondents are aware of saving and budgeting, but fewer have knowledge about investment and financial planning.

8.2 Recommendations

- Educational institutions should introduce financial literacy programs.
- Workshops and seminars on saving, budgeting, and investment planning should be conducted.

- Social media platforms can be used to spread accurate financial knowledge and awareness.

8.3 Suggestions

- Financial education should be included as a part of the academic curriculum.
- Universities should organize financial awareness campaigns and workshops regularly.
- Regular surveys should be conducted to evaluate the level of financial awareness among Generation Z.

9. Conclusion:

The study found that while many young individuals have basic knowledge about financial concepts such as saving and budgeting, their understanding of advanced topics like investment and financial planning is still limited. Social media, online platforms, and educational sources play an important role in spreading financial information among Generation Z. Increasing financial education through workshops, seminars, and academic programs can significantly improve the financial awareness of Generation Z. Improving financial knowledge at an early stage can help young people develop better financial habits and achieve long-term financial stability.

10. References

- Annamaria Lusardi. (2019). *The importance of financial literacy and its impact on financial decision-making and financial well-being.*
- Atkinson, A., & Messy, F.-A. (2020). *Financial literacy across demographic groups: Investment knowledge and retirement planning among younger generations.*
- National Centre for Financial Education, & National Institute of Securities Markets. (2021). *NCFE–NISM financial literacy report: Financial literacy among urban youth in India.*



A Study on the Comparative Analysis of SIP (Systematic Investment Plan) vs. LSI (Lumpsum Investment) in Mutual Funds

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Abstract:

The study evaluates two primary mutual fund investment strategies — Systematic Investment Plans (SIPs) and Lump Sum Investments (LSI) — to understand their respective risks, return potentials, and overall suitability for different investors. While SIPs foster financial discipline by allowing individuals to invest fixed amounts periodically and mitigate market volatility through rupee cost averaging, LSI involves deploying a large capital amount at once, which may yield higher returns but exposes the investor to immediate market risks.

Keywords: *Investment Strategies, Systematic Investment Plans, Lumpsum Investments, Mutual Funds, Wealth Creation*

1. Introduction:

Mutual funds have emerged as a dominant vehicle for investors seeking better growth than conventional savings accounts. Pooled resources from multiple individuals are managed by financial experts and distributed across asset classes like equities, bonds, and other securities.

SIP (Systematic Investment Plan): An investment route where an individual allocates a predetermined, fixed amount of money into a mutual fund at regular intervals — usually monthly or quarterly. SIPs buffer the portfolio against market volatility by acquiring units across varying market highs and lows.

Lumpsum Investment (LSI): The process of depositing a significant, one-time bulk amount into a mutual fund. Generally chosen by individuals who have suddenly acquired surplus capital. Carries higher risk if the market declines shortly after investment.

2. Scope, Significance and Objectives:

This research evaluates SIP and LSI as the two primary mutual fund investment avenues, contrasting them in return generation, risk exposure, convenience, and demographic suitability. The scope is confined to these two mutual fund strategies, aiming to empower readers to make choices tailored to their personal risk profiles.

1. To identify investor preferences between SIP and LSI based on income levels, life goals, and risk tolerance.
2. To analyze how market volatility impacts long-term wealth generated by both SIP and LSI.
3. To determine and recommend the most suitable investment approach for various investor profiles.

3. Hypothesis:

H₀: There is no significant relationship between an investor's risk appetite and their preference for SIP or Lump Sum Investment.

H₁: There is a significant relationship between an investor's risk appetite and their preference for SIP or Lump Sum Investment.

4. Research Methodology:

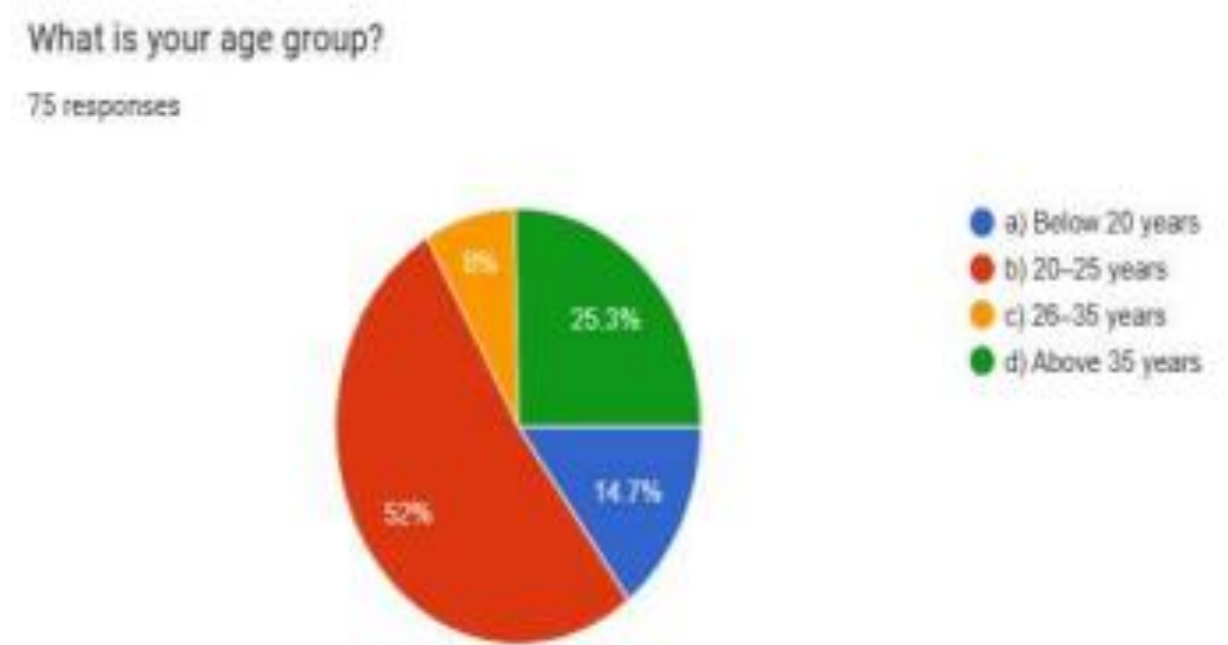
A Study on the Comparative Analysis of SIP (Systematic Investment Plan) vs. LSI (Lumpsum Investment) in Mutual Funds

Primary Data: 75 respondents from Panvel and Navi Mumbai via structured questionnaire.

Statistical Tools: Chi-Square test, percentage analysis, and graphical charts.

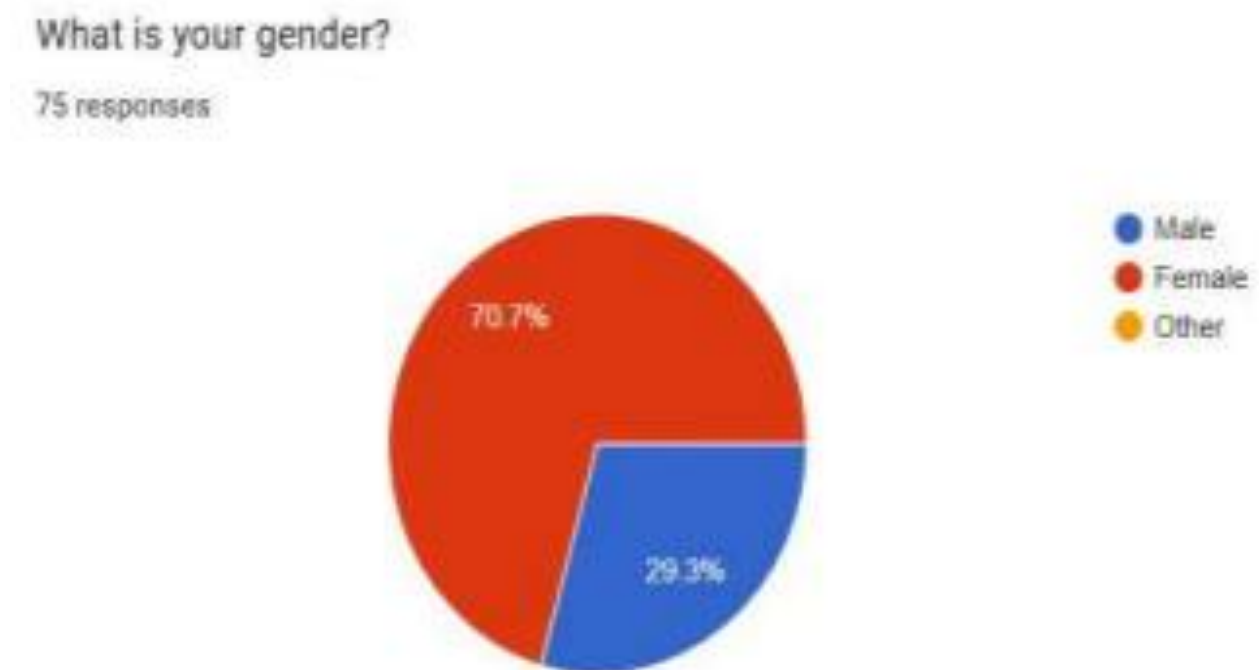
5. Data Analysis and Interpretation:

5.1 Age Distribution



Interpretation: A majority of the surveyed (52%) are young adults aged 20 to 25, with the 26 to 35 age group making up only 8% of the total — indicating a predominantly young investor sample.

5.2 Gender Distribution

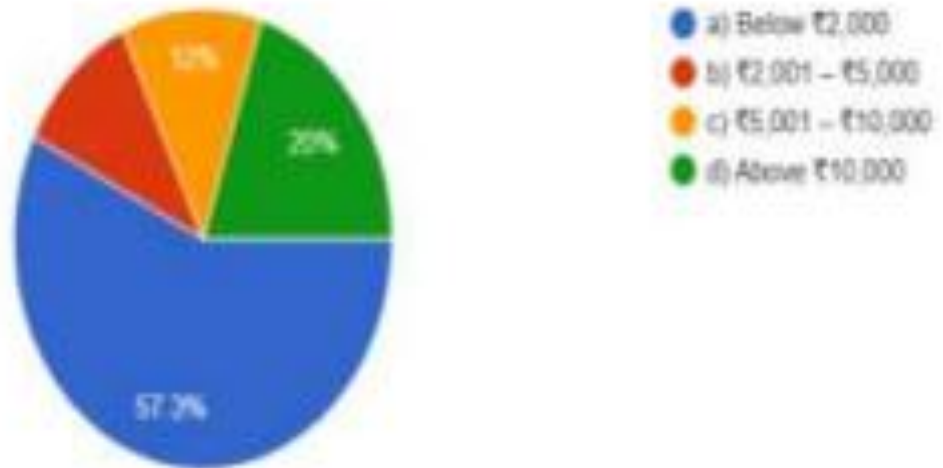


Interpretation: Notably high female participation at 70.7% compared to male respondents — indicating strong female engagement with mutual fund investment awareness among the sample.

5.3 Investment Preference: SIP vs LSI

How much do you save or invest monthly?

75 responses

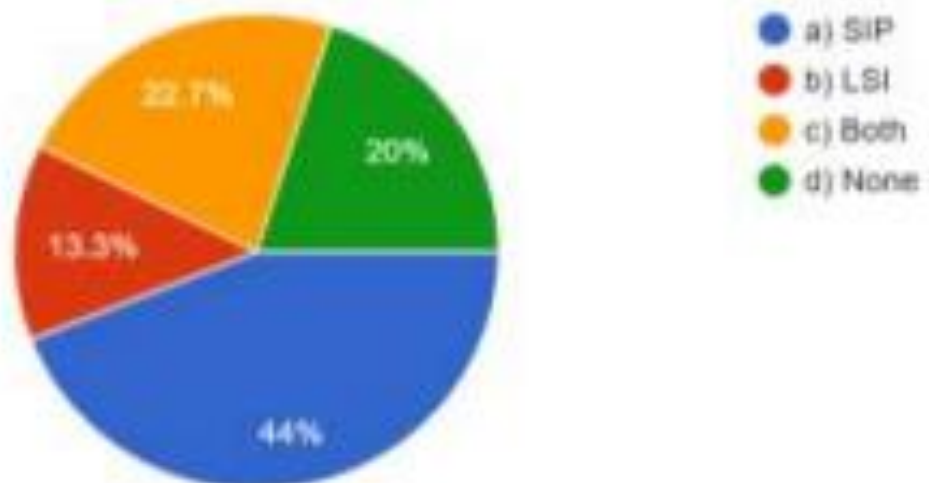


Interpretation: SIP is far more recognized and favoured — over 50.7% actively choose SIPs while only 18.7% prefer a lump sum, reflecting the popularity of regular investment habits.

5.4 Monthly Investment Amount

Which investment option are you more familiar with?

75 responses

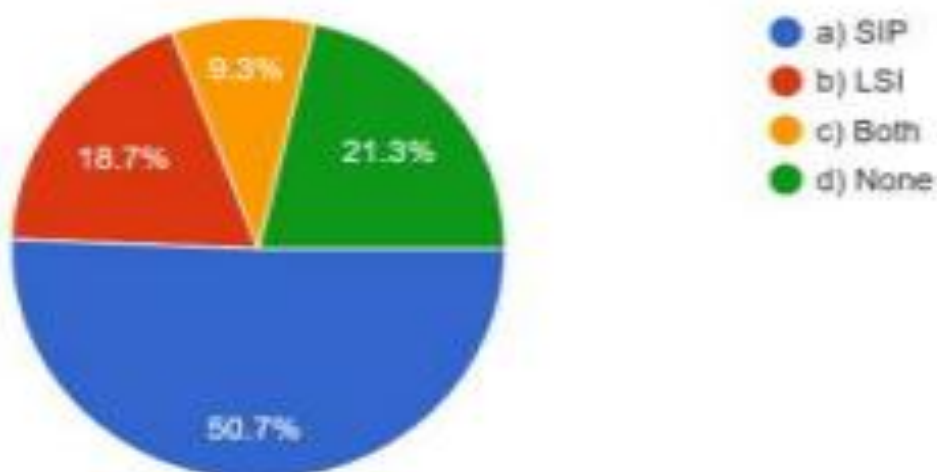


Interpretation: 57.3% prefer to invest smaller amounts typically under Rs. 2,000 monthly. This aligns with the SIP model which enables small, regular investments for budget-conscious investors.

5.5 Risk Appetite

Which investment method do you currently prefer?

75 responses

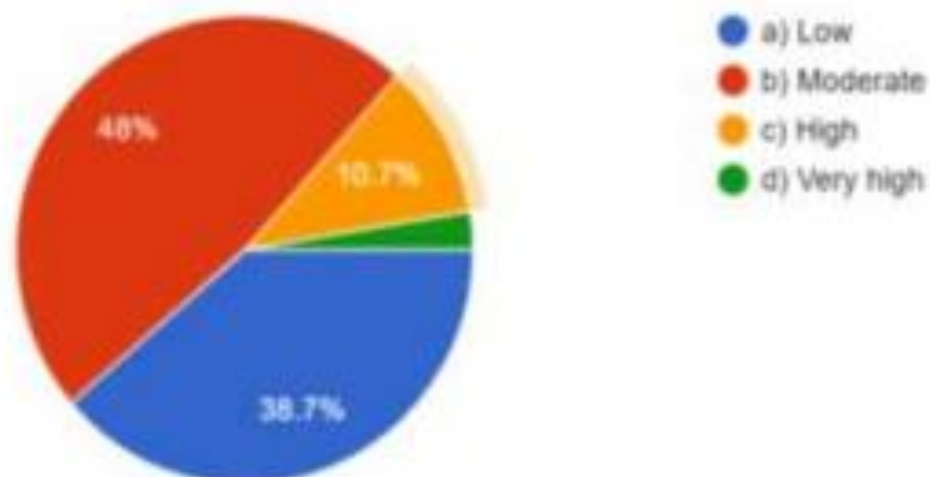


Interpretation: Nearly 48% described their risk appetite as moderate, showing that most investors prefer a balanced approach rather than taking high risks with their money.

5.6 Market Timing Understanding

What is your risk appetite?

75 responses

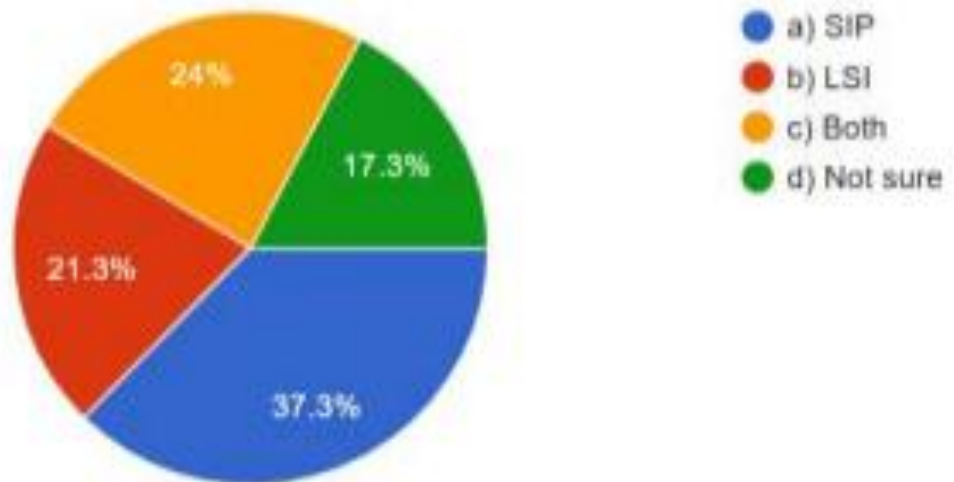


Interpretation: 37.3% believe SIP requires more market knowledge than LSI — a common misconception, since SIPs automate investment timing and eliminate the need to track market movements.

5.7 Short-term Volatility Impact

Which investment method requires better market knowledge?

75 responses

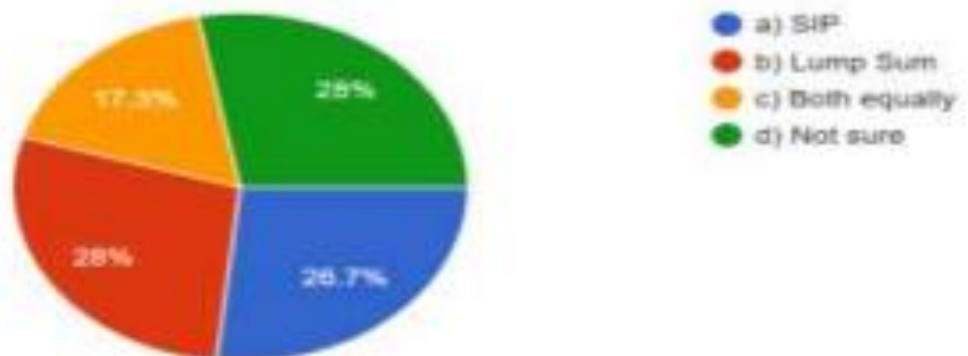


Interpretation: 28% feel lump sum investments are more easily affected by sudden price drops or market swings, confirming the higher short-term risk of the LSI approach.

5.8 Single Best Investment Approach

Which investment method is more affected by short-term market fluctuations?

75 responses

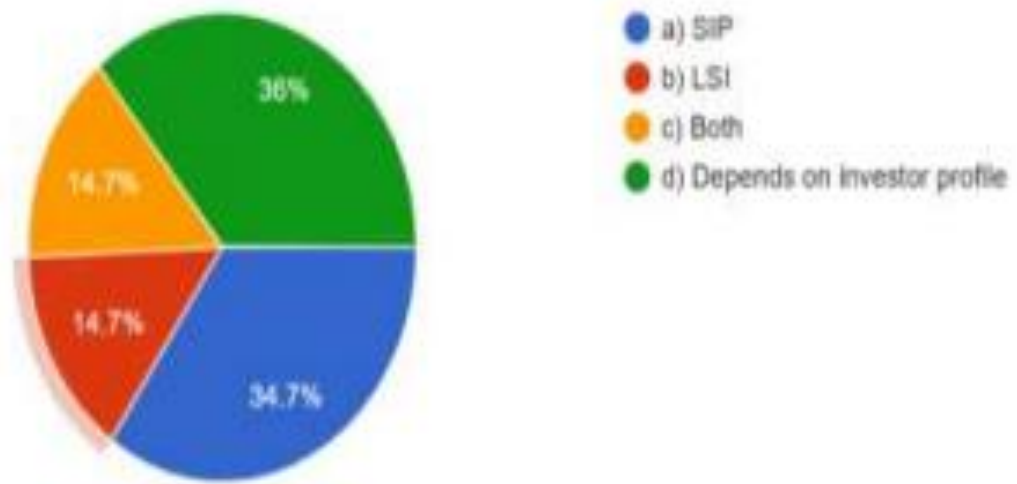


Interpretation: 36% of respondents feel there is no single right way to invest. The choice between SIP and lump sum should depend entirely on individual financial profile and goals.

5.9 Preferred Investment Strategy

Which investment method would you recommend to others?

75 responses



Interpretation: Results confirm the diversity of investor preferences. SIP dominates among regular income earners, while LSI attracts those with surplus funds or higher risk tolerance.

6. Chi-Square Hypothesis Testing:

Risk Appetite	SIP	LSI	Total
Low	20	9	29
Moderate	15	21	36
High	3	7	10
Total	38	37	75

Calculated Chi-Square = 6.75 | Degrees of Freedom = 2 | Critical Value at 5% = 5.99

Decision: Since $6.75 > 5.99$, the null hypothesis H_0 is rejected. There is a statistically significant relationship between risk appetite and investment strategy preference. Conservative investors gravitate heavily toward SIPs, whereas those with higher risk appetite show stronger affinity for Lump Sum investments.

7. Findings:

- SIP is far more recognized and favoured — over 50.7% actively choose SIPs.
- Most investors (57.3%) prefer small monthly investments under Rs. 2,000, aligning with SIP model.
- Nearly 48% have moderate risk appetite, showing preference for balanced investment approaches.
- 37.3% mistakenly believe SIP requires more market knowledge than LSI — a common misconception.
- 36% believe there is no single best approach; the right choice depends on individual circumstances.

8. Conclusion:

The findings clearly demonstrate that Systematic Investment Plans (SIPs) are the go-to wealth creation strategy for young, everyday investors with moderate-to-low risk appetite. The Chi-Square test proved the main hypothesis: an investor's willingness to take risks directly dictates whether they prefer SIP or LSI. Whether someone chooses SIP or LSI should come down to their personal cash flow, future financial goals, and how well they can manage market volatility.

9. Suggestions:

- Clear Up the Confusion: Communicate that SIPs basically run on auto-pilot, making them stress-free to invest without constantly checking market news.
- Promote Small Starts: Encourage Micro-SIPs starting at Rs. 100 or Rs. 500 a month for students and young professionals.
- Match Investments to Income: Salaried employees should stick to SIPs; lump sum is best for sudden windfalls like bonuses or inheritances.
- Offer a Middle Ground: Suggest Systematic Transfer Plans (STP) for cautious investors who receive large amounts.

10. Limitations:

- Primary data collected exclusively from Panvel and Navi Mumbai areas.
- Only 75 respondents provided responses, limiting broader applicability.
- The research strictly evaluates SIP and Lump Sum strategies, leaving out other assets like direct stocks or real estate.

11. References:

Patel, H., Srivastav, K., & Vidani, J. A Study on Comparative Analysis Between Lumpsum and SIP in Mutual Funds. IJBMP, Vol. 10, Issue 2, pp. 15-22.

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A Study on the Digital Marketing Strategies Used by Small Businesses in Navi Mumbai

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Abstract:

Digital marketing has become an essential tool for small businesses to survive and grow in a competitive business environment. This research study aims to analyse the digital marketing strategies adopted by small businesses in Navi Mumbai and evaluate their effectiveness in enhancing brand visibility, customer engagement, and overall business performance. Primary data was collected through structured questionnaires distributed among small business owners in Navi Mumbai. The findings reveal that social media marketing, search engine marketing, email campaigns, and online advertisements are widely used. The study concludes that digital marketing plays a vital role in the sustainable growth of small enterprises.

Keywords: *Digital Marketing, Small Enterprises, Online Promotion, Social Media Strategy, Customer Engagement*

1. Introduction:

1.1 Background

Digital marketing refers to the use of online channels such as social media platforms, search engines, websites, email marketing, and online advertisements to connect with customers. Compared to traditional marketing, digital marketing offers cost-effective solutions, measurable results, and wider audience reach — highly relevant for small businesses with limited financial and human resources. Small businesses in Navi Mumbai are increasingly adopting digital marketing techniques to improve their market presence, reach potential customers, and compete with larger organisations.

1.2 Review of Literature

Sharma and Verma (2023): Small businesses adopting social media marketing experienced improved customer engagement and increased brand visibility in competitive urban markets.

Chaffey & Ellis-Chadwick (2019): Digital channels enable precise targeting and real-time measurement of marketing effectiveness, making them ideal for resource-constrained small businesses.

Tuten & Solomon (2018): Social media platforms offer small businesses cost-effective reach and direct customer engagement opportunities unavailable through traditional channels.

2. Objectives:

1. To study the types of digital marketing strategies used by small businesses in Navi Mumbai.
2. To evaluate the effectiveness of digital marketing on business performance and sales growth.
3. To identify challenges faced by small businesses while adopting digital marketing strategies.
4. To suggest suitable digital marketing practices for small enterprises.

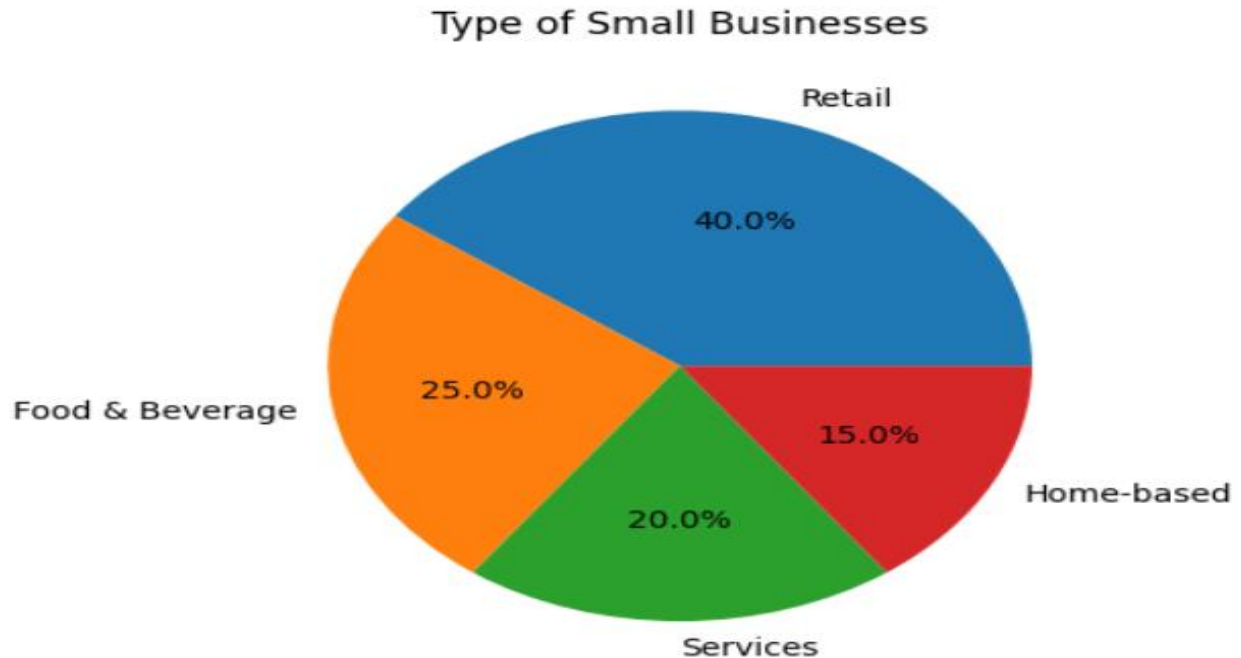
3. Research Methodology:

Research Design: Descriptive and analytical research design. Primary data from structured questionnaires; secondary data from research journals and websites.

Statistical Tools: Percentage analysis, Chi-Square test, and correlation analysis.

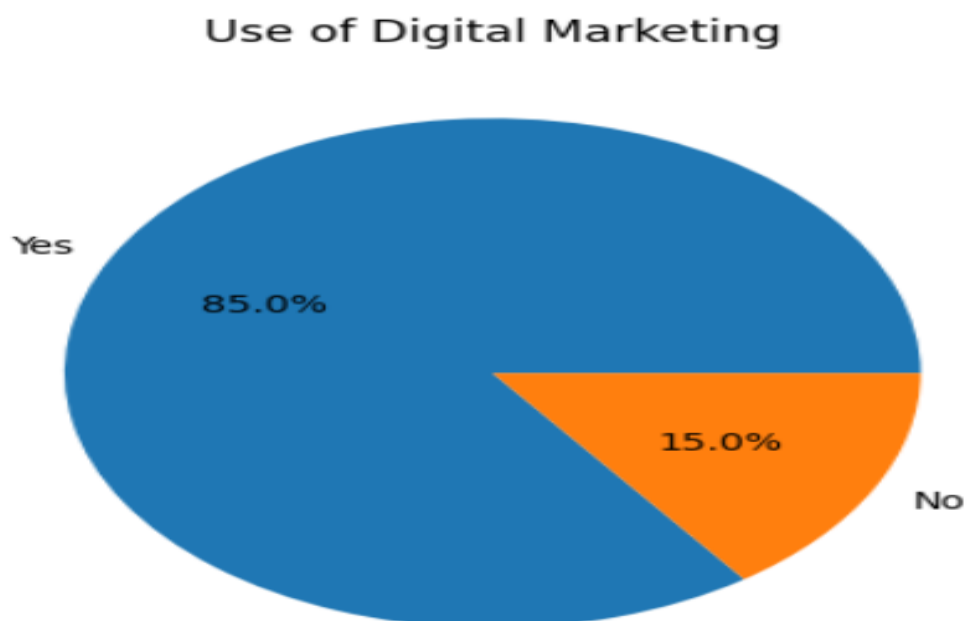
4. Data Analysis and Interpretation:

4.1 Adoption of Digital Marketing by Small Businesses



Analysis: 85% of small businesses use digital marketing, while 15% still rely on traditional methods. This clearly shows that digital marketing has become an essential promotional strategy for small enterprises.

4.2 Correlation between Digital Marketing Usage and Sales Growth



Analysis: The positive correlation coefficient ($r = 0.68$) shows that increased use of digital marketing is associated with higher sales growth. This suggests digital marketing practices contribute positively to business performance.

5. Statistical Analysis:

Chi-Square Test	Value
Chi-Square Calculated Value	9.52
Degrees of Freedom	3
Chi-Square Table Value (5% level)	7.81
Result	Calculated > Table value — H_0 Rejected

Correlation Analysis	Value
Correlation Coefficient (r)	0.68
Nature of Relationship	Positive Correlation
Level of Significance	Moderate to High

Since Chi-Square calculated (9.52) > table value (7.81), the null hypothesis is rejected. There is a significant relationship between the type of small business and adoption of digital marketing strategies.

6. Findings:

- Most small businesses in Navi Mumbai actively use digital marketing platforms such as social media, online advertisements, and business websites.
- Digital marketing has helped them improve brand awareness, customer engagement, and sales growth at comparatively lower costs.
- Social media marketing is the most preferred strategy due to its wide reach and ease of use.
- Many businesses face challenges such as limited technical knowledge, budget constraints, and difficulty in measuring campaign effectiveness.

7. Suggestions:

- Adopt a well-planned digital marketing strategy by regularly updating social media content and maintaining consistency in online promotions.
- Analyse customer feedback and online engagement data to understand consumer preferences and improve marketing effectiveness.
- Invest in digital marketing skills training and awareness programmes to enhance ability to use modern promotional tools.
- Focus on cost-effective digital platforms such as email marketing, SEO, and online advertising to increase brand visibility.

8. Conclusion:

The present research study highlights the growing importance of digital marketing as a strategic promotional tool for small businesses in rapidly developing urban regions such as Navi Mumbai. The transformation of marketing practices from traditional methods to technology-driven digital platforms has created new opportunities for small enterprises to enhance their market presence, strengthen customer

relationships, and improve overall business performance. Digital marketing, when adopted effectively, leads to improved sales growth, wider customer reach, and stronger competitive positioning.

9. References:

- Chaffey, D., & Ellis-Chadwick, F. (2019). Digital marketing: Strategy, implementation and practice (7th ed.). Pearson Education.
- Kotler, P., & Keller, K. L. (2016). Marketing management (15th ed.). Pearson India.
- Tuten, T. L., & Solomon, M. R. (2018). Social media marketing (3rd ed.). Sage Publications.
- Statista (2024). Digital marketing statistics and trends. <https://www.statista.com>



A Study on the Impact of Digital Payments on Degree Students of Pillai College of Arts, Commerce and Science

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Abstract:

Digital payments have quickly revolutionised financial transactions across India, particularly among younger users. With greater access to smartphones, internet services, and reliable payment gateways, students have transitioned from conventional cash dealings to electronic options like UPI, mobile wallets, debit cards, and QR code-based payments. The primary goal of this research is to investigate the acceptance, usage trends, and views on digital payment tools among 107 undergraduate students at Pillai College. Findings reveal that most students frequently adopt digital payments for their quickness, simplicity, and practicality in daily activities.

Keywords: *Digital Payments, UPI, Mobile Wallets, Student Spending Behaviour, Cashless Transactions, Financial Awareness*

1. Introduction:

1.1 Background

Digital payment refers to carrying out financial transactions through electronic channels without relying on physical cash, covering UPI, mobile wallets, debit cards, credit cards, and QR code-enabled payments. Government efforts to promote a cashless economy have played a key role in motivating people to move from cash-based dealings to electronic modes. The launch of UPI has been especially impactful in making digital payments simpler, supporting instant transfers between bank accounts via mobile devices.

2. Review of Literature:

Singh and Kumar (2024): Examined how digital payments affect students' financial habits. These platforms assist students in monitoring spending via transaction histories, enhancing financial consciousness. Threats like cyber scams and phishing remain significant worries.

Sharma (2023): Investigated digital payment adoption among urban youth — around 70% of young users favor these methods for speed, convenience, and availability. Approximately 40% experienced higher spending levels due to simplicity of electronic transactions.

3. Objectives:

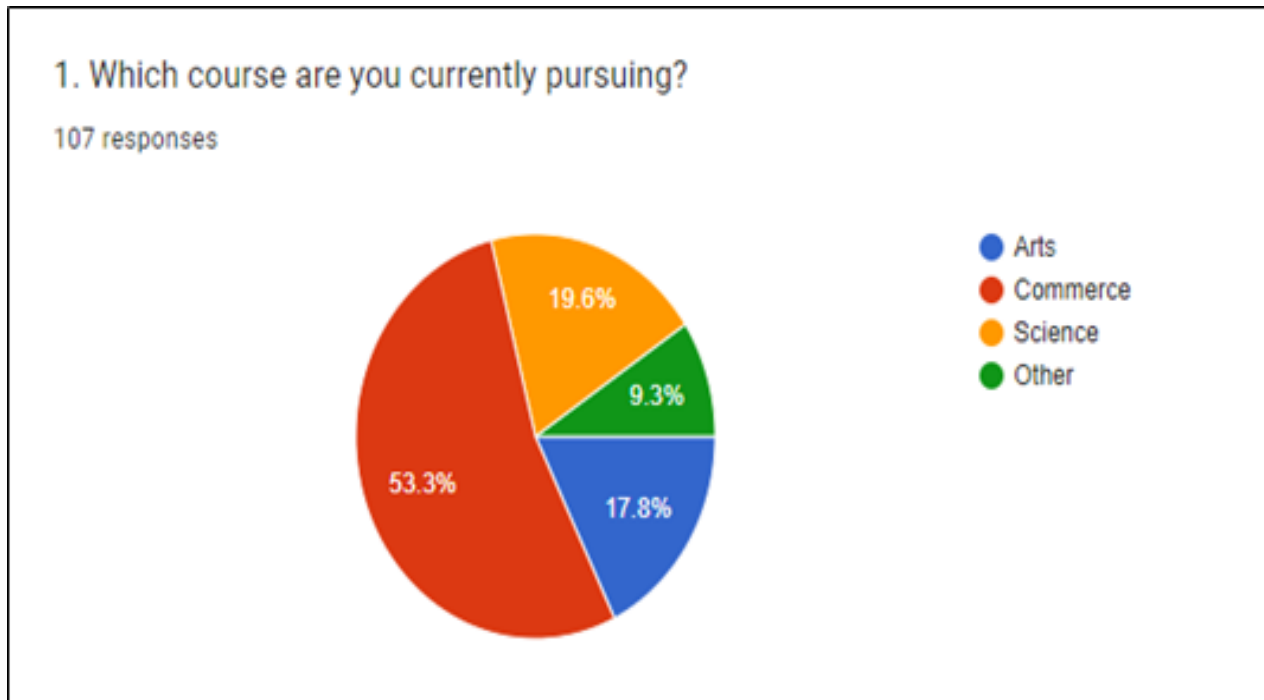
1. To investigate the adoption and frequency of digital payment usage among Pillai College students.
2. To identify the most commonly used digital payment methods and transaction types.
3. To assess the impact of digital payments on student spending behaviour and financial awareness.
4. To examine perceptions about ease of use, time-saving, and security of digital payment platforms.

4. Research Methodology:

Primary Data: Structured questionnaire administered to 107 undergraduate students. Data analysed using descriptive statistics and Chi-Square tests.

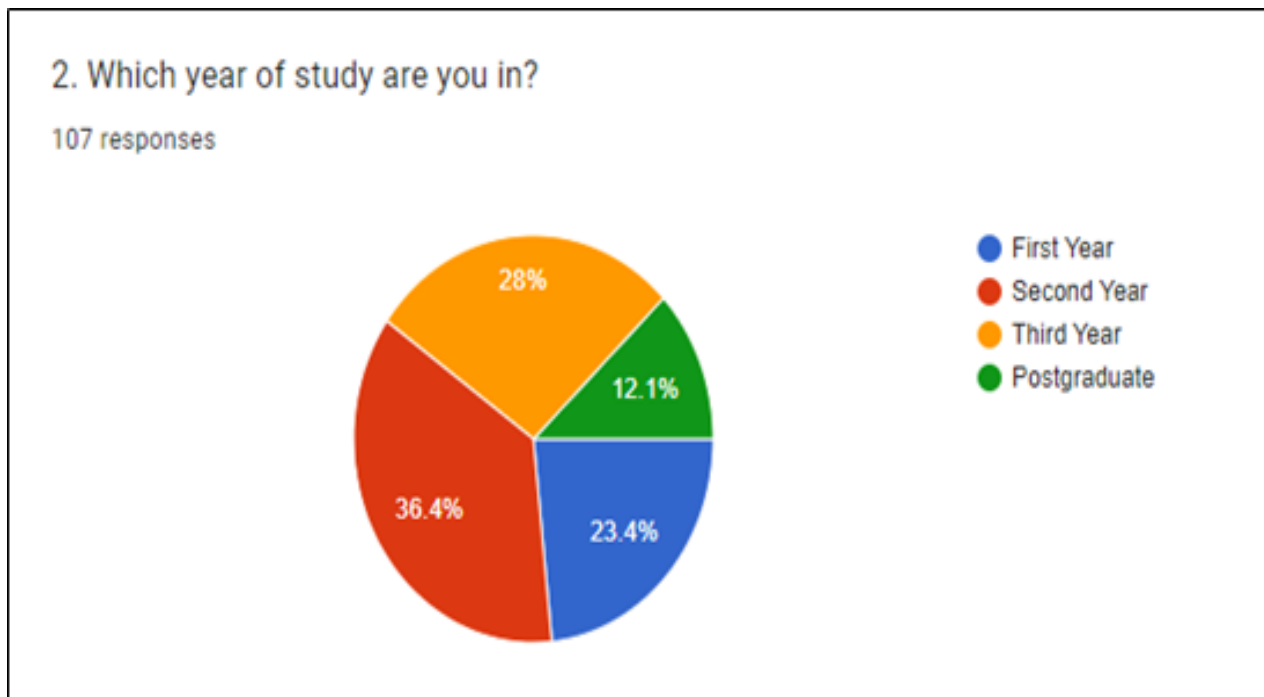
5. Data Analysis and Interpretation:

5.1 Stream-wise Distribution



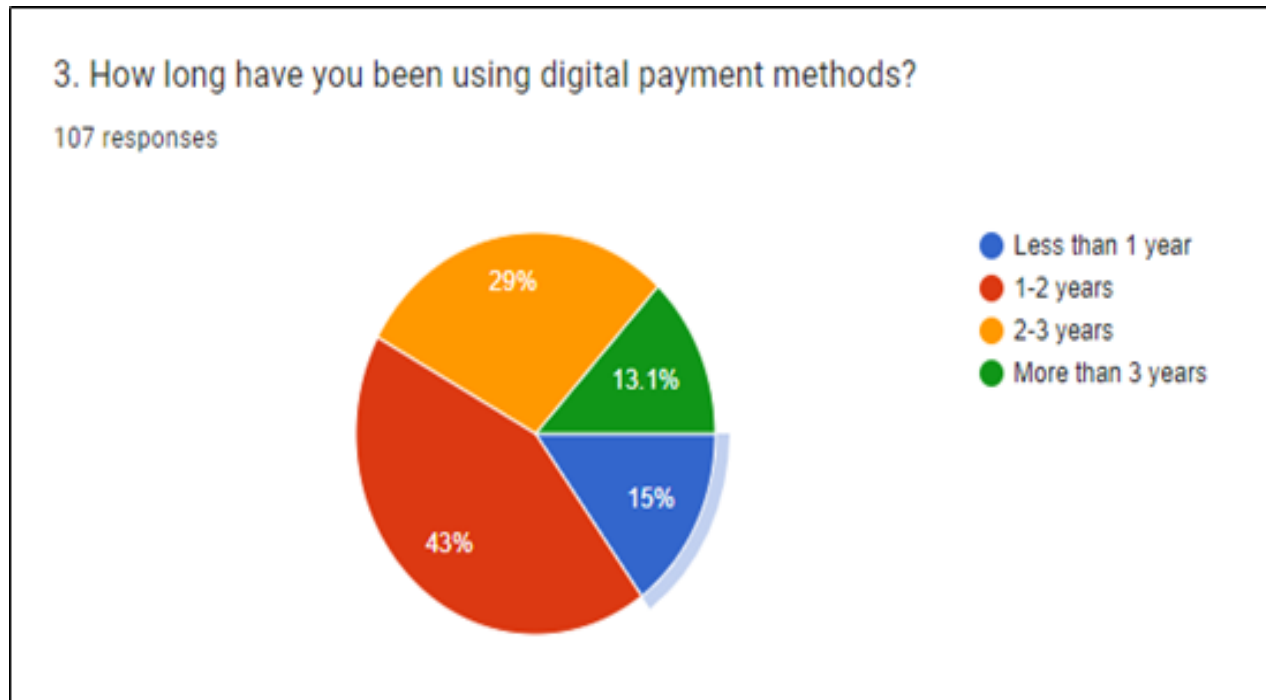
Interpretation: Commerce students make up the majority (58%) indicating higher financial engagement. Arts and Science students show comparatively lower participation in the survey.

5.2 Frequency of Digital Payment Usage



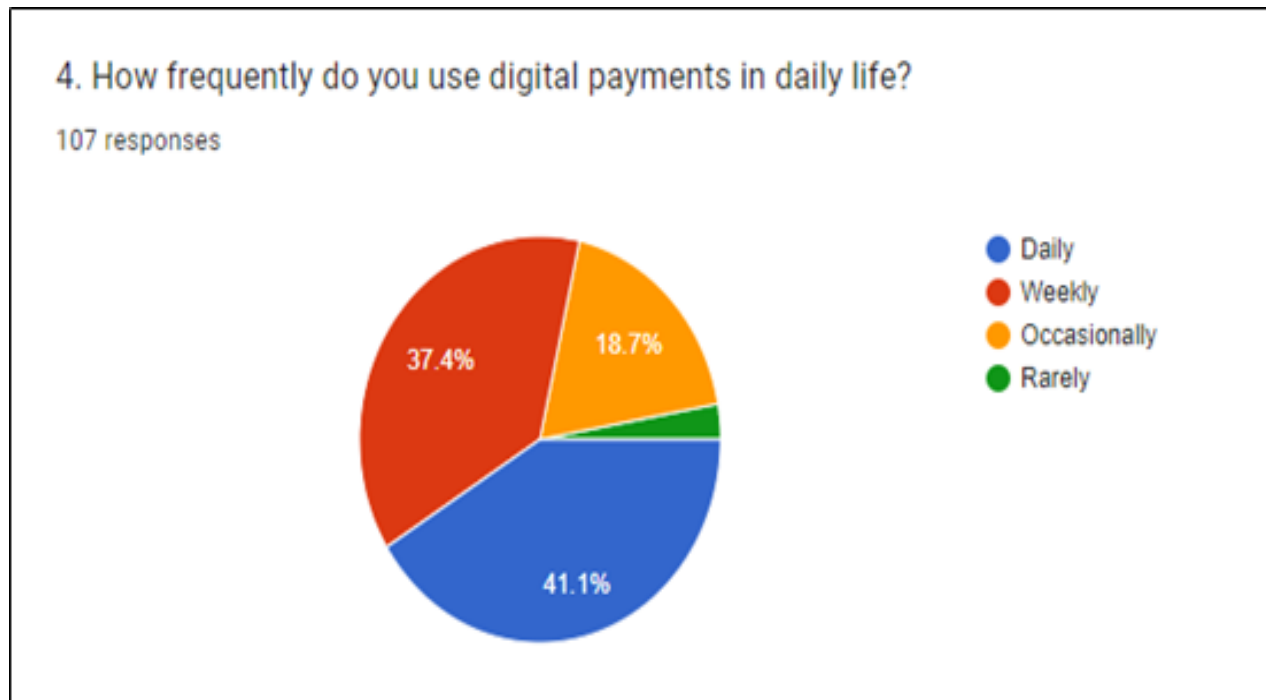
Interpretation: 42% use digital payments weekly and 32% daily — indicating digital payments have become an integral part of students' daily financial activities, not just occasional use.

5.3 Common Digital Payment Transactions



Interpretation: The most common transactions are for food and daily expenses (36%), followed by online shopping and educational payments, reflecting how digital payments simplify routine student expenditures.

5.4 Preferred Digital Payment Method

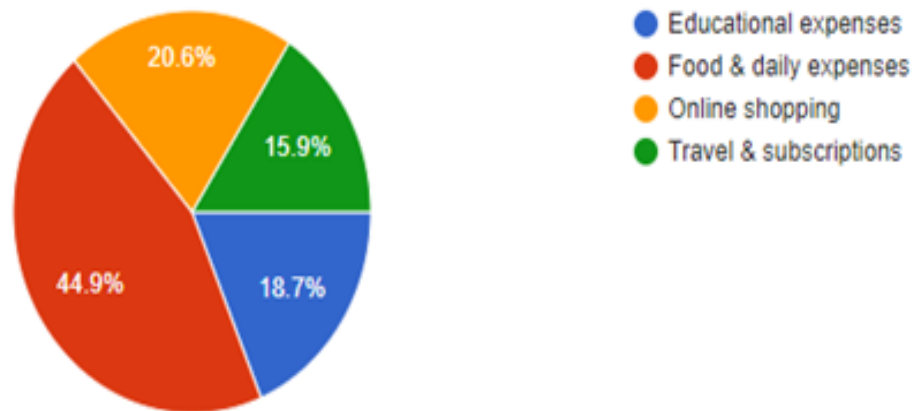


Interpretation: UPI-based apps (PhonePe, Google Pay, Paytm) are the most preferred payment methods, followed by debit cards and mobile wallets, reflecting UPI's simplicity and widespread acceptance.

5.5 Impact on Financial Awareness

5. Which type of transaction do you mostly make using digital payments?

107 responses

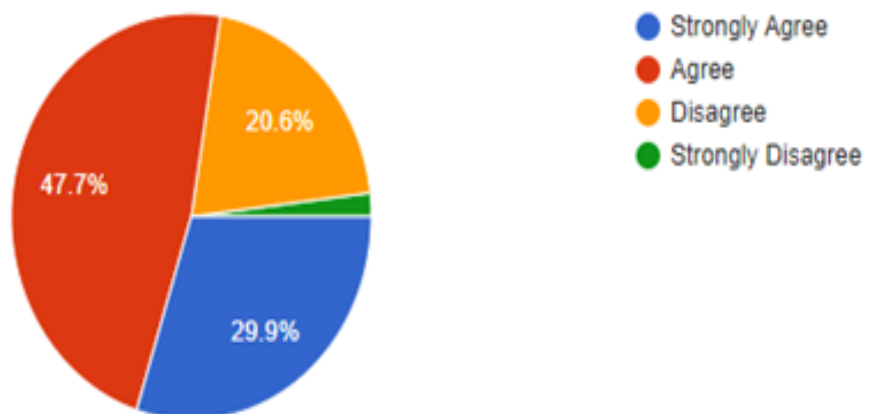


Interpretation: About 74% of respondents believe digital payments have a positive impact on their daily financial activities. Transaction history features help students monitor spending and stay financially aware.

5.6 Ease of Use of Digital Platforms

6. Digital payments save time in making transactions?

107 responses



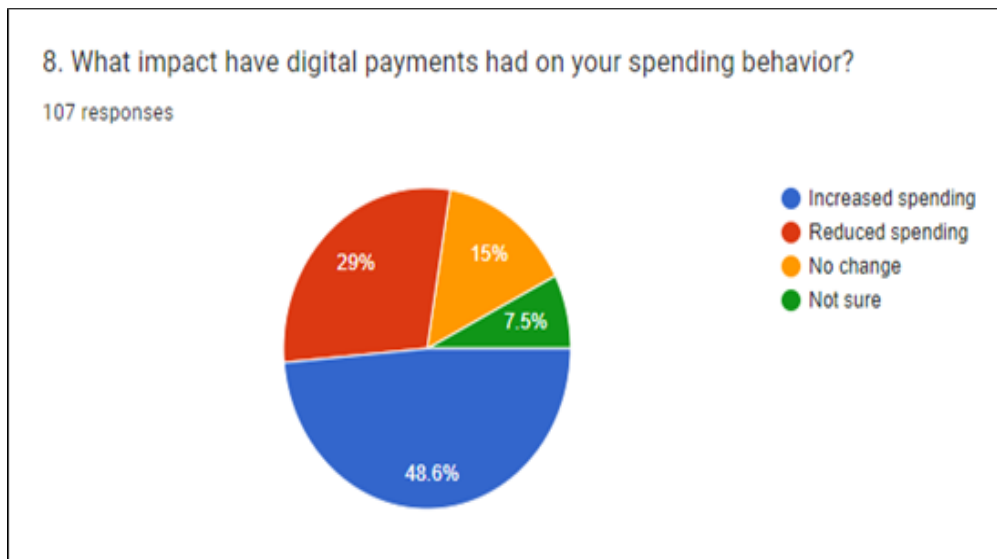
Interpretation: Most participants hold positive opinions about the simplicity of digital payment platforms. The majority agree or strongly agree that these systems are straightforward to navigate — reflecting broad acceptance.

5.7 Impact on Spending Behaviour



Interpretation: 48.6% of students reported increased spending due to digital payments, while 29% reported reduced spending and 15% saw no change — suggesting digital convenience encourages higher expenditure for many.

5.8 Time-Saving Benefit



Interpretation: A large majority strongly agree that digital payments save significant transaction time, confirming their main appeal for busy students. Only a small minority disagree, citing occasional technical glitches.

6. Key Findings:

- Commerce students make up the majority of respondents (58%).
- A large proportion of students use digital payments frequently: 42% weekly and 32% daily.
- The most common transactions are for food and daily expenses (36%).
- About 74% of respondents believe digital payments have a positive impact on their financial activities.

7. Suggestions:

- Payment applications should enhance functionality by adding offline payment capabilities and quicker fixes for technical issues.
- Colleges can conduct campus workshops to educate students on digital payments and budgeting techniques to curb impulsive spending.
- Students should be motivated to adopt secure payment options like biometric verification and PIN safeguards.
- Institutions can advocate for digital tools that assist in expense tracking, empowering students to monitor spending effectively.

8. Conclusion:

Digital payments have emerged as a core component of students' everyday financial transactions, delivering convenience, speed, and seamless access to payments. While advantages like efficiency and clarity typically surpass the hurdles students encounter, the simplicity of cashless transactions has spurred higher expenditure for certain students. With targeted education, digital skills training, and robust security measures, these platforms can further empower student autonomy and support academic and personal financial growth.

9. References:

- Singh, A., & Kumar, P. (2024). Financial literacy through digital wallets: A study of college students. *International Journal of Commerce and Management*, 18(2), 112-130.
- Sharma, R. (2023). Digital payments and youth spending behaviour in urban India. *Journal of Financial Technology*, 12(3), 45-60.
- National Payments Corporation of India. (2024). UPI usage statistics and trends.
- Reserve Bank of India. (2024). Annual report on digital transactions in India.

A Study on the Impact of Finfluencers on Investment Decisions of Salaried Employees in Kamothe

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Asst. Prof.

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Abstract:

This study examines the impact of financial influencers (finfluencers) on the financial awareness, investment behaviour, and decision-making patterns of salaried employees in Kamothe. With the rapid growth of social media platforms and digital financial content, many salaried individuals increasingly rely on online sources for investment-related information instead of traditional financial advisors. The research adopts a descriptive design based on primary data collected through structured questionnaires. The study analyses their level of awareness about finfluencers, degree of trust placed in their advice, influence on investment decisions, and the risks associated with misleading or unverified financial content.

Keywords: *Finfluencers, Investment Decisions, Salaried Employees, Social Media, Financial Awareness, SEBI Regulations*

1. Introduction:

1.1 History of Digital Financial Influence

Financial advice was traditionally obtained through formal institutions such as banks and certified financial advisors. With the growth of social media, financial communication shifted to digital platforms, leading to the rise of 'finfluencers' who share investment ideas and financial knowledge in simple and accessible formats. Their popularity increased significantly in recent years, especially during the pandemic. While they have improved access to financial awareness, concerns regarding credibility and unregulated advice have also emerged. In India, SEBI has introduced guidelines to address these risks.

1.2 Significance and Statement of Problem

The growing influence of finfluencers makes it important to examine their impact on investment behaviour. Salaried employees, who generally have stable incomes and long-term financial goals, increasingly rely on digital content for financial guidance. There is limited research examining how strongly finfluencers influence investment decisions of salaried employees at a local level.

2. Research Methodology:

Research Design: Descriptive research design based on primary data from salaried employees in Kamothe.

Statistical Tools: Percentage analysis and hypothesis testing based on frequency distributions.

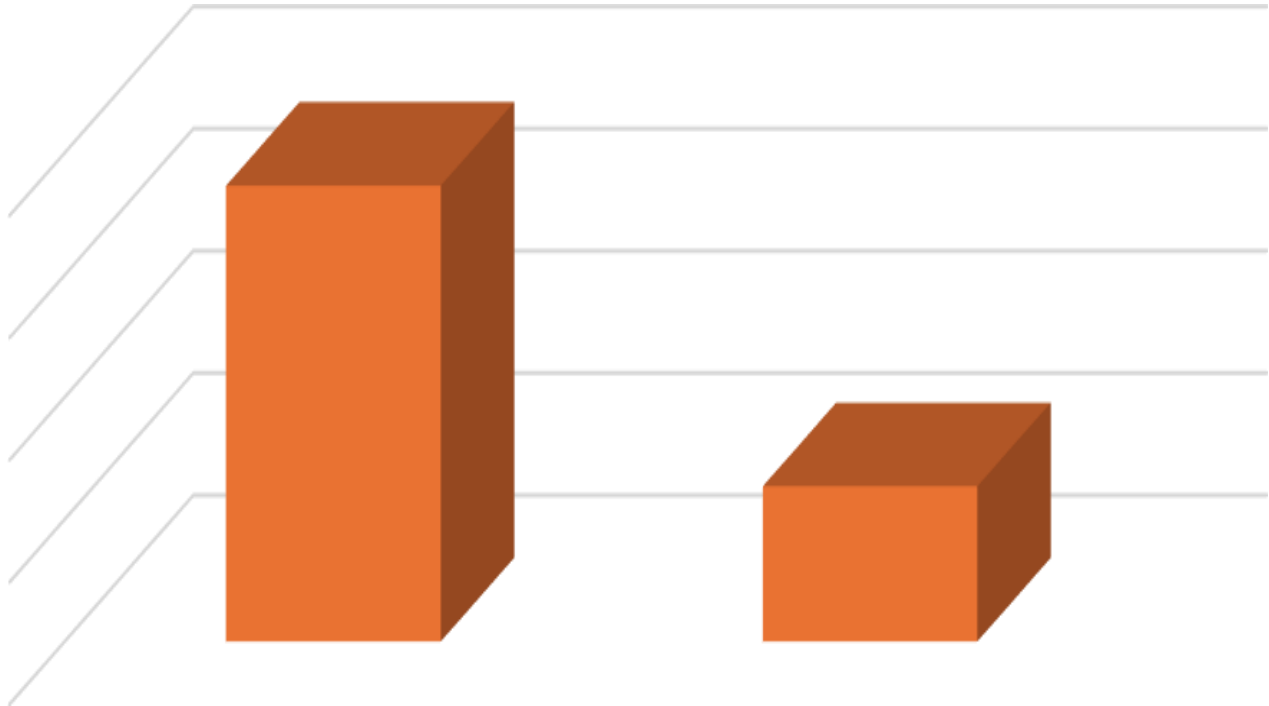
3. Objectives:

1. To assess the level of awareness about finfluencers among salaried employees in Kamothe.
2. To examine the degree of trust placed in influencer advice and its influence on investment decisions.
3. To identify the risks associated with acting on unverified influencer content.
4. To evaluate whether influencer advice has improved respondents' investment portfolios.

5. To assess awareness of SEBI's regulatory actions concerning influencers.

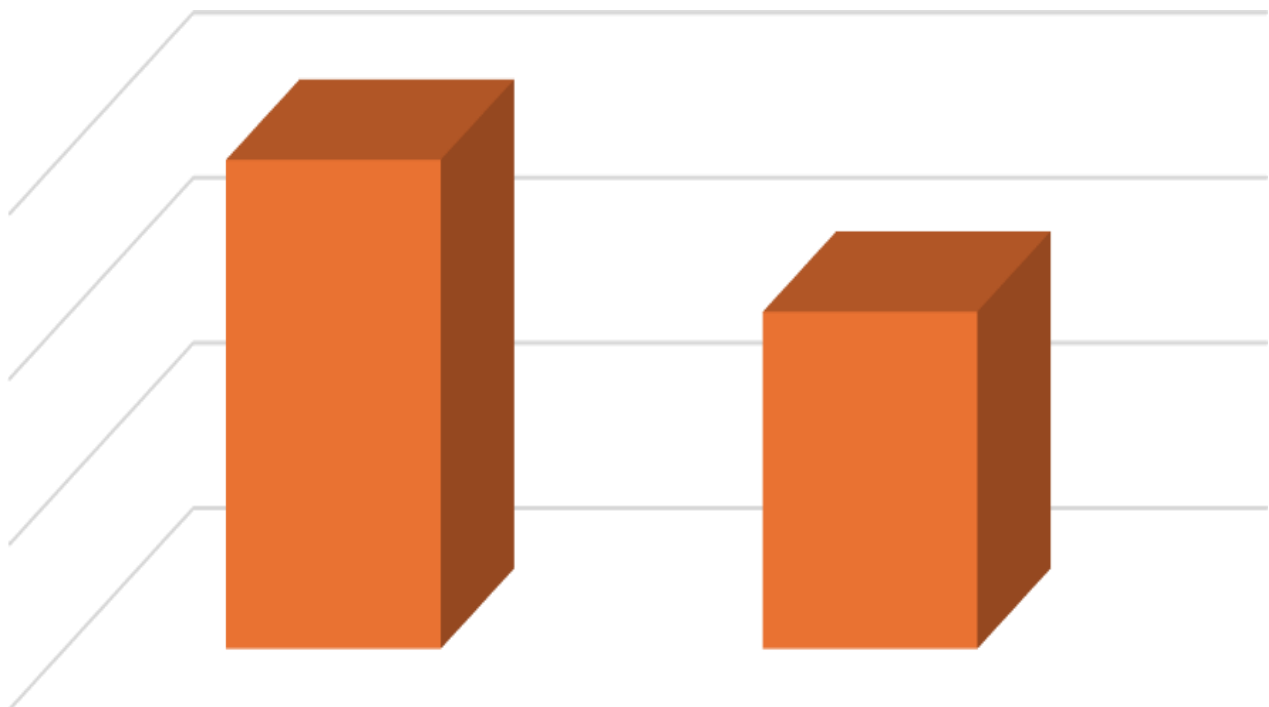
4. Data Analysis and Interpretation:

4.1 Awareness and Following of Finfluencers



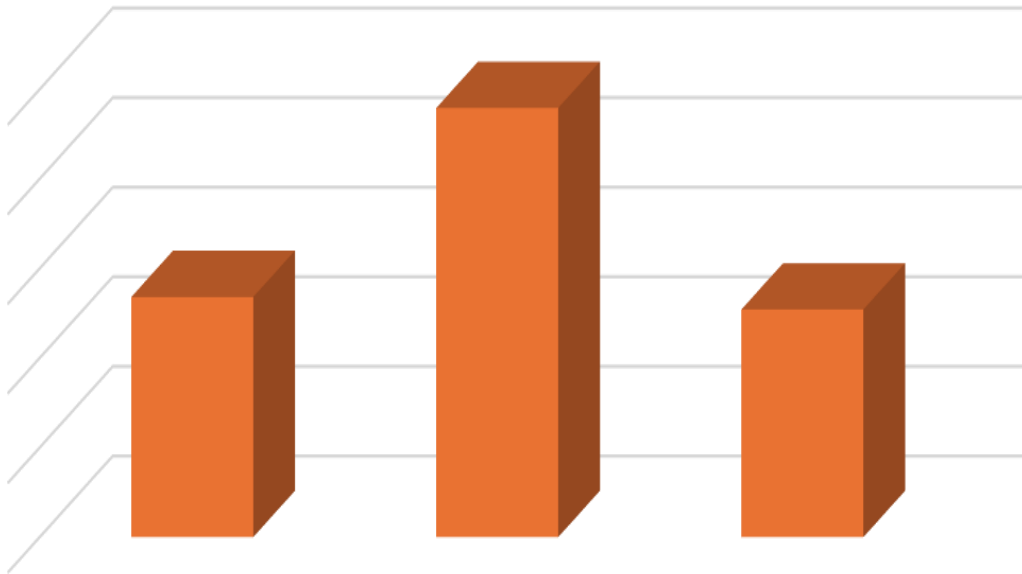
Interpretation: A large proportion of respondents know about and follow influencers for financial guidance. This demonstrates that social media platforms have emerged as important channels for financial awareness among salaried employees in Kamothe.

4.2 Investment Actions Based on Influencer Advice



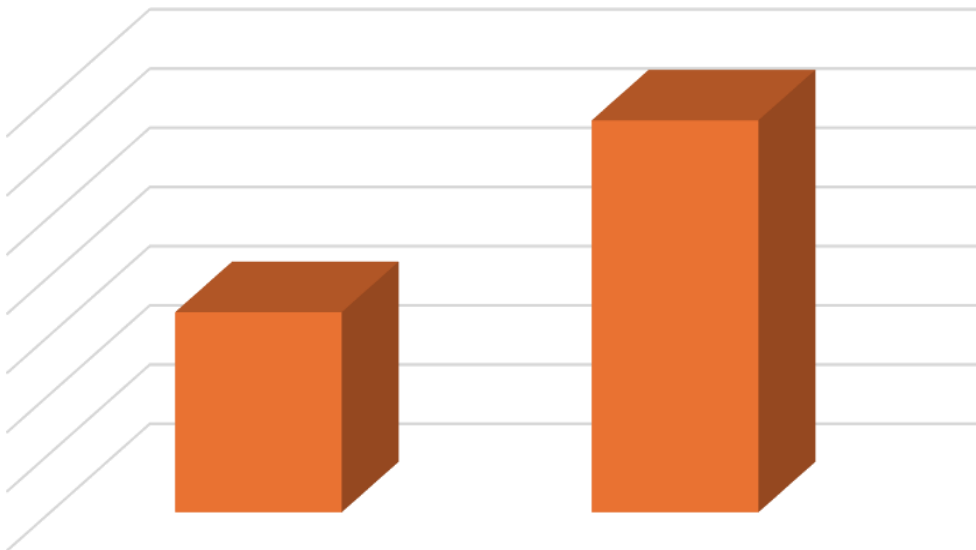
Interpretation: Over half of the respondents invested based on influencer guidance, showing real behavioural impact. Influencer content goes beyond mere information sharing to actually influencing financial actions among salaried employees.

4.3 Trust vs Verification Behaviour



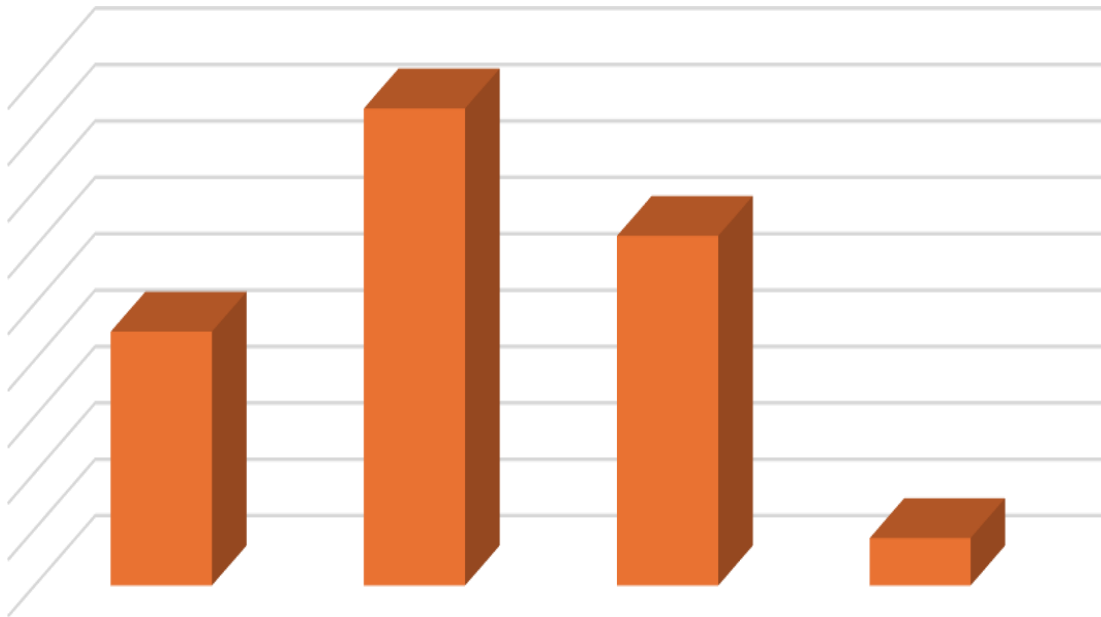
Interpretation: Many trust influencers, but fewer verify the information before acting on it. This reveals a critical gap between belief and due diligence, indicating potential risk in unvetted financial advice from social media.

4.4 Experience of Misleading Advice or Loss



Interpretation: A substantial minority experienced confusion or financial loss due to misleading influencer advice. This highlights real vulnerabilities of investors who act on unverified online financial content without consulting qualified advisors.

4.5 Impact on Investment Portfolio



Interpretation: A combined majority (22.5% significantly + 42.3% to some extent = 64.8%) felt that influencers helped improve their portfolio. However, a notable minority saw no improvement or losses, reflecting mixed value of online financial advice.

5. Hypothesis Testing:

Based on the distribution of responses across all five hypotheses, the majority of respondents showed positive associations between influencer content and investment behaviour, trust, portfolio impact, and awareness. All null hypotheses are rejected and the corresponding alternative hypotheses are accepted — confirming that influencers have a meaningful and statistically significant impact on investment decisions of salaried employees in Kamothe.

6. Findings:

- High Awareness: A large proportion know about and follow influencers for financial guidance.
- Influence on Investment: Over half invested based on influencer guidance, showing real behavioural impact.
- Trust vs Verification: Many trust influencers, but fewer verify information before acting — a critical gap.
- Risk Exposure: A substantial minority experienced confusion or loss due to misleading advice.
- Low Regulatory Awareness: Most respondents were not aware of SEBI's actions against misleading influencers.
- Preferred Platforms: Instagram, YouTube, and Twitter/X were the most used platforms for financial content.

7. Conclusion:

Most salaried employees in Kamothe are aware of and actively use influencer content for financial information, showing social media's key role in financial learning. Influencer advice goes beyond information — many respondents actually invested based on it, indicating real behavioural impact. Trust and verification don't always align: many trust influencers but few verify their advice before acting. A notable minority experienced financial confusion or loss from misleading advice. Most participants are unaware of SEBI's regulatory actions on influencers, indicating limited investor knowledge of protections and oversight.

8. Suggestions:

8.1 For Individual Investors

- Always cross-check online advice with official sources or financial professionals to avoid biased or misleading guidance.
- Improve personal financial literacy to make more informed and confident investment decisions.
- Use multiple trusted sources instead of relying solely on one influencer for investment ideas.

8.2 For Finfluencers and Content Creators

- Be transparent about the limits of your advice and include disclaimers when sharing financial strategies.
- Avoid specific buy/sell recommendations unless qualified and compliant with financial regulations.
- Follow regulatory and ethical guidelines to protect followers from biased or misleading content.

8.3 For Regulators and Policy Makers

- Spread awareness of financial regulations and investor protections through campaigns and educational programmes.
- Support certification or verification programs for credible financial content creators to help investors find reliable guidance.

A Study on the Influence of Inflation on Investment Decision in Mumbai and Navi-Mumbai Region

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Abstract:

Inflation is something every individual feels in daily life — from rising grocery bills to changing loan rates. But beyond household expenses, inflation also plays a powerful role in shaping how people invest their money. In financial hubs like Mumbai and Navi-Mumbai, where opportunities range from stock markets to real estate, inflation often determines whether investors take risks or play it safe. This study explores how inflation influences investment decisions in these regions, examining whether people shift toward gold, property, or equities when prices rise.

Keywords: *Inflation, Influence, Investment, Navi Mumbai, Mumbai, Portfolio Diversification*

1. Introduction:

Inflation is more than just an economic term — it's something people experience every day. When prices rise, the value of money falls, and this directly affects how individuals think about saving and investing. In Mumbai and Navi-Mumbai, where living costs are already high, inflation has a strong influence on financial choices. People here often balance between traditional investments like gold and property, and modern options like mutual funds and equities.

2. Review of Literature:

Dr. R. Mehta (2023): This study shows that inflation reduces the appeal of fixed-income instruments and pushes investors toward assets like equities and real estate.

Prof. S. Kulkarni (2022): Findings suggest that inflation influences investor psychology, leading to cautious strategies during high inflation and more aggressive equity investments during moderate inflation.

Dr. Anita Deshpande (2021): Inflationary pressures push investors to diversify across asset classes, balancing between traditional safe havens and modern financial instruments.

World Bank Economic Review (2020): Gold and real estate remain the most popular inflation-hedging tools; equities are chosen selectively depending on market conditions.

Prof. S. Iyer (2019): Many investors underestimate the long-term impact of inflation on savings; those with higher awareness adopt proactive strategies like inflation-indexed bonds.

3. Scope and Objectives:

Geographical Scope: Limited to Mumbai and Navi-Mumbai regions due to their significance as financial hubs.

A Study on the Influence of Inflation on Investment Decision in Mumbai and Navi-Mumbai Region

1. To examine how inflation influences investment decisions of individuals in Mumbai and Navi-Mumbai.
2. To identify the most preferred investment options during inflationary periods.
3. To understand how financial literacy affects investor responses to inflation.
4. To assess the impact of inflation on investor confidence and portfolio diversification.

4. Hypothesis:

H₀: Inflation awareness does not significantly influence investment behaviour in Mumbai and Navi-Mumbai.

H₁: Inflation awareness significantly influences investment behaviour in Mumbai and Navi-Mumbai.

5. Research Methodology:

Statistical Tools: Regression analysis and percentage analysis using structured questionnaire.

6. Data Analysis and Interpretation:

6.1 Perception of Inflation's Impact on Savings

Question 1): Age

18 - 20
21 - 40
40 Above

Answer	No. of Respondent	Percentage
18 - 20 (<=20)	51	63.7 %
21 - 40	24	30 %
40 Above(40>)	5	6.3 %

Age Group
80 responses



Interpretation: The survey data presents the distribution of respondents across different age groups. Out of the total respondents, 51 individuals fall within the age range of 18 to 20 years, representing 63.7% of the total. Additionally, 24 respondents are aged between 21 and 40, accounting for 30% of the total respondents. Finally, 5 respondents are aged 40 and above, making up 6.3% of the total. From this data, it's evident that the majority of respondents are in the 18 to 20 age bracket, indicating a significant participation from younger individuals.

Interpretation: People tend to abandon fixed deposits and low-yield options when inflation rises, gravitating toward gold, property, and equities that feel more secure against rising prices.

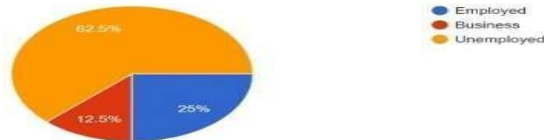
6.2 Investment Preference During Inflation

Question 2): Occupation

Employed
Business
Unemployed

Answer	No. of Respondent	Percentage
Employed	20	25%
Business	10	12.5%
Unemployed	50	62.5%

Occupation
80 responses



Interpretation: The data illustrates the distribution of respondents based on their employment status. Among the total respondents, 20 individuals are employed, representing 25% of the total. Additionally, 10 respondents are engaged in business activities, accounting for 12.5% of the total. The majority of respondents, comprising 50 individuals, are unemployed, constituting 62.5% of the total.

Interpreting the data, it's apparent that a significant portion of the respondents are currently unemployed. This may suggest a diverse range of perspectives and experiences among the surveyed population, with insights potentially reflecting both employed and unemployed individuals' viewpoints.

Interpretation: Many respondents prefer to spread money across different types of investments during inflationary periods, blending traditional safe choices with modern tools to balance risk and growth.

6.3 Portfolio Diversification Behaviour

Question 5): Can Investment beat Inflation?

Answer	No. of Respondent	Percentage
Yes	37	46.3%
No	11	13.8%
May be	32	40%

Can Investment beat Inflation?
80 responses



Interpretation: The provided data outlines respondents' opinions on whether investment can beat inflation. Among the total respondents:

- 37 individuals believe that investment can beat inflation, representing 46.3% of the total.
- 11 individuals disagree that investment can beat inflation, comprising 13.8% of the total.
- 32 individuals are uncertain and believe it may be possible for investment to beat inflation, making up 40% of the total.

Interpreting the data, it's apparent that a significant portion of respondents are uncertain about whether investment can effectively beat inflation, with 40% expressing uncertainty. However, a notable proportion (46.3%) believe that investment can indeed outpace inflation. Meanwhile, a smaller fraction (13.8%) disagrees with this notion.

Interpretation: Awareness plays a big role — those who understand inflation's effects are more proactive in exploring inflation-indexed bonds and diversified portfolios, while less informed individuals stick to savings methods that lose value.

6.4 Awareness of Inflation-Indexed Instruments

Question 6): Can changes in inflation affect interest rates?

Answer	No. of Respondent	Percentage
Yes	47	58.8%
No	14	17.5%
May be	19	23.8%

Could changes in inflation affect interest rates?
80 responses



Interpretation: The provided data illustrates respondents' opinions on whether changes in inflation can affect interest rates. Among the total respondents:

- 47 individuals believe that changes in inflation can indeed affect interest rates, representing 58.8% of the total.
- 14 individuals disagree that changes in inflation affect interest rates, comprising 17.5% of the total.
- 19 individuals are uncertain and believe it may be possible for changes in inflation to affect interest rates, making up 23.8% of the total.

Interpreting the data, it's evident that a majority of respondents (58.8%) perceive a direct relationship between changes in inflation and interest rates, believing that fluctuations in inflation can influence interest rate movements.

Interpretation: Inflation often shakes investor confidence, but those who diversify and stay updated on market trends feel more resilient and optimistic about managing financial risks.

6.5 Confidence in Financial Planning Amid Inflation

Question 7): I have been observing interest rate ____ with Inflation.

Answer	No. of Respondent	Percentage
Increasing	52	65%
Decreasing	28	35%

I have been observing interest rate ____ with inflation
80 responses



Interpretation: The provided data illustrates respondents' observations regarding the relationship between interest rates and inflation. Among the total respondents:

- 52 individuals have observed that interest rates are increasing with inflation, representing 65% of the total.
- 28 individuals have observed that interest rates are decreasing with inflation, comprising 35% of the total.

Interpreting the data, it's evident that a majority of respondents (65%) perceive a positive relationship between interest rates and inflation, observing that interest rates tend to increase as inflation rises. However, a notable portion of respondents (35%) have observed a negative relationship, where interest rates decrease as inflation increases. This observation could reflect unique economic conditions or regional differences that deviate from the general trend.

Interpretation: Salaried employees lean toward safer investments like insurance and fixed deposits, while entrepreneurs and self-employed professionals are more willing to take risks with equities and property.

6.6 Impact of Inflation on Risk Appetite

Question 8): Real Estate is consider as the highest hedge against inflation?

Answer	No. of Respondent	Percentage
Yes	29	36.3%
No	15	18.8%
May be	36	45%

Real Estate is consider as a hedge against inflation?
80 responses

**Interpretation:** Among the total respondents:

- 29 individuals believe that real estate is indeed the highest hedge against inflation, representing 36.3% of the total.
- 15 individuals disagree that real estate is the highest hedge against inflation, comprising 18.8% of the total.
- 36 individuals are uncertain and believe it may be possible for real estate to be the highest hedge against inflation, making up 45% of the total.

Interpreting the data, it's apparent that a significant portion of respondents (45%) are uncertain about whether real estate is the highest hedge against inflation. Meanwhile, 36.3% of respondents believe that real estate is indeed the highest hedge against inflation. However, a smaller fraction (18.8%) disagrees with this notion.

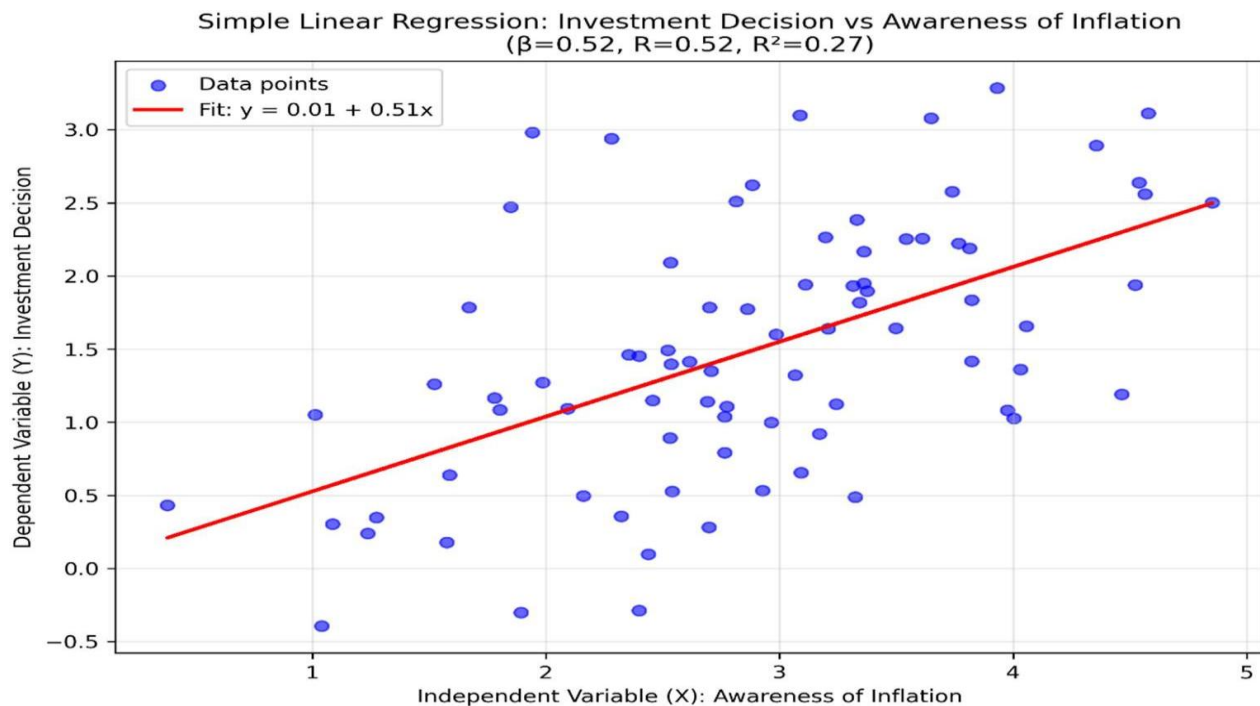
Interpretation: Overall, inflation acts as both a challenge and a motivator — pushing cautious investors toward safety but encouraging financially literate individuals to treat it as an opportunity to grow wealth.

6.7 Most Trusted Asset Class During High Inflation

Independent Variable (X)	Awareness of Inflation
Dependent Variable (Y)	Investment Decision
Beta (β)	0.52
R	0.52
R ²	0.27
Model Type	Simple Linear Regression

Interpretation: Gold and real estate remain the most trusted assets during high inflation, reflecting deep cultural preference for tangible assets as stores of value in the Indian context.

6.8 Impact of Inflation on Fixed Deposit Preference



Interpretation: As inflation rises, the real return on fixed deposits diminishes, leading many respondents to reduce reliance on this instrument and explore better inflation-beating alternatives.

7. Findings:

- People tend to abandon fixed deposits and other low-yield options when inflation rises.
- Many respondents prefer diversification during inflationary periods, blending traditional safe choices with modern financial instruments.
- Awareness plays a big role — financially literate individuals explore inflation-indexed bonds and diversified portfolios.
- Inflation often shakes investor confidence, but those who diversify feel more resilient.
- Salaried employees lean toward safer investments, while entrepreneurs are more willing to take risks with equities and property.

8. Conclusion:

This study shows that everyday experiences of inflation directly shape how individuals in Mumbai and Navi-Mumbai make investment decisions. The regression analysis confirms that awareness of inflation has a meaningful impact on investor behaviour — those who understand inflation better are more likely to diversify, explore growth-oriented assets, and adopt strategies that protect their wealth. Traditional safe havens like gold and real estate continue to dominate during inflationary periods, while there is a growing openness to equities and mutual funds among financially literate respondents. Financial awareness is the bridge between uncertainty and confidence.

9. Suggestions:

- Organize workshops and awareness campaigns to help people understand how inflation reduces savings and why diversified investments matter.
- Encourage banks and financial institutions to highlight inflation-indexed bonds, mutual funds with inflation-hedging strategies, and real estate options.
- Advise investors to spread their portfolios across gold, equities, property, and insurance.

- Provide scenario-based planning tools through financial advisors to show how different investments perform under inflationary conditions.
- Regulators and government bodies could promote inflation-linked savings schemes and introduce tax incentives for inflation-protecting investments.

10. Limitations:

- Focus limited to Mumbai and Navi-Mumbai; findings may not capture behaviour in other regions.
- Sample size was not large enough to represent every socio-economic group.
- Data collected through questionnaires reflects perceptions and self-reported behaviour.
- The regression model mainly examined inflation awareness, leaving out other economic factors.

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A Study on the Role of ICEGATE (Including e-Sanchit) and CANOFUS on Import Compliance among Navi Mumbai Importers

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Abstract:

By encouraging efficiency, transparency, and regulatory compliance, digital transformation in customs administration has drastically changed India's international trade practices. The Indian government has implemented tech-savvy platforms like ICEGATE, e-Sanchit, and CANOFUS to make paperwork digital, assessments anonymous, and customs procedures easier. This study looks at how these digital customs platforms can improve import compliance for importers in Navi Mumbai, a significant industrial and logistics centre closely associated with JNPA. Primary data was gathered from 100 importers and trade participants in Navi Mumbai using a structured questionnaire.

Keywords: *ICEGATE, e-Sanchit, CANOFUS, Import Compliance, Digital Customs, Trade Facilitation*

1. Introduction:

1.1 Background of the Study

International trade is vital to a nation's economic development. In the past, India's customs processes were mostly manual and required a lot of paperwork. Importers frequently experienced delays, lack of transparency, and increased operating costs. The Indian government launched several digital customs platforms to address these issues:

ICEGATE: Indian Customs Electronic Gateway — enables importers, exporters, and customs brokers to file Bills of Entry, pay duties, monitor shipment status, and electronically communicate with customs authorities.

e-Sanchit: Electronic Storage and Computerised Handling of Indirect Tax Documents — enables paperless submission of supporting documents like invoices, licenses, and certificates, linked to customs declarations.

CANOFUS: Customs Automated Network of Faceless Services — provides faceless, anonymous assessment of imported items, eliminating personal interaction between customs officers and importers.

2. Objectives:

1. To analyse how ICEGATE, e-Sanchit, and CANOFUS influence documentation processes among Navi Mumbai importers.
2. To examine the impact of digital customs platforms on customs clearance time and operational efficiency.
3. To assess the level of satisfaction and challenges faced by importers while using digital customs systems.
4. To evaluate the role of digital customs platforms in improving overall import compliance.

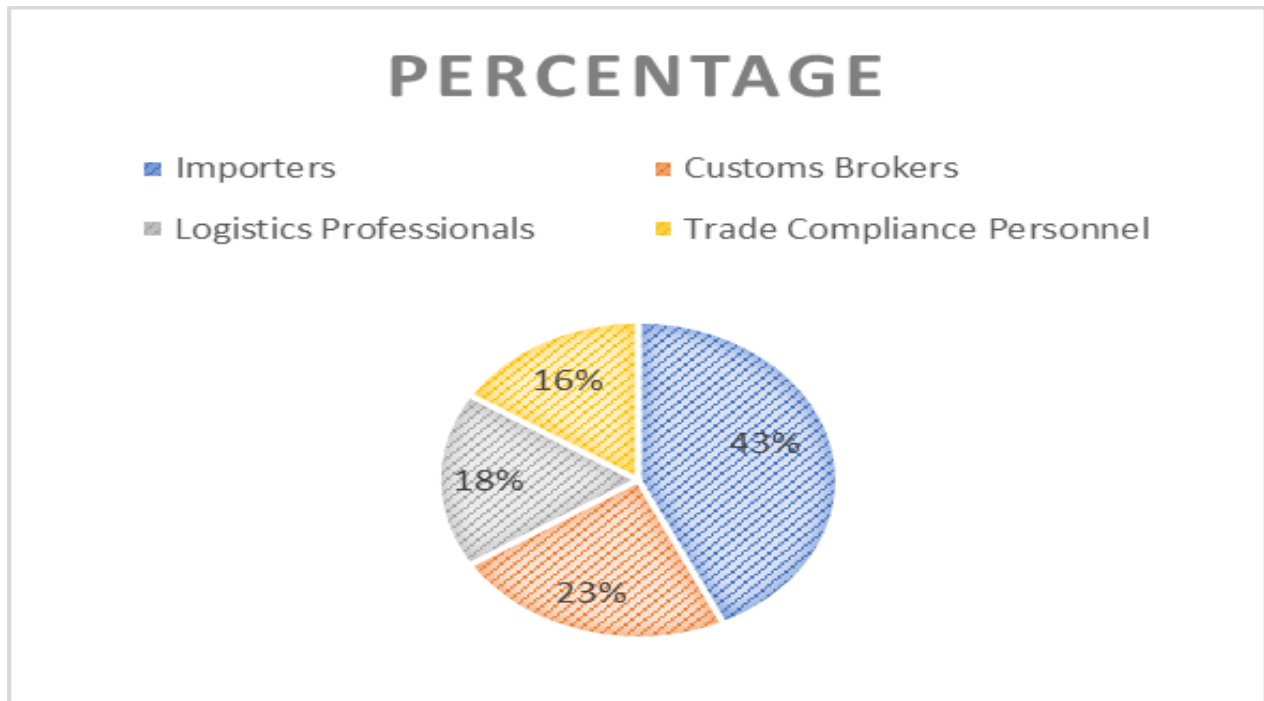
3. Research Methodology:

Research Design: Quantitative research design using structured questionnaire with 100 importers and trade participants in Navi Mumbai.

Statistical Tools: Percentage analysis and descriptive statistics.

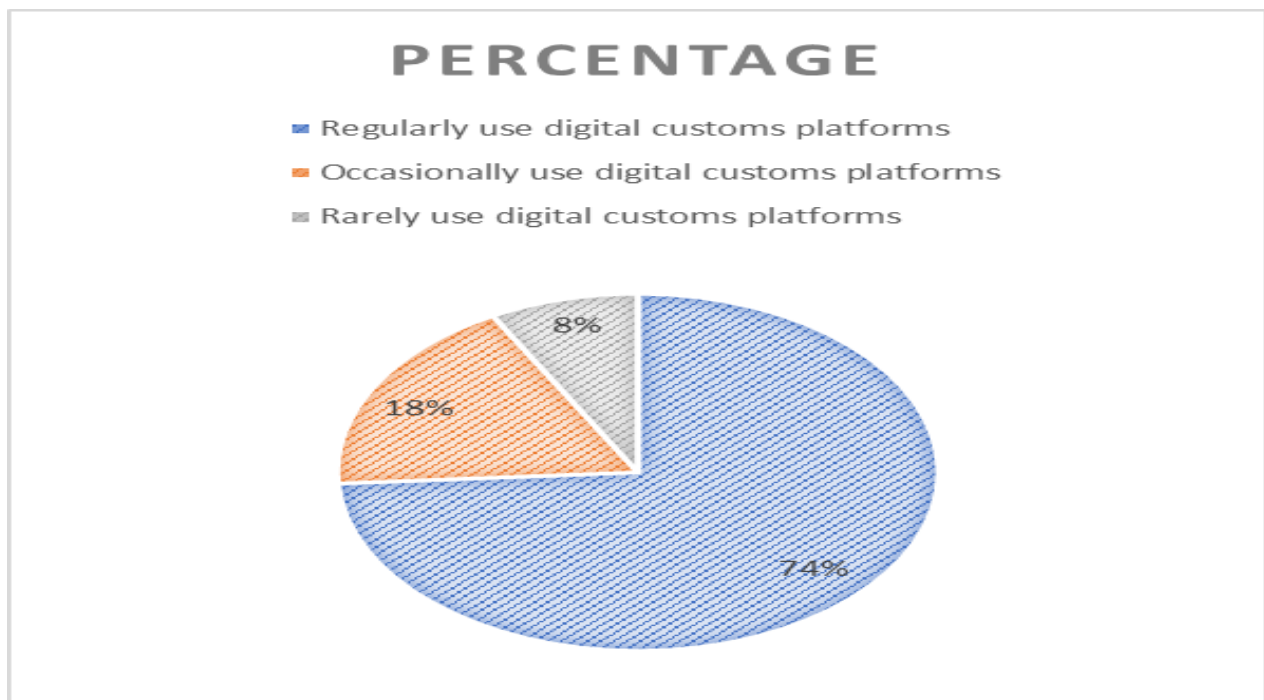
4. Data Analysis and Interpretation:

4.1 Frequency of Digital Customs Platform Usage



Interpretation: 74% of respondents are frequent users of ICEGATE or e-Sanchit for customs documentation. A further 18% use these systems occasionally and only 8% rarely. This demonstrates that the use of digital customs systems is now an integral part of the importation process among Navi Mumbai importers.

4.2 Impact of Digital Customs on Clearance Efficiency



Interpretation: About 90% of importers found electronic document submission easier than conventional method. Digital customs systems have significantly reduced clearance time, paperwork, and the need for physical visits to customs offices, resulting in faster, more transparent import processes.

5. Key Findings:

- Use of ICEGATE, e-Sanchit, and CANOFUS has enhanced efficiency, transparency, and reliability of the import process.
- About 90% of importers found electronic document submission easier than conventional method.
- Through ICEGATE, importers can submit documents electronically, track shipments in real time, and pay duties online.
- CANOFUS allows faceless assessment eliminating personal interaction between customs officers and importers.
- e-Sanchit allows paperless submission of supporting documents, eliminating physical copies.
- Digital customs systems have reduced time and improved compliance with import regulations.

6. Suggestions:

- Regular technical upgrades and system improvements should be maintained to keep digital customs platforms operating efficiently.
- Training and awareness programs should be conducted for importers and customs brokers to enhance system utilization.
- The integration of customs, logistics, and financial systems should be improved for better data sharing.
- User support services should be improved to help importers facing technical difficulties.
- Reliability of the system should be improved to reduce downtime and ensure uninterrupted access.

7. Conclusion:

Digital customs are an important aspect of modernizing import processes and improving the level of compliance by importers in Navi Mumbai. ICEGATE, e-Sanchit, and CANOFUS have created efficiencies and enhanced transparency and accountability by providing electronic documents, reducing clearance times, and minimizing manual processes. Continued development of digital infrastructures and supporting policies will continue to strengthen customs administration and allow smoother international trade within India.

8. Limitations:

- Limited geographical scope — focuses on Navi Mumbai region only.
- Limited sample size — 100 respondents may not fully represent all importers.
- Study is based on respondents' perceptions and experiences, which might not accurately reflect objective reality.

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**A Study on the Role of ICEGATE (Including e-Sanchit) and CANOFUS on Import Compliance among
Navi Mumbai Importers**

Saravanan, M., & Britiny, B. (2025). Digitalizing customs: The impact of ICEGATE on India's EXIM trade efficiency.

A Study on UPI & OTP Scams: Awareness and Experiences of People in Panvel

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Abstract:

In today's digital era, online payment systems have become an essential part of daily financial activities. The widespread use of UPI platforms and OTP-based verification has made transactions faster and more convenient. At the same time, the growing dependence on digital payments has increased people's exposure to cyber scams, especially frauds involving UPI and OTP manipulation. This study focuses on understanding the awareness level and real-life experiences of people in Panvel regarding UPI and OTP scams, examining common fraud techniques and emphasizing the need for stronger awareness initiatives and improved safety measures.

Keywords: UPI, OTP Scams, Cyber Security, Digital Payments, Public Awareness, Fraud Prevention

1. Introduction:

In recent years, India has witnessed a rapid shift toward digital payments, transforming the way people manage their daily financial activities. Mobile banking, UPI, and OTP-based authentication systems have made transactions quick, convenient, and accessible to a wide section of society. From small vendors to large businesses, digital payment methods are now deeply integrated into everyday life. While these technologies offer efficiency and ease, they also expose users to new forms of cyber risks.

UPI and OTP scams have emerged as some of the most common digital frauds, targeting individuals who may not be fully aware of online security practices. Fraudsters often exploit trust, urgency, or lack of technical knowledge to trick users into sharing sensitive information. Many people continue to fall victim to scams due to misinformation, panic, or overconfidence in digital systems.

2. Scope and Significance:

Scope: Examines awareness and experiences related to UPI and OTP scams among digital payment users in Panvel, focusing on scam frequency, public knowledge about cyber fraud, and precautions people take while using digital payment platforms.

Significance: Highlights the growing concern of UPI and OTP scams in everyday digital transactions. Research helps measure how aware people are about digital security and whether they are prepared to recognize and avoid scams.

3. Objectives:

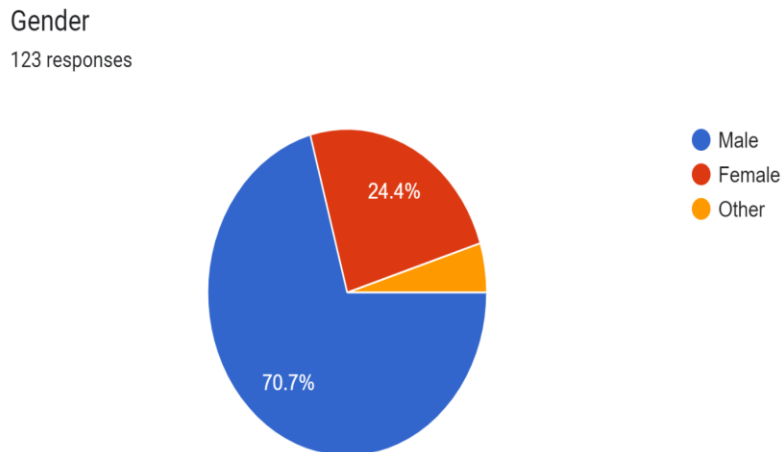
1. To understand the level of awareness about UPI and OTP scams among people in Panvel.
2. To examine the real-life experiences of scam victims and near-victims in Panvel.
3. To identify the most common types of UPI and OTP fraud techniques.
4. To assess whether people follow safe digital payment practices.
5. To recommend strategies to improve awareness and reduce vulnerability to digital scams.

4. Research Methodology:

Research Design: Descriptive research using structured questionnaire administered to digital payment users in Panvel. Percentage analysis and frequency distribution.

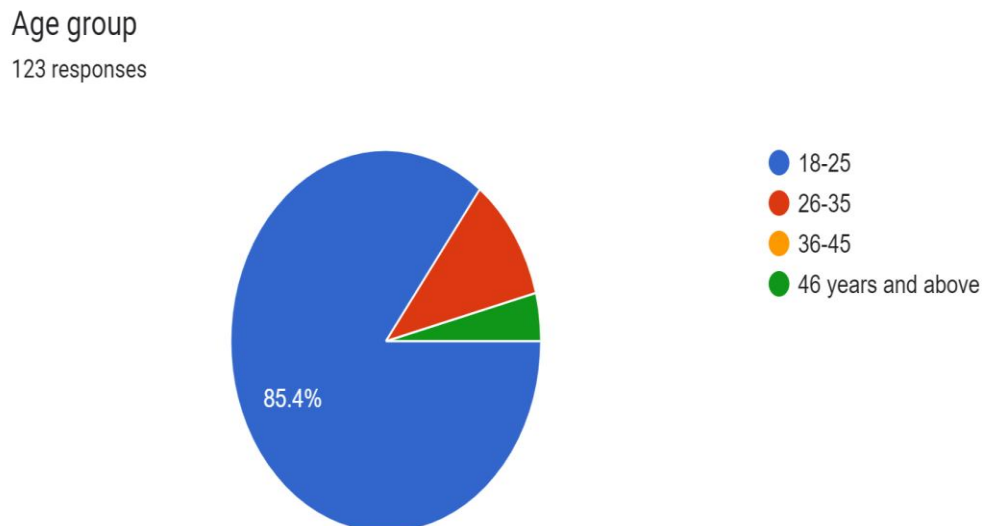
5. Data Analysis and Interpretation:

5.1 Frequency of UPI Usage



Interpretation: The majority of respondents use UPI payments daily or multiple times per week, confirming that UPI has become deeply integrated into everyday financial activities — and thus greater exposure to potential scam attempts.

5.2 Awareness of UPI/OTP Scam Types

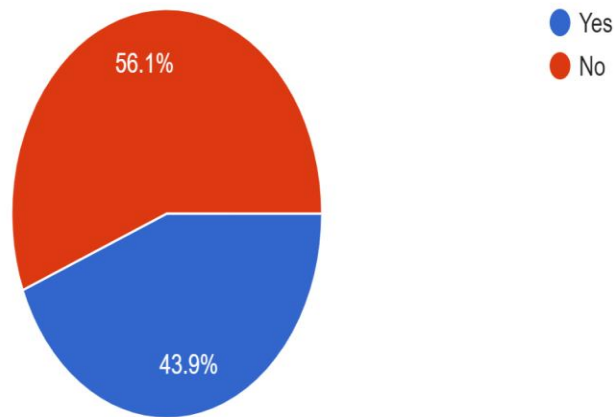


Interpretation: A significant proportion are aware of common UPI and OTP scam types including fake payment requests, phishing links, and impersonation calls. However, awareness gaps exist particularly among older and less digitally literate users.

5.3 Personal Experience of Scam

Have you ever received a call or message asking for your OTP or to approve a UPI request?

123 responses

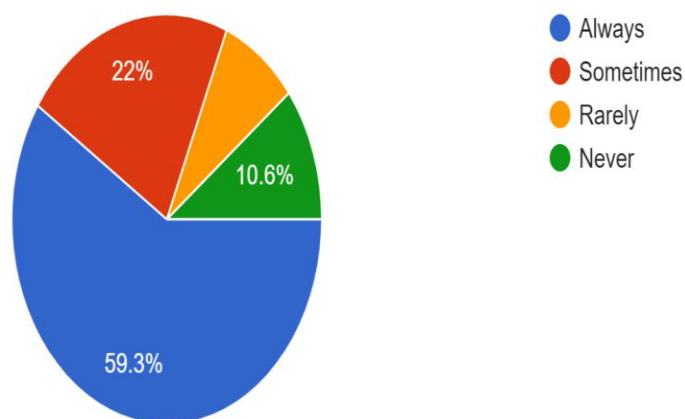


Interpretation: A notable proportion of respondents have personally experienced or know someone who has experienced a UPI or OTP scam. This indicates that online fraud is not rare — it is a widespread concern among digital payment users in Panvel.

5.4 Mode of Scam Contact

Do you check carefully before clicking on unknown links or QR codes?

123 responses

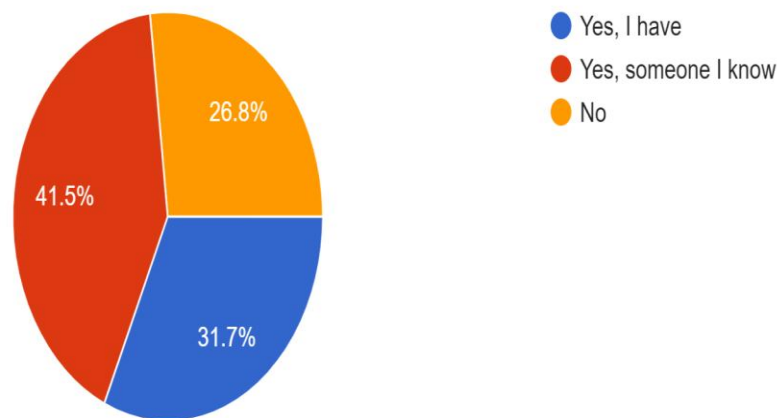


Interpretation: Phone calls are the most common method used by scammers, as they create urgency and fear. Fraudsters typically impersonate bank officials or government representatives to manipulate victims into sharing OTPs or approving payment requests.

5.5 Amount Lost in Scam

Have you or someone close to you ever lost money because of an online scam?

123 responses

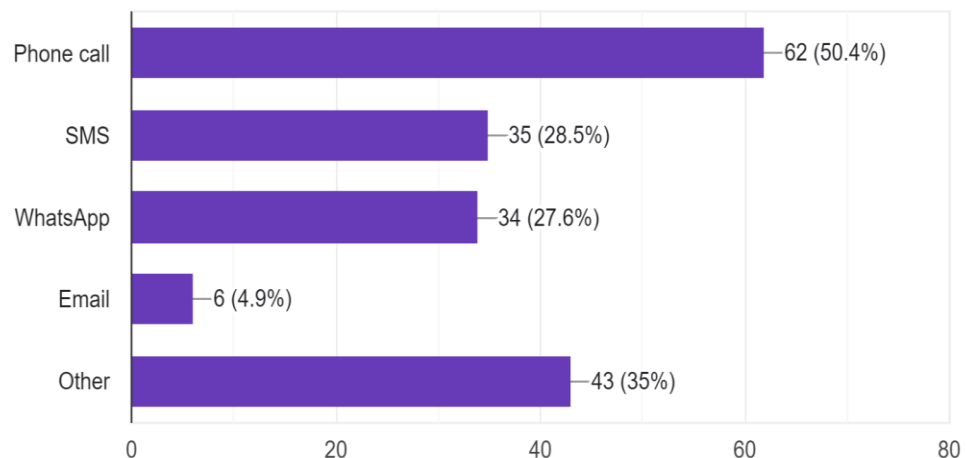


Interpretation: The amounts lost in UPI/OTP scams vary, with most victims losing small to medium amounts. However, even small losses can significantly impact individuals with limited incomes, highlighting the need for better fraud prevention.

5.6 Action Taken After Fraud

If yes, how did the scammer contact you?

123 responses

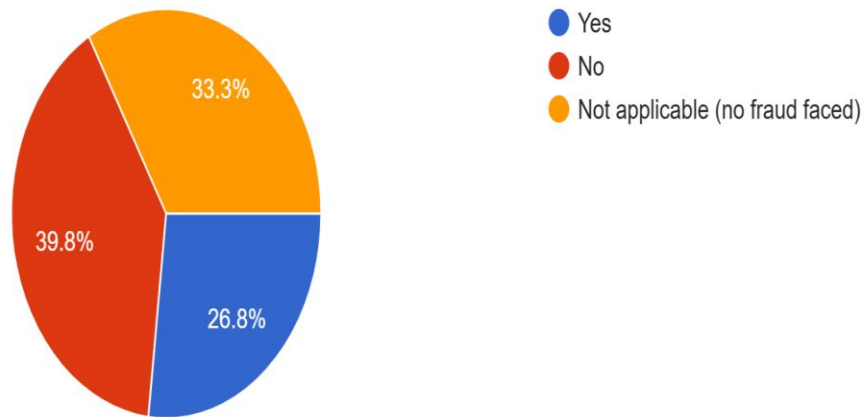


Interpretation: Many victims do not report fraud cases to the police or cybercrime portal, feeling the process is complicated. This highlights the need for simpler, more accessible complaint mechanisms and greater awareness of reporting channels.

5.7 Money Recovery After Scam

Did you report the fraud to the police or on the cybercrime website?

123 responses

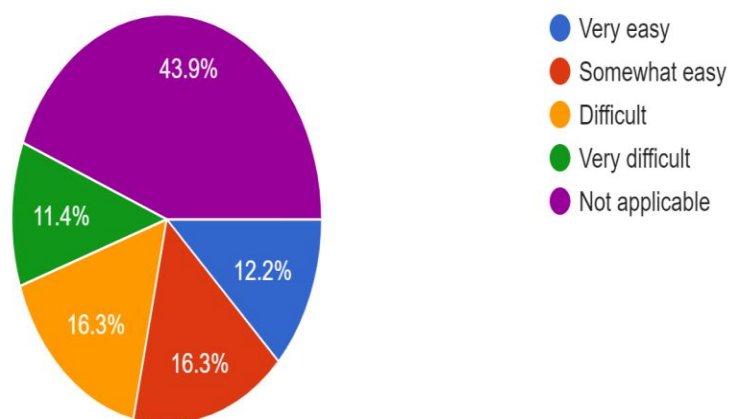


Interpretation: Most victims were unable to recover their lost money, underscoring the importance of prevention over cure — once funds are transferred, recovery is extremely difficult, making awareness and caution critical.

5.8 Precautions Taken to Avoid Scams

How easy or difficult was it to file the complaint?

123 responses

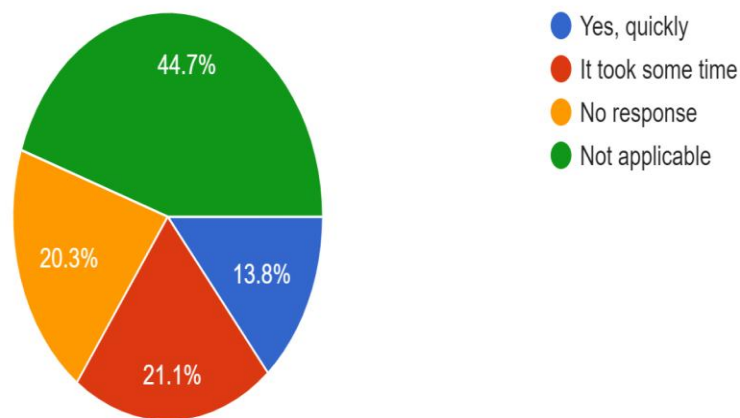


Interpretation: Many respondents are aware of precautions such as never sharing OTPs and avoiding unknown links. However, in-the-moment panic or social engineering can override these precautions, indicating the need for stronger behavioral education.

5.9 Trust in Digital Payment Security

Did your bank respond quickly after you reported the fraud?

123 responses

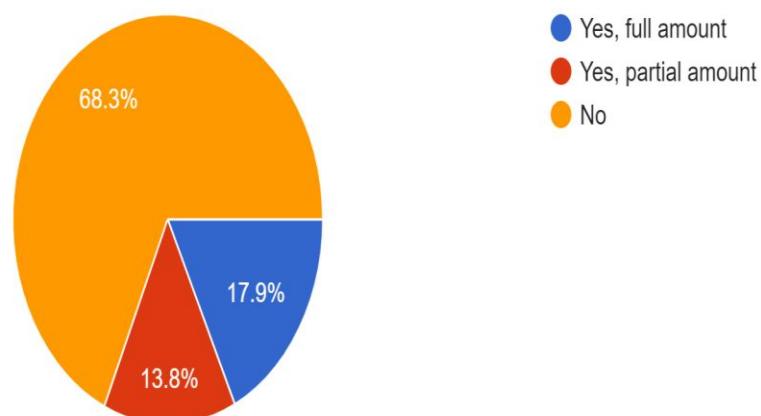


Interpretation: Despite experiencing scams, many respondents still maintain moderate to high trust in digital payment systems overall, suggesting that awareness and trust can coexist when appropriate security measures are in place.

5.10 Awareness of Cybercrime Helpline (1930)

Were you able to get back any of the money that was lost?

123 responses

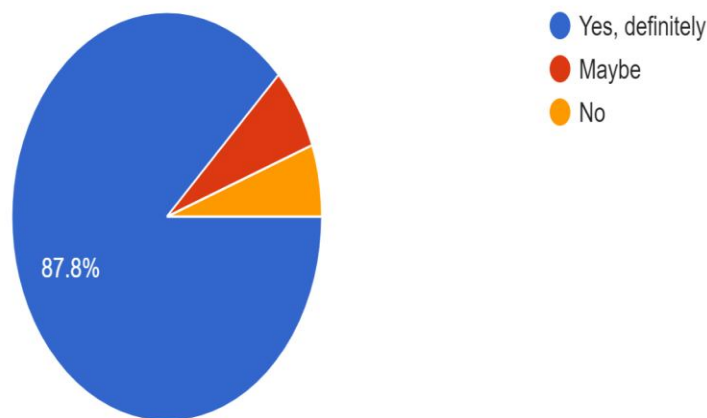


Interpretation: Awareness of the National Cybercrime Helpline (1930) varies among respondents. Many are unaware of this resource, indicating a significant gap in communication of available fraud reporting and recovery channels.

5.11 Need for More Awareness Programs

Do you think banks and police should do more to spread awareness about UPI/OTP scams?

123 responses



Interpretation: An overwhelming majority agree that more awareness programs about UPI and OTP scams are needed, reflecting clear public demand for better education about digital security and safe payment practices.

6. Key Findings:

- Online fraud is not rare — a large number of respondents either lost money themselves or know someone who has been affected.
- Phone calls are the most common method used by scammers, creating urgency and fear.
- Many victims do not report fraud cases to the police or cybercrime portal, feeling the process is complicated.
- Most victims were not able to recover their lost money after being scammed.
- Awareness exists, but practical caution and strong preventive behavior are still lacking.
- There is a strong need for continuous awareness programs, faster bank response systems, and easier complaint procedures.

7. Suggestions:

- Banks, police, and educational institutions should conduct workshops and seminars about UPI and OTP frauds using practical examples.
- UPI apps should display frequent pop-up warnings such as 'Do not share OTP' and 'Do not approve unknown requests.'
- Banks should respond quickly when fraud is reported to freeze transactions and help recover money.
- The cybercrime complaint process should be simple and user-friendly so that victims feel comfortable reporting fraud.
- People should be educated to report fraud immediately through the cybercrime helpline (1930) to increase recovery chances.
- Users should follow safe digital habits: never share OTPs, never scan QR codes to receive money, avoid unknown links, and verify callers claiming to be bank officials.

8. Conclusion:

The study concludes that awareness exists among people in Panvel about UPI and OTP scams, but practical caution and strong preventive behavior are still lacking. Online fraud is not rare — a large number of respondents either lost money themselves or know someone who has been affected. Phone calls are the most common method used by scammers. Many victims do not report fraud cases, and most were not able to recover their lost money. There is a strong need for continuous awareness programs, faster bank response systems, and easier complaint procedures to reduce UPI and OTP scams in Panvel.

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Digital Identity Systems and Academic Visibility: A Comprehensive Empirical Study of Social Science Scholars in Taiwanese Universities

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Abstract:

This study examines the evolution, adoption, and academic impact of digital identity systems within the contemporary research ecosystem. Focusing on Taiwanese social science scholars, the research evaluates how platforms such as ORCID, ResearchGate, Google Scholar, and Twitter influence citation visibility, professional networking, interdisciplinary collaboration, and knowledge dissemination. Using a mixed-methods approach combining profile analysis, citation metrics, survey responses, and statistical modeling, the study demonstrates a positive correlation between active digital identity management and increased research impact. While digital platforms enhance global engagement and academic branding, challenges related to privacy, metric bias, platform dependency, and digital literacy remain significant. The findings emphasize the strategic importance of structured digital identity integration in higher education institutions.

Keywords: *Digital Identity, Scholarly Communication, Academic Visibility, Altmetrics, ORCID, Taiwan*

1. Introduction:

Digital transformation has reshaped global scholarly communication. Researchers increasingly rely on digital identity systems to ensure persistent attribution, global visibility, and research interoperability. Traditional print-based dissemination models limited discoverability and often created author name ambiguity. Persistent identifiers and academic networking platforms now provide structured mechanisms for tracking research outputs, citation metrics, and professional engagement.

2. Literature Review:

Existing scholarship highlights the importance of persistent digital identifiers in reducing author ambiguity and improving metadata integration. Academic social networking platforms contribute to citation impact and interdisciplinary communication. Recent studies (2020–2024) further emphasize the role of altmetrics, open science integration, and social media engagement in shaping modern research evaluation systems.

3. Research Objectives:

The study aims to analyze adoption patterns, measure citation impact, evaluate networking benefits, and identify ethical and technical challenges associated with digital identity platforms.

4. Methodology:

A mixed-methods research design was implemented. Quantitative data included citation counts, h-index values, and profile completeness scores. Qualitative data were gathered through survey responses regarding digital engagement behaviors. Statistical correlation analysis was performed to examine relationships between adoption rates and citation growth.

5. Statistical Analysis and Results:

The statistical data collected from sampled scholars indicate measurable variation in adoption rates and citation increases across platforms. Correlation analysis suggests a positive relationship between digital engagement intensity and research visibility.

Table 1: Platform Adoption and Citation Impact

Platform	Adoption Rate (%)	Avg Citation Increase (%)
ORCID	68	22
ResearchGate	74	28
Google Scholar	92	35
Twitter	55	18

Figure 1: Adoption Rate of Platforms

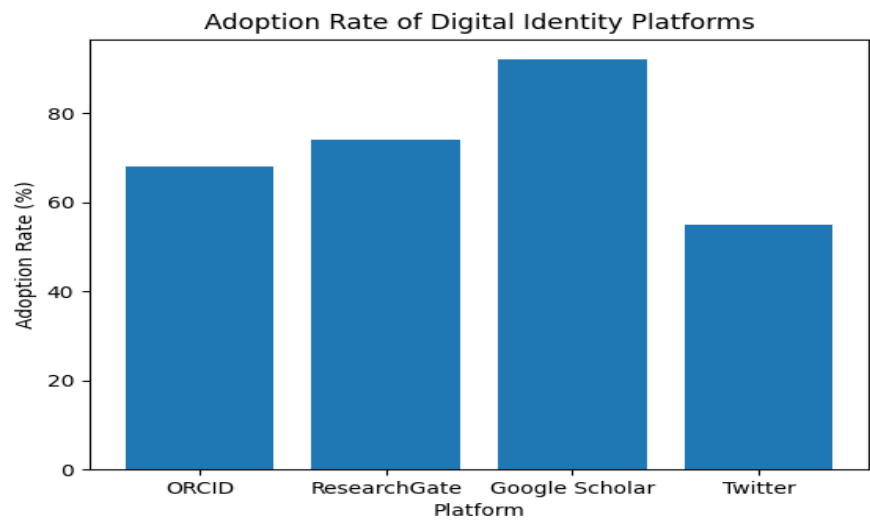


Figure 2: Citation Increase by Platform

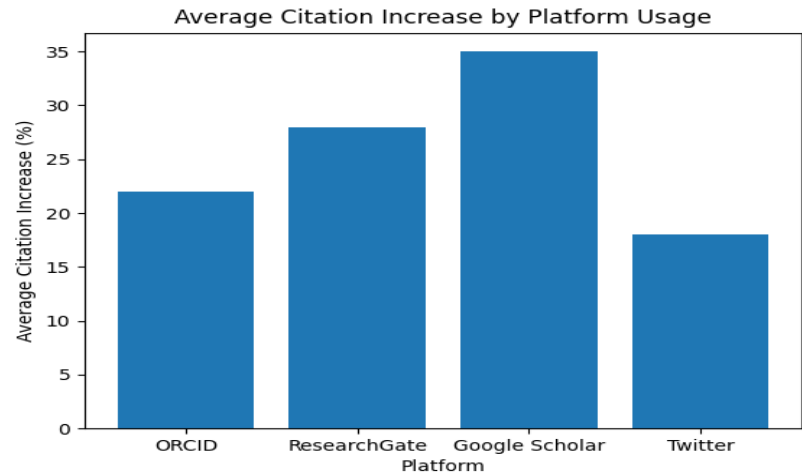
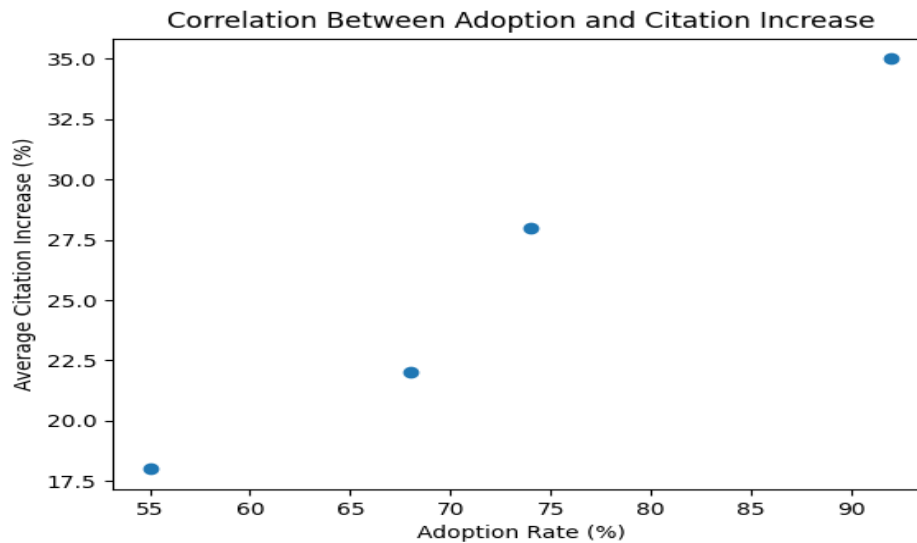


Figure 3: Correlation Between Adoption and Citation Impact



The data indicate that Google Scholar demonstrates the highest adoption rate (92%) and the strongest average citation increase (35%). ResearchGate also shows substantial engagement benefits. The scatter plot illustrates a positive association between adoption rate and citation growth, suggesting that structured digital identity engagement contributes to measurable research visibility.

6. Discussion:

The findings reinforce the theoretical assumption that digital identity systems function as critical infrastructure within the modern research ecosystem. Persistent identifiers improve research traceability, while academic networking platforms amplify dissemination beyond institutional repositories.

7. Policy Implications:

Universities should integrate ORCID into institutional workflows, encourage responsible social media engagement, and provide structured digital literacy training programs. National research bodies should establish standardized digital identity frameworks to ensure equitable recognition.

8. Conclusion:

Digital identity systems are indispensable tools for academic visibility, collaboration, and knowledge diffusion. Despite ethical and technical challenges, strategic integration of digital identity management significantly enhances global research participation.

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Educational Hub Development and Urban Housing Stress: Evidence from Kota

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Somaiya School of Humanities and Social Sciences, Mumbai*

Abstract:

Rapid expansion of education-based urban centers has significantly influenced migration patterns and urban housing systems in emerging Indian cities. Kota, Rajasthan, widely recognized as India's coaching capital, attracts nearly 1.5–2.5 lakh students annually for competitive examination preparation, transforming the city from an industrial town into an education-driven urban economy. This large-scale seasonal student migration has generated substantial pressure on rental housing, infrastructure, and civic services. The present study examines rental housing pressure in Kota as a consequence of education-led urban transformation. Findings indicate that Kota's built-up area expanded by more than 111% between 1990 and 2015. Correlation results reveal a strong positive relationship ($r \approx 0.99$) between time and rental prices during 2000–2023, confirming sustained housing inflation during peak student inflow.

Keywords: *Student Migration, Educational Hubs, Rental Housing Pressure, Urban Transformation, Kota City, Urban Economics*

1. Introduction:

Rapid urban transformation in developing economies is increasingly influenced by migration linked to education and service-sector activities. Kota, located in Rajasthan, represents one of the most prominent examples of such transformation, evolving from an industrial town into the country's leading coaching centre for competitive examinations such as JEE and NEET. Over the past three decades, large-scale student migration has reshaped Kota's economic and spatial structure. The city attracts nearly 1.5–2.5 lakh students annually, creating a substantial floating population within an urban system originally planned for fewer than one million residents.

The expansion of student housing in Kota largely occurred through informal and market-driven mechanisms rather than planned urban development. As demand increased, residential buildings were converted into commercial student accommodations, resulting in rising rents, overcrowding, pressure on civic infrastructure, and declining housing quality. The recent decline of nearly 30–40% in student enrolment has exposed structural vulnerabilities within the city's housing market, including oversupply, vacancy growth, and income instability for local stakeholders.

2. Objectives of the Study:

1. To examine how education-led student migration has contributed to rental housing pressure in Kota.
2. To analyze spatial expansion patterns of Kota between 1990 and 2025.
3. To assess rental price trends and their correlation with student migration.
4. To evaluate policy responses and their effectiveness in addressing student housing challenges.
5. To identify implications for sustainable urban planning in education-centered cities.

3. Research Methodology:

Data Type: Secondary data from academic studies, satellite-based land use analysis, government reports, and media sources covering 1990–2026.

Analytical Tools: Percentage analysis, trend assessment, and Pearson correlation analysis.

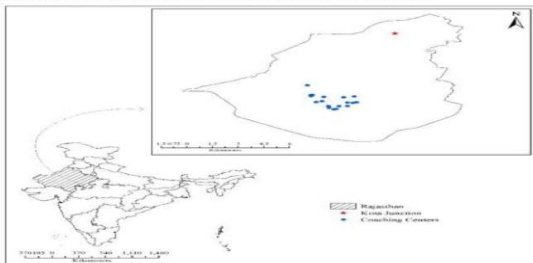
4. Data Analysis and Results:

4.1 Spatial Expansion of Kota (1990–2015)

Kota's built-up area expanded by more than 111% between 1990 and 2015, accompanied by a sharp decline in open spaces. This reflects the rapid migration-driven urban expansion fueled by the coaching industry. The following figures illustrate Kota's spatial and housing dynamics:

Industrial Town to Educational Hub : Trans

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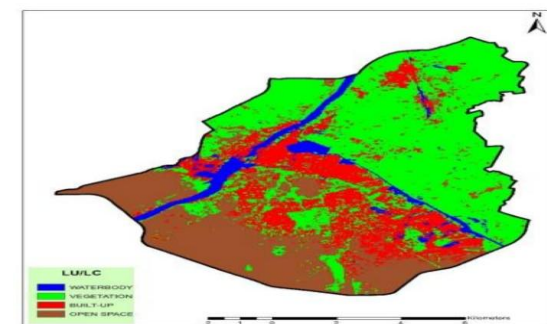


Source: USGS Earth Explorer, Satellite Imag
Fig 1: Location of Coaching Cen
Fig 2: Land Use/Cover of Kota, 1990

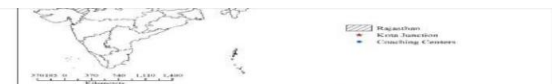


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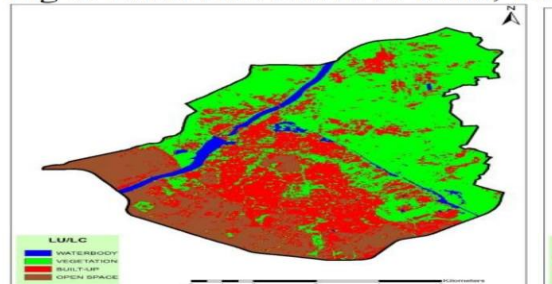
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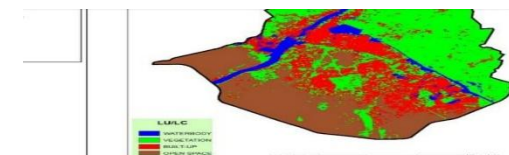
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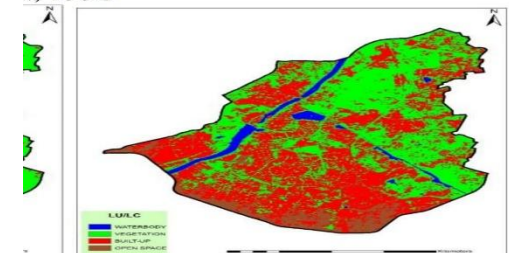
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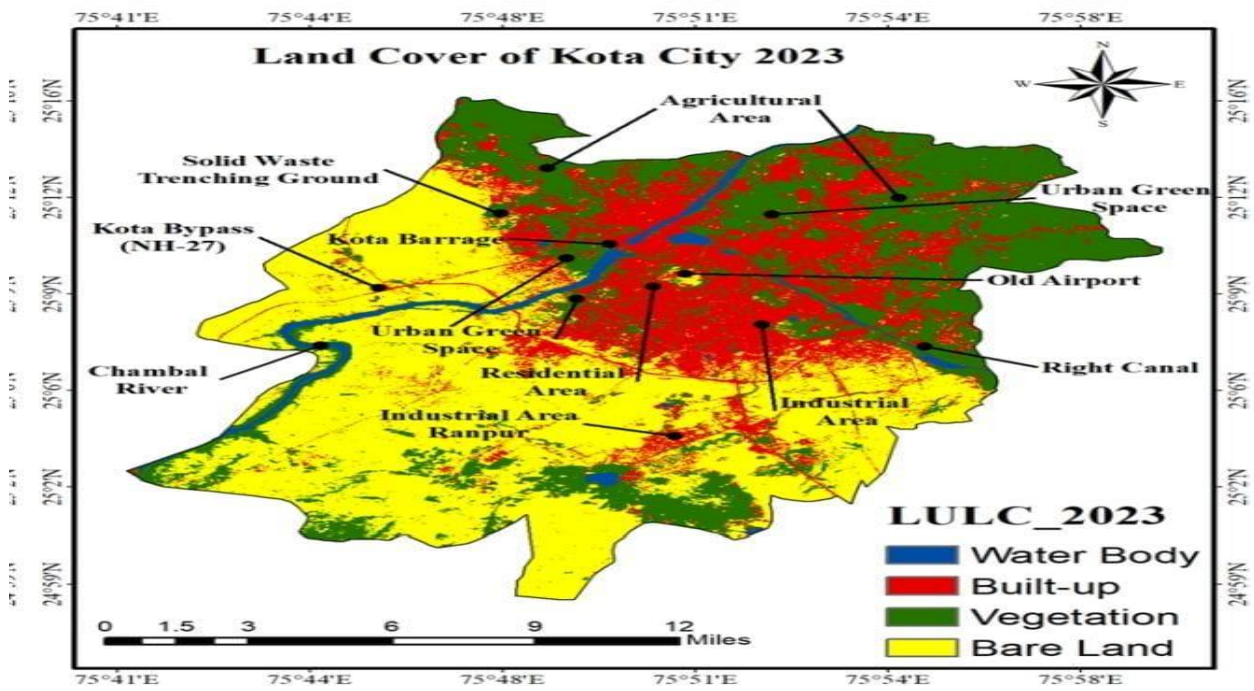
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Fig 3: Land Use/Cover of Kota, 2000Fi



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ite Image, Landsat 7-2000 (13-09-2000)Source
e, Landsat 8-2015 (17-10-2015)Source
000Fig 4: Land Use/Cover of Kota, 2015



Area (ha)					Change (in ha and Percentage)	
	1990	2000	2015	1990-2000	2000-2015	1990-2015
Water Body	773.1	488.137	497.047	-284.963 (-36.86)	8.91 (1.83)	-276.053 (-35.71)
Vegetation	6847.74	6932.84	6132.89	85.1 (1.24)	-799.95 (-11.34)	-714.85 (-10.44)
Built-Up	3025.8	4181.6	6401.05	1155.8 (38.2)	2219.45 (53.08)	3375.25 (111.55)
Open Space	3515.04	2518.24	1089.83	-996.8 (-28.36)	1428.41 (-56.72)	-2425.21 (-69)

Year (X)	Rent (Y)	X ²	Y ²	XY
2000	2750	4000000	7562500	5500000
2010	5000	4040100	25000000	10050000
2015	7000	4060225	49000000	14105000
2023	9000	4092529	81000000	18207000
TOTAL	23750	16192854	162562500	47862000

Year	Rent Range (₹)	Midpoint (Y)
2000	2,000 - 3,500	2750
2010	4,000 - 6,000	5000
2015	5,000 - 9,000	7000
2023	6,000 - 12,000	9000

Year (X)	Rent (Y)	X ²	Y ²	XY
2020	10000	4080400	100000000	20200000
2022	12500	4088484	156250000	25275000
2024	6500	4096576	42250000	13156000
2026	6500	4104676	42250000	13169000
TOTAL	35500	16370136	340750000	71800000

Year	Rent Range (₹)	Midpoint (Y)
2020	8,000–12,000	10000
2022	10,000–15,000	12500
2024	5,000–8,000	6500
2026	5,000–8,000	6500

4.2 Rental Price Trends and Correlation Analysis

Correlation results reveal a strong positive relationship ($r \approx 0.99$) between time and rental prices during 2000–2023, confirming sustained housing inflation during peak student inflow. Conversely, a strong negative correlation ($r \approx -0.73$) during 2020–2026 highlights declining rental pressure following reduced enrolment and increasing vacancies.

Period	Built-up Area Growth	Student Inflow	Approximate Rental Range
Pre-Expansion (1990)	Base	Base	Low (₹500–1000/month)
Peak Coaching Growth (2005–2015)	111% above 1990	High	Moderate-High (₹3000–6000/month)
2020–2023 (COVID Impact)	Stable	Declining (COVID)	High Volatility
2024–2026 (Declining Enrolment)	Oversupply	–30% to –40%	Declining (₹2000–4000/month)

Pearson Correlation Analysis shows:

- Time vs. Rental Price (2000–2023): $r \approx 0.99$ (Strong Positive Correlation — confirms sustained housing inflation during peak student inflow)
- Student Enrolment vs. Rental Price (2020–2026): $r \approx -0.73$ (Negative Correlation — declining enrolment leads to declining rental prices)

5. Discussion:

The study demonstrates that Kota's housing market is highly dependent on education-induced migration and lacks structural stability compared to diversified metropolitan cities. Government initiatives have improved monitoring and student welfare; however, implementation gaps persist due to informal housing practices and limited regulatory enforcement. The Kota Cares initiative launched in 2025 has introduced new guidelines for coaching centres and hostels, representing a positive step toward student welfare reform.

6. Findings:

- Kota's built-up area expanded by more than 111% between 1990 and 2015, driven primarily by student migration-led housing demand.
- A strong positive correlation ($r \approx 0.99$) between time and rental prices during 2000–2023 confirms sustained housing inflation during peak student inflow periods.
- The recent decline of 30–40% in student enrolment has created oversupply and declining rental prices, exposing the structural vulnerability of a mono-sectoral housing market.
- Government interventions through Kota Cares and the Model Tenancy Act represent positive policy responses, but implementation gaps remain.
- The informal character of PG and hostel accommodations limits regulatory enforcement and tenant protection.

7. Conclusion and Policy Recommendations:

The research contributes to the broader understanding of how education hubs reshape urban spatial structure, rental markets, and local economies in developing cities. The findings emphasize the need for planned student housing, strengthened tenancy regulation, and economic diversification to ensure sustainable urban development in education-centered cities. Kota's experience serves as a critical case study for policymakers managing rapidly growing educational urban economies.

Policy recommendations include: developing formal planned student housing projects; implementing and enforcing tenancy regulations; encouraging economic diversification to reduce dependency on the

coaching industry; and strengthening safety, welfare, and mental health infrastructure for student communities.

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Effectiveness of Virtual Laboratory Integration in Teaching Viscosity Experiments: A Secondary Data Study with Reference to Undergraduate Colleges in Navi Mumbai

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Abstract:

The use of digital tools in higher education has reshaped the way laboratory-based subjects are taught and learned. In Physical Chemistry, viscosity experiments are essential for explaining fluid flow, intermolecular interactions, and determination of molecular weight of polymer samples. This study adopts a descriptive and analytical approach based exclusively on secondary data from peer-reviewed research articles, academic reports, educational policy documents, and digital laboratory studies published between 2005 and 2024. The objective is to examine the effectiveness of virtual laboratories and blended instructional models in improving the teaching and learning of viscosity experiments in undergraduate science education. The synthesis of existing literature indicates that the integration of simulation-based tools enhances conceptual understanding, improves academic performance and minimizes procedural mistakes during practical sessions.

Keywords: *Virtual Lab Integration, Blended Instructional Approach, Physical Chemistry Education, Viscosity Determination, Ostwald Viscometer, Digital Simulations, Secondary Research Analysis*

1. Introduction:

Practical experimentation is a fundamental element of science education, as it allows students to experience the application of theoretical principles in controlled settings. In Physical Chemistry, viscosity experiments play a significant role in explaining fluid behaviour, intermolecular forces, and determination of molecular weight of polymer samples. These experiments are generally conducted using instruments such as the Ostwald Viscometer, which require precision in measurement, careful timing, and accurate calculation. However, the effectiveness of traditional laboratory instruction is often influenced by institutional and logistical limitations such as expanding student enrollment, limited equipment availability, and time constraints during practical sessions.

The integration of digital technologies in higher education has created new avenues for enhancing laboratory pedagogy. Virtual laboratories and interactive simulations offer structured environments where learners can explore experimental procedures step by step, modify variables, and observe simulated results in real time. Blended laboratory models, which combine digital simulations with physical experimentation, represent an evolving instructional strategy aimed at improving learning efficiency and engagement.

2. Review of Literature:

Ma and Nickerson (2006): Conducted one of the earliest comprehensive reviews comparing hands-on, simulated, and remote laboratories. Concluded that simulation-based laboratories can effectively support conceptual understanding when aligned with instructional goals and are particularly useful for reinforcing theoretical principles before physical experimentation.

Effectiveness of Virtual Laboratory Integration in Teaching Viscosity Experiments: A Secondary Data Study with Reference to Undergraduate Colleges in Navi Mumbai

Smetana and Bell (2012): In a meta-analysis of computer simulations in science instruction, reported that simulations significantly improve conceptual comprehension when integrated with guided inquiry. Emphasized that visualization of abstract processes enhances students' ability to relate theory to observable outcomes.

de Jong, Linn, and Zacharia (2013): Examined the combined use of physical and virtual laboratories and concluded that blended approaches produce superior learning outcomes compared to either method alone. Demonstrated that simulations facilitate repeated experimentation and conceptual visualization while physical labs develop procedural and manipulative skills.

Brinson (2015): Found consistent support for virtual and remote laboratories achieving equivalent or superior learning outcomes in certain domains compared to traditional hands-on instruction.

3. Objectives:

1. To review existing literature on virtual laboratory integration in science education.
2. To examine the effectiveness of blended instructional models for viscosity experiments.
3. To evaluate learning outcomes of simulation-supported laboratory instruction.
4. To assess the relevance and applicability of virtual laboratory tools for undergraduate colleges in Navi Mumbai.

4. Results — Secondary Data Synthesis:

The synthesis of secondary data from studies published between 2005 and 2024 indicates that the integration of virtual laboratories and visual simulations has a measurable positive impact on learning outcomes in chemistry education. Across multiple empirical investigations, students who engaged with simulation-supported instruction demonstrated post-test score improvements ranging from 15% to 25% compared to those exposed only to traditional laboratory methods.

A substantial proportion of reviewed studies reported positive student perceptions toward virtual laboratories, with more than 80% of learners expressing satisfaction with simulation-based modules. Students highlighted benefits such as ease of repetition, improved visualization of abstract concepts, and reduced anxiety before performing physical experiments.

Secondary evidence also indicates a noticeable reduction in procedural errors when simulations were used as preparatory tools before actual laboratory sessions. In viscosity experiments conducted using the Ostwald Viscometer, students who practiced virtually demonstrated better timing accuracy, correct sequencing of steps, and improved calculation of viscosity coefficients.

Learning Outcome Indicator	Key Finding from Secondary Data
Post-test score improvement	15%–25% over traditional-only instruction
Student satisfaction with virtual labs	> 80% positive perception
Reduction in procedural errors	Significant — better timing and sequencing
Understanding of temperature dependence	Enhanced through animated fluid flow visualization

Blended vs. traditional only	Blended models consistently outperform traditional-only methods
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5. Discussion — Special Reference to Navi Mumbai Colleges:

Navi Mumbai has experienced rapid growth in higher education institutions offering undergraduate science programs. With increasing student enrollment, many colleges face challenges such as limited laboratory space, restricted experimental time per student, and equipment-sharing constraints. Based on the synthesized secondary data, the integration of virtual laboratories presents a feasible and effective strategy for addressing these challenges.

Simulation-based modules can serve as pre-laboratory training tools, enabling students to understand experimental procedures and theoretical concepts before entering the physical laboratory. This preparatory exposure can reduce crowding and optimize laboratory time by minimizing basic procedural errors. Virtual platforms also enhance student preparedness before handling delicate glass apparatus such as the Ostwald Viscometer, improving safety and confidence.

6. Recommendations:

- Incorporate virtual simulations related to viscosity experiments as mandatory pre-laboratory components in Physical Chemistry courses.
- Arrange professional development initiatives to equip faculty with skills in digital teaching methodologies and blended instructional practices.
- Colleges should invest in credible and curriculum-aligned virtual laboratory platforms to provide structured digital learning experiences.
- Adopt a blended laboratory approach combining physical experimentation with virtual simulations to optimize laboratory time.
- Foster collaboration among undergraduate science colleges in Navi Mumbai for sharing digital infrastructure, expertise, and best practices.

7. Conclusion:

The present study highlights the significant pedagogical value of integrating virtual laboratories and visual simulations into Physical Chemistry instruction, particularly for viscosity experiments. The synthesis of national and international research indicates that simulation-supported and blended laboratory models contribute to improved conceptual understanding, higher academic performance, reduced procedural errors, and stronger student engagement. With specific reference to undergraduate science colleges in Navi Mumbai, the adoption of blended laboratory frameworks appears both practical and beneficial, serving as a sustainable and academically sound approach to strengthening Physical Chemistry laboratory education.

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Enhancing Research Validity and Reliability through Robust Research Design and Methodology

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Abstract:

This research paper discusses the importance of effective research design in enhancing validity and reliability in scholarly investigation. Reliable academic work relies on validity and reliability, yet most research does not adhere to rigorous methodological principles. The research establishes the essential elements that can be used to improve the quality of research by reviewing the methodological literature. It discusses key forms of validity, such as internal, external, construct, and statistical conclusion validity, and measures of reliability, such as inter-rater, test-retest, and internal consistency reliability. Recommendations for both quantitative and qualitative research methods are based on the evidence provided, including correct sampling techniques, good instrumentation practice, triangulation methods, and ways of minimizing bias. The paper finds that validity and reliability are not just statistical issues but integral elements of ethical research practice.

Keywords: *Research Validity, Research Reliability, Research Design, Methodological Rigour, Research Quality*

1. Introduction:

The outcomes of research depend largely on the attention given to data collection and analysis. The key issues in research quality are validity — whether the research measures what it purports to measure — and reliability — whether the measurements are consistently reproducible. Many studies fail to achieve a satisfactory level of validity and reliability, and the findings can be described as dubious, unreliable, or even deceptive. Most failures of this nature are not necessarily due to intentional malpractice but more to design flaws, implicit biases, and assumptions that go unheard.

The replication crisis that has occurred in numerous fields, with more than 70% of scientists failing to replicate the findings of another scientist, leaves no doubt that there is a structural problem rather than an isolated issue. The research design is well constructed and addresses threats to validity and reliability in a practical way by anticipating these threats and incorporating precautions at the sampling, measurement, and analysis levels.

2. Types of Validity:

Internal Validity: Refers to the degree to which a study accurately measures cause-and-effect relationships within the study. Key threats include selection bias, history effects, maturation, and testing effects. Strategies to improve internal validity include randomization, control groups, and pre-test/post-test designs.

External Validity: The degree to which study findings can be generalized to other populations, settings, and time periods. Threats include sample non-representativeness and artificial research conditions. Replication studies and larger, more diverse samples strengthen external validity.

Construct Validity: Refers to whether a measurement tool accurately captures the theoretical construct being studied. It includes convergent validity and discriminant validity. Multi-trait-multimethod matrix and factor analysis are commonly employed techniques.

Statistical Conclusion Validity: The degree to which conclusions about relationships between variables are correct. Threats include low statistical power, violations of statistical assumptions, and multiple testing without correction.

3. Types of Reliability:

Test-Retest Reliability: The consistency of a measurement when repeated under the same conditions. High correlation between scores obtained on different occasions indicates good test-retest reliability.

Inter-Rater Reliability: The degree of agreement between different raters or observers. Commonly assessed through Cohen's Kappa, percentage agreement, or intraclass correlation coefficients.

Internal Consistency Reliability: The degree to which items in a scale measure the same construct. Cronbach's alpha is the most widely used measure, with values above 0.70 generally considered acceptable.

4. Strategies to Enhance Research Quality:

4.1 Quantitative Research Strategies

- Use random sampling methods to ensure representative samples and enhance external validity.
- Employ validated measurement instruments with established psychometric properties.
- Conduct pilot studies to identify and correct measurement and procedural issues.
- Apply appropriate statistical techniques aligned with data types and research questions.
- Report effect sizes and confidence intervals in addition to p-values.

4.2 Qualitative Research Strategies

- Member checking — sharing findings with study participants to verify interpretation accuracy.
- Triangulation — using multiple data sources, methods, or investigators to strengthen credibility.
- Thick description — providing sufficient contextual detail to enable assessment of transferability.
- Reflexivity — researchers explicitly acknowledging their positionality and potential biases.
- Prolonged engagement with research sites and participants to deepen contextual understanding.

4.3 Mixed Methods Strategies

- Clearly articulate the rationale for integration of qualitative and quantitative components.
- Ensure appropriate timing and sequencing of data collection phases.
- Develop integration points where qualitative and quantitative findings are explicitly compared.

5. Common Threats to Validity and Reliability:

Threat	Type of Validity Affected	Mitigation Strategy
Selection Bias	Internal	Use random assignment; stratified sampling
History Effects	Internal	Control groups; contemporaneous comparison

Attrition	Internal, External	Track dropout patterns; sensitivity analysis
Hawthorne Effect	Internal	Naturalistic observation; unobtrusive measures
Common Method Bias	Construct	Multiple measurement methods; procedural remedies
Low Statistical Power	Statistical Conclusion	Larger samples; a priori power analysis

6. Conclusion:

This paper has presented a comprehensive review of the principles, types, and strategies associated with validity and reliability in research design. Validity and reliability are not merely technical requirements but fundamental ethical obligations of responsible scholarship. Strong conceptual and methodological design results in credible, replicable, and meaningful research findings. As the replication crisis demonstrates, the consequences of neglecting these principles extend beyond individual studies to undermine cumulative scientific knowledge. Researchers, regardless of paradigm preference, should treat methodological rigor as an inseparable component of research integrity and professional responsibility.

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Establishing a Standardized and Extensible Marathi Language Resource Infrastructure for Next-Generation AI Models

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Abstract:

High-resource spoken languages have benefited the majority from the latest advances in artificial intelligence (AI) and natural language processing (NLP), leaving regionally important languages like Marathi comparatively underrepresented. Despite being spoken by more than 80 million people and being one of the major languages of India, Marathi cannot fully be incorporated into modern AI systems because of the absence of standardized corpora, annotated datasets, and speech resources. This study proposes the creation of a standardized and expandable Marathi language resource infrastructure specifically designed for next-generation AI models. The framework prioritizes compatibility with transformer-based architectures, multi-layer linguistic annotation, scalable metadata design, and corpus standardization. The proposed infrastructure seeks to improve Marathi speech recognition, text processing, and conversational AI capabilities by resolving foundational data deficiencies.

Keywords: *Marathi Language Resources, Low-resource Language AI, Transformer-based NLP, Corpus Standardization, Speech Recognition in Marathi*

1. Introduction:

Artificial intelligence and natural language processing have progressed rapidly in recent years, enabling machines to understand and generate human language with increasing accuracy. However, these advancements have largely benefited a limited number of widely used languages. Languages such as English, Chinese, and Spanish dominate current NLP research because they possess extensive digital corpora, annotated datasets, and computational resources. As a result, many regional and indigenous languages remain underrepresented in modern AI systems.

Marathi represents one such example. Although it is spoken by more than 80 million people and is one of the major languages of India, the language still lacks the large-scale linguistic infrastructure required for advanced NLP development. Voice-based technologies like Siri and Amazon Alexa show little contextual understanding of Marathi due to deeper linguistic and infrastructural resource gaps.

2. Literature Review:

Joshi (2022) — L3Cube-MahaNLP: One important step toward improving Marathi NLP resources was the development of the L3Cube-MahaNLP dataset collection, which includes corpora and transformer models designed for multiple Marathi language tasks. These datasets include MahaCorpus for language modeling, MahaSent for sentiment analysis, MahaNER for named entity recognition, and MahaHate for hate speech detection.

Magdum et al. (2023) — mahaNLP: The mahaNLP library provides an open-source toolkit for performing various NLP tasks in Marathi, supporting both basic preprocessing tasks and advanced applications such as sentence completion, sentiment classification, and entity recognition using transformer-based models.

Jadhav et al. (2025) — Paraphrase Detection: Research on Marathi paraphrase detection has shown that high-quality annotated datasets are essential for improving machine understanding of semantic similarity and contextual meaning in Marathi text.

Kakwani et al. (2020) — IndicNLP: Explored multilingual NLP frameworks for Indian languages, highlighting the importance of language-specific preprocessing and resource development for improved model performance across Indic languages.

3. Proposed Infrastructure Framework:

The proposed Marathi language resource infrastructure consists of four interconnected layers:

3.1 Data Collection and Preprocessing Layer

This layer focuses on collecting raw Marathi text and speech data from diverse sources, including digital news archives, literary databases, government documents, social media platforms, and audio recordings. Text normalization, tokenization, and script standardization are applied to ensure consistency across datasets.

3.2 Annotation Layer

Processed data is transferred to the Annotation Layer, where linguistic features are added to enhance the dataset. Annotation tasks include part-of-speech tagging, syntactic parsing, named entity recognition, and semantic labeling. This stage is crucial because annotated datasets provide contextual and grammatical information that allows machine learning models to better understand linguistic patterns within Marathi.

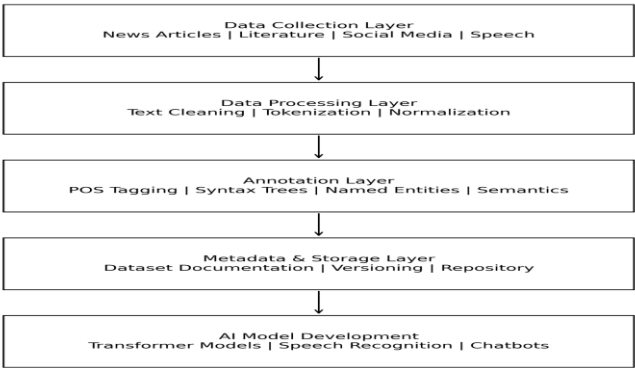
3.3 Metadata and Storage Layer

The enriched datasets are organized within the Metadata and Storage Layer, where appropriate documentation and structured storage mechanisms are maintained. This layer ensures that datasets are properly cataloged with metadata describing their source, annotation type, and usage guidelines, improving accessibility and facilitating future reuse.

3.4 AI Model Development Layer

The curated datasets are utilized in the AI Model Development Layer, where machine learning and deep learning models are trained for various NLP tasks including speech recognition, machine translation, sentiment analysis, question answering, and conversational AI systems designed for Marathi speakers.

Figure 1: Proposed Marathi Language Resource Infrastructure Architecture



4. Applications of Marathi AI Infrastructure:

- Voice-based digital assistants capable of understanding Marathi speech for accessing government services, educational resources, and digital communication tools.
- Machine translation systems that can translate Marathi content into other languages and vice versa.
- Educational technology platforms for automated essay evaluation, grammar correction tools, and reading assistance software.
- Healthcare communication systems — automated chatbots capable of understanding Marathi queries for preliminary medical information.
- Agricultural information systems where AI-powered Marathi voice assistants deliver weather forecasts, crop disease identification, and government support information.
- Digital governance initiatives where conversational AI systems guide citizens through government portals in Marathi.
- Cultural preservation through digitizing, analyzing, and preserving Marathi literature, poetry, and historical manuscripts.

5. Future Research Directions:

- Development of large-scale pretraining corpora specifically designed for transformer-based Marathi language models.
- Multimodal AI systems integrating text, speech, and visual data for Marathi applications.
- Federated learning techniques to expand Marathi datasets while preserving user privacy.
- Interdisciplinary collaboration between linguists, computer scientists, educators, and policymakers.

6. Conclusion:

Marathi remains underrepresented in modern NLP systems due to the absence of standardized datasets, annotated corpora, and speech resources. This study proposes the development of a standardized and extensible Marathi language resource infrastructure designed specifically for modern AI architectures. By focusing on corpus standardization, multi-layer linguistic annotation, speech dataset development, and structured metadata management, the proposed framework aims to strengthen the foundations of Marathi NLP research. Building such infrastructure will require collaboration between academic institutions, research organizations, and technology companies. With coordinated efforts, Marathi can become an active participant in the global development of multilingual artificial intelligence.

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Future of Work Through AR and VR: As Businesses Shift to Hybrid Work Models, the Next Stage of Work is Immersive Virtual Collaboration through Augmented Reality (AR) and Virtual Reality (VR)

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Abstract:

The nature of work is quickly changing as a result of digital advancements and the growing trend of hybrid work models. This trend is guiding us toward a new way of working: immersive experiences in the Metaverse and Extended Reality (XR). This study looks at how the growing use of technologies like Augmented Reality (AR) and Virtual Reality (VR) is shaping the future of work by creating interactive, virtual, and limitless work environments. As more organizations adopt hybrid and remote work models, immersive XR environments are opening up new opportunities for collaboration, virtual meetings, training sessions, and simulated virtual workspaces. The major advantages are enhanced communication, experiential learning, cost-effectiveness, and the ability to innovate. The research concludes that organizations that adopt and leverage immersive technologies can design and deliver more adaptive, inclusive, and efficient work environments.

Keywords: *Metaverse, Extended Reality (XR), Future of Work, Hybrid Work, Virtual Collaboration, Augmented Reality (AR), Virtual Reality (VR), Digital Transformation*

1. Introduction:

Work, in its nature, is constantly changing with the continued growth of technology — from mechanization to the Information Revolution. A new work paradigm is emerging today, affected by immersive technologies like AR and VR and smart, connected online ecosystems. Due to the spread of high-speed internet technology, cloud computing, artificial intelligence, and cooperative technology, a hybrid way of work is being created that ceases to be based on the office atmosphere.

The COVID-19 pandemic accelerated the use of remote work more than ever before, forcing companies worldwide to adopt digital communication tools at a significantly greater scale. Although tools such as video conferencing and virtual work platforms contributed to maintaining operations, they also brought to the fore significant weaknesses — difficulty in actual face-to-face interaction and the collaborative space that physical proximity provides. XR technologies emerge precisely here, with a vision to cover these disadvantages by implementing a concept of spatial computing that would facilitate a physical experience in the virtual world.

1.2 Research Problem

The abrupt shift to digital work processes and hybrid models has entirely changed the aspect of work. AR, VR, and the larger nomenclature of XR have become a game-changer that is likely to make work more interactive and immersive. Nevertheless, most organizations face barriers to XR implementation, including the technology infrastructure needed, high implementation cost, cybersecurity and data privacy concerns, and employee resistance to change. The question is: how is it possible to bridge the gap between the potentially exciting world of AR/VR and their real-world use in the world of work?

Future of Work Through AR and VR: As Businesses Shift to Hybrid Work Models, the Next Stage of Work is Immersive Virtual Collaboration through Augmented Reality (AR) and Virtual Reality (VR)

2. Research Objectives:

1. To critically analyze the transition from traditional office-based work to hybrid and remote work systems facilitated by digital transformation.
2. To investigate how AR and VR technologies can be applied in supporting immersive collaboration, virtual meetings, simulation training, and virtual workspaces.
3. To assess the potential benefits of an XR-enabled work environment, including higher productivity, enhanced communication, educational experience, and cost-efficiency.
4. To investigate the potential obstacles to adoption of immersive technologies, including technological infrastructure, privacy issues, cybersecurity risks, and digital fatigue.
5. To evaluate the role of the Metaverse in business operations and its potential for creating borderless, inclusive workplaces.

3. Benefits of XR in the Workplace:

3.1 Enhanced Communication and Immersive Collaboration

XR technology provides cross-border work conditions in a constantly changing setting. Remote employees can interact as avatars, work in virtual environments, and collaborate in 3D spaces regardless of their physical locations. Organizations like Meta Platforms Inc. (Horizon Workrooms) and Microsoft Corporation (Microsoft Mesh) have developed dedicated platforms for immersive enterprise collaboration.

3.2 Experiential Learning and Training

Virtual Reality technology offers employees a chance to experience learning in action, providing a safe environment where skills can be practiced without the fear of real-world consequences. Applications range from virtual training simulations in healthcare and manufacturing to immersive co-working in architecture and engineering sectors.

3.3 Cost Efficiency and Resource Optimization

Adoption of immersive technology can lead to massive savings in terms of reduced travel, infrastructure, and traditional training expenses without affecting employee engagement.

4. Challenges and Barriers:

- High cost of entry — prohibitive technology investment requirements for hardware, software, and infrastructure.
- Technology constraints — current hardware limitations including device weight, field of view, and resolution.
- Cybersecurity and privacy risks — data security in virtual environments and protection of user identity.
- Digital fatigue — prolonged use of immersive technologies can cause physical discomfort and cognitive overload.
- Workforce preparedness — resistance to change and insufficient digital skills among employees.
- Ethical considerations — questions about behavior in virtual worlds, data ownership, and representation.

5. Key Findings:

- XR technology has great potential for facilitating hybrid and remote work by creating interactive, immersive, and borderless working conditions.
- The Metaverse as an alternative reality is providing novel possibilities for digital offices, enabling individuals to work, study, and create without physical boundaries.

- AR and VR have proven valuable in healthcare (training simulations), manufacturing (safety training), and architecture (design visualization).
- Organizations with strong digital readiness, employee upskilling programs, and ethical governance are more likely to successfully implement XR work environments.
- Immersive technologies have the potential to create inclusive and flexible workplaces where teams can work regardless of geographical location.

6. Conclusion:

The work pattern is in an evolutionary stage as modern work technologies are rapidly evolving toward immersive realities like AR, VR, and Extended Reality. The research shows that XR technology has great potential for facilitating hybrid and remote work, creating interactive, immersive, and borderless working conditions. However, to implement and integrate XR technology successfully, several issues must be resolved — high prices, technological constraints, privacy, online fatigue, and digital disparities. Organizations that adopt and leverage immersive technologies can design and deliver more adaptive, inclusive, and efficient work environments, offering a competitive edge in the constantly evolving digital world.

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Generative AI Tools for Academic Writing, Summarization, and Idea Generation: Applications, Challenges, and Future Directions

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Abstract:

Generative Artificial Intelligence (Generative AI) has rapidly emerged as a transformative technology in academic research and scholarly communication. Powered by large language models (LLMs) such as GPT, BERT-based architectures, and other transformer-driven systems, generative AI tools are increasingly being adopted to support academic writing, automate the summarization of scholarly literature, and assist researchers in generating innovative research ideas. These tools provide significant benefits by improving writing quality, reducing the time required for manuscript preparation, and addressing the challenges associated with the exponential growth of scientific publications. However, the growing integration of generative AI in academia raises critical concerns including hallucinated content, inaccurate citations, algorithmic bias, ethical misuse, and plagiarism risks. This study provides a comprehensive review of the generative AI tools used in academic writing, summarization, and ideation, discussing their technological foundations, key use cases, benefits, limitations, and ethical implications.

Keywords: *Generative AI, Academic Writing, Summarization, Idea Generation, Large Language Models, Research Tools, Scholarly Communication*

1. Introduction:

The integration of generative artificial intelligence into academic research environments represents one of the most disruptive technological transformations in the history of higher education. Large Language Models (LLMs), such as those built on transformer architectures, have demonstrated unprecedented capabilities in natural language generation. These models are trained on massive corpora containing books, research articles, and various web content. Consequently, they replicate the academic tone, structure, and disciplinary conventions with remarkable fluency. This capacity has led to rapid adoption by students, researchers, and faculty members worldwide.

This study argues that generative AI should function as an augmentative partner in scholarship, rather than as a substitute for human reasoning. It provides a comprehensive analysis of generative AI tools in three key domains: academic writing, automated summarization, and idea generation.

2. Theoretical and Technological Foundations:

2.1 Evolution of Language Models

The foundation of modern generative AI lies in transformer neural networks, introduced by Vaswani et al. (2017). Transformers employ self-attention mechanisms, enabling models to simultaneously analyze contextual relationships across entire text sequences. Unlike earlier recurrent neural networks, which processed words sequentially, transformers capture long-range dependencies more effectively, leading to coherent paragraph- and document-level generation. Subsequent scaling of model parameters and training data resulted in the emergence of Large Language Models.

2.2 How Generative AI Produces Academic Text

Generative AI operates through probabilistic next-token predictions. Given an input prompt, the model calculates the likelihood of possible subsequent words based on the patterns learned during training. This mechanism produces fluent and contextually appropriate responses but does not imply genuine understanding or intentionality. Strengths include high fluency and stylistic adaptability; limitations include potential hallucination and factual inaccuracies.

3. Applications in Academic Writing:

3.1 Academic Writing Support

- Drafting research sections including introductions, literature reviews, and methodology descriptions.
- Enhancing language clarity for non-native English speakers.
- Generating structured outlines and paragraph organization.
- Assisting with formatting and citation style adherence.

3.2 Literature Summarization

- Automating the summarization of scholarly literature to reduce review time.
- Identifying relevant literature across large databases.
- Synthesizing key findings from multiple papers into structured summaries.
- Supporting systematic reviews and meta-analyses through accelerated screening.

3.3 Research Idea Generation

- Supporting brainstorming of research topics and questions.
- Identifying research gaps through cross-disciplinary synthesis.
- Generating hypothesis formulations and experimental design suggestions.
- Facilitating interdisciplinary connections across knowledge domains.

4. Benefits and Limitations:

Benefits	Limitations
High productivity	Hallucinated citations
Reduced language barriers	Algorithmic bias
Fast literature synthesis	Plagiarism risks
Accessible for all researchers	Privacy threats to unpublished data
Improved writing clarity	Lack of explainability
Supports brainstorming	Potential skill erosion

5. Ethical Implications and Academic Integrity:

- Transparency — researchers should clearly disclose AI assistance in their work.
- Authorship ambiguity — AI cannot be an author as it lacks accountability and intentionality.
- Hallucination risks — AI-generated content may contain plausible-sounding but factually incorrect information.
- Plagiarism — AI-generated text derived from training data raises originality and attribution concerns.
- Bias reinforcement — LLMs may perpetuate biases present in their training datasets.
- Assessment integrity — AI writing tools challenge traditional assessment mechanisms.

6. Future Research Directions:

- Development of explainable AI systems that provide transparent justifications for generated content.
- Multimodal academic assistants integrating text, images, and data visualization.
- Governance frameworks ensuring trustworthy and responsible use of generative AI in research.
- Cross-cultural and discipline-specific evaluation of AI tools for academic writing.
- Longitudinal studies examining the impact of AI adoption on research quality and scholarly norms.

7. Conclusion:

Generative AI tools represent one of the most transformative technological developments in contemporary higher education. The benefits are substantial — enhanced productivity, reduced language barriers, accelerated literature synthesis, and innovative brainstorming support. However, these advantages are counterbalanced by serious challenges including hallucinated citations, embedded bias, authorship ambiguity, and skill erosion risks. Responsible adoption depends on four foundational principles: Transparency (disclosure of AI assistance), Verification (independent fact-checking), Education (AI literacy development), and Governance (adaptive institutional policies). AI should function as a collaborative cognitive tool — not a substitute for human reasoning. Institutions that cultivate critical AI literacy and ethical awareness will be best positioned to harness technological potential while preserving the foundational values of scholarship.

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Evaluating Rapido's Impact on Last-Mile Connectivity in Vashi

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Abstract:

This study evaluates the impact of Rapido on last-mile connectivity in Vashi, focusing on its effectiveness in reducing travel time, lowering commuting costs, and improving overall commuter convenience compared to traditional modes such as walking, auto-rickshaws, buses, and personal vehicles. Based on primary data collected through structured questionnaires and supported by secondary research on urban mobility, the study analyzes key factors including distance from transit hubs, time savings, mode shift behavior, operational barriers near transport stands, and preference determinants such as price, speed, and app-based booking convenience. The findings indicate that Rapido significantly enhances last-mile connectivity in Vashi by offering a cost-effective and time-efficient alternative, contributing positively to urban mobility efficiency.

Keywords: *Rapido, Last-Mile Connectivity, Vashi, Bike Taxi, Urban Mobility, Micro-Mobility*

1. Introduction:

1.1 History and Background

Last-mile connectivity refers to the final part of a commuter's journey from a major transport hub to their destination. In urban areas like Vashi, last-mile connectivity is essential for ensuring smooth daily commuting. Rapido, founded in 2015, began offering bike taxis in several Indian cities to help with traffic congestion and improve urban mobility. In places like Navi Mumbai, especially Vashi, Rapido is popular among students, office workers, and railway passengers.

1.2 Statement of the Problem

Although local trains, buses, and auto-rickshaws are available in Vashi, commuters still face problems in completing the last mile of their journey due to traffic congestion, irregular pricing, unavailability during peak hours, and the absence of direct doorstep connectivity. It is the need of the hour to critically assess whether Rapido is able to provide an effective solution to the last-mile connectivity problems in Vashi.

2. Review of Literature:

Sharma, P. (2020): Examines the importance of last-mile connectivity in urban India and its impact on commuter efficiency. Suggests that integrating micro-mobility solutions such as bike taxis can significantly improve accessibility and commuter convenience.

Verma, A. (2021): Analyzes the growth of app-based bike taxi services in Indian cities, concluding that digital ride-hailing platforms enhance urban mobility by offering cost-effective and time-saving travel options.

Kumar, S., & Mehta, R. (2019): Investigates the role of shared mobility services in reducing urban traffic congestion, finding that two-wheeler taxi services contribute to lower road space consumption compared to cars.

Rao, T. (2022): Focuses on commuter satisfaction with app-based transportation services in suburban regions. Results show that affordability, availability, and reduced waiting time are primary factors influencing user preference.

Singh, L. (2021): Explores the role of micro-mobility solutions in strengthening urban transportation networks, highlighting the importance of regulatory support and safety measures for long-term growth.

3. Research Methodology:

3.1 Objectives

1. To examine the relationship between the distance from Vashi Railway Station/Bus Depot and the usage of Rapido for last-mile connectivity.
2. To evaluate whether Rapido significantly reduces total daily travel time compared to traditional last-mile transport modes.
3. To analyze whether commuters have shifted from traditional last-mile transport modes to Rapido for short-distance travel in Vashi.
4. To investigate the impact of local transport stand dynamics and operational barriers on Rapido booking behavior.
5. To identify and assess the key factors such as price, speed, convenience, and ease of app-based booking that influence commuters to choose Rapido.

3.2 Hypotheses

H0₁: There is no significant relationship between the distance from Vashi Railway Station/Bus Depot and the usage of Rapido.

H1₁: There is a significant relationship between the distance from Vashi Railway Station/Bus Depot and the usage of Rapido.

H0₂: Rapido does not significantly reduce total daily travel time compared to traditional last-mile transport modes.

H1₂: Rapido significantly reduces total daily travel time compared to traditional last-mile transport modes.

3.3 Data Collection

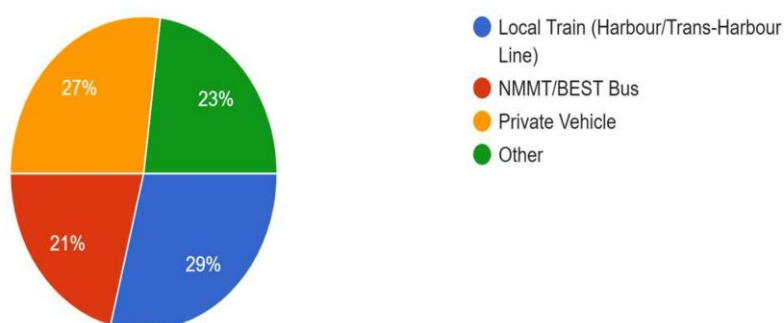
Primary data was collected through structured questionnaires from daily commuters in Vashi who use various modes of transport for last-mile travel. Secondary data was drawn from research on urban mobility and micro-mobility platforms.

4. Data Analysis and Interpretation:

4.1 Commuter Profile and Transport Usage

What is your primary mode of long-distance transport before reaching Vashi?

100 responses

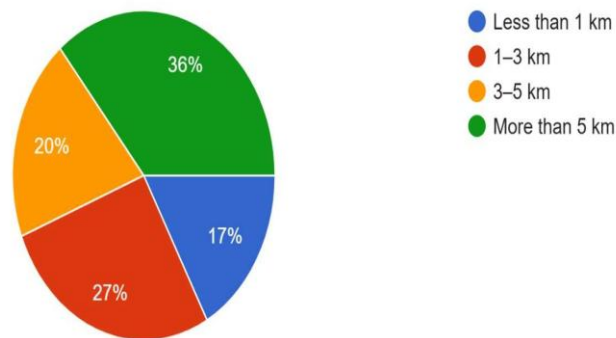


Interpretation: The study found that a majority of the respondents are either residents or regular commuters in Vashi, which makes their responses relevant for understanding local commuting patterns. Local trains were identified as the most commonly used mode of long-distance transportation to reach Vashi.

4.2 Distance from Transit Hub and Rapido Usage

On average, how far is your final destination from the Vashi Railway Station or Bus Depot?

100 responses

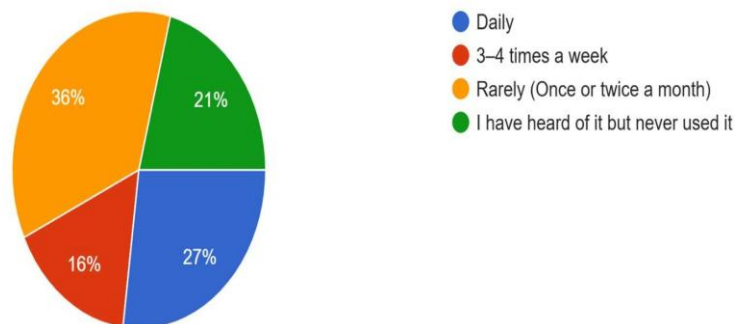


Interpretation: Many commuters need to travel several kilometers after reaching Vashi Railway Station or bus depot, highlighting the critical importance of efficient last-mile connectivity services.

4.3 Travel Time Reduction with Rapido

How frequently do you use Rapido for your "last-mile" commute in Vashi?

100 responses

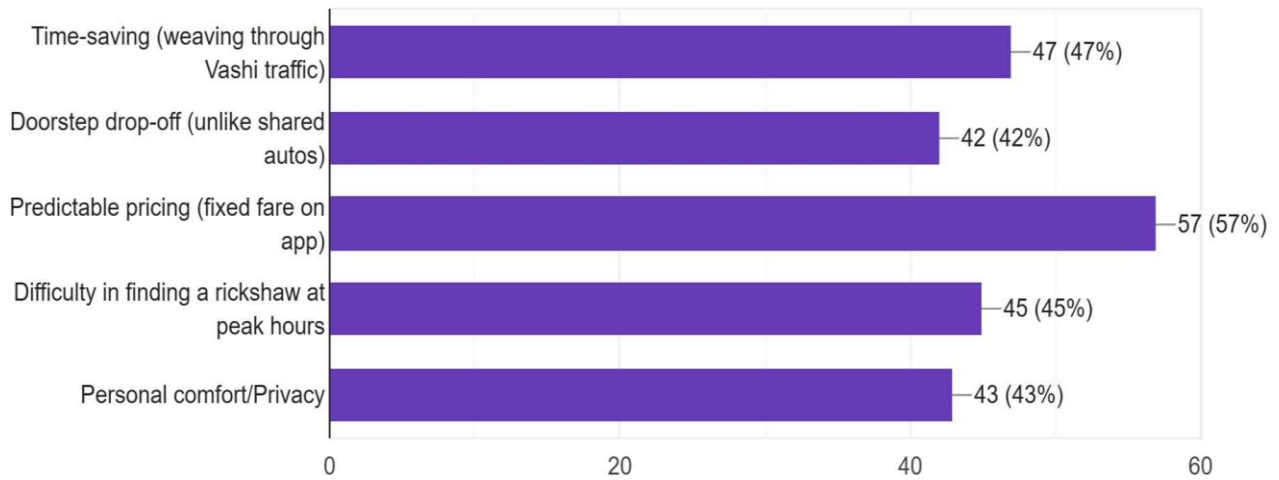


Interpretation: The findings indicate that Rapido has helped reduce travel time for several users. Many respondents confirmed that Rapido is generally faster than walking or waiting for shared autos during peak hours.

4.4 Mode Shift Behavior

Why do you choose Rapido over other local options like shared autos or walking?

100 responses

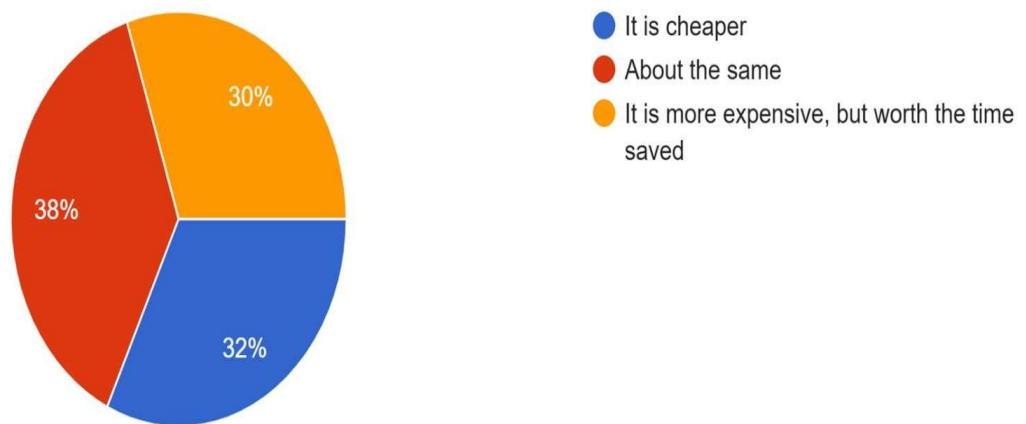


Interpretation: The study shows that many commuters have shifted to Rapido from auto-rickshaws and walking, especially for distances of 1–5 km from the station. Awareness of Rapido is relatively high among commuters.

4.5 Why Commuters Prefer Rapido Over Other Options

How has using Rapido impacted your monthly commuting budget compared to taking a private auto-rickshaw

100 responses

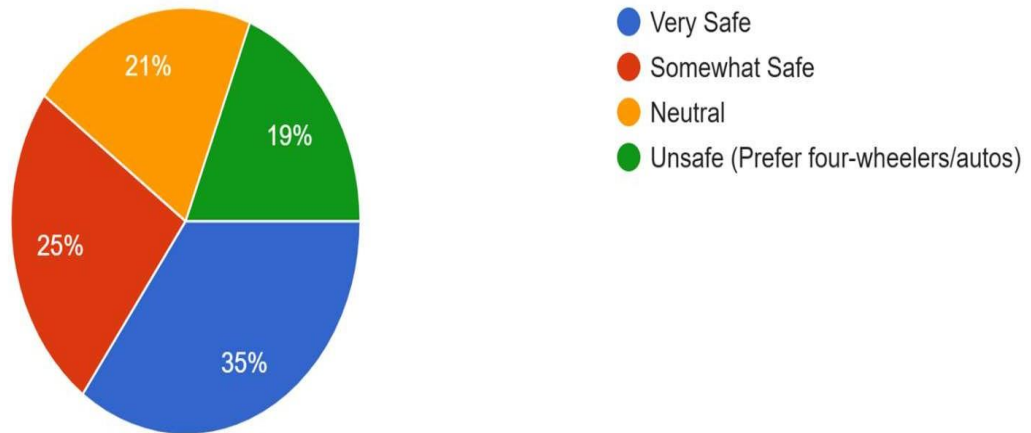


Interpretation: Predictable pricing (57%), time-saving (47%), difficulty finding rickshaws during peak hours (45%), personal comfort and privacy (43%), and doorstep pickup (42%) were the top reasons for preferring Rapido.

4.6 Impact on Monthly Commuting Budget

How safe do you feel using a bike taxi for last-mile connectivity in Navi Mumbai's traffic?

100 responses



Interpretation: 38% stated cost is about the same as auto-rickshaws, 32% feel Rapido is cheaper, and 30% reported it is more expensive but worth the time saved. Overall Rapido is generally cost-competitive while providing added value.

4.7 Safety Perceptions

35% of respondents reported feeling very safe using bike taxis for last-mile connectivity, while 25% feel somewhat safe. 21% remain neutral about safety, and 19% feel unsafe and prefer four-wheelers or autos. While many users feel reasonably safe, there is still scope to improve safety awareness and confidence among passengers.

5. Findings:

- A majority of respondents are residents or regular commuters in Vashi, making their responses relevant for understanding local commuting patterns.
- Local trains are the most commonly used mode of long-distance transportation to reach Vashi.
- Many commuters still need to travel several kilometers after reaching Vashi Railway Station or bus depot.
- Awareness of Rapido among commuters is relatively high, though usage varies.
- Many respondents prefer Rapido due to predictable pricing, time-saving nature, and convenience such as doorstep pickup and drop-off.
- The service has helped reduce travel time and is generally considered cost-competitive with traditional auto-rickshaws.
- Some challenges exist including occasional difficulty finding rides during peak hours, navigation issues, and conflicts with local auto-rickshaw unions.

6. Conclusion:

The study concludes that last-mile connectivity is an important part of daily commuting for people traveling to and within Vashi. Rapido plays a useful role in improving last-mile connectivity by offering a convenient, time-saving, and cost-effective travel option. Although some challenges such as availability during peak hours and minor operational issues exist, Rapido has positively contributed to making commuting easier and more efficient for many users in Vashi. The findings support the role of micro-mobility solutions in sustainable transportation planning in Navi Mumbai.

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An Analytical Study on the Usage of Accounting Software by Small Companies in Navi Mumbai

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Abstract:

The current study examines usage of accounting software in small businesses around Navi Mumbai. Increasing digital awareness and implementation of Goods and Service Tax (GST) are progressively shifting businesses from manual accounting to accounting systems. The research aims to analyze the extent of adoption, software used, advantages, challenges faced, and overall satisfaction levels. The research adopts a defined research design based on primary data collected through surveys from 100 different companies through a structured questionnaire. The findings show that 92% of the surveyed companies use accounting software, with Tally and Zoho Books being the most preferable choice. A majority admitted improvements in accounting accuracy (87%) and reduced accounting time (79%). The study concludes that accounting software has a significantly positive impact on operational efficiency, financial accuracy, and regulatory compliance among small companies in Navi Mumbai.

Keywords: *Accounting Software, Small Companies, Digital Accounting, GST Compliance, Operational Efficiency, Navi Mumbai*

1. Introduction:

1.1 Background of the Study

Accounting plays a crucial role in every business as it is required to record financial transactions and data for decision-making. In traditional ways, small businesses have kept their financial records manually using registers, ledgers, and journals. While this approach is common, it demands a lot of time and effort and carries a relatively high risk of calculation errors. With technological progress, accounting systems have become easier for businesses of all sizes. These software solutions enable organizations to record transactions and produce reports while managing accounts very effectively.

In India, the introduction of Goods and Service Tax (GST) has increased the importance of digital accounting systems. Businesses are now required to keep exact documentation and produce GST-compliant invoices and reports. As a result, many organizations have begun using accounting software to ease tax calculations and ensure transparent financial reporting.

1.2 Review of Literature

Soudani, S. N. (2021): Accounting information systems play a crucial role in improving organizational performance by providing timely and reliable financial information.

Grande, E. U. et al. (2021): Accounting information systems can enhance operational efficiency and support better financial decision-making within small and medium enterprises.

Thottoli, M. M. (2020): Accounting software usage in small businesses significantly improves record-keeping accuracy and reduces manual errors.

Al-Hiyari, A. et al. (2020): Accounting information systems adoption leads to improved financial reporting quality and operational effectiveness.

2. Objectives:

1. To examine the extent of accounting software usage among small companies in Navi Mumbai.
2. To identify the most preferred accounting software used by small businesses.
3. To analyze the benefits of accounting software in improving operational efficiency.
4. To assess the challenges faced by small businesses during accounting software adoption.

3. Research Methodology:

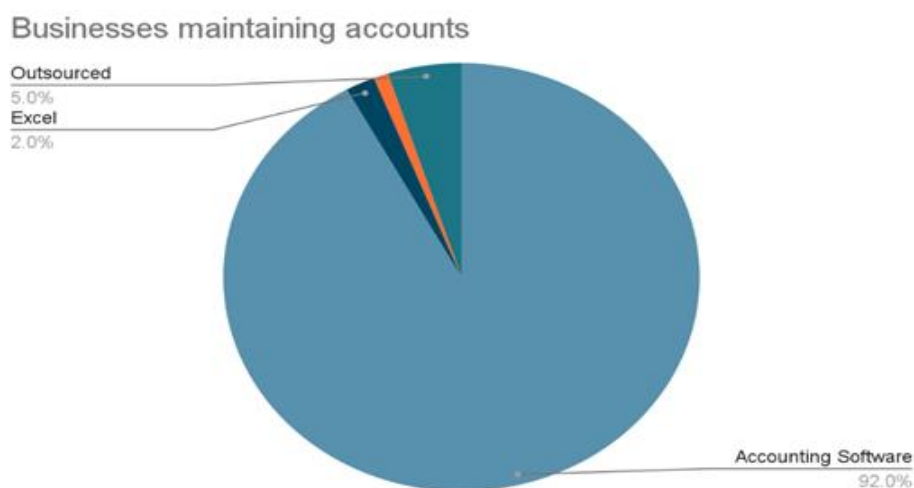
Research Design: Defined descriptive research design.

Primary Data: Surveys from 100 different small companies through a structured questionnaire.

Statistical Tools: Percentage analysis and frequency tables.

4. Data Analysis and Interpretation:

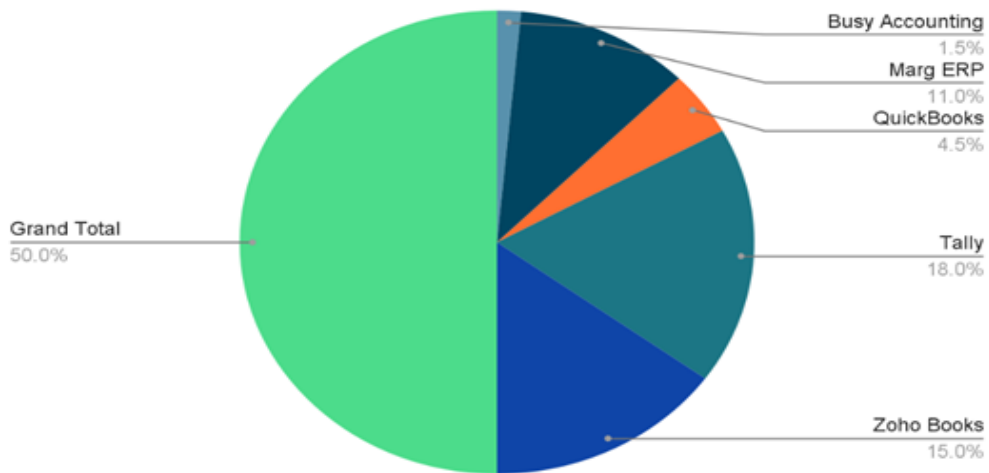
4.1 Extent of Accounting Software Usage



Out of 100 respondents, 92% of small companies in Navi Mumbai use accounting software, while only 8% still rely on manual accounting methods. This high adoption rate reflects the growing digital awareness and the regulatory compliance requirements imposed by GST.

4.2 Software Preferences Among Small Businesses

Software used by businesses



Tally is the most widely used accounting software among the surveyed businesses, followed by Zoho Books and Marg ERP. Only a few businesses use QuickBooks and Busy, indicating that Tally and Zoho Books are the most preferred software among small companies.

Software	Usage
Tally	Most widely used
Zoho Books	Second most popular
Marg ERP	22
QuickBooks	9
Busy Accounting Software	3

4.3 Benefits of Accounting Software

Benefit	Finding
Improved accounting accuracy	87%
Reduced accounting time	79%
Better GST compliance	High
Improved financial reporting	High
Satisfaction and recommendation	Most respondents positive

5. Findings:

- Small businesses in Navi Mumbai are now using accounting software to manage their financial transactions. Tally and Zoho Books are the preferred and most common applications.
- Many businesses mentioned that accounting systems helped them maintain more exact records and complete accounting work in less time.

- 87% of respondents reported improvements in accounting accuracy, and 79% reported reduced accounting time.
- A pool of respondents expressed satisfaction with the software and stated that they would refer it to other businesses.
- Overall, the use of accounting software has improved financial management and operational efficiency of small businesses.

6. Suggestions:

- Small businesses should focus on providing proper training to employees so they can use accounting software more effectively.
- Software developers should take surveys to know pain points among the software to improve and make easy, user-friendly solutions.
- Reasonable pricing along with reliable technical support can motivate more businesses to use accounting solutions.

7. Conclusion:

The study concludes that accounting software contributes positively to better financial management and improved operational efficiency in small businesses. Digital accounting tools help organizations maintain reliable financial records, manage GST requirements efficiently, and reduce the time spent on accounting. The increasing use of such software highlights the growing role of technology in supporting modern business operations in Navi Mumbai.

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An Explainable Machine Learning Framework for Predicting Student Academic Performance Using Behavioural and LMS Data

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Abstract:

Anticipating student success in academics is essential for educational data mining, allowing timely support for struggling learners via insights from Learning Management Systems (LMS) and behavioral patterns. Standard ML models excel in accuracy but lack clarity, eroding stakeholder trust. This study proposes an interpretable predictive framework that integrates ensemble learning models — specifically Random Forest and Gradient Boosting — with SHAP (SHapley Additive exPlanations) to enable transparent and explainable forecasting. Empirical results demonstrate that the Gradient Boosting model achieved a peak accuracy of 88%. SHAP-based interpretability analysis identified key determinants of academic performance, including weekly login regularity, assignment submission rates, peer-to-peer forum engagement, and behavioral markers associated with procrastination. The findings underscore that incorporating Explainable AI (XAI) techniques enhances both predictive performance and pedagogical insight.

Keywords: *Student Performance Prediction, Explainable Artificial Intelligence (XAI), Learning Management System (LMS) Analytics, Behavioral Learning Analytics, SHAP, Ensemble Machine Learning*

1. Introduction:

Machine learning is reshaping educational practice through the systematic analysis of Learning Management System (LMS) trace data and learner behavioral patterns to predict academic outcomes and inform timely interventions. By leveraging fine-grained platform interaction data, predictive models enable the early identification of at-risk students, thereby supporting proactive strategies to mitigate dropout and enhance retention.

However, the widespread deployment of such models remains constrained by the opacity of 'black-box' algorithms, which often fail to provide educators with transparent justifications for risk alerts or performance predictions. This lack of interpretability undermines trust and practical adoption in real-world educational settings. To address this limitation, Explainable Artificial Intelligence (XAI) offers methodological mechanisms to elucidate model decision-making processes.

2. Literature Review:

Educational Data Mining (EDM) employs machine learning methodologies to model and predict student performance using fine-grained LMS interaction data, including clickstream events, quiz attempts, and engagement logs. Prior research has implemented a range of supervised learning techniques — such as decision trees, support vector machines, and neural networks — with ensemble approaches frequently demonstrating superior predictive performance due to their robustness and generalization capacity.

More recent investigations have incorporated XAI techniques to enhance model transparency. Methods such as SHAP and LIME have been applied to large-scale MOOC datasets, revealing that login frequency, submission delays, and engagement regularity are among the most influential predictors of academic

success. LMS-centered research further emphasizes the predictive relevance of forum participation, assignment completion rates, and interaction intensity.

3. Methodology:

3.1 Dataset

The dataset was collected from a university Learning Management System (e.g., Moodle or Canvas) and comprises approximately 5,000 student records spanning multiple academic semesters. The feature space is structured into three principal categories: LMS behavioral features (login frequency, time spent on resources, forum posts, quiz attempts, assignment submissions), temporal/procrastination indicators (submission delays, late submissions, irregular login patterns), and demographic and historical performance indicators.

3.2 Modeling Approach

A systematic, stepwise pipeline is employed managing data preprocessing, model development, performance evaluation, and explainability analysis through XAI techniques. Three ensemble models are evaluated: Random Forest, Gradient Boosting, and XGBoost. SHAP was employed to generate both global explanations through feature importance rankings and local explanations at the individual student level.

3.3 Evaluation Metrics

Model performance was assessed using Accuracy, Precision, Recall, F1-score, and the Area Under the Receiver Operating Characteristic Curve (ROC-AUC). Confusion matrix analysis was conducted to examine class-wise prediction performance.

4. Experiments and Results:

Model	Accuracy	Precision	Recall	F1	ROC-AUC
Random Forest	85%	84%	83%	83%	0.92
Gradient Boosting	88%	87%	86%	86%	0.94
XGBoost	87%	86%	85%	85%	0.93

Gradient Boosting excels at capturing complex LMS interaction patterns, achieving the highest accuracy (88%) and ROC-AUC (0.94) among the evaluated models.

4.1 Feature Importance — SHAP Global Analysis

Weekly Login Frequency: Strong predictor of student persistence and continued engagement.

Assignment Completion Rate: Reflects consistent task execution and learning commitment.

Forum Participation: Serves as a proxy for collaborative engagement and peer interaction.

Quiz Attempt Count: Indicates student effort and active practice.

Procrastination Metrics: Measured via submission delays, capturing temporal learning behaviors.

4.2 Local Explanations — SHAP Example

For a student with a low predicted performance, reduced login activity (SHAP value: -0.25) and extended submission delays (SHAP value: $+0.18$) were the primary contributing factors. These insights facilitate the design of targeted, personalized interventions.

5. Discussion:

Ensemble models demonstrate robust performance in managing the sparsity and noise inherent in LMS datasets, consistently outperforming single-model approaches. The integration of XAI enhances interpretability by revealing actionable patterns — for instance, frequent logins strongly correlate with academic success, whereas low forum participation may indicate social or engagement challenges.

Unlike previous opaque systems, the proposed framework enables the development of dashboards for real-time monitoring and alert generation. Limitations include reliance on data from a single institution, highlighting the need for future studies to integrate multi-platform datasets. From an ethical perspective, SHAP facilitates fairness assessments by enabling the evaluation of potential biases when demographic attributes are included in the models.

6. Conclusion:

The proposed XAI framework provides accurate performance predictions from LMS and behavioral data while offering transparent, interpretable explanations through SHAP-augmented ensemble models. This approach equips educators with actionable insights to implement timely interventions, thereby mitigating academic underperformance. Future extensions include real-time predictive analytics and the integration of multimodal data sources such as sentiment analysis from forum interactions.

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Buy Now, Pay Later (BNPL) vs EMI: A Comparative Analysis of Consumer Payment Preferences in the Digital Credit Ecosystem

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Abstract:

The study analyses how people in Navi Mumbai choose between BNPL and EMI. A survey was conducted through Google Form with 100 respondents to see the impact of BNPL and EMI on ease of payment, affordability, repayment period, interest or additional charges and convenience when buying. The result shows that people are familiar with both the methods and most choose EMI due to its structured payment system, high value purchases, and ease of repayment. On the other hand, people choose BNPL for small purchases, ease, and quick purchases. The study emphasizes that while digital credit options are helpful and convenient, responsible use is crucial for healthy financial management.

Keywords: *Buy Now Pay Later (BNPL), Equated Monthly Instalment (EMI), Consumer Payment Preferences, Digital Credit Ecosystem, Impulse Buying Behaviour*

1. Introduction:

Payment methods have changed significantly due to digitalization. Among digital payment systems, two stand out: BNPL (Buy Now Pay Later) and EMI (Equated Monthly Instalment). Both allow consumers to purchase goods and services without making full payment at the time of purchase but differ in several aspects. This study examines how consumers choose between BNPL and EMI while making purchase decisions and the factors that influence their preference for one method over the other.

BNPL (Buy Now Pay Later): A relatively new payment option mainly promoted through e-commerce platforms and fintech applications. Requires less documentation, making it easy especially for younger users. Generally used for small, short-term purchases.

EMI (Equated Monthly Instalment): A structured payment method closely associated with banks and formal lending institutions, existing in the Indian financial system for a long time. Generally preferred for planned purchases and higher-value products.

2. Literature Review:

Schomburgk & Hoffmann (2022): Provides empirical evidence that mindfulness reduces BNPL usage by increasing consumers' financial self-control and decreasing their tendency toward impulse buying. Higher BNPL usage is associated with lower subjective evaluations of overall wellbeing.

Powell et al. (2023): Examines the relationship between financially responsible BNPL behaviour and financial wellbeing. Younger users were found to have lower financial wellbeing and are more financially vulnerable. The study highlights the need for regulatory standards and consumer education.

Abdul Razack K P & Jayarajan T K (2024): Finds that EMI schemes and BNPL services provide flexibility and convenience but also involve potential risks. The appeal of deferred payments may lead to impulsive spending and increased financial difficulties without responsible usage.

Buy Now, Pay Later (BNPL) vs EMI: A Comparative Analysis of Consumer Payment Preferences in the Digital Credit Ecosystem

deHaan, Kim, Lourie & Zhu (2024): Examines the effects of BNPL and provides evidence that consumers experience an increase in bank overdraft charges and credit card late fees shortly after adopting BNPL services.

3. Objectives:

1. To understand how consumers choose between BNPL and EMI while making purchase decisions.
2. To examine the factors that influence consumer preference between BNPL and EMI.
3. To assess how BNPL and EMI individually affect consumer financial management and purchasing decisions.
4. To evaluate whether spreading payments into small instalments makes expensive products seem more affordable.

4. Research Methodology:

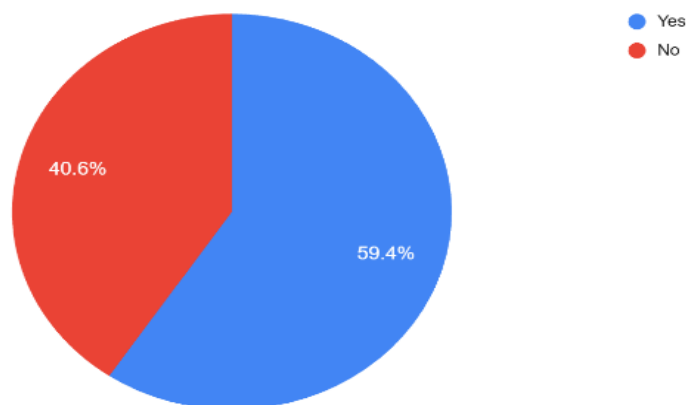
Sample: 100 respondents from Navi Mumbai via Google Form survey.

Statistical Tools: Chi-Square test for hypothesis testing and percentage analysis.

5. Data Analysis and Interpretation:

5.1 Digital Payment App Usage

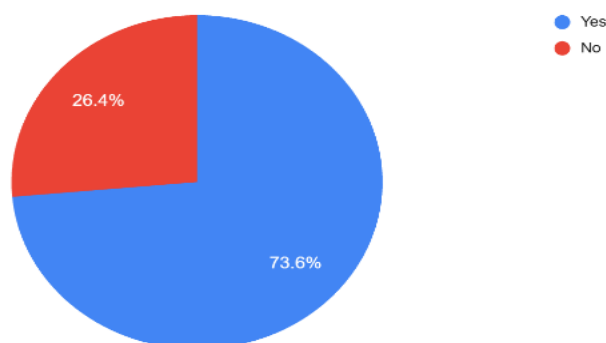
Are you aware of Buy Now, Pay Later (BNPL) services?



Interpretation: A large proportion of respondents use digital payment applications regularly, confirming the digital readiness of the survey sample and their familiarity with electronic financial tools.

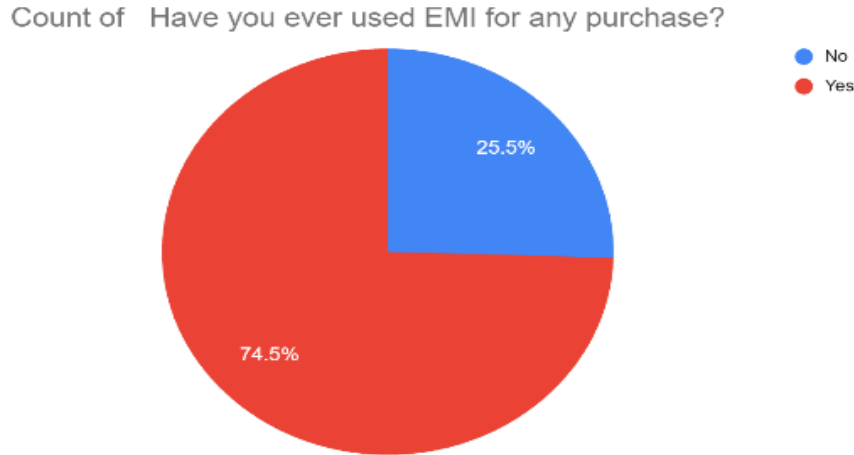
5.2 Awareness of BNPL and EMI

Are you aware of EMI (Equated Monthly Installment) payment options?



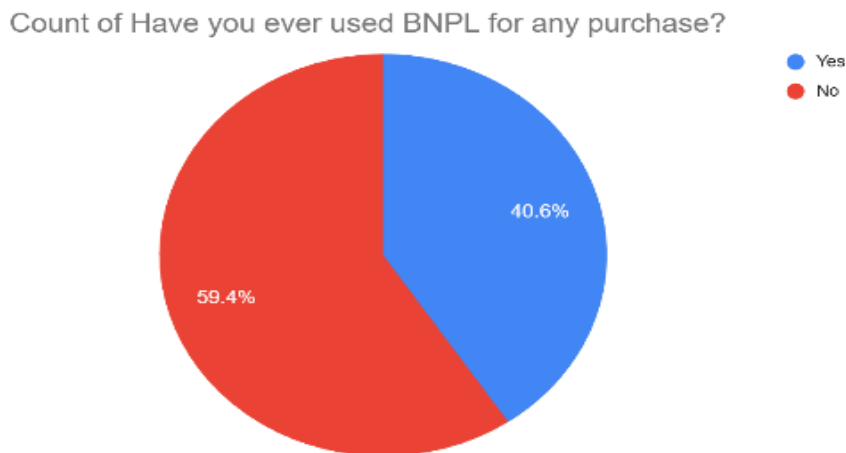
Interpretation: Most respondents are aware of both BNPL and EMI, indicating high financial awareness among consumers in Navi Mumbai. EMI is more widely known due to its longer presence in the Indian financial ecosystem.

5.3 Frequency of BNPL Usage



Interpretation: BNPL usage is relatively frequent for small and short-term purchases. The convenience and minimal documentation requirements attract younger consumers for quick, low-value transactions.

5.4 Frequency of EMI Usage

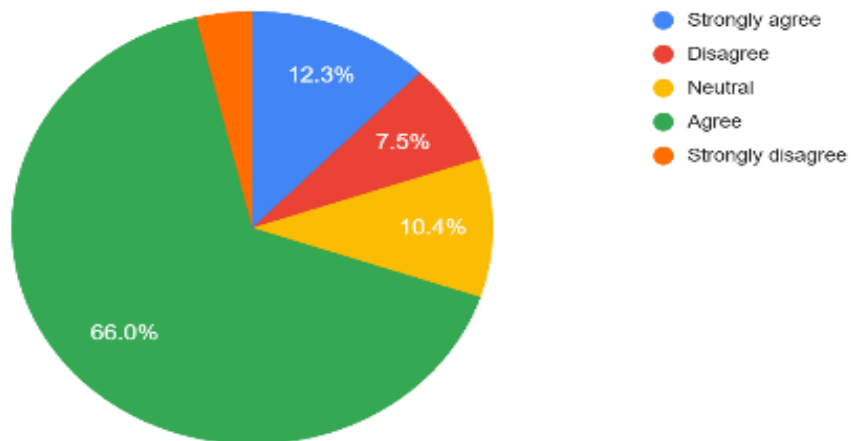


Interpretation: EMI usage is frequent for planned and higher-value purchases. The structured nature of EMI aligns well with monthly income cycles for salaried consumers.

5.5 Preference: BNPL vs EMI

Buy Now, Pay Later (BNPL) vs EMI: A Comparative Analysis of Consumer Payment Preferences in the Digital Credit Ecosystem

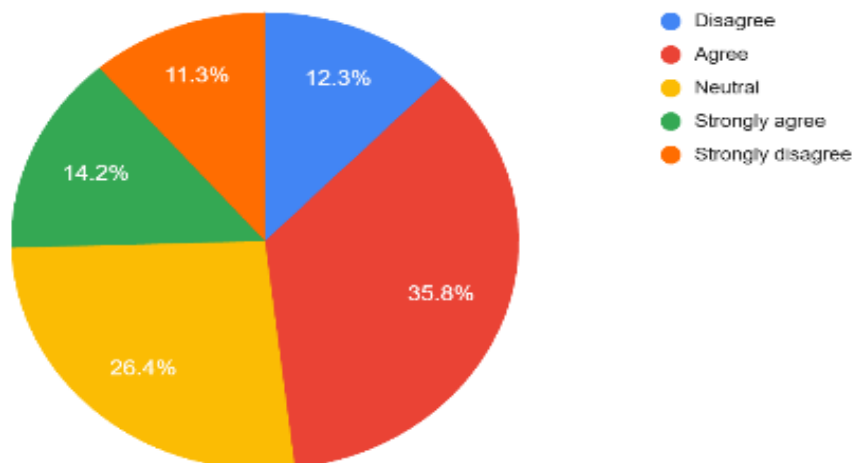
I prefer BNPL because it does not require long-term commitment.



Interpretation: EMI is the more preferred option overall, especially for planned purchases and higher-value products. BNPL is mainly used as a convenient flexible alternative for specific purchase situations.

5.6 Reasons for Preferring EMI

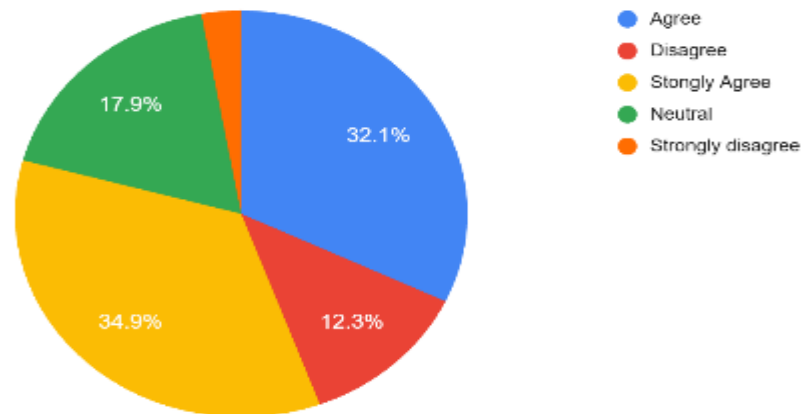
I prefer EMI for high-value purchases.



Interpretation: Structured payment system, ease of repayment, and suitability for high-value purchases are the main reasons consumers prefer EMI. Fixed instalments help in monthly budget management.

5.7 Reasons for Preferring BNPL

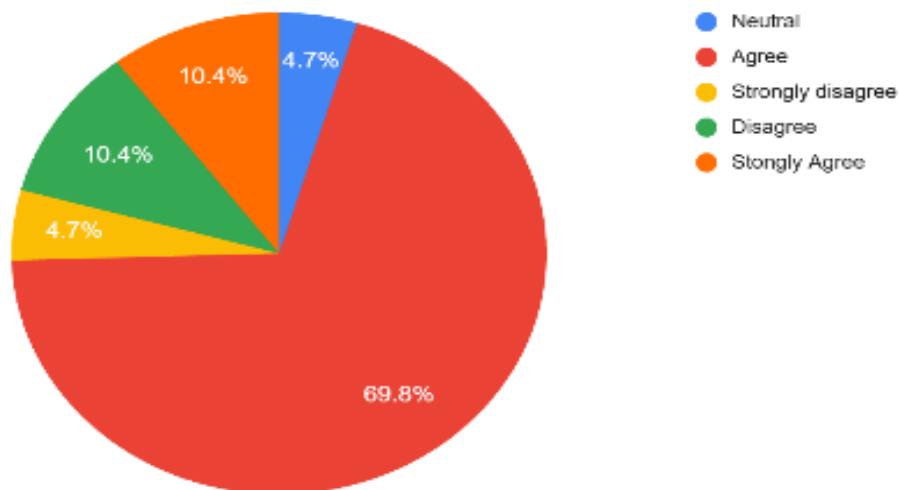
Zero-interest or no-cost BNPL offers influence my buying decision.



Interpretation: Convenience, quick access to credit, and minimal documentation requirements are the primary reasons consumers prefer BNPL. It is particularly appealing for impulsive and small-value purchases.

5.8 Impact of BNPL on Spending Behaviour

Zero-interest EMI offers influence my buying decision.

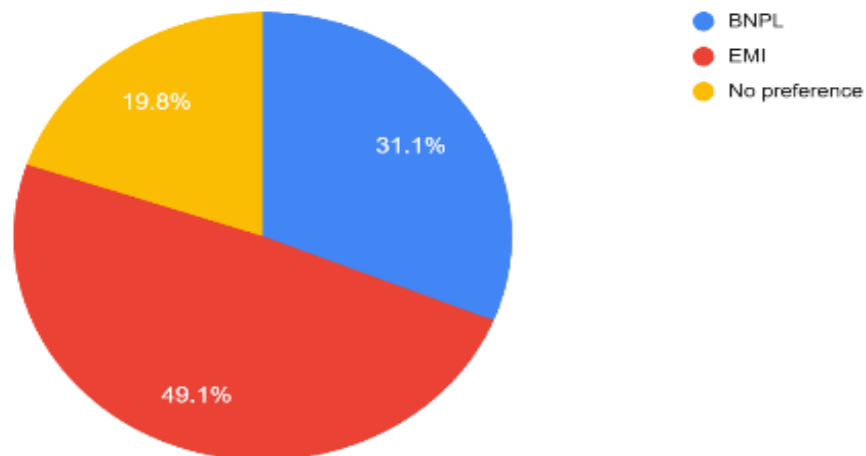


Interpretation: BNPL's convenience may reduce the amount of thought consumers give before making a purchase. A number of respondents agreed that BNPL encourages unplanned buying behaviour.

5.9 Impact of EMI on Spending Behaviour

Buy Now, Pay Later (BNPL) vs EMI: A Comparative Analysis of Consumer Payment Preferences in the Digital Credit Ecosystem

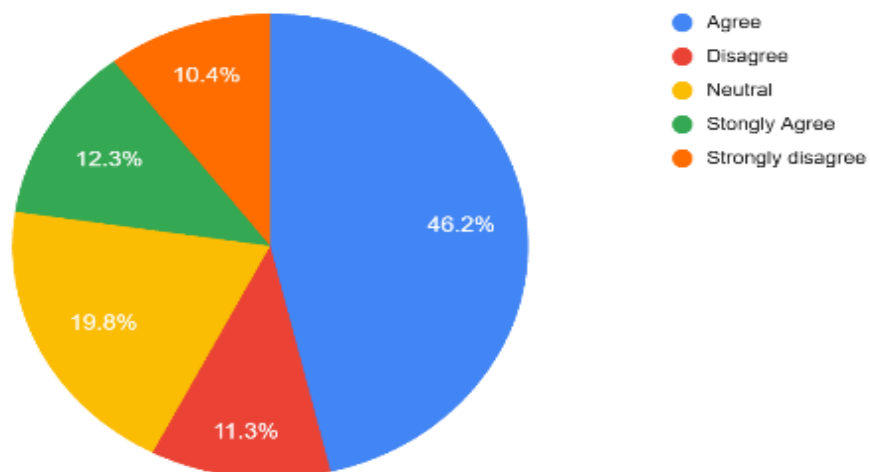
Count of When both BNPL and EMI are available, which do you prefer?



Interpretation: EMI supports better financial planning because the instalment amount and repayment period are clearly defined, making it easier for consumers to manage their monthly budgets.

5.10 Effect on Budget Planning

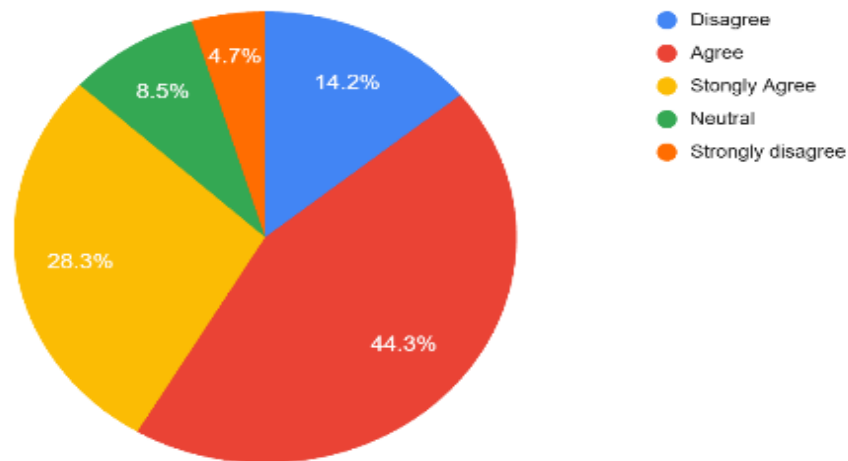
I feel BNPL can lead to accumulation of multiple small debts.



Interpretation: Most respondents are aware of how these payment methods affect their monthly budget planning. EMI users tend to plan their purchases more carefully than BNPL users.

5.11 Financial Risk Awareness

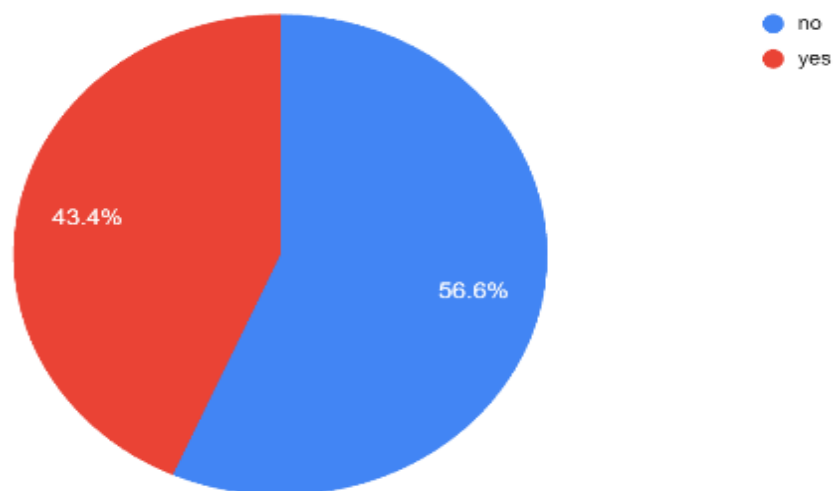
I feel EMI creates long-term financial burden.



Interpretation: Consumers are generally aware of financial risks — multiple small debts with BNPL and long-term commitment with EMI. However, awareness alone does not prevent risky financial behaviour.

5.12 Impulse Buying Due to BNPL

I worry about missing EMI payments.

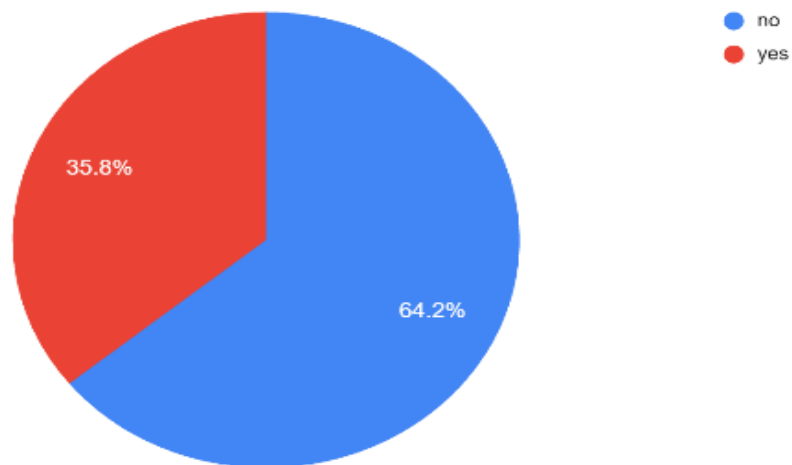


Interpretation: A portion of respondents confirmed that BNPL has led them to make impulse purchases they might not have otherwise made, as the ability to pay later reduces the psychological cost of spending.

5.13 Multiple Debt Concern with BNPL

Buy Now, Pay Later (BNPL) vs EMI: A Comparative Analysis of Consumer Payment Preferences in the Digital Credit Ecosystem

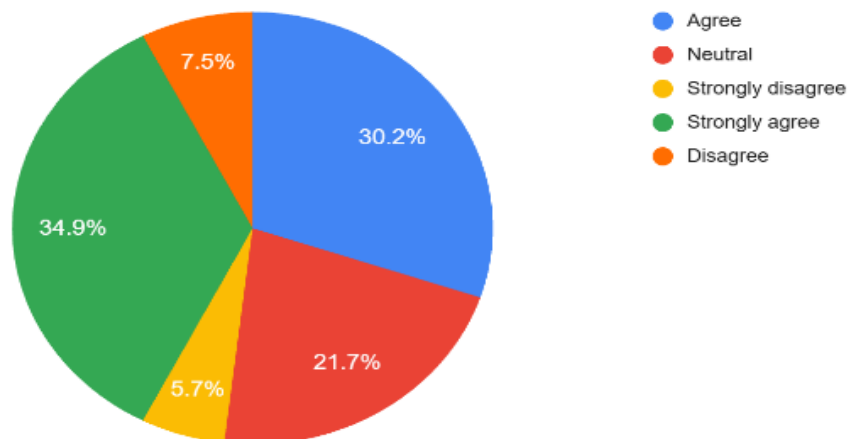
I have missed or delayed a BNPL payment in the past.



Interpretation: Many respondents believe that BNPL can lead to multiple small debts that may be difficult to track, especially when used across multiple platforms simultaneously.

5.14 Financial Commitment with EMI

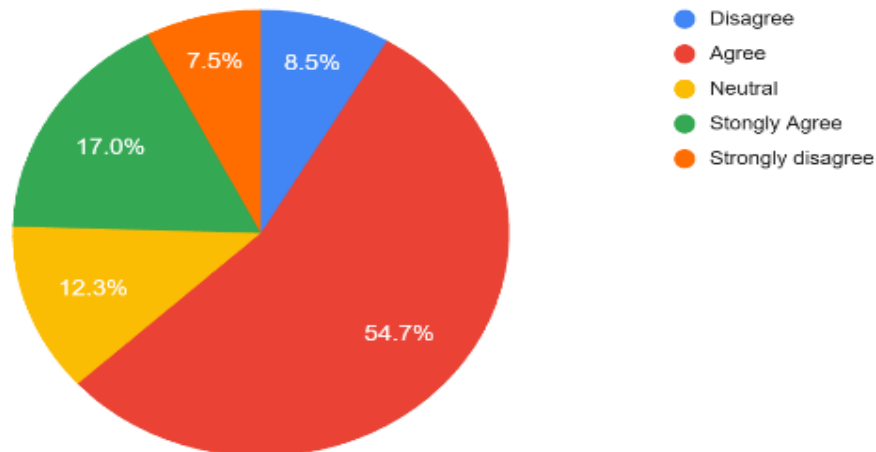
Count of BNPL encourages me to make unplanned or impulse purchases.



Interpretation: Some respondents expressed concern that EMI creates longer financial commitments that can become burdensome over time, particularly for lower-income consumers.

5.15 Overall Preference

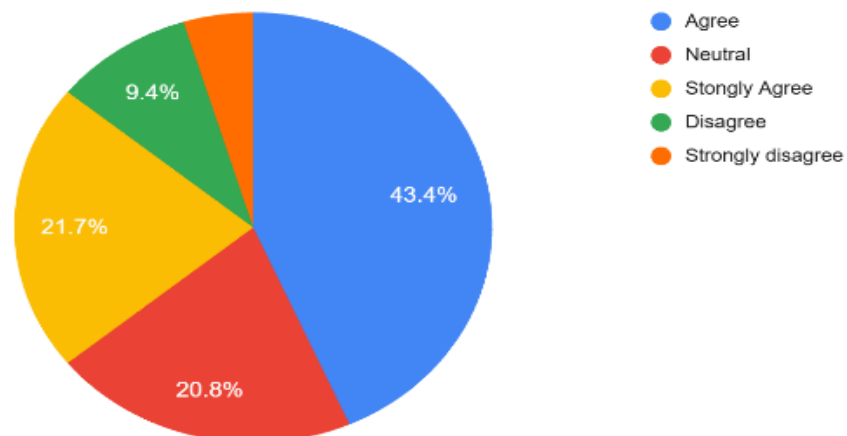
Small instalment amounts make expensive products feel affordable.



Interpretation: Overall consumer preference leans toward EMI for serious financial needs and high-value purchases, while BNPL is preferred for convenience and small transactions.

5.16 Consumer Satisfaction with BNPL

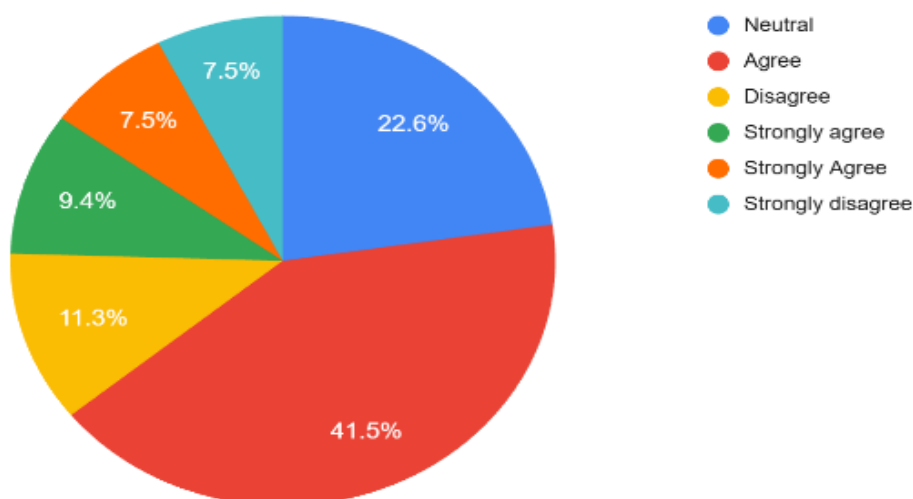
I compare total cost (interest/fees) before choosing BNPL or EMI.



Interpretation: Consumer satisfaction with BNPL is generally positive for short-term, small purchases. However, satisfaction decreases when BNPL leads to financial stress or debt accumulation.

5.17 Consumer Satisfaction with EMI

EMI helps me plan my expenses better than BNPL.



Interpretation: Consumer satisfaction with EMI is generally high due to structured repayment, predictability, and support for large purchase affordability without immediate full payment.

6. Hypothesis Testing:

A Chi-square analysis was performed to test two hypotheses:

Hypothesis 1: No significant relationship between payment preference and financial risk perception. Chi-square analysis: Not statistically significant. Consumers choose payment methods mainly based on practical considerations rather than behavioral concerns.

Hypothesis 2: No significant relationship between payment preference and impulse buying behavior. Chi-square analysis: Not statistically significant. Consumer preference is influenced by several factors simultaneously, including purchase type, convenience, and personal needs.

7. Findings:

- EMI is still more widely known and used compared to BNPL due to its longer presence in the Indian financial system.
- EMI is generally preferred for planned purchases and higher-value products; BNPL is more commonly used for smaller and short-term purchases.
- Many respondents feel that BNPL makes purchasing easier as it requires less documentation, but at the same time, a large number agreed it can encourage unplanned buying.
- EMI is often viewed as supporting better financial planning through clearly defined instalment amounts and repayment periods.
- BNPL and EMI are complementary rather than substitutes — consumers use EMI for high-value purchases and BNPL for small ones.

8. Conclusion:

The study concludes that both BNPL and EMI are important payment methods that significantly influence buying habits. EMI is the most preferred option especially for planned and higher-value purchases due to its structured repayment system. In contrast, BNPL is mostly used for short-term purchases since it is quick, convenient, and involves few formal steps. The study highlights the need for responsible use, improved financial awareness, and clear information about repayment terms and fees. Consumers do not see BNPL and EMI as direct substitutes — they view them as complementary financial tools based on the type of purchase, level of convenience needed, and personal financial situation.

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Data Privacy Regulations and Their Impact on Research Innovation

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Abstract:

In contemporary research ecosystems, data privacy regulations have become central to the governance of data-driven innovation. Frameworks such as the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA) aim to safeguard individual rights while ensuring transparency and accountability in data processing practices. While these regulations enhance ethical standards and public trust, they also introduce operational, financial, and administrative challenges for research institutions. This paper critically examines the dual impact of data privacy regulations on academic, medical, and technological research domains. Simultaneously, it highlights how privacy frameworks stimulate the development of privacy-preserving technologies such as federated learning, differential privacy, secure multi-party computation, and advanced encryption techniques. The study argues that privacy laws function not merely as constraints but as catalysts for responsible and sustainable innovation.

Keywords: *Data Privacy, GDPR, CCPA, Research Innovation, Privacy-Preserving Technologies*

1. Introduction:

Data has emerged as one of the most valuable resources in modern research environments. From artificial intelligence systems to biomedical discoveries and social science analytics, large-scale datasets drive knowledge production. However, increased reliance on personal and sensitive information has raised concerns regarding surveillance, data misuse, and breaches. Governments worldwide have responded with comprehensive privacy regulations that significantly influence research methodologies and innovation pathways.

Data privacy regulations seek to ensure transparency, accountability, and respect for individual rights. Yet their implications extend beyond legal compliance — they reshape research design, funding allocation, institutional governance, and technological development.

2. Evolution of Data Privacy Regulations:

Historically, data governance relied on fragmented sector-specific regulations and institutional ethics committees. Rapid digital transformation exposed limitations in these approaches, particularly concerning cross-border data flows and corporate data concentration. The European Union's GDPR introduced harmonized rules emphasizing consent, purpose limitation, data minimization, and accountability. Similarly, the CCPA strengthened consumer rights in the United States.

These frameworks represent a shift from organizational dominance over data toward individual autonomy. Heavy penalties for non-compliance compelled universities, hospitals, and technology firms to restructure their data management strategies. Privacy considerations are now integrated at the earliest stages of research design through concepts such as 'privacy by design' and 'privacy by default.'

3. Impact on Academic Research:

Academic institutions depend heavily on data accessibility for empirical research. Privacy regulations introduce procedural requirements including documented consent, ethical approvals, secure storage systems, and audit mechanisms. Smaller institutions may face disproportionate challenges due to limited funding for compliance infrastructure. Restrictions on secondary data use may limit exploratory research, where innovative insights often arise from repurposed datasets. Cross-border collaborations also face legal complexities, as researchers must ensure compliance with multiple jurisdictions simultaneously.

4. Influence on Medical and Health Research:

Healthcare research exemplifies the tension between privacy protection and urgent data utilization. Medical records contain highly sensitive information but are essential for epidemiological studies, clinical trials, and public health planning. While privacy measures safeguard patient rights, they can slow time-sensitive research efforts, particularly during public health emergencies. Nonetheless, privacy regulations enhance governance standards in healthcare institutions, strengthening public trust essential for voluntary participation in clinical research.

5. Technological Innovation and Privacy-Preserving Methods:

Privacy-Preserving Technology	Description
Federated Learning	Enables ML models to train across decentralized devices without transferring raw data
Differential Privacy	Introduces controlled statistical noise to protect individual identities in datasets
Secure Multi-Party Computation	Allows collaborative data analysis without revealing private inputs to other parties
Advanced Encryption	Strengthens secure data processing and transmission across research networks
Privacy by Design	Integrates ethical safeguards into technology architecture from the earliest stages

These innovations demonstrate that regulatory pressures can stimulate technical creativity. Rather than inhibiting innovation, privacy requirements encourage researchers to design systems that integrate ethical safeguards from inception, fostering sustainable technological development.

6. Policy Recommendations:

- **Develop Clear Research Exemptions:** Expand and clarify provisions allowing limited exemptions for scientific research under strict safeguards.
- **Invest in Privacy-Preserving Infrastructure:** Governments and funding agencies should support secure research data infrastructures with shared encrypted storage platforms.
- **Promote Interdisciplinary Collaboration:** Encourage collaboration across law, computer science, ethics, and social sciences to develop innovative privacy-compliant solutions.
- **Enhance Researcher Training:** Integrate data governance and privacy education into research training programs at educational institutions.
- **Encourage International Harmonization:** Work toward greater alignment between national privacy regulations to facilitate global research collaboration.

7. Discussion:

The relationship between data privacy regulations and research innovation is often portrayed as a conflict between individual rights and scientific progress. However, this perspective oversimplifies a more complex reality. Privacy frameworks are not designed solely to restrict data use; they aim to ensure that personal information is handled responsibly, transparently, and ethically. When individuals trust that their information will be protected, they are more likely to participate in research activities, ultimately strengthening the quality and reliability of research datasets.

8. Conclusion:

Data privacy regulations have become an integral component of modern research governance. While compliance requirements introduce administrative complexity and financial costs, they strengthen ethical standards and promote public trust. Furthermore, privacy regulations have stimulated the development of innovative technologies that enable secure data analysis. The challenge for policymakers and research institutions will be to maintain a balanced regulatory environment that protects fundamental rights without unnecessarily limiting scientific discovery. In the digital age, privacy and progress are complementary rather than conflicting objectives.

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Designing an Intelligent Second Brain Using AI and Retrieval-Augmented Generation

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Abstract:

In the digital age, people are flooded with increasing amounts of personal information across many formats and platforms. This paper introduces B2 Second Brain, a smart personal knowledge management framework that helps with long-term knowledge retention and easy information recall using AI techniques. The proposed system allows users to collect and store different types of content such as text notes, documents, images, and audio recordings in one knowledge repository. A retrieval-augmented generation approach lets users query their personal knowledge base using natural language, providing relevant responses along with source references. Experimental results show reliable handling of various data types with fast query response times under two seconds, semantic search precision of 84%, and successful extraction of 89% of hidden tasks from unstructured notes.

Keywords: *Retrieval-Augmented Generation (RAG), Personal Knowledge Management, Large Language Models, Semantic Search, Second Brain, AI Knowledge Base*

1. Introduction:

Right now, we are going through a digital information explosion that makes managing our own knowledge a constant cause of stress. As a researcher, professional, or student, you probably have a lot of scattered data — voice memos, screenshots, PDFs, and long-form articles. Research shows that we currently spend roughly 20% of our working life looking for knowledge we've previously stored. This is a huge waste of creativity and focus.

Recent advances in AI and large language models have given us very sophisticated tools like ChatGPT. However, these systems have a 'personal vacuum' because they know a lot about general information but not about your own notes. Classic systems like Notion or Evernote are fantastic for storing data but don't have the 'brainpower' to enable you to actually combine or search your own data. B2 Second Brain was built to fix this gap — a technology that works as a real digital extension of the human mind.

2. Literature Review:

Vannevar Bush (1945) — Memex: The idea of a 'perfect memory' — a desk that could instantaneously summon up any document through associative links — represents the conceptual origin of knowledge management systems. Modern 'Second Brain' applications like Roam or Obsidian build on this vision.

Retrieval-Augmented Generation (RAG): RAG is the technology that lets a language model 'read' your files before giving an answer. Instead of an AI making up an answer based on random internet data, RAG makes the model base its answer on the facts you've given it, transforming search from keyword matching into semantic comprehension.

Sentence-BERT and Semantic Search: Tools like Sentence-BERT turn sentences into mathematical 'fingerprints' that capture meaning, enabling semantic search that finds documents thematically connected even without shared words.

Multimodal Processing: Specialist interpreters like OpenAI's Whisper for audio transcription and Tesseract for OCR enable giving a photo or a video the same intellectual depth as a printed article.

3. System Architecture:

The B2 Second Brain architecture consists of several interconnected components:

3.1 Content Processor

Takes control when information is provided. It figures out the format and employs the right tool for the job — Tesseract reads text from pixels in pictures, and OpenAI Whisper writes down what is heard in audio. After raw text is extracted, a SentenceTransformer converts the text into a mathematical 'concept' vector. This lets the system keep not only the words but also the ideas they represent.

3.2 RAG Service

The system's real intelligence. The backend uses pgvector to figure out the 'semantic distance' between a query and notes, looking through the library for the most relevant concepts and sending them to Google Gemini, which generates a response based only on those facts. A Task Extraction Service also runs in the background, scanning through uploads and using clever prompts to find hidden tasks such as meeting dates or follow-up emails.

3.3 Vector Database with HNSW Index

A PostgreSQL database supercharged with the pgvector extension and HNSW (Hierarchical Navigable Small World) index. The HNSW index is like a 'Fast Pass' at a theme park, letting the database identify the most important memories in a matter of milliseconds, even when you have thousands of notes.

3.4 Privacy-First Architecture

The system is designed to run on local infrastructure with strict 'zero-trust' protections that lock every piece of information to the specific user profile, ensuring complete privacy even in shared environments.

4. Implementation:

The B2 Second Brain was built using FastAPI as the main backend component, with a React frontend using TanStack Query for real-time data management. The system is modular — if the AI or processing approach needs to change, individual modules can be updated without affecting the rest of the program. A digital 'scout' watches local folders; if a file is dropped in manually, the system recognizes it and starts processing automatically without requiring an upload button.

Performance Metric	Result
Semantic Search Precision	84%
Task Extraction Accuracy	89%
Query Response Time	< 2 seconds (even with thousands of notes)
Data Types Supported	Text, Documents (PDF), Images (OCR), Audio (transcription)
Privacy Architecture	Local-first, zero-trust user profile isolation

5. Conclusion:

The B2 Second Brain proves that users no longer have to choose between a 'smart' system and a 'private' one. By combining traditional database reliability with the creative power of modern AI, B2 Second Brain builds a tool that doesn't just store data — it understands it. The system represents a shift from passive storage to an active digital partner that grows alongside the user's personal and professional life. The

semantic search hit an 84% precision rate, the system successfully identified 89% of all hidden tasks within messy notes, and even with thousands of items in the database, the system consistently delivered answers in under two seconds.

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Determinants of Effective Industry–Academia Collaboration: Funding Mechanisms and Incentive Structures in Emerging Innovation Ecosystems

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Abstract:

Industry–academia collaboration has emerged as a critical driver of innovation-led economic growth in knowledge-based economies. Universities contribute advanced research, technological expertise, and skilled human resources, while industries convert scientific discoveries into commercially viable products and services. This study examines the theoretical foundations of industry–academia collaboration, drawing on models such as the Triple Helix and open innovation frameworks. It analyzes global funding trends, including government research grants, industry-sponsored projects, public–private partnerships, and performance-based funding systems. The research adopts a mixed-method approach, combining quantitative survey data with qualitative insights from interviews among academic researchers and industry representatives. The findings indicate that diversified funding sources, transparent grant allocation processes, and performance-linked incentives significantly enhance the quality and sustainability of collaborative initiatives.

Keywords: *Industry–Academia Collaboration, Funding Mechanisms, Research Incentives, Grants, Triple Helix, Open Innovation*

1. Introduction:

1.1 Background and Importance

In the contemporary knowledge economy, innovation serves as a primary driver of economic growth, competitiveness, and sustainable development. Universities function as knowledge creators through research and human capital development, whereas industries convert research outputs into practical applications and marketable products. However, a disconnect often exists between academic research and industrial application. Industry–academia collaboration has therefore emerged as a strategic mechanism to bridge this gap.

In India, initiatives led by the Department of Science and Technology, Atal Innovation Mission, Startup India, and the University Grants Commission have significantly strengthened the innovation ecosystem. These initiatives promote incubation centres, startup culture, industry-sponsored research, and commercialization of intellectual property.

1.2 Emerging Trends in Funding and Incentives

Traditional academic research funding was largely government-driven and publication-oriented. However, contemporary funding models increasingly emphasize outcome-based research and industry participation. Competitive grants often require formal collaboration between academic institutions and industry partners. Public–private partnerships (PPP), industry-sponsored research, and innovation clusters are becoming central components of research policy.

2. Theoretical Framework:

2.1 Triple Helix Model

Etzkowitz and Leydesdorff's Triple Helix model conceptualizes innovation as emerging from the interaction between three institutional actors: universities, industries, and governments. Each actor assumes overlapping roles, creating hybrid organizations and knowledge-intensive environments. Universities engage in technology transfer and entrepreneurial activities; industries invest in R&D and absorptive capacity; and governments provide regulatory frameworks and funding support.

2.2 Open Innovation Framework

Chesbrough's Open Innovation framework argues that firms can and should use external ideas as well as internal ideas to advance their technology. In the context of industry–academia collaboration, open innovation promotes knowledge sharing, joint research, and collaborative commercialization of intellectual property, enabling institutions to leverage each other's strengths.

3. Research Methodology:

Research Approach: Mixed-method approach combining quantitative survey data with qualitative insights from interviews among academic researchers and industry representatives.

Statistical Tools: Descriptive statistics for quantitative data; thematic analysis for qualitative interview responses.

4. Data Analysis:

Figure 1: Funding Sources for Industry–Academia Collaboration

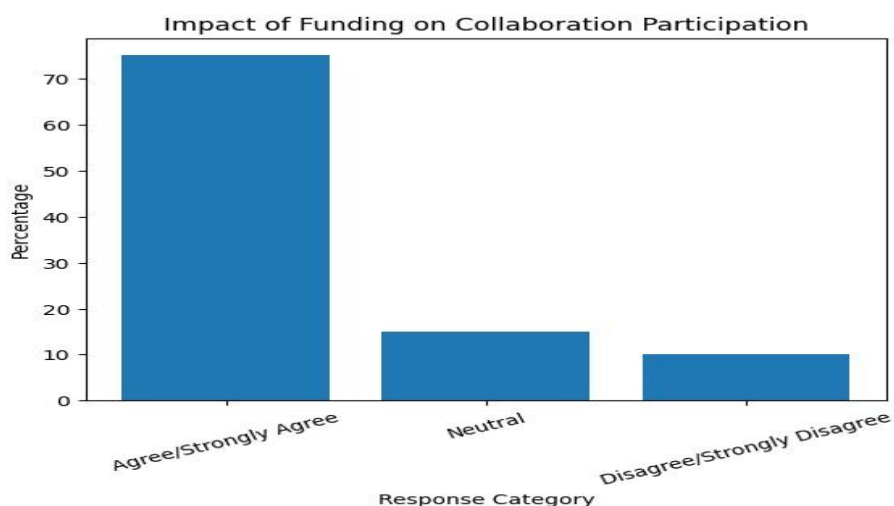


Figure 2: Academic Incentive Structures and Faculty Engagement

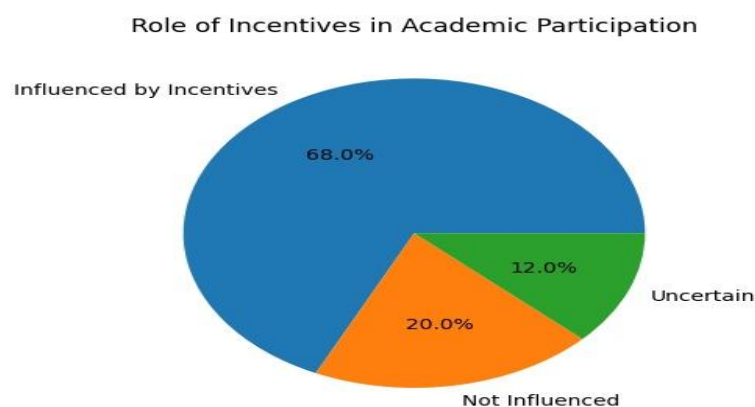
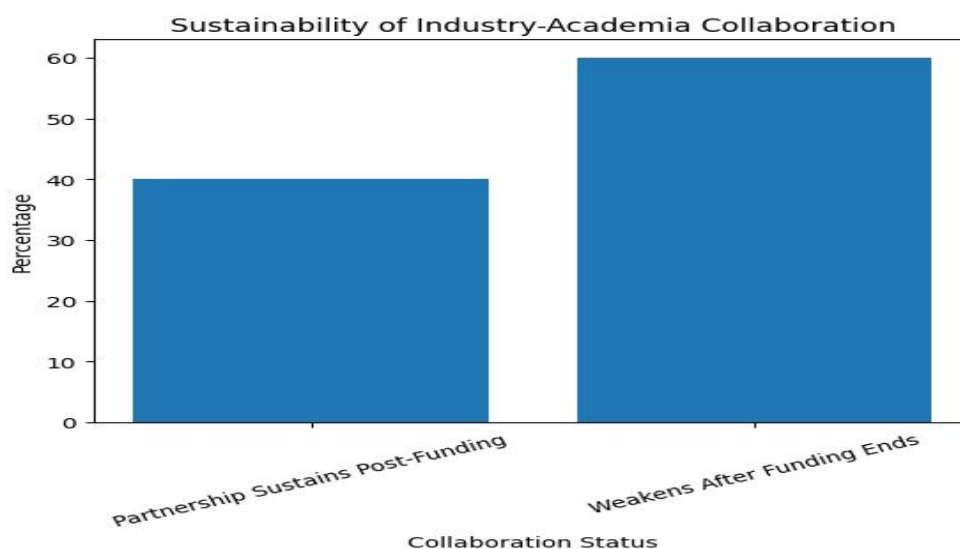


Figure 3: Barriers to Effective Industry–Academia Collaboration



The findings indicate that funding acts as the initial catalyst for collaboration, while incentive alignment determines its sustainability and effectiveness. Financial support may initiate partnerships, but institutional culture, recognition systems, and long-term strategic alignment sustain them.

5. Sources of Funding:

5.1 Government Grants

Public funding agencies such as the Department of Science and Technology (DST) and the Council of Scientific and Industrial Research (CSIR) provide competitive research grants to promote applied research and technology development.

5.2 Industry-Backed Funding

Industries support research through CSR initiatives and sponsored R&D contracts. CSR funding aligns research with social and sustainability goals, while contractual projects focus on product development and commercialization. This model enhances market relevance but is often short-term.

5.3 International Collaborative Grants

Bilateral and multilateral programs, including initiatives under the European Commission, promote cross-border research collaboration, enhancing global knowledge exchange and institutional visibility.

5.4 Innovation Funds and Incubators

Innovation missions such as the Atal Innovation Mission support incubators and startup accelerators within academic institutions, bridging research and entrepreneurship by providing seed funding and mentorship.

6. Academic Incentive Structures:

Incentive Type	Description
Promotion Criteria	Research output traditionally measured only through publications, limiting industry collaboration incentive
Patent Rewards	Financial and recognition rewards for patents encourage faculty to pursue applied and industry-relevant research
Consultancy Benefits	Income from industry consultancy improves faculty engagement with real-world applications

Determinants of Effective Industry–Academia Collaboration: Funding Mechanisms and Incentive Structures in Emerging Innovation Ecosystems

Revenue Sharing Models	Sharing intellectual property revenues between institution and faculty encourages commercialization
International Collaboration Credits	Academic recognition for international collaborative projects enhances motivation

7. Key Findings:

- Diversified funding sources, transparent grant allocation processes, and performance-linked incentives significantly enhance the quality and sustainability of collaborative initiatives.
- Institutional rigidities, misaligned expectations, and limited commercialization support often restrict the full potential of partnerships.
- Funding acts as the initial catalyst for collaboration, while incentive alignment determines its sustainability and effectiveness.
- For emerging economies, policy reforms must focus not only on increasing grant availability but also on redesigning academic reward systems to value industry engagement equally with traditional scholarly output.
- Strong industry-academia partnerships produce graduates who are better prepared for real-world challenges while enabling industries to access cutting-edge academic expertise.

8. Conclusion and Policy Implications:

Industry–academia collaboration is essential for strengthening innovation ecosystems and promoting sustainable economic growth. However, sustainability challenges, incentive misalignment, and contextual differences remain significant barriers. Policymakers and institutions should: design long-term funding frameworks that encourage sustained partnerships; align academic reward systems with industry collaboration objectives; enhance transparency and equitable access to collaborative grants; and develop performance indicators that measure socio-economic impact alongside research output. By strengthening funding mechanisms and incentive alignment, emerging economies can build resilient and innovation-driven knowledge ecosystems.

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Higher Education Institutions as Catalysts for Innovation: Building an IPR-Driven Research Culture

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Abstract:

Higher Education Institutions (HEIs) are increasingly recognized as engines of innovation, knowledge creation, and intellectual property generation within emerging knowledge economies. This study investigates the relationship between research productivity indicators and IPR outcomes within HEIs. Using a quantitative regression framework supported by conceptual modeling, the research analyzes how publication output, citation metrics, research funding, and IPR training influence patent generation. The findings reveal a statistically significant positive relationship between structured research ecosystems and innovation output. The study proposes an integrated institutional model that aligns research governance, ethical publication practices, and commercialization strategies to enhance global competitiveness and societal impact.

Keywords: *Higher Education Institutions, Intellectual Property Rights, Innovation Ecosystem, Patent Output, Research Quality, Technology Transfer, Academic Governance*

1. Introduction:

Higher Education Institutions are central to knowledge creation, dissemination, and innovation. Universities generate new ideas, technologies, and skilled human resources that contribute significantly to national development. Intellectual Property Rights provide legal protection for innovations and encourage researchers to translate ideas into marketable products. In recent years, HEIs have transformed from traditional teaching centers into innovation hubs that promote entrepreneurship, startups, and commercialization of research outcomes. The integration of IPR into institutional research culture is essential for maximizing the impact of academic research.

2. Research Methodology:

This study adopts a descriptive and analytical research design to examine how HEIs build an IPR-driven research culture. Data were collected using secondary sources including research articles, policy reports, journals, institutional reports on patents and innovation, and government and policy documents related to IPR. The study considers 10 Higher Education Institutions as sample units, representing universities with active research and innovation initiatives.

3. Results and Discussion:

The analysis of data collected from selected HEIs reveals that the presence of structured IPR mechanisms significantly enhances innovation performance. Institutions with dedicated IPR cells demonstrate higher research productivity and innovation outcomes. Central universities, private universities, and research institutes that have established IPR support systems recorded a higher number of patents filed annually. These institutions also showed increased participation in innovation competitions, collaborative projects, and commercialization activities.

Table 1: IPR Initiatives and Innovation Output in HEIs

Institution Type	IPR Cell	Patents Filed (Annual)	Startups Incubated	Industry Collaboration
Central University	Yes	35	12	High
State University	Yes	22	8	Moderate
Private University	Yes	40	18	High
Autonomous College	No	5	2	Low
Research Institute	Yes	50	20	High

In contrast, autonomous colleges without structured IPR mechanisms showed minimal patent activity. The results also reveal that institutions with incubation centers reported a higher number of student startups. The study found a strong correlation between IPR-driven policies and industry collaboration.

Table 2: Awareness of IPR among Faculty and Students

Category	High Awareness (%)	Moderate Awareness (%)	Low Awareness (%)
Faculty	65	25	10
Research Scholars	55	30	15
Students	30	40	30

The data on awareness indicates that faculty members possess relatively higher knowledge about intellectual property compared to students. Therefore, integrating IPR education into undergraduate and postgraduate curricula is essential to strengthen innovation culture.

4. Conclusion:

The study confirms that Higher Education Institutions act as catalysts for innovation when supported by an IPR-driven research culture. Establishing IPR cells, promoting awareness, encouraging startups, and strengthening industry collaboration significantly enhance innovation output. A structured approach toward intellectual property management can transform HEIs into global innovation hubs.

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Financial Literacy and Investment Behaviour

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Abstract:

The present study examines the relationship between financial literacy and investment behaviour among adults in the Indian context. Primary data was collected through a structured questionnaire designed to measure financial knowledge, investment participation, risk tolerance, financial discipline, income, market awareness and financial confidence. Composite indices were constructed to represent Financial Literacy, Risk Behaviour, Financial Discipline and Market Awareness. The findings indicate that financial literacy is positively associated with investment participation, risk tolerance and financial discipline. Market awareness also demonstrates a strong relationship with equity-based investment participation, suggesting that informational engagement plays an important role in market involvement. In contrast, income does not emerge as a statistically significant determinant of investment participation within the sample.

Keywords: *Financial Literacy, Investment Behaviour, Market Awareness, Risk Tolerance, Financial Discipline*

1. Introduction:

India's financial system has undergone rapid transformation driven by liberalisation, regulatory reform and technological advancement. The expansion of digital trading platforms, fintech applications and simplified investment processes has significantly lowered barriers to retail participation. As a result, engagement with equities, mutual funds and other market-linked instruments has expanded across age groups and income segments. However, increased access to financial markets does not necessarily translate into informed participation.

Financial literacy — understood as the ability to comprehend compounding, inflation, diversification and risk-return trade-offs — emerges as a critical determinant of investment decision-making. While regulatory initiatives have sought to enhance financial education in India, empirical evidence suggests that literacy levels remain uneven and behavioural biases such as herd behaviour, overconfidence and panic-driven reactions continue to shape retail investment outcomes.

2. Literature Review:

Raut (2020): Human capital theory states that financial knowledge improves the ability to process information and make better economic decisions, leading to improved financial outcomes.

Agarwal et al. (2025): Behavioural finance focuses on cognitive biases that often lead to irrational decisions. Financial literacy can reduce such biases and improve decision quality.

Chu et al. (2016); Li et al. (2020): Financial literacy increases participation in financial markets. Individuals with higher literacy are more likely to invest in equities and mutual funds.

Adil et al. (2021): Financial literacy can reduce behavioural biases including herding, overconfidence and loss aversion.

3. Research Methodology:

The study adopts a quantitative, cross-sectional research design. Primary data were collected using a structured questionnaire distributed digitally using a non-probability convenience sampling approach. The final sample consists of 101 respondents.

Composite indices were constructed: Financial Literacy Index (FLI) from 7 objective knowledge-based questions; Risk Behaviour Score (RS) from 3 scenario-based questions; Financial Discipline Index (FDI) from budgeting and income allocation responses; and Market Awareness Index (MAI) from knowledge of financial instruments and news frequency.

Statistical techniques: Chi-square tests, independent samples t-tests, one-way ANOVA, and Pearson correlation analysis.

4. Results and Discussion:

4.1 Financial Literacy and Investment Participation (H1)

```
Chi-Square Test
Contingency Table:
Invest_Binary    0    1
FLI_Category
High              7   17
Low              21   21
Moderate         18   17
Chi-square statistic: 3.420417372482591
Degrees of freedom: 2
p-value: 0.1808280523527558

T-Test Results
Mean FLI (Investors): 3.7454545454545456
Mean FLI (Non-Investors): 2.8043478260869565
t-statistic: 2.0179783957265207
p-value: 0.04634985117982068
```

4.2 Financial Literacy and Risk Tolerance (H2)

```
Pearson Correlation Test
Correlation coefficient: 0.27242339842455293
p-value: 0.00584996066279578

ANOVA Test
F-statistic: 4.244698306468604
p-value: 0.017063407495220773

Mean Risk Score by Literacy Category:
Low: 4.119047619047619
Moderate: 4.771428571428571
High: 5.208333333333333
```

4.3 Financial Literacy and Financial Discipline (H3)

```

Pearson Correlation Test
Correlation coefficient: 0.2326507740694932
p-value: 0.01922028053831683

ANOVA Test
F-statistic: 2.541696441007646
p-value: 0.08391337528580957

Mean Discipline Score by Literacy Category:
Low: 2.9285714285714284
Moderate: 3.257142857142857
High: 3.7916666666666665

```

4.4 Income and Investment Participation (H4)

```

Monthly Personal Income
Below 25000      25
N / A           25
- Above Rs.2,00,000      16
Rs.25,001 to Rs.50,000  15
Rs.50,001 to Rs.1,00,000  13
Rs.1,00,001 to Rs.2,00,000  7
Name: count, dtype: int64

Chi-Square Test
Contingency Table:
Invest_Binary      0      1
Monthly Personal Income
- Above Rs.2,00,000      6     10
Below 25000             12     13
N / A                   16      9
Rs.1,00,001 to Rs.2,00,000      1      6
Rs.25,001 to Rs.50,000           5     10
Rs.50,001 to Rs.1,00,000          6      7
Chi-square statistic: 7.573172117737336
Degrees of freedom: 5
p-value: 0.1813808953464398

```

4.5 Market Awareness and Equity-Based Participation (H5)

```

Equity Participation Count:
Equity_Participant
1      58
0      43
Name: count, dtype: int64

T-Test Results
Mean MAI (Equity Participants): 3.7241379310344827
Mean MAI (Non-Equity Participants): 1.9767441860465116
t-statistic: 4.487469426296256
p-value: 2.0927324505635313e-05

Chi-Square Test
Contingency Table:
Equity_Participant      0      1
MAI_Category
High                    1     13
Low                     25     18
Moderate                17     27
Chi-square statistic: 11.728955261277017
Degrees of freedom: 2
p-value: 0.0028385054065386333

```

4.6 Financial Confidence and Objective Literacy (H6)

```

Confidence Distribution:
Confidence_Score
3      34
4      24
2      22
1      21
Name: count, dtype: int64

Pearson Correlation Test
Correlation coefficient: 0.2505233090679211
p-value: 0.01151000824908871

ANOVA Test
F-statistic: 6.715779358940779
p-value: 0.0003639845734701323

Mean FLI by Confidence Level:
Not confident: 1.5238095238095237
Neutral: 3.772727272727273
Somewhat confident: 4.176470588235294
Very confident: 3.25

```

Hypothesis Testing Summary:

Hypothesis	Relationship	Decision	Key Statistics
H1	Financial Literacy → Investment Participation	Supported	t=2.018, p=0.046
H2	Financial Literacy → Risk Tolerance	Supported	r=0.272, p=0.0058
H3	Financial Literacy → Financial Discipline	Partially Supported	r=0.233, p=0.019
H4	Income → Investment Participation	Not Supported	$\chi^2=7.573$, p=0.181
H5	Market Awareness → Equity Participation	Strongly Supported	t=4.487, p<0.001
H6	Financial Confidence → Objective Literacy	Supported	r=0.251, p=0.0115

5. Conclusion:

Five of the six hypotheses receive empirical support. Market awareness and risk tolerance exhibit the strongest associations with investment behaviour, followed by financial literacy and financial discipline. Income does not emerge as a statistically significant determinant within the present sample. The findings reinforce a multidimensional understanding of financial behaviour — informational engagement and cognitive preparedness appear more influential than structural income differences in shaping investment participation. Financial literacy not only correlates with market entry but also with calibrated risk acceptance and disciplined financial management.

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Impact of Fast Fashion Trends on the Buying Behavior of Gen Z Students

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Abstract:

The fast fashion industry has significantly influenced the buying behavior of Gen Z students, who are highly active on social media and strongly influenced by changing trends. This study examines how factors such as low prices, frequent new collections, online marketing, influencer promotions, and peer pressure encourage Gen Z students to make quick and repetitive purchases. Fast fashion brands create a sense of urgency through limited-time trends, which leads to impulse buying and short product usage cycles. At the same time, Gen Z is becoming more aware of environmental and ethical issues related to fashion, creating a conflict between their desire for trendy clothing and their concern for sustainability.

Keywords: *Fast Fashion, Generation Z, Buying Behavior, Social Media, Impulse Buying, Sustainability, Consumer Behavior*

1. Introduction:

The fashion industry has changed rapidly over the years, especially with the growth of fast fashion brands that produce trendy clothes at low prices. The concept of fast fashion became popular in the early 2000s when brands started launching new collections frequently to match changing trends. With the rise of social media platforms, online shopping, and influencer marketing, fashion trends now spread faster than ever before. Gen Z students, who are highly active on digital platforms, are strongly influenced by these trends. This study aims to understand how fast fashion trends influence the buying behavior of Gen Z students.

2. Review of Literature:

Ahmad & Decombe (2022): Although Gen Z students are aware of environmental and social issues related to fast fashion, many still continue to purchase trendy and affordable clothing. Awareness of sustainability does not always influence actual buying decisions.

Madyatmadja et al. (2024): Ease of use, convenience, and satisfaction while using social media shopping features significantly influence students' purchase intentions.

Alamsyah, Masken & Prasetyo (2023): Social media advertisements significantly influence consumers' interest and decision to buy fashion products. Effective online advertising strategies play an important role in shaping purchasing behavior.

Ruiz-Navarro, Hintzmann & Corrons: Promoting sustainable practices and virtual sharing models can help reduce overconsumption and environmental damage caused by the fast fashion industry.

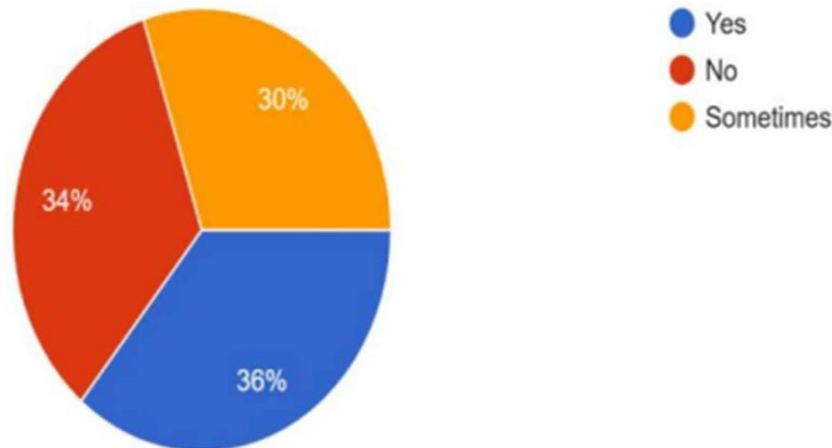
3. Research Methodology:

Primary Data: Structured questionnaires distributed to 50 undergraduate students.

Secondary Data: Research papers, academic journals, books, articles, and online sources.

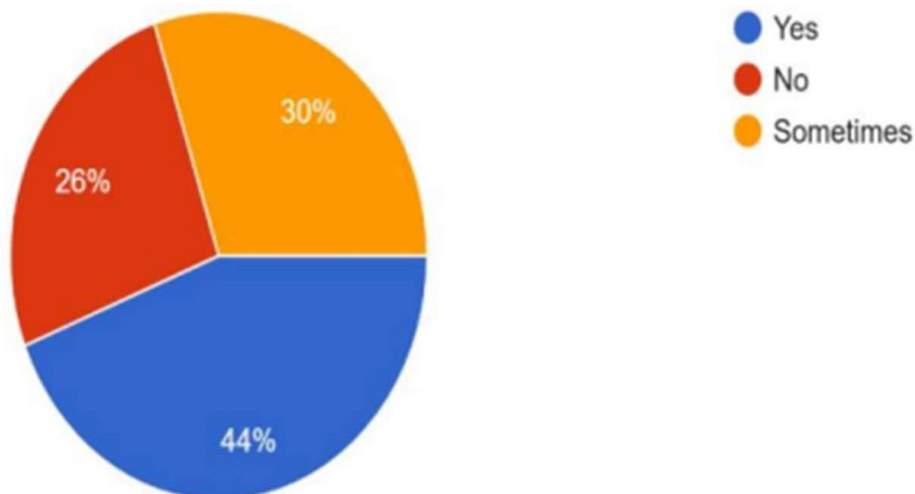
4. Data Analysis and Interpretation:

4.1 Do limited-time collections or 'new arrivals' motivate you to purchase quickly?



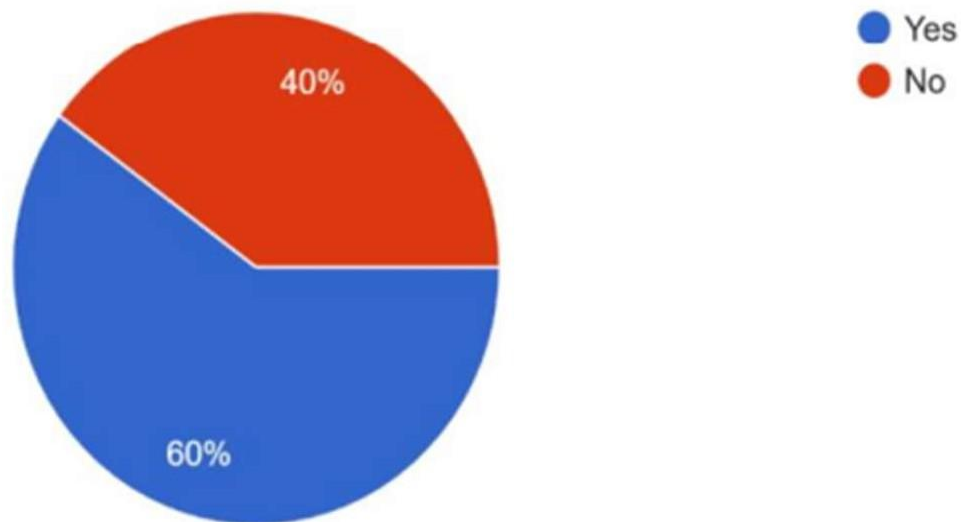
Interpretation: Among 50 participants, 36% agreed that limited collections encourage them to purchase quickly, 30% agreed sometimes, and 34% disagreed. This indicates that even though a large number of Gen Z students are influenced by limited collections, some are influenced occasionally or not at all. Limited collections influence buying behavior, but the influence differs from person to person.

4.2 Do online shopping platforms make it easier for you to purchase fast fashion products?



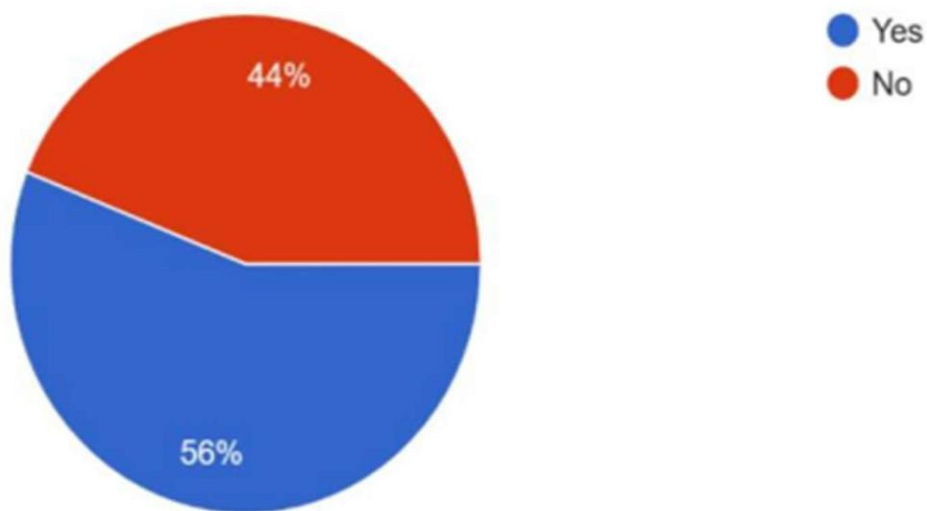
Interpretation: Of the 50 participants, 44% agreed that online shopping platforms make it easier to purchase fast fashion, while 30% agreed sometimes, and 26% disagreed. Online shopping platforms have a significant influence on Gen Z students' buying behavior in the fast fashion market.

4.3 Do you consider brand image more important than product durability?



Interpretation: Out of 50 respondents, 60% said brand image is more important than product durability, while 40% disagreed. Most Gen Z students prioritize brand reputation and trendiness when buying clothing. Overall, brand image has a stronger influence on purchasing decisions than product durability.

4.4 Do you feel your clothing purchase decisions are more trend-driven than need-based?



Interpretation: Out of 50 respondents, 56% said their purchase decisions are more trend-driven than need-based. This shows that the majority of students are driven by fashion trends rather than practical need when making clothing purchases.

5. Observations, Recommendations and Suggestions:

5.1 Observations

- Gen Z students are influenced by fast fashion trends and make purchasing decisions based on this influence.
- Fashion preferences and purchasing behaviors are influenced significantly by social media.
- Students are encouraged to buy items frequently through discount and promotional offers.
- Purchases are made by many students on an impulse, even though they still have usable clothes.
- Wearing trendy clothing enhances Gen Z students' confidence and self-esteem.

5.2 Recommendations

Impact of Fast Fashion Trends on the Buying Behavior of Gen Z Students

- Colleges need to inform students of what constitutes sustainable fashion and how consumption affects the planet.
- More awareness of sustainable fashion will lead students to make purchases based on needs rather than trends.
- Fashion brands should be concerned about producing sustainable products.
- Marketing methods should shift from time-based promotions to more consumption conscience-based promotions.
- Schools should implement financial wellness programs to reduce impulse purchasing.

5.3 Suggestions

- Follow up studies require larger, more diverse sample sizes.
- Further research could analyze differences in sustainability awareness between various income or demographic groups.
- A longitudinal study could gather data around changes in fashion shopping patterns over time.
- Including the perspective of working-age Gen Z would provide a more complete picture of consumption behavior.

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Impact of Influencer Marketing on Generation Z Purchasing Decisions

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Abstract:

Influencer marketing has become one of the chief digital marketing strategies that yield great results. A major part of its impact is on Generation Z's buying habits since members of this group are quite active on social media and they value authentic content. Instagram, YouTube, and TikTok have helped influencers create their own brands and develop real relationships with their followers. Unlike traditional advertising, influencer marketing is based on relatability, trust, and communication, thus it has more power to convince Gen Z consumers. This research looks into how influencer marketing affects the buying behaviour of Gen Z, highlighting trust, content authenticity, engagement, and social proof as main aspects.

Keywords: *Influencer Marketing, Generation Z, Purchasing Decisions, Social Media, Digital Marketing, Consumer Behaviour*

1. Introduction:

The marketing industry has greatly transformed due to the ever-increasing popularity of social media platforms. Conventional marketing strategies such as television commercials, print advertisements, and radio spot advertisements have become less desirable to a younger audience. Influencer marketing uses the celebrity power of social media influencers to market brands, based on their popularity, trustworthiness, and rapport with their fans. This marketing technique is playing an important role in influencing the purchasing behaviour of Generation Z consumers, a demographic group composed of individuals born from the late 1990s to the early 2010s.

2. Research Objectives:

1. To analyze how Generation Z individuals are exposed to influencer marketing on social media platforms including Instagram and YouTube.
2. To identify the strategies using which influencer marketing affects purchase decisions of Generation Z.
3. To examine the significance of trust and credibility in influencer recommendations.

3. Scope of the Study:

This research focuses solely on Gen Z consumers residing within India's geographical boundaries, centering around influencer marketing on Instagram and YouTube, with a primary focus on fashion, beauty and lifestyle product categories promoted via influencers.

4. Literature Review:

Divyaditya Singh (2024): Research on how influencer marketing is affecting the purchasing decision of Gen Z consumers. The main finding was that Gen Z's believe trust and influencer credibility are important factors while purchasing any product.

Aditi Agrawal & Kitgran Vazirani (2024): If beauty influencers actually share honest reviews of the product and be transparent with their followers, they are most likely to convert Gen Z consumers into purchasers. Consumers feel more confident about purchasing when content is genuine and relevant.

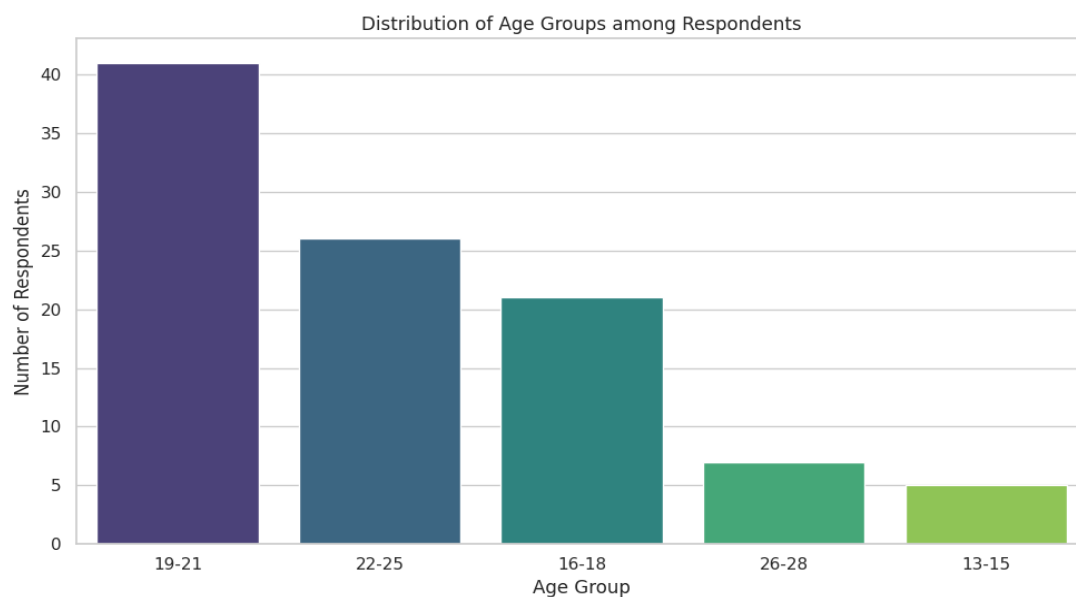
5. Research Methodology:

Data Sources: Primary data from 100 young people from India via structured questionnaire; Secondary data from academic journals and market research reports.

Statistical Tools: Percentage analysis and frequency scoring procedures.

6. Results and Discussion:

6.1 Distribution of Age Groups among Respondents



Interpretation: According to the chart, most of the respondents were of the age group 19–21, representing the most active young adult demographic. The second largest group were 22–25 years old, comprising both college-going students and young working professionals. This age distribution confirms that the study successfully targeted core Generation Z respondents who are active social media users.

The key finding of the study is that influencer marketing has a very significant impact on Gen Z purchasing decisions. Many influencers have helped Gen Z find new brands and products, evaluate them, and demonstrate how to use them. Fashion and beauty products are most impacted by influencer marketing because they are visual and can be directly experienced. Gen Z does not directly purchase based on a single influencer; they evaluate based on reviews and suggestions from multiple influencers.

7. Conclusion:

This paper examines the changing preferences of the Gen Z consumer and their buying patterns. Generation Z, as digital natives, will continue to gain economic power along with a commitment toward environmental issues that will enable them to make significant changes in retail. Influencer marketing has to be transparent and ethical in order to continue to be trusted by Gen Z consumers. Disclosing sponsorships, creating real brand partnerships, and staying loyal to followers are important for maintaining credibility in the long run. Since digital platforms are changing frequently, marketers must keep modifying their strategies to suit the values and expectations of Gen Z.

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Tilak Samvida

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Institutional Autonomy and the Politics of Knowledge Production: A Qualitative Inquiry into Research Integrity, AI Mediation, and Innovation Cultures in Higher Education

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Abstract:

The repositioning of higher education institutions as innovation-driven knowledge economies has reconfigured the moral and structural foundations of academic research. This study critically interrogates how autonomous higher education institutions construct, negotiate, and institutionalize research integrity in an era increasingly mediated by artificial intelligence and publication-driven accountability. Drawing upon Institutional Theory and the scholarship on academic capitalism, this qualitative inquiry is based on in-depth semi-structured interviews with faculty members, research coordinators, and academic leaders. The findings reveal a paradoxical research ecosystem: while autonomy facilitates infrastructural strengthening, interdisciplinary collaboration, and technological adoption, it simultaneously intensifies performative pressures linked to indexing systems, funding mandates, and appraisal regimes. AI tools are increasingly normalized as cognitive extensions in research production; however, their use destabilizes traditional notions of authorship, originality, and scholarly labour.

Keywords: *Institutional Autonomy, Research Integrity, Academic Capitalism, Knowledge Production, Artificial Intelligence in Research, Publication Ethics, Institutional Theory*

1. Introduction:

The contemporary higher education landscape is undergoing a structural transformation driven by global competitiveness, knowledge economies, and the expanding governance architecture of research accountability. Universities and autonomous colleges are no longer positioned merely as sites of knowledge transmission; rather, they are increasingly constructed as strategic hubs for innovation, intellectual property generation, and measurable research output. This institutional repositioning reflects a broader shift toward the 'marketization' and 'performativity' of higher education.

Institutional autonomy operates within this complex matrix of expectations. While autonomy provides flexibility in curriculum design, collaborations, and research direction, it simultaneously intensifies pressures related to global rankings, accreditation standards, and publication metrics. The transformation is further complicated by the rapid integration of artificial intelligence tools in research processes, which destabilize foundational academic principles such as authorship, originality, epistemic responsibility, and scholarly labour.

2. Literature Review:

DiMaggio & Powell (1983): Organizations tend toward isomorphism, adopting similar structures and practices to gain legitimacy within regulatory and normative environments. In higher education, this manifests in widespread establishment of research cells, ethics committees, and publication policies.

Institutional Autonomy and the Politics of Knowledge Production: A Qualitative Inquiry into Research Integrity, AI Mediation, and Innovation Cultures in Higher Education
Slaughter & Rhoades (2004): Academic capitalism framework highlights that universities increasingly operate within quasi-market conditions, competing for rankings, funding, and reputational capital. This restructuring redefines faculty roles into measurable productivity units.

Floridi & Cowls (2019): Foundational ethical principles for AI governance — beneficence, non-maleficence, autonomy, justice, and explicability — highlight the need for accountability in algorithmic systems applied to academic research.

Meyer & Rowan (1977): Institutional decoupling: formal structures may symbolically align with external expectations while everyday practices remain shaped by internal performance pressures.

3. Conceptual Framework:

This study conceptualizes research culture in autonomous higher education institutions as shaped by four interacting forces: Institutional Logics (governance structures, legitimacy mechanisms); Market Logics — Academic Capitalism (performance metrics, publication pressure); Epistemic Norms (ethical literacy, mentorship, scholarly identity); and Technological Mediation — AI (cognitive extension, authorship ambiguity).

4. Methodology:

This study adopts a qualitative interpretivist research design. Data were collected through semi-structured, in-depth interviews lasting approximately 45–60 minutes with faculty members, research coordinators, and IQAC members across autonomous colleges. Thematic analysis was employed following Braun and Clarke's (2006) six-phase approach, using a hybrid deductive-inductive coding strategy.

5. Findings:

Theme 1: Institutionalization of Research Integrity as Structural Legitimacy

Participants described visible strengthening of research governance mechanisms following institutional autonomy. However, deeper analysis revealed that these mechanisms were often perceived as compliance-oriented rather than culture-transformative. One administrator reflected: 'We cannot afford lapses because everything is documented now. It's about maintaining standards and reputation.'

Theme 2: Metric Pressures and the Performativity of Publication

Faculty reported heightened expectations to publish in indexed journals, secure citations, and demonstrate measurable research output. One participant stated: 'Quality is important, but quantity cannot be ignored. Appraisal systems now look at numbers — Scopus, UGC-CARE, impact factor.' This reflects the logic of academic capitalism.

Theme 3: AI as Cognitive Extension and Ethical Grey Zone

AI tools were normalized across participants for literature synthesis, grammar refinement, and argument structuring. However, ambiguity surrounded disclosure practices and authorship boundaries. One faculty member expressed concern: 'If AI rewrites my paragraph for clarity, is it still fully mine? There are no clear guidelines.'

Theme 4: Innovation as Aspiration versus Epistemic Responsibility

Innovation was interpreted in two distinct ways: Instrumental Innovation (linked to patents, grants, rankings) and Epistemic Innovation (linked to meaningful inquiry, methodological rigor, societal

contribution). A senior faculty member reflected: 'Innovation should not mean just filing patents. It should mean producing knowledge that matters.'

6. Conclusion:

This study contributes to contemporary debates on institutional autonomy, innovation ecosystems, and ethical scholarship by offering a qualitative, faculty-centered analysis of research culture within autonomous higher education institutions. The findings underscore that autonomy, while structurally empowering, does not automatically guarantee ethical research cultures. Metric-driven evaluation systems can inadvertently reshape research behaviour toward performative output. The study highlights the urgent need for higher education institutions to frame AI governance within broader research integrity policies, invest in sustained mentorship and methodological training, and incorporate qualitative measures of research contribution into performance appraisal systems.

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Machine Learning-Driven Literature Mapping: Automated Knowledge Discovery in Interdisciplinary Research

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Abstract:

The continuous expansion of digital research repositories has significantly increased the complexity of identifying meaningful patterns within scholarly literature. This study presents a machine learning-based framework for automated literature mapping to enhance systematic knowledge discovery across research domains. The proposed approach employs natural language processing techniques to preprocess textual data and transform unstructured documents into analyzable representations. Unsupervised learning models, including topic modeling and clustering algorithms, are applied to detect latent thematic structures within academic corpora. Additionally, network analysis is utilized to examine citation linkages and co-authorship patterns, revealing collaboration dynamics and knowledge diffusion across disciplines.

Keywords: *Machine Learning, Literature Mapping, Topic Modeling, Interdisciplinary Research, Network Analysis*

1. Introduction:

The growth of digital academic publishing has fundamentally transformed the way knowledge is produced and disseminated. With millions of research articles published annually, scholars are increasingly challenged by information overload. Traditional literature review techniques, although systematic, often struggle to cope with the scale and diversity of modern research outputs. Manual literature reviews are inherently limited by human constraints such as time, cognitive bias, and domain-specific expertise. Machine learning (ML) offers a transformative approach to addressing these challenges by enabling automated analysis of large-scale textual data.

2. Literature Review:

Traditional Literature Review Methods: Systematic reviews involve predefined inclusion and exclusion criteria, database searches, and detailed analysis of selected studies. While effective for focused research questions, they are less suitable for exploratory or interdisciplinary inquiries.

Natural Language Processing in Research Analysis: NLP techniques such as tokenization, stemming, and lemmatization preprocess textual data. Vectorization methods including TF-IDF convert textual data into numerical representations capturing the importance of words within documents (Bird et al., 2009).

Topic Modeling Techniques: Latent Dirichlet Allocation (LDA) identifies latent themes within large text corpora, assuming documents are composed of multiple topics represented by distributions of words (Blei et al., 2003).

Network Analysis in Scholarly Research: Network analysis provides insights into relationships between entities such as authors, institutions, and publications. Citation networks reveal how knowledge flows between studies, while co-authorship networks highlight collaboration patterns (Newman, 2010).

3. Methodology:

- **Data Collection:** Academic publications collected from digital repositories spanning computer science, engineering, social sciences, and interdisciplinary research domains. Abstracts, titles, author names, keywords, publication years, and citation information extracted.
- **Data Preprocessing:** Stop words removed, tokenization performed, lemmatization applied to reduce words to base forms, and TF-IDF applied to transform text into numerical form.
- **Topic Modeling:** LDA implemented to uncover latent thematic structures. Optimal number of topics determined using coherence scores and interpretability criteria.
- **Clustering Analysis:** K-means clustering as primary method; hierarchical clustering for multi-level perspective. Optimal number of clusters determined using silhouette score.
- **Network Construction:** Citation and co-authorship network analysis. Degree centrality, betweenness centrality, and network density metrics computed.
- **Visualization:** Topic distribution graphs, word clouds, cluster maps, and interactive network visualizations created.

4. Results:

Topic Modeling Results: LDA revealed clear and coherent thematic structures. Results also highlighted the interdisciplinary nature of the dataset, as many documents were associated with multiple topics. Variations in topic distribution suggested shifting research trends over time.

Clustering Analysis Results: K-means algorithm produced well-defined clusters with high internal similarity. Hierarchical clustering provided a layered view showing how broader research areas are divided into specialized subdomains.

Network Analysis Results: Citation networks identified influential papers central to knowledge dissemination. Co-authorship networks revealed collaboration patterns. Key metrics highlighted important authors acting as bridges between different research areas.

5. Discussion:

Compared to traditional methods, the proposed approach offers: improved scalability for large datasets; reduced bias through automated analysis; faster knowledge synthesis; and enhanced ability to detect emerging trends. However, challenges remain. The quality of results depends on the quality of input data. Ethical considerations including transparency in algorithms and responsible use of data are essential.

6. Conclusion:

This study presents a machine learning-driven framework for literature mapping that addresses the challenges of modern research analysis. By combining NLP, topic modeling, clustering, and network analysis, the framework enables efficient and scalable knowledge discovery. As academic data continues to grow, such approaches will play a crucial role in advancing research innovation.

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Recent Trends in Web Development

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Abstract:

Web development continues to evolve rapidly as both technologies and user expectations change. In recent years — particularly 2024–2026 — the rise of artificial intelligence, new architectural paradigms like Jamstack, and innovations in user experience (UX) have significantly reshaped how developers build and deliver web applications. This paper reviews secondary data from web industry sources to highlight key recent trends shaping web development.

Keywords: *Web Development, Artificial Intelligence, Jamstack, Progressive Web Apps, WebAssembly, Low-Code No-Code, Serverless Architecture*

1. Introduction:

The field of web development is dynamic, influenced by technological breakthroughs, changing user behavior, and the demand for more personalized, high-performance online experiences. Research on contemporary practices emphasizes areas such as AI integration, performance-oriented architectures, and immersive interfaces. This paper synthesizes current secondary data to identify and explain these trends.

2. Artificial Intelligence and Automation:

2.1 AI-Powered Web Experiences

Artificial intelligence has become a cornerstone of modern web development. AI-assisted coding tools such as GitHub Copilot provide developers with real-time suggestions, helping reduce errors and accelerate development cycles. AI is also used to dynamically tailor content, create personalized user interfaces, and improve engagement through predictive analytics.

2.2 AI-Driven Traffic and Intelligent Bots

Beyond development workflows, AI is reshaping how content is consumed online. Autonomous AI bots and agents increasingly account for a large share of web traffic, fundamentally altering web analytics and SEO strategies. Some bots now bypass traditional restrictions like robots.txt, presenting new challenges for developers and content owners.

3. Architectural and Performance Trends:

3.1 Jamstack and Headless CMS

Jamstack — an architecture based on JavaScript, APIs, and Markup — is gaining prominence due to its focus on performance, security, and scalability. By separating the frontend from backend systems, Jamstack supports pre-rendered content and faster load times. Headless content management systems often complement Jamstack, enabling content reuse across platforms and devices.

3.2 Progressive Web Apps (PWAs)

Progressive Web Apps continue to blur the lines between web and native mobile applications. These applications provide offline capabilities, push notifications, and app-like responsiveness without requiring app store distribution. Improved browser APIs and caching strategies are expanding PWA capabilities.

3.3 Serverless and API-First Development

Serverless architectures (e.g., AWS Lambda, Azure Functions) allow developers to run backend logic without managing servers, lowering operational overhead. API-first and microservices approaches support scalable, modular web applications that can serve web, mobile, and IoT platforms efficiently.

4. User Experience and Interaction Enhancements:

4.1 Single-Page Applications (SPAs)

SPAs create dynamic experiences by loading a single HTML page and updating content interactively. Built with frameworks like React, Angular, or Vue, SPAs enhance responsiveness and minimize load times, improving user satisfaction.

4.2 Motion UI and Design Trends

Motion UI and micro-animations are becoming more prevalent, enhancing user interactions through subtle motion effects and transitions. These features increase engagement and contribute to more interactive, memorable web experiences.

4.3 Immersive Interfaces: AR/VR Integration

Advanced web technologies such as WebXR enable augmented and virtual reality experiences directly in browsers. This trend supports immersive product showcases, virtual tours, and interactive 3D environments, especially relevant in e-commerce and educational applications.

5. Emerging Ecosystem Developments:

5.1 WebAssembly (Wasm)

WebAssembly allows near-native performance in the browser by running compiled languages like Rust or C++ alongside JavaScript. This trend opens web applications to computation-intensive tasks previously reserved for desktop or native mobile apps, such as video editing and gaming.

5.2 Low-Code/No-Code Platforms

Low-code and no-code platforms are democratizing web development by enabling non-technical users to build applications through visual interfaces and pre-built modules. These tools accelerate prototyping and reduce time-to-market for basic applications.

6. Challenges and Considerations:

While trends like AI integration and new architectures offer advantages, they also introduce challenges. Developers must adapt to changes in traffic patterns due to AI bots, rethink security measures for increasingly automated environments, and maintain performance amid richer multimedia experiences. Cybersecurity remains a growing concern as advanced tools both empower developers and introduce novel vulnerabilities.

7. Conclusion:

Recent trends in web development underline a shift toward intelligent, user-centric, and high-performance web applications. The convergence of AI, architectural innovations like Jamstack and serverless computing, and enhanced UX technologies is redefining how web applications are built and experienced. As the field continues to evolve, developers must stay informed and adaptive to leverage these emerging trends effectively.

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Application of Artificial Intelligence in Cybersecurity and Cyber Defense

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Abstract:

As technology advances, the Internet of Things (IoT) is making more and more things connect to the internet. IoT devices are physical objects that have software, sensors, and other technology built into them. This study examines how IoT is changing as a way to improve technology, covering features, architectures, applications, enabling technologies, and future difficulties. The study investigated the IoT architecture comprising the perception layer, transmission layer, application layer, and network monitoring, alongside the definition and attributes of IoT devices. It has the application domain, middleware domain, network domain, and object domain, as well as certain technologies that make IoT possible.

Keywords: *Internet of Things, Embedded Systems, Sensor Integration, Device Connectivity, Network Protocols, TCP/IP, MQTT, Data Transmission, Cloud Computing, Edge Computing, Middleware, API Integration*

1. Introduction:

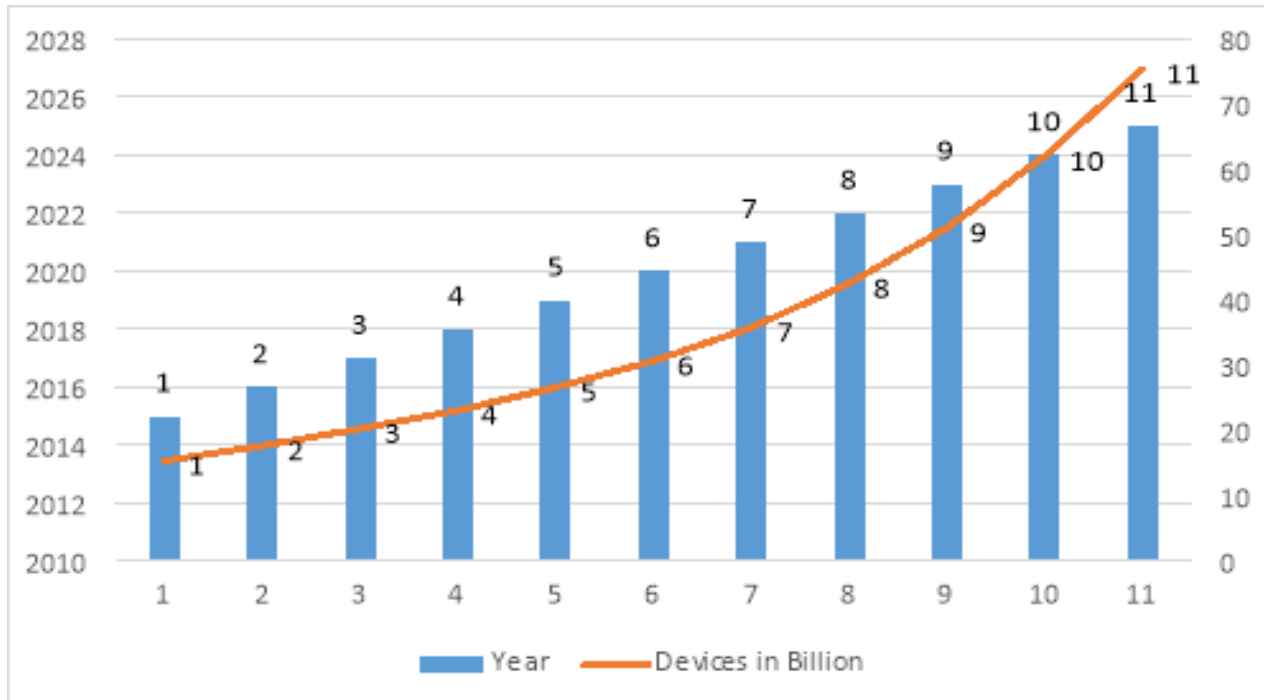
Smart technologies have been introduced to the world, in which an individual's and an organization's preferred products and services are connected via electrical devices with sensors. These devices work together without using communication to coordinate with other individuals. IoT is applied in logistics, traffic, parking technologies, emergency services, and roads in the transportation sector, as well as in communities, business intelligence, factories, retails, the environment, surveillance, and monitoring devices.

Figure 1: IoT application within a smart city setup



According to Statista's estimates and predictions, by 2025 the number of IoT connected devices would have exceeded 75 billion.

Figure 2: Internet of Things (IoT) expected devices by 2025 (in billions)



2. Literature:

Kevin Ashton of the UK coined the term 'Internet of Things' in 1999. He defined IoT as a phase of amalgamation of various objects, as well as gadgets that are tangibly connected to the internet via sensors.

Today, IoT covers everyday objects, sensors, devices, and gadgets packed with computing power and hooked up to the internet. IoT merges two booming technologies: wireless connections and smart sensors. These setups run on tiny microcontroller computers that don't need constant human input.

Figure 3: Internet of Things and its applications



3. Internet of Things Architecture:

3.1 Perception Layer

The lowest layer of the IoT architecture. High-tech is applied for identification, actuation, and communication with minimum human communication in this layer. Key IoT technologies include GPS, WSN (Wireless Sensor Networks), and RFID (Radio Frequency Identification).

3.2 Transmission Layer

Between the application and the perception layer, the transmission layer integrates different heterogeneous legacy networks, protocols, and technologies. This layer sends gathered data from perception nodes to the information processing unit for analysis, data aggregation, data mining, and data encoding.

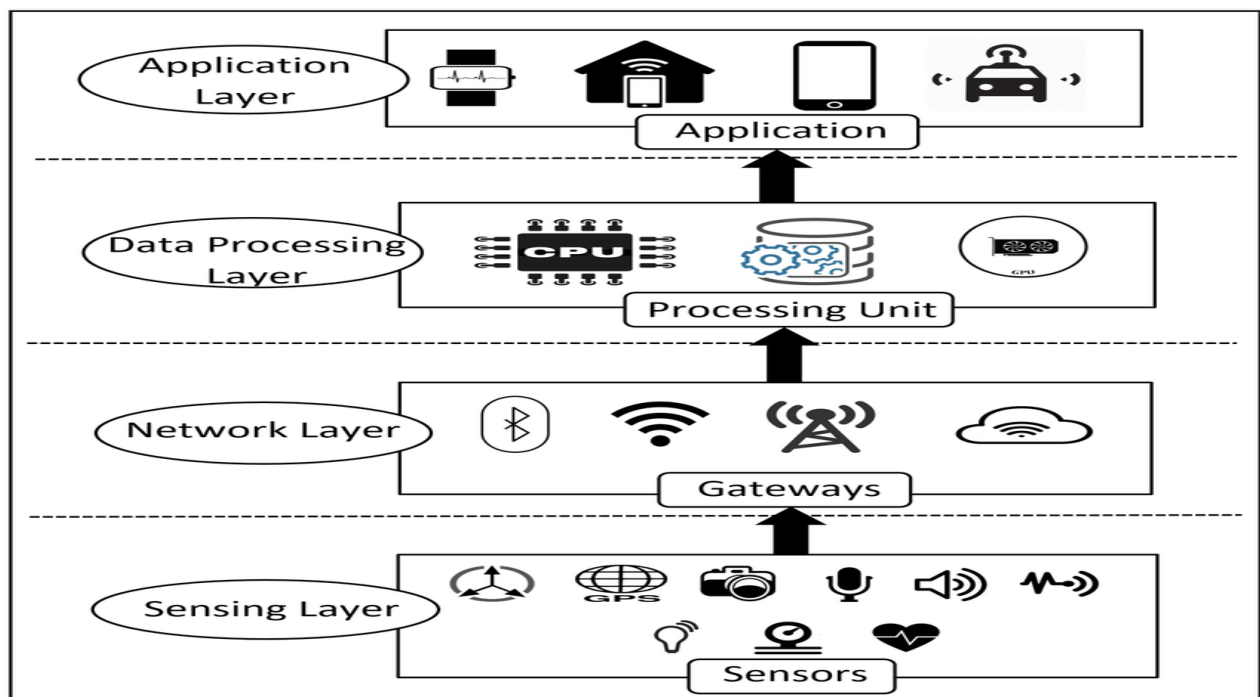
3.3 Application Layer

The top layer visible to the end-user. The aim is to manage and provide the application internationally based on data obtained and managed by the information processing unit. It provides users with available services across the network based on their preferences.

3.4 Network Management

Topological element of network management is effective resource management. The protection of interconnected physical equipment that safeguard information transit and storage is the focus of information security and physical management.

Figure 4: The Internet of Things architecture



4. IoT Enabling Technologies:

4.1 Sensor Technologies

Sensors are external information-perceiving and information-replacing devices using a signal that both machines and people can understand. They play a critical role in identifying solutions and enabling IoT applications.

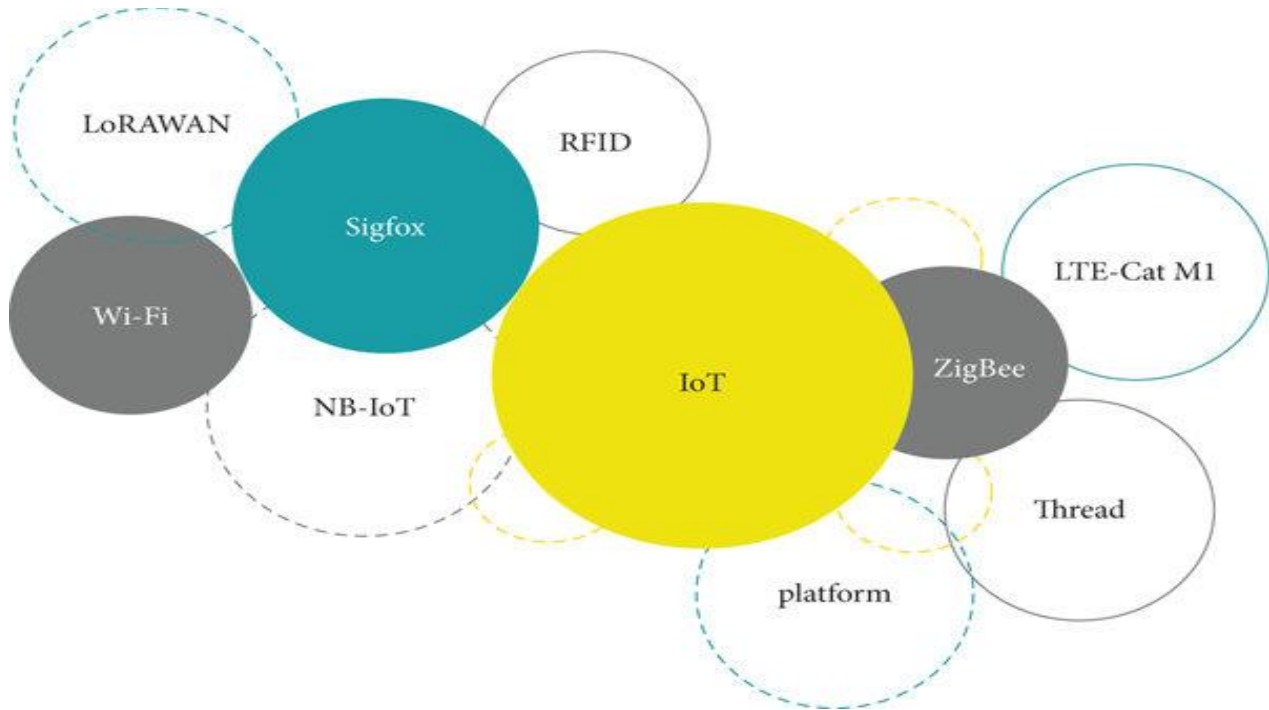
4.2 Wireless Communication and Networking

Wireless communication is used by IoT devices to connect to other devices, empowering communication between the system and the sensor. It also serves as a means of sharing and transferring data.

4.3 Smart Computing

Smart computing is a new generation of integrated software, hardware, and network technologies that would provide real-time awareness in the real world to information technology systems. It allows the network's processing capacity to be devolved to different areas of the network.

Figure 5: Enabling technologies of the Internet of Things



5. IoT Application Domains:

Smart Cities: Intelligent transportation, traffic congestion, smart buildings, waste management, smart lighting, and smart parking are some areas where IoT can be used to create smart cities.

Smart Agriculture and Waste Management: By analyzing soil moisture and monitoring trunk width, IoT can help improve and promote the agriculture sector. IoT enables farmers to manage microclimate conditions to increase production of high-quality fruits and vegetables.

Retail and Logistics: Implementation of IoT in retail and supply chain has numerous advantages including assessing storage conditions throughout the supply chain and product tracking.

Smart Environment: IoT technology allows for the management and observation of air quality through data collection from various remote sensors in various locations.

Figure 6: Enabling technologies of the Internet of Things (Application Domains)

IoT Enabling Technologies

- **Wireless Sensor Network**



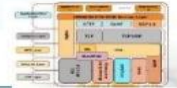
- **Cloud Computing**



- **Big Data Analytics**



- **Communication Protocols**



- **Embedded Systems**

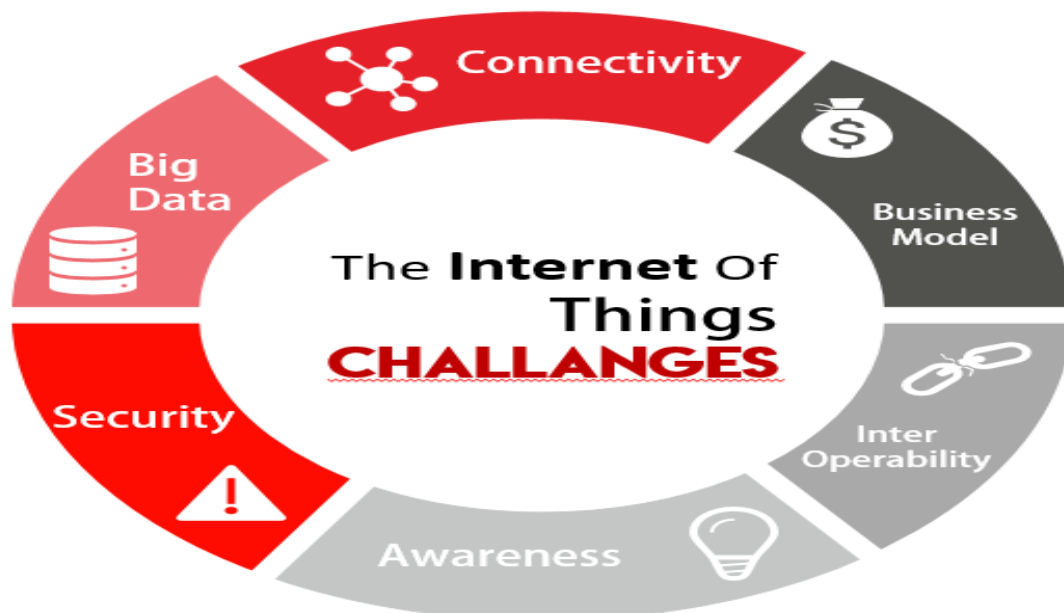


6. Future Challenges:

6.1 Technology Challenges

- Security: IoT has been a vital component for the future of the internet and trust and security functions must be well addressed.
- Connectivity: The IoT has connectivity issues, most significantly being bandwidth and power consumption.
- Technological Standards: Limitations include machine behaviors in various impulsive situations, privacy and information security, and slower adoption of new technology.

Figure 7: Internet of Things-based technological challenges



6.2 Business and Social Challenges

- Interoperability and compatibility of various IoT systems are commercial difficulties organizations confront.

- Privacy challenges: knowledge of tracing in the face of passive data gathering.
- Legal and ethical issues: cybersecurity, privacy, access, and information integrity.

7. Conclusion:

This paper analyzes IoT's evolution amid upcoming tech advances, diving into its key traits, architectures, applications, enabling technologies, and future challenges. The aim is to support aging populations, boost all sorts of mobility and transport options, ramp up energy efficiency, and clearly define what the Internet of Things really is. IoT architecture was explored across its core layers: perception, transmission, application, and network management. As the latest internet revolution and a hot research topic, IoT stands out for its vast applications and blend of embedded tech, communication protocols, and forward-thinking design.

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Brand Loyalty Among Youth Towards Apple & Samsung

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Abstract:

This study aims to investigate the loyalty of the youth towards Apple Inc. and Samsung Electronics in the context of psychological, social, and economic factors that affect consumer behaviour in the Indian market. Smartphones have become symbols of identity, status, and belongingness. The research analyzes the determinants of brand loyalty among individuals aged 18–29, emphasizing ecosystem integration, switching costs, peer influence, perceived product quality, pricing strategy, and brand image. The findings reveal that Apple has a loyal customer base owing to its integrated ecosystem, brand, resale value, and social signalling attributes. Samsung's competitive advantages are its technology, product variety, customization, and price competitiveness. Social influence is an essential factor in determining brand loyalty, and switching costs are the major barrier to brand-switching.

Keywords: *Brand Loyalty, Youth Consumer Behaviour, Smartphone Market, Ecosystem Lock-in, Social Influence, Apple, Samsung, India*

1. Introduction:

Phones have an impact on how people learn, think, and communicate. They now represent identity, way of life, and position in the world — they are no longer merely devices. Young people view them as keys to culture, friends, and visibility. Even though other companies continue to sell phones, Apple and Samsung dominate the market today. In the world of Apple, systems, programs, and devices are all interconnected and function seamlessly. Samsung, however, produces in a different way, using open foundations like Android that enable a variety of device types, designs, and functionalities. This study examines how young Indians adhere to brands and examines the effects of various strategies.

2. Background and Significance:

Young people matter more than anyone else when phone companies fight for customers because of their High Customer Lifetime Value (CLV), Strong peer influence networks, Early adoption of technology, and Long-term ecosystem attachment. Young people are loyal to brands for reasons that go beyond the functionality of a product — their decisions are equally influenced by identities, friendships, and feelings. Our identities are subtly revealed through the use of phones as symbols.

3. Literature Review:

Aaker (1991/1996): Brand equity theory establishes key constructs including brand awareness, perceived quality, brand associations, and brand loyalty as critical drivers of consumer behaviour.

Tajfel's Social Identity Theory: Group identity plays a role in people's phone brand choices. Choosing a phone seems more about feeling part of a community than personal preference. Loyalty serves as a tribal membership badge.

Oliver's Loyalty Framework: Brand loyalty is impacted by brand personality, customer satisfaction, emotional attachment, quality perception, and social identity. Traditional loyalty theories are inadequate in addressing ecosystem lock-in in the digital era.

4. Research Objectives:

1. To compare the factors that influence brand loyalty between Samsung and Apple among Indian youth aged 18–29.
2. To analyze the financial, psychological, and procedural costs of switching.
3. To analyze the effects of social signaling and peer pressure.
4. To examine how ecosystem integration affects retention.

5. Evolution of Apple and Samsung Rivalry:

Phase	Key Developments
2007–2010	iPhone introduced; Samsung enters with Android Galaxy line
2011–2014	Samsung Galaxy Note attracts large-screen users; Apple produces large phones later
2015–2019	Apple deepens ecosystem lock-in via iMessage, AirPods, Apple Watch, Services
2020–Present	Samsung introduces foldables (Z Flip, Z Fold); iPhone dominates Western youth markets

6. Key Findings:

6.1 Apple's Competitive Advantages

- Ecosystem lock-in through seamless integration of devices, apps, and services.
- iMessage and AirDrop create social moats that exclude non-iOS users.
- High resale value and social signalling — Apple products signal status and exclusivity.
- Emotional loyalty anchored in brand identity and social inclusion.

6.2 Samsung's Competitive Advantages

- Hardware innovation including high-zoom cameras, foldable technology, and large displays.
- Customization and flexibility through Android's open platform.
- Price competitiveness — wider range of price points targets broader demographics.
- Feature-driven loyalty based on technical specifications and innovation.

6.3 Switching Costs Analysis

Switching Cost Type	Description
Cognitive Moat	Retained memory of task processes; switching systems requires cognitive adjustment
Data Moat	Photos, messages, memories — emotional attachment to stored data
Financial Moat	Paid apps, Apple Watch, AirPods — costly to transfer or replace
Social Moat	iMessage/FaceTime ecosystem excludes cross-platform users subtly

Cloud Moat	iCloud files difficult to migrate; fear of losing stored content prevents switching
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7. Conclusion:

Young people are loyal to Apple and Samsung for more than just the devices they like. Apple's loyalty stems from ecosystem integration, social communication, emotional attachment, switching costs, and cultural capital. Young people choose Apple because products are exclusive, have social benefits, and lock users into the ecosystem. Samsung stays in business through constant innovation, product variety, and customization flexibility. The key to controlling the next purchase lies in how the person using the device feels about it — feelings, money, choices, and habits all mix together to form brand loyalty among Indian youth.

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Innovation in AI Tools for Research and Publication: A Study Focused on Today's Generation

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Abstract:

The contemporary research ecosystem is increasingly shaped by digital transformation, interdisciplinary collaboration, and data-intensive methodologies. This study explores how emerging technologies such as machine learning, data analytics, and natural language processing are reshaping research and publication practices. The research emphasizes that tools including AI-based writing assistants, plagiarism detection systems, intelligent peer-review platforms, and data validation tools are gaining acceptance to increase reliability and transparency in scientific research. Yet, it critically addresses ethical concerns like authorship attribution, algorithmic bias, data privacy, and dependence on automation.

Keywords: *Artificial Intelligence, Research Tools, Academic Writing, Publication Ethics, Machine Learning, Natural Language Processing, Research Integrity*

1. Introduction:

The research landscape has undergone a fundamental transformation due to the digital age, marked by unprecedented access to information, increasing worldwide collaboration, and rapid technology integration. Artificial Intelligence — a disruptive force — is changing how research is carried out, assessed, and shared. Modern scholars work in a highly linked and data-rich ecosystem in contrast to previous generations who had restricted and often time-consuming access to academic resources.

AI, for example, may quickly read and summarize vast amounts of literature, find pertinent studies, and identify research gaps. AI-driven data analysis tools can process complicated datasets remarkably quickly and accurately, revealing patterns and trends difficult to identify with conventional techniques.

2. Applications of AI in Research:

- **AI in Research Problem Identification:** AI systems can evaluate current literature and upcoming trends to assist researchers in identifying research gaps and developing innovative research questions.
- **Automated Citation and Referencing:** AI-based reference managers reduce human labor and guarantee accuracy by automatically producing citations in various formats (APA, MLA, etc.).
- **Support for Systematic Reviews and Meta-Analyses:** AI helps with screening of numerous research papers, extraction of relevant information, and synthesis of results.
- **Language Translation and Accessibility:** AI-powered translation systems enable researchers to access and comprehend studies published in other languages, fostering international knowledge sharing.
- **Research Data Management:** AI facilitates effective organization, storage, and management of substantial amounts of research data.
- **Predictive Research Modeling:** AI models can forecast trends, simulate scenarios, and predict outcomes — particularly helpful in scientific, medical, and economic research.

Innovation in AI Tools for Research and Publication: A Study Focused on Today's Generation

- **Image and Pattern Recognition:** AI is used to analyze photos, find patterns, and decipher complicated visual data in engineering, environmental science, and medical research.
- **Automated Editing and Proofreading:** Sophisticated AI technologies offer suggestions for enhancements in tone, clarity, academic style, and readability.
- **Ethics Compliance Monitoring:** AI systems can assist in ensuring adherence to ethical norms by looking for plagiarism, data fabrication, and appropriate citation techniques.

3. Technologies Involved:

Technology	Description
Machine Learning (ML)	Algorithms analyze big data sets, find patterns, and make predictions to help researchers get better results
Natural Language Processing (NLP)	Lets computers understand and create human language, helping with writing, summarizing, and reviewing literature
Big Data Analytics	Handles huge amounts of both structured and unstructured data for thorough research analysis
AI Writing Tools	Help write, edit, and format research papers for greater clarity and coherence
Cloud Computing Platforms	Enable data storage, sharing, and collaboration across global research teams

4. Ethical Challenges:

- **Authorship Attribution:** Growing use of AI in content production poses difficult issues about intellectual property and how much credit should be given to AI contributions.
- **Algorithmic Bias:** When biased or insufficient training data causes AI systems to generate skewed or erroneous results, compromising the validity and dependability of research findings.
- **Data Privacy:** AI systems frequently need access to vast amounts of sensitive or private data, raising risks of information misuse and privacy violations.
- **Over-Reliance:** Increasing reliance on AI technologies has raised concerns that researchers may progressively lose their ability to think critically and be creative.
- **Transparency Problems:** AI-generated outputs may be unclear in terms of methodology and decision-making procedures, making it challenging for other researchers to confirm or replicate findings.

5. Role of Institutions:

In this generation of AI, institutions play a critical role in guaranteeing the ethical and responsible application of AI in research. Academic institutions, research groups, and regulatory authorities must establish explicit ethical guidelines and policies that specify the proper use of AI technologies in scholarly work. Important issues like authorship, data utilization, accountability, and openness should all be covered by these rules. Institutions must also make sure that their policies are in line with global research standards and frameworks.

6. Future Scope:

Fully automated research processes, advanced peer-review systems, and real-time global collaboration platforms are expected to emerge. AI will also play a key role in detecting research fraud and enhancing transparency through technologies like blockchain. Combining AI with blockchain can make research more open and accountable by making permanent records of data, authorship, and publication history.

7. Conclusion:

The way research is done, managed, and published has changed a lot thanks to artificial intelligence. AI has made it possible for researchers to work together, more accurately, and more efficiently than ever before. However, adopting AI also requires careful consideration of ethical issues. The academic community may fully utilize AI while upholding the fundamental principles of research integrity, authenticity, and intellectual rigor by striking a balance between technological innovation and moral responsibility.

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Review: Load Balancing Algorithm in WSN

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Abstract:

Wireless sensor networks have gotten increasing attention in the recent years. In numerous military and common uses of sensor networks, sensors are constrained in locally available energy supply and are left unattended. In this paper, we examine the proposed load balancing calculations for wireless sensor networks. It is used to extend the lifetime of a wireless sensor network which is the fundamental issue in WSN by reducing energy consumption. It can also increase network scalability. We implemented the proposed method on Load Balancing calculation for wireless sensor networks which can achieve both energy balancing and energy efficiency for all sensor nodes.

Keywords: *Wireless Sensor Network, Load Balancing, Scalability*

1. Introduction:

A wireless sensor network is typically comprising of a potentially large number of resource constrained sensor nodes and few relatively powerful control nodes. WSNs have unique qualities that separate them from conventional wireless ad hoc networks, such as high adaptability and resource restrictions. These gadgets comprise of sensing, computing and wireless communication capabilities, yet with limited energy source, processing speed, storage capacity, and communication bandwidth. Every sensor node has a battery and a low-end processor, a limited amount of memory, and a low power communication module capable of short range wireless communication.

A sensor node is constructed from four basic units with limited performance capabilities: embedded processor, memory, low power radio transceiver, and sensing unit. By and large a sensor node does not have sufficient energy to send the data or message directly to the base station. Thus, alongside sensing the data the sensor node acts as a router to spread the data of its neighbor.

2. Literature Survey:

Dipak Wajgi & Dr. Nileshsingh V. Thakur (2012): Load Balancing Algorithms in Wireless Sensor Network: A Survey. Load balancing can be used to extend the lifetime of a sensor network by reducing energy consumption. Load balancing using clustering can also increase network scalability.

Soumitrie Mohanty et al. — Load Balancing using Divisible Load Theory: Optimal load distribution methodologies proposed for a remote sensor network connected in a star topology. Separable Load Theory emphasizes on how to partition the load among different processors and connections so that the load is distributed optimally.

Rahul K Ghotekar & Deepak C Mehetre (2014): Load Balancing for Achieving the Network Lifetime in WSN. Sensor nodes in WSN rely on battery control with limited transmission range, making energy efficiency crucial for achieving network lifetime.

Navneet Kaur (2013): Review on Load Balancing in Wireless Sensor Network. Various load balancing techniques are discussed for equal distribution of load in the network. Due to increased load on nodes, lost packets start which degrade the performance of the network.

S. Ashok Kumar — Flow Balanced Routing Survey: Wireless Sensor Networks consist of numerous nodes which are densely deployed. Energy preservation and coverage preservation are two vital performance metrics. Multipath routing techniques enable use of multiple alternative paths to balance energy consumption.

3. Discussion:

In this paper, we have presented the issue of load balancing in wireless sensor network using traditional distinct load theory. We extended an existing load balancing approach which apportions load in a wireless sensor network connected in star topology. In the proposed model we considered the designation time and found that the reporting time is less in case of the process prompt estimation and simultaneous reporting than fast estimation and synchronous reporting. Among the existing techniques for the star topology we found from simulations that simultaneous estimation and simultaneous reporting has minimum reporting time.

4. Conclusion:

Load balancing in wireless sensor networks is essential for extending network lifetime and achieving energy efficiency. Distributed and cluster-based load balancing approaches show promise in reducing energy consumption across sensor nodes. Future work should focus on adaptive load balancing algorithms that can respond to dynamic changes in network topology and energy levels, ultimately contributing to longer-lasting and more reliable wireless sensor network deployments.

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Role of Artificial Intelligence in Transforming Business Operations

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Abstract:

Artificial Intelligence has slowly moved from being something people only talked about in science fiction to something that businesses actually use every day. Today AI systems are being used in many business activities such as analyzing data, supporting decision making, and automating routine work. The main purpose of this study is to understand how artificial intelligence is influencing business operations and how organizations are adapting to this technological shift. Primary data was collected through a questionnaire distributed among respondents who have awareness of technology and business systems. The findings suggest that artificial intelligence can improve efficiency, reduce repetitive work, and help organizations make better decisions.

Keywords: *Artificial Intelligence, Business Operations, Automation, Machine Learning, Data Analytics, Digital Transformation, Decision Making*

1. Introduction:

Technology has always influenced the way businesses operate. From simple accounting machines to modern cloud systems, organizations have constantly adopted new tools to improve their efficiency and stay competitive. Artificial intelligence is one of the latest developments in this long journey of technological change. In simple terms, artificial intelligence refers to computer systems that are capable of performing tasks that usually require human intelligence — analyzing information, identifying patterns, predicting outcomes, or supporting decision making.

Businesses today deal with enormous volumes of information. Every transaction, every customer interaction, every online activity produces data. Managing and analyzing this data manually can be difficult and sometimes inefficient. Artificial intelligence helps organizations handle this challenge by quickly processing large datasets and identifying meaningful insights.

2. Objectives:

1. To understand the concept of artificial intelligence and how it is being used in modern organizations.
2. To examine how artificial intelligence influences operational efficiency.
3. To identify the major areas where artificial intelligence is applied in business.
4. To evaluate the benefits organizations gain from adopting artificial intelligence.
5. To understand the challenges businesses face while adopting artificial intelligence technologies.
6. To suggest ways in which organizations can make more effective use of AI while minimizing potential risks.

3. Research Methodology:

The present study adopts a descriptive research design. Primary data was collected through a structured questionnaire distributed among respondents from different professional backgrounds who were familiar

with the use of technology in organizational environments. Secondary information from research articles, academic journals, and online publications was also reviewed. The collected data was analyzed using percentage analysis and graphical representations.

4. AI Applications in Business:

Business Area	AI Application
Customer Service	Chatbots and automated support systems that respond to customer queries instantly, even outside working hours
Marketing	AI systems help companies understand customer preferences and personalize recommendations
Supply Chain Management	Predictive models forecast demand and optimize inventory levels
Data Analytics	AI processes large datasets and identifies meaningful insights to support managerial decision making
Financial Analysis	Pattern detection in financial data, fraud detection, and risk assessment

5. Results and Discussion:

- A large majority of respondents believe that artificial intelligence is already playing an important role in improving business efficiency.
- AI tools help organizations automate repetitive tasks that previously required significant manual effort.
- Businesses rely heavily on data analytics — AI can analyze information quickly and generate insights to support decision making.
- AI improves customer service through chatbots and automated support systems that provide faster assistance.
- Some participants expressed concerns about the cost of implementing AI technologies, as developing and maintaining AI systems often requires financial investment and technical expertise.
- Some respondents feel that automation may reduce the demand for certain types of jobs in the future, though others believe AI will change the nature of work rather than eliminate jobs completely.

6. Conclusion:

Artificial intelligence is increasingly influencing the way businesses operate in today's digital environment. The findings of this study indicate that AI offers several advantages for organizations including improved efficiency, better decision making, and the ability to analyze large volumes of data quickly. However, adopting AI also requires careful planning — organizations must invest in the necessary infrastructure and ensure that employees develop the required skills. Concerns related to data privacy and ethical use of AI must also be addressed. In the coming years, companies that remain open to technological innovation and continuous learning will be better positioned to adapt to these changes.

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Simulation of the Brain–Computer Interface (BCI)

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Abstract:

Brain–Computer Interface (BCI) technology is a rapidly developing domain in human-computer coordination which helps achieve direct communication between the human brain and outer computer systems. BCI systems interpret neural activity generated by the human brain and use it as an instruction to computers or other digital devices. This research project's main goal is to design and simulate a Brain-Computer Interface featuring the process of capturing brain signals, processing them, analyzing those results in a simulated computing environment, and then translating this information into control commands. The simulation shows how functional commands that can operate digital systems can be generated from brain impulses.

Keywords: *Brain-Computer Interface, EEG Signals, Human-Computer Interaction, Machine Learning, Signal Processing*

1. Introduction:

The way people interact with machines has been profoundly changed by developments in neuroscience and computer technology. The Brain–Computer Interface (BCI), one of the most promising fields for human–computer interaction research, allows the human brain to communicate directly with external equipment including computers, robotic systems, prosthetic limbs, and assistive technologies. BCI systems analyze neural signals produced by the brain and convert them into commands that can operate digital devices.

Amyotrophic lateral sclerosis (ALS), muscular dystrophy, stroke, and spinal cord injuries can severely impair a person's capacity to interact with technology. BCI technology provides these individuals with an alternate means of communication — recording, evaluating, and converting neural activity into meaningful commands. For those with physical disabilities, this capability has the potential to significantly improve accessibility and independence.

2. Introduction to EEG and Signal Processing:

Electroencephalography (EEG) is one of the most widely used brain activity monitoring techniques in BCI research. EEG is a non-invasive method that uses electrodes applied to the scalp to assess the electrical activity generated by brain neurons. These electrodes pick up voltage changes brought on by brain activity and translate them into signals that computers can record and process.

EEG signals are incredibly sensitive and often pick up unwanted disturbances known as noise or artifacts from muscle movements, eye blinks, electrical interference from nearby devices, and environmental disturbances. Signal preprocessing techniques are necessary to improve signal quality and eliminate undesired noise. Common approaches include band-pass filtering, normalization, and artifact removal.

3. Methodology:

3.1 Data Acquisition

For this study, synthetic or pre-recorded EEG signals are utilized instead of collecting data in real-time. Synthetic EEG signals are artificially created datasets that mimic the characteristics of actual brain signals. Pre-recorded EEG datasets from publicly available sources can also represent realistic neuronal activity patterns. This approach is commonly used in experimental and educational BCI research.

3.2 Signal Preprocessing

Filtering techniques allow the system to remove unnecessary frequency components from EEG data. Band-pass filters eliminate low-frequency drift or high-frequency noise. Normalization scales signal values within a specific range, making computational analysis easier. These preprocessing steps ensure that brain data used in subsequent stages is clean and relevant.

3.3 Feature Extraction

Feature extraction analyzes processed EEG signals to identify relevant aspects such as frequency components, signal amplitude, waveform characteristics, and statistical properties. These features retain the most critical information about brain activity while providing a simplified view of EEG data. By reducing dimensionality, feature extraction makes it easier for classification systems to analyze signals.

3.4 Signal Classification

Machine learning algorithms classify extracted features into specific categories, each corresponding to a specific command or intention from the user. Algorithms used include Decision Trees, Support Vector Machines (SVM), k-Nearest Neighbors (k-NN), and Artificial Neural Networks. The classification model determines which category a signal belongs to based on the extracted features.

3.5 Command Generation

After classifying the signals, the system takes the identified signal category and translates it into a specific computer command. For instance, the classifier might recognize a signal pattern indicating the user wants to select an item on the screen or move a cursor in a specific direction. This phase bridges the gap between interpreting brain signals and putting that understanding into action.

4. Results:

The simulation illustrates how brain impulses are interpreted and transformed into actions by the BCI system. The simulated interface features graphical elements like a cursor, buttons, or objects that respond to the generated commands. When the system recognizes a specific signal pattern, the cursor moves across the screen or selects an item in the interface. This visual representation helps clarify the interaction between brain impulses and computer systems in real time.

The simulation's results demonstrate the core capabilities of brain-computer interface technology. The technology can analyze brain activity and convert it into commands that operate digital devices by combining machine learning algorithms with signal processing techniques. The development of alternative communication methods for people with disabilities has advanced significantly with this capability.

5. Conclusion:

Brain–Computer Interface systems are anticipated to improve in accuracy, efficiency, and accessibility as artificial intelligence, signal processing methods, and neuroscience research continue to progress. Improving signal accuracy, lowering noise interference, and creating adaptive machine learning models that can learn from user behavior could be the main goals of future BCI technology development. Brain-computer interface technologies have enormous potential to improve accessibility for those with physical limitations and to revolutionize human-machine interaction.

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Skills Vs Degree: A Study on Changing Hiring Preferences in India

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Abstract:

The Indian employment market is undergoing a gradual but meaningful shift from traditional degree-oriented recruitment practices toward skill-based hiring models. For decades, academic qualifications were considered the primary indicators of employability. However, rapid technological advancements, digital transformation, automation, and changing organizational structures have significantly altered employer expectations. This research paper examines the growing preference for skills over degrees within the Indian hiring ecosystem and analyzes its impact on employability, job performance, salary trends, and long-term career growth. The results show that practical skills, internships, certifications, and real-world experience are crucial for hiring and career advancement, even though degrees remain the minimum eligibility requirements.

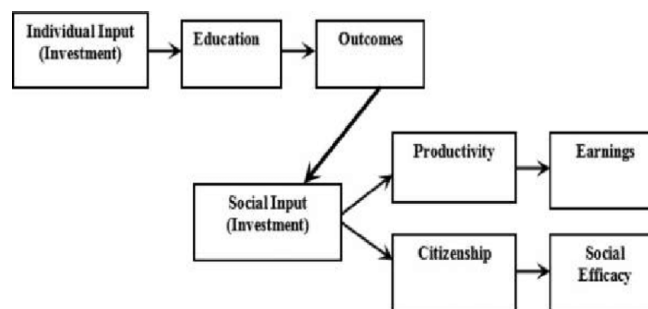
Keywords: *Skill-centric Recruitment, Employability Transformation, Workforce Readiness, Degree Relevance, Hybrid Hiring Model, Skill Gap*

1. Introduction:

Indian education and employment systems have, for decades, operated majorly on a degree-led approach. Academic credentials were considered the definitive proof of intelligence, productivity and employability. Resumes describing educational achievements became the primary mode of assessing a job seeker's capabilities. However, on-the-job reality often calls this assumption into question. Most organisations tend to find a dissonance between academic credentials and actual job performance.

Technological growth, digitalisation and changing industry requirements have completely revolutionised the nature of work in India. Apart from traditional evidence of learning, employers now need practical proof of learning — on-the-job problem-solving ability, communication, adaptability, digital skills, and work experience. Most modern sectors, especially technology-driven industries and startups, now vouch for demonstrable skills over just verified certificates.

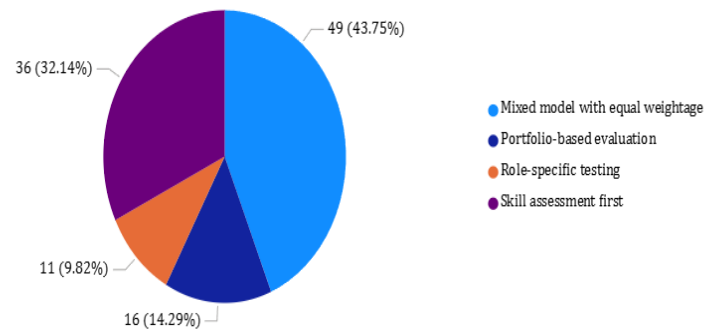
Figure 1: Conceptual Framework — Human Capital Theory applied to Skills vs Degree



Source: Swanson and Holton (2001, p. 110)

Skills Vs Degree: A Study on Changing Hiring Preferences in India

What should be the future hiring model for companies?



2. Theoretical Framework:

Human Capital Theory (Becker, 1964): An individual's labour market worth is a function of investments in education, training, skills, and experience which increase productivity. However, a degree cannot be considered human capital unless it is a wrapper around a set of skills and competencies for employability in the workplace.

Signalling Theory (Spence, 1973): Educational qualifications are mere indicators of ability ('signals') and not necessarily direct evidence of productivity. As a majority of graduates come with similar academic credentials, the degree-based resume is becoming increasingly uniform and loses significance as a screening tool.

3. Research Methodology:

This study uses a mixture of primary and secondary data. Primary data was collected through an online survey to understand how people in India view skill-based and degree-based hiring. Secondary data was drawn from academic journals, industry reports, employability surveys, government publications, and previously published research studies.

The study is based on 112 valid responses from students, working professionals, self-employed people and homemakers from varied age groups, educational backgrounds and occupational categories.

4. Hypotheses:

Hypothesis 1: Recruiters in India now give more weight to skills than just the degree alone while hiring candidates.

Hypothesis 2: Hiring pattern varies across industry types; modern sectors give more weight to skills while traditional sectors still rely more on degrees.

Hypothesis 3: Starting salary in India is still higher for higher educational qualifications even with practical skills.

Hypothesis 4: Candidates with strong practical skills perform better on the job compared to candidates who rely purely on their academic degree.

5. Data Analysis and Interpretation:

A majority of the respondents belong to the age group 18–25, reflecting the views of the segment that is still studying or is in the early phase of its career. The analysis clearly shows the growing importance of skill-based hiring trends in the Indian employment market. According to a majority of respondents, skills and hands-on ability are the most important factors companies consider during recruitment.

Sector	Hiring Preference	Degree Dependency
IT & Digital Services	High skill preference, certifications valued	Lower degree dependency
Startups	Strong skill preference, portfolio-based assessment	Degrees often secondary
Finance & Banking	Moderate skill preference, degrees still valued	Balance of both
Traditional Manufacturing	Degree still important for credentialing	Lower skill-only acceptance
Government Sector	Degree essential for eligibility	Formal qualifications mandatory

6. Conclusion:

The research supports the emergence of a hybrid hiring model and concludes that aligning formal education with continuous skill development is essential for building a future-ready workforce in India. Practical skills, internships, certifications, and real-world experience are crucial for hiring and career advancement, even though degrees remain the minimum eligibility requirements and have an impact on entry-level pay decisions. Modern industries like IT, digital services, and startups exhibit a stronger inclination toward skill-based hiring, while traditional sectors still place a strong emphasis on formal qualifications. Combining degree-based and skill-based hiring creates a more efficient and readily employable workforce.

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A Study on Brand Loyalty and Consumer Perception Towards Local vs Global Brands

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Abstract:

In an increasingly competitive and globalized marketplace, businesses are constantly adapting their branding strategies to meet evolving consumer expectations. This study examines brand loyalty and consumer perception toward local versus global brands, with particular focus on perceived quality, price sensitivity, brand image, and switching behavior. The research is based on primary data collected through a structured questionnaire from 101 respondents across different age groups and genders. Results indicate that while global brands are often perceived as premium and high-quality, local brands are increasingly recognized for offering competitive value, especially among price-sensitive consumers. The study highlights the importance of integrating academic research with industry practices to develop evidence-based branding strategies.

Keywords: *Brand Loyalty, Consumer Perception, Local vs Global Brands, Brand Image, Price Sensitivity, Industry Application*

1. Introduction:

In today's market, which brands consumers choose and which companies achieve success is in great part due to branding. Consumers are presented with a large choice of products from both home and foreign markets, putting local and global brands at loggerheads. What we think of as a brand today goes beyond a logo or product name — it is a collection of what a product stands for in the eyes of the consumer, the experience they have with it, and the emotion it evokes.

Globalization and digital transformation have transformed consumer behavior. Increased exposure to international brands, access to product information and online reviews has empowered consumers to critically evaluate brands. Global brands are known for their innovation, standard quality, and aspirational appeal, but local brands play on affordability, cultural relevance, and familiarity.

2. Research Problems:

- Consumers often perceive global brands as superior in quality, yet local brands are preferred for affordability and daily use.
- Brand loyalty is never truly guaranteed — consumers are known to switch brands if they find one to be cheaper, better performing, or better value.
- Improvements made by local brands are creating perception gaps, creating confusion in consumers' evaluation.
- Brand equity and price sensitivity work together to form a mixed bag of preferences.

3. Objectives:

1. To compare how customers perceive quality between local and global brands.
2. To look at brand loyalty of global brands and switching behavior.

3. To study the role of price in relation to local brand preference.
4. To look at the role of brand image, reputation, and prestige in consumer purchase decisions.

4. Hypotheses:

H1: There is a wide gap in what consumers think of local as opposed to global brands.

H2: Consumer brand loyalty is to global brands more than local brands.

H3: Price plays a large role in what consumers prefer when it comes to local brands.

H4: What a brand stands for and its level of prestige greatly influence which global brands consumers prefer.

5. Literature Review:

Steenkamp, Batra & Alden (2003): Global brands offer consumers greater value due to the symbolic attributes of the brands in addition to the more practical benefits.

Batra et al. (2000): Local brands are preferred due to lower prices, while foreign brands are perceived to have more status and quality in developing countries.

Özsomer (2012): Value and novelty are the main drivers of preference for global brands while local brands are preferred for their genuineness.

Holt, Quelch & Taylor (2004): Successful global brands have a good combination of standardization and adaptation — referred to as glocalization.

Aaker (1991) & Keller (2013): Factors like perceived quality, brand associations, and emotional attachment play a role in repeat purchase behavior. Both local and global brands play upon emotional and functional issues.

6. Research Methodology:

The research used a descriptive quantitative design. Primary data collected via a structured questionnaire including demographic questions and perception-based items measured by Likert scales and multiple-choice responses. Distributed online via social media and personal networks — 101 valid responses received. Secondary data from academic journals, books, and reliable online sources supported the theoretical framework and literature review. Data analyzed using frequency distribution, percentage analysis, and illustrated using Excel and Power BI.

7. Data Analysis and Findings:

- Most respondents consider global brands superior in design and packaging.
- 84% of respondents believe local brands are improving and reaching global standards.
- Trust in local brands was strong for daily-use products because of affordability and familiarity.
- 78% of respondents showed loyalty toward global brands once satisfaction is attained.
- 71% respondents indicated loyalty toward local brands if performance was satisfactory — called conditional loyalty.

8. Results and Discussion:

Global brands still lead in terms of quality perception, innovation, and aspirational value. They have strong brand equity, fancy packaging, and an international reputation which gives them great consumer confidence, especially in high involvement products like tech and fashion. Local brands report great success in routine purchase categories due to affordability, cultural relevance, and ease of access. The

large scale of response reporting improvement by local brands is a sign of closing perception gaps and growth in competitiveness. Brand loyalty is a conditional not an absolute thing — consumers stick with global brands when very satisfied, but are also very much open to switch to local brands that put up similar performance.

9. Recommendations:

9.1 For Local Brands

- Boost quality consistency and introduce innovative products.
- Intensify packaging and brand strategies.
- Play up cultural connection and emotional stories.
- Go into digital marketing and work with influencers.

9.2 For Global Brands

- Put in place flexible pricing models.
- Go the route of localization and customization.
- Improve in pricing and value transparency.
- Augment consumer engagement programs.

10. Conclusion:

Consumer perception and brand loyalty toward local and global brands is influenced by economic, psychological, and cultural factors. Global brands benefit from customer retention due to perceived quality, innovation, and brand prestige. Nevertheless, local brands have improved their branding and quality. The study indicates that brand loyalty is influenced by dynamic incentives such as price, perceived performance, and perceived value — consumers are more likely to shift toward local brands if the value meets their perceived expectations. The market is shifting toward more cooperative competition rather than purely competitive competition.

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Socio-Economic Status (SES) and Career Risk-Taking among Generation Z: Implications for Innovation and Opportunity in Emerging Labour Markets

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Abstract:

Contemporary labour markets are increasingly characterized by technological disruption, platform-based employment and non-linear career trajectories. This study examines the relationship between socio-economic status (SES) and career risk-taking behaviour among Generation Z university students. Drawing on theoretical perspectives from human capital theory, expected utility theory and life history theory, the study conceptualizes SES as a multidimensional construct encompassing material capital, human capital and social capital. The results indicate that socio-economic status exerts a statistically significant direct influence on career risk-taking behaviour. Students from higher socio-economic backgrounds demonstrate greater willingness to pursue uncertain but potentially innovative career opportunities. However, mediation analysis does not support the hypothesis that psychological risk preference explains this relationship.

Keywords: *Socio-economic Status, Career Risk-taking, Generation Z, Higher Education, Innovation and Entrepreneurship*

1. Introduction:

Career choice plays a central role in shaping income, stability, identity and social mobility. Traditional economic theory treats career decisions as investments in human capital, where individuals evaluate costs and expected returns. However, this framework assumes relatively equal access to opportunities. Recent research challenges this assumption and shows that unequal resource distribution influences both the set of available choices and the way individuals perceive and evaluate risk.

Generation Z is uniquely positioned within this changing environment. This cohort has grown up in a context marked by economic instability, including the global financial crisis and the COVID-19 pandemic, alongside rapid technological change. They face competitive labour markets, rising education costs and increased exposure to digital career opportunities. Socio-economic status is a multidimensional construct that includes material, human and social capital, shaping not only access to opportunities but also aspirations, confidence and perceived feasibility of different career paths.

2. Literature Review:

Mavhungu et al. (2024): Find that SES does not significantly moderate the relationship between proactive behaviour and career success among Generation Z in South Africa, suggesting institutional and educational barriers play a stronger role.

Barbieri & Gioachin (2021): Report that individuals from higher social origins are better protected from unstable early career conditions. Low-SES individuals face cumulative disadvantages over time.

De Schepper et al. (2024): Show that first-generation graduates differ from continuing-generation graduates in their ability to interpret labour market expectations, as advantaged backgrounds possess stronger cultural capital.

Orlando et al. (2021): Find that young individuals in emerging economies show strong entrepreneurial intentions and a preference for independence, though risk-taking is often necessity-driven rather than opportunity-driven.

3. Research Methodology:

A quantitative, cross-sectional design is employed to test both the direct effect of SES on career risk and the indirect effect through risk preference. Convenience sampling is used and data collected through an online structured questionnaire. The final sample includes 109 respondents.

Model Specification: Model 1: Risk Preference = $\beta_0 + \beta_1 \text{SES} + \varepsilon$ | Model 2: Career Risk = $\beta_0 + \beta_1 \text{SES} + \varepsilon$ | Model 3: Career Risk = $\beta_0 + \beta_1 \text{SES} + \beta_2 \text{Risk Preference} + \varepsilon$. Mediation assessed using the Baron and Kenny framework.

4. Data Analysis and Results:

4.1 Descriptive Statistics

The SES index, constructed using standardised z-scores, has a mean close to zero and a standard deviation of 0.6976. The risk preference score has a mean of 2.688 (SD = 0.4912). The career risk score has a mean of 1.963 (SD = 0.838), with greater dispersion enabling better explanatory power in regression analysis.

4.2 Correlation Analysis

Variable	SES Index	Risk Preference Score	Career Risk Score
SES Index	1		
Risk Preference Score	0.0093	1	
Career Risk Score	0.4998	0.0469	1

The correlation between SES and risk preference is 0.0093, indicating no meaningful relationship. In contrast, the correlation between SES and career risk is 0.4998, indicating a moderate positive relationship — individuals from higher socio-economic backgrounds are more likely to select higher-risk career paths.

4.3 SES vs Career Risk Scatter Plot



4.4 Risk Preference vs Career Risk



4.5 OLS Regression Fit — SES on Career Risk



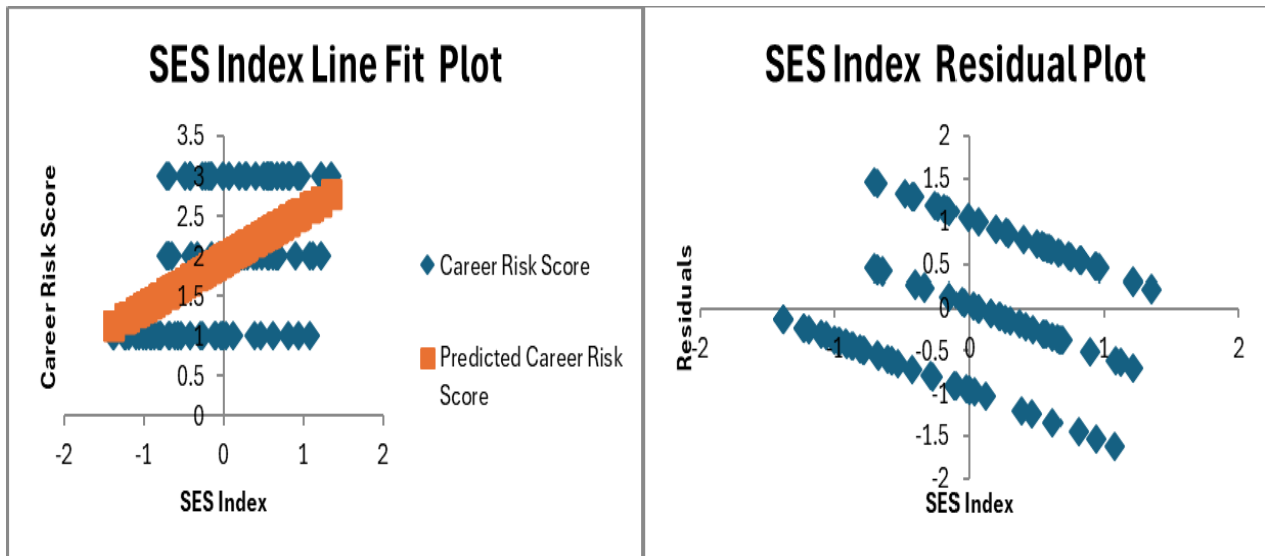
4.6 Model 2 — SES Predicting Risk Preference



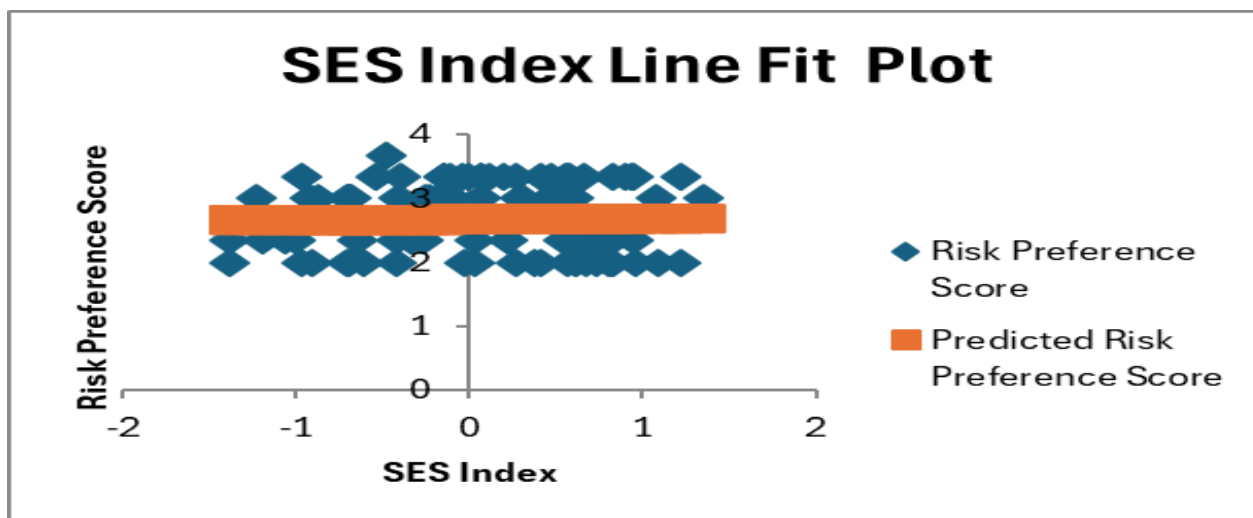
4.7 Model 3 — Combined Regression Fit



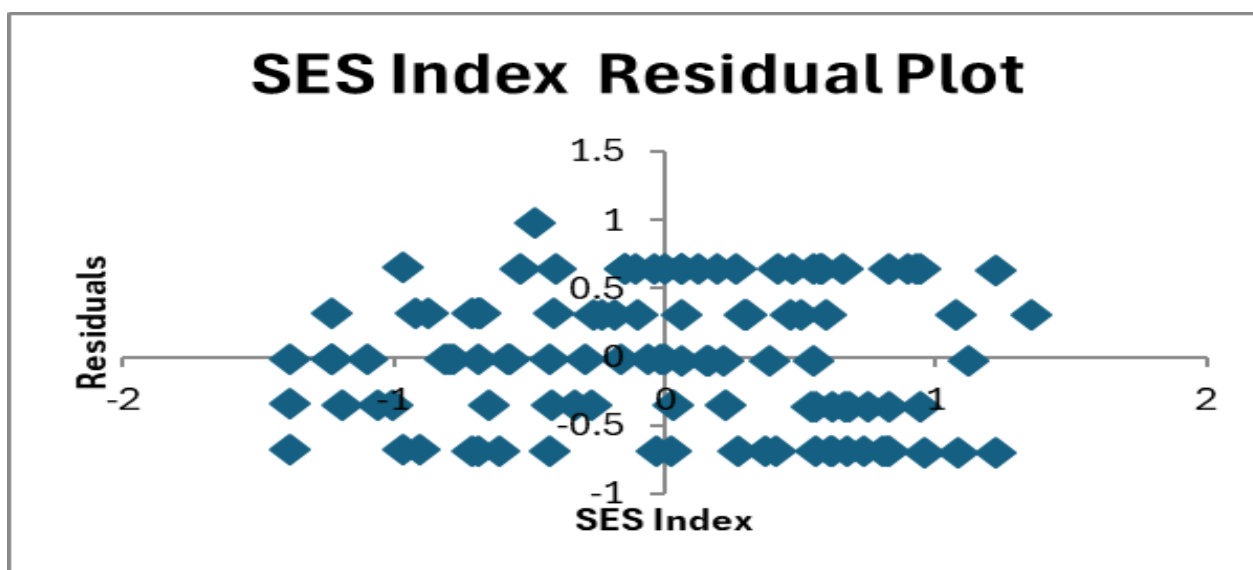
4.8 Residual Diagnostics — Model 1



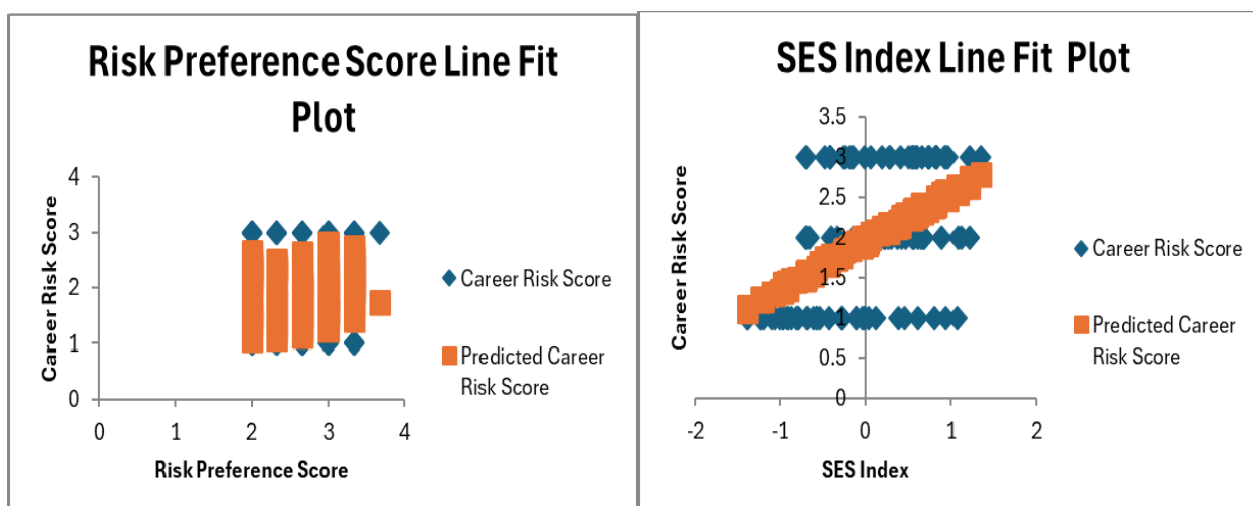
4.9 Residual Diagnostics — Model 2



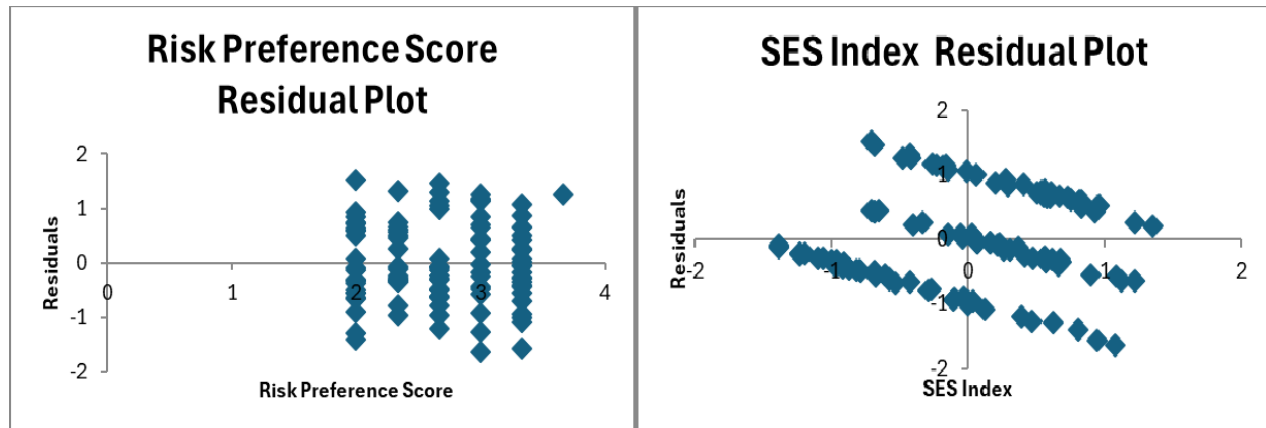
4.10 Residual Diagnostics — Model 3



4.11 Normal Probability Plot



4.12 Coefficient Stability Across Models



5. Regression Analysis:

Model 1 (SES → Career Risk): $R = 0.4998$, $R^2 = 0.2498$, Beta (SES) = 0.6004, significant at $p < 0.001$. SES explains approximately 25% of variation in career risk — a one unit increase in SES increases career risk score by about 0.60 units.

Model 2 (SES → Risk Preference): $R \approx 0.009$, $R^2 \approx 0.00008$, not significant. SES does not significantly predict risk preference.

Model 3 (SES and Risk Preference → Career Risk): $R \approx 0.502$, $R^2 \approx 0.2515$, SES coefficient ≈ 0.5999 (significant), Risk Preference coefficient ≈ 0.0721 (not significant). Mediation is not supported — the effect of SES on career risk is direct rather than mediated.

6. Findings:

- SES has a positive and statistically significant effect on career risk selection.
- Students from higher socio-economic backgrounds are more likely to choose high-risk career paths including entrepreneurial and non-traditional roles.
- SES does not significantly predict risk preference — psychological risk tolerance appears independent of socio-economic background.
- Risk preference shows only a weak association with career risk and becomes statistically insignificant after controlling for SES.
- Career risk selection is driven primarily by structural factors (risk capacity) rather than psychological traits (risk preference).

7. Theoretical and Practical Implications:

The findings are consistent with structural opportunity theory and expected utility theory under asymmetric loss conditions — individuals with greater financial resources face lower relative costs of failure and are therefore more willing to engage in risky choices. Key recommendations include expanding access to seed funding and entrepreneurship grants for students from lower SES backgrounds, integrating financial literacy into career counselling programmes, and developing mentorship initiatives connecting students with professionals in innovation-driven sectors.

8. Conclusion:

The study demonstrates that socio-economic status is a key determinant of career risk-taking among Generation Z. While individuals may exhibit similar levels of risk tolerance, their ability to act on these preferences is constrained by structural conditions. Career risk selection is therefore not solely a function of individual attitude but is embedded within a broader socio-economic context. Addressing these structural constraints is essential for creating more inclusive labour markets, where career choices reflect potential rather than background.

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Sustainable Consumption in India: A Study on Consumer Buying Behaviour Towards Eco-Friendly Products

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Abstract:

Environmental responsibility and concern for future generations have increasingly shaped consumer behaviour in recent years. This study examines consumer purchasing behaviour towards sustainable and eco-friendly products by analysing key psychological, social, and economic factors influencing purchase intention and actual buying decisions. The findings indicate that ethical values, environmental awareness, and a sense of individual responsibility positively influence consumer attitudes towards eco-friendly products. However, the study also identifies significant barriers that hinder actual buying behaviour, including high prices, limited market availability, lack of adequate information, and low trust in green marketing claims, creating a clear gap between consumers' positive attitudes and their actual purchasing practices.

Keywords: *Consumer Buying Behaviour, Sustainable Products, Eco-friendly Products, Environmental Awareness, Ethical Consumption, Green Marketing*

1. Introduction:

Sustainability is a practice of meeting present needs without compromising the ability of future generations to meet their own needs, creating balance between economic growth, environmental care, and social well-being. Rising issues such as plastic waste, pollution, deforestation, and global warming have prompted governments and consumers to rethink their decisions and grow their interest in sustainability.

Price plays an important role in purchasing decisions. Earlier people only looked at price and quality, but now most people research extensively whether a product is good or bad for the environment. Sustainable products are those that can be used for a long time without harming the environment, society, or future generations — for example renewable energy and good production practices. Eco-friendly products focus mainly on nature — for example reusable bags and biodegradable packaging.

2. Research Problem:

People say they care about the environment, but not everyone buys eco-friendly products. This research helps us understand what makes people purchase or not purchase these products, what influences their decision between two different products such as price, quality, or brand name, and what motivates or stops them from going green.

3. Objectives:

1. To understand how people trust a brand that is selling eco-friendly products in the market.
2. To understand what motivates them to buy eco-friendly products while shopping.
3. To know how the price of products affects their buying behaviour.
4. To understand what factors stop them from buying eco-friendly products.

4. Review of Literature:

Jayakrishnan (2017): Rural consumers think eco-friendly products are healthier and safer, but they don't always buy them because they can be expensive or not easily available.

Bhattacharya (2022): In India, people are slowly shifting from chemical products to natural and eco-friendly ones, but many consumers don't fully trust brands, labels, or certifications.

Francis & Sarangi (2022): Millennials' values, social influence, and sense of responsibility encourage them to buy eco-friendly products, but high cost and lack of convenience stop actual purchases.

Malhotra et al. (2024): Even though people are aware of environmental issues, they don't trust eco-friendly products much because of greenwashing. Better transparency and strict rules are needed to build trust.

5. Research Methodology:

This research uses a quantitative approach. Primary data was collected through a Google Form questionnaire of 15 questions and 100 respondents belonging to different income levels, demographic locations and age groups. Secondary data was collected through various journals, research papers and articles available online.

6. Hypotheses:

H1: Consumers differ in how frequently they purchase eco-friendly products based on how aware and concerned about the environment they are.

H2: Factors such as environmental concern, quality, and brand image significantly influence consumers' choice of eco-friendly products.

H3: High price and purchasing cost act as major barriers in the purchase of sustainable products.

H4: Consumers trust eco-labels, certifications, and product information to identify and trust eco-friendly products.

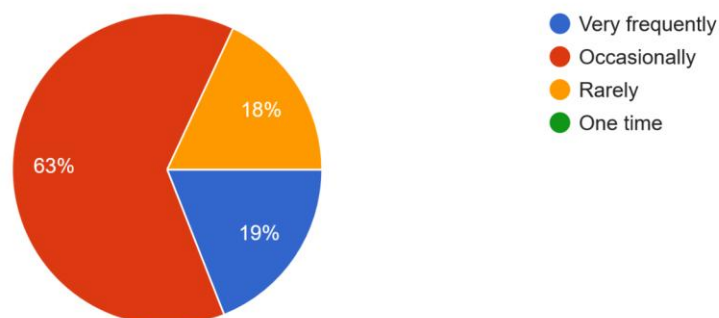
H5: Availability of eco-friendly products and ease of access influence consumers' purchasing behaviour.

7. Data Analysis and Interpretation:

7.1 Frequency of Eco-Friendly Product Purchases

1. How often do you purchase eco-friendly products?

100 responses

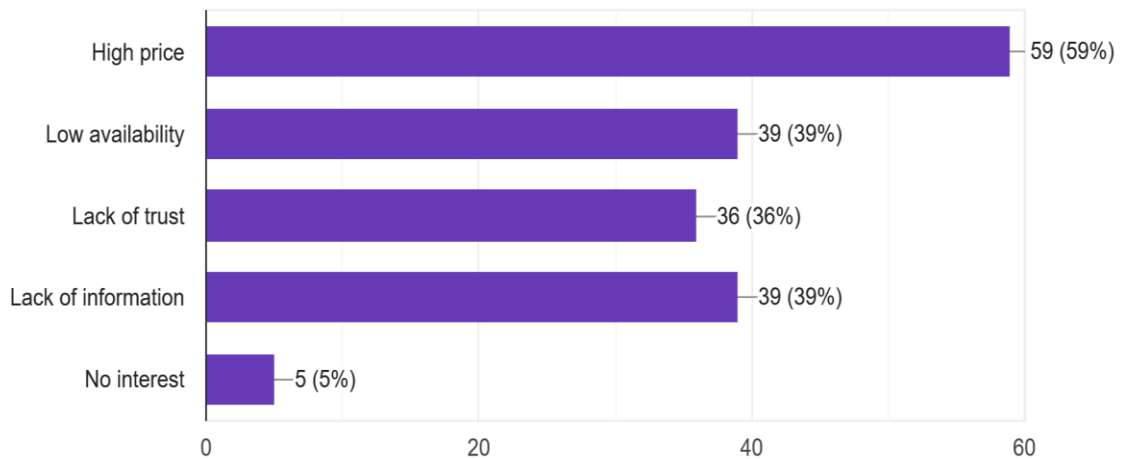


Interpretation: Around 63 people occasionally purchase eco-friendly products, while 18 people purchase very frequently and 19 people purchase rarely. This indicates that awareness exists but consistent purchasing behaviour remains moderate.

7.2 Barriers to Purchasing Eco-Friendly Products

3. Which factor stops you the most from buying sustainable products?

100 responses

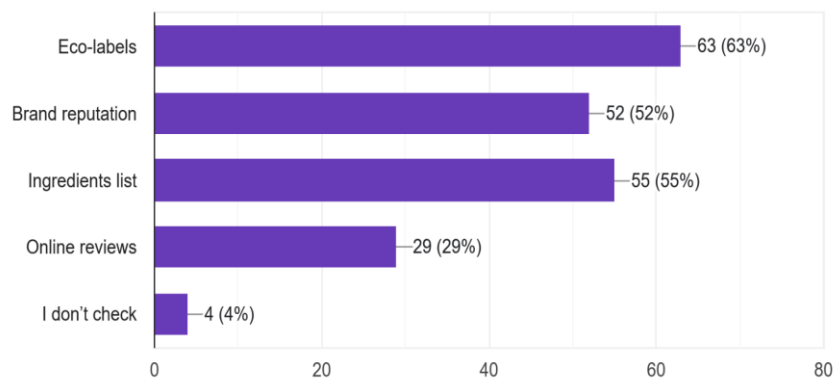


Interpretation: High price, lack of availability, and lack of trust are the biggest barriers to purchasing eco-friendly products. Many respondents feel eco-friendly products are not affordable for daily lifestyle needs.

7.3 Factors Influencing Eco-Friendly Product Choice

4. How do you usually confirm that a product is eco-friendly?

100 responses



Interpretation: Environmental concern and health and safety mainly influence people to choose eco-friendly products. Eco-labels and ingredients help people confirm that the product is genuinely eco-friendly.

Price plays an important role — people say if products are expensive they will purchase eco-friendly products only sometimes, while some say they will purchase only during discounts. A separate eco-friendly section in malls and stores would motivate people to purchase such products as it would be easier to find.

8. Conclusion:

Awareness and positive behaviour among customers towards sustainable and eco-friendly products is growing significantly, however this awareness is not always converted into actual behaviour. Financial constraints, unavailability, and lack of trust in sustainability claims are factors hindering adoption. Sustainable consumption is not actually driven by awareness alone, but by an environment that has to be created through market research and sustainable access to raw materials, requiring collective effort rather than just individual responsibility.

9. Suggestions:

- All companies and brands must focus on making products that are environmentally friendly, affordable, and more accessible to consumers.
- Communication, eco-friendly labels, and sustainability certificates must be enhanced to grab customers' attention by gaining their trust.
- The government and legal authorities must spread awareness through educational programmes and supportive policies.
- It is significant to work hand in hand with production, manufacturers, marketers and institutions to develop a market and environment that supports sustainability.

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A Study on the Effect of Digital Payment Rewards (Cashbacks/Offers) on Spending Behavior in Navi Mumbai

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Abstract:

This research examines how digital payment rewards — including cashback offers, scratch cards, reward points, and promotional discounts — influence the spending behavior of retail consumers in Navi Mumbai. While classical economic theory assumes rational decision-making, real-world consumer behavior is substantially shaped by psychological biases such as the pain of paying, mental accounting, fear of missing out (FOMO), and the reward-frequency loop. A descriptive quantitative study was conducted using a structured questionnaire, collecting 104 valid responses. Six hypotheses were tested using Chi-Square analysis in R Studio at the 5% significance level. All six null hypotheses were rejected, confirming statistically significant relationships between reward frequency, reward type, offer-induced purchases, reward perception, platform loyalty, and overall spending behavior.

Keywords: *Digital Payment Rewards, Cashback, Spending Behavior, Behavioral Economics, UPI, Consumer Finance, Gen Z, Mental Accounting*

1. Introduction:

Spending decisions have traditionally been modeled as rational, utility-maximizing choices. However, behavioral economics has substantially challenged this view, demonstrating that real-world financial decisions are deeply influenced by emotions, cognitive biases, and environmental triggers. The rapid growth of digital payment systems — particularly India's UPI, mobile wallets, and credit/debit card platforms — has introduced a new dimension to consumer spending. Unlike cash transactions, digital payments eliminate the 'pain of paying' associated with physically handing over currency.

India was historically a cash-dominated economy. The introduction of credit cards brought the first wave of transactional rewards. The arrival of mobile wallets and UPI transformed this further: cashback campaigns were deployed aggressively by fintech companies to accelerate digital adoption. Over time, consumers began expecting rewards as a standard feature rather than an occasional benefit — a fundamental shift from payment-for-convenience to payment-for-reward.

2. Literature Review:

Kaur and Singh (2025): Cashback notifications function as positive reinforcement, encouraging repeated platform use. Instant cashback creates a perception of saving money, even when overall expenditure increases.

Sharma, Mehta, and Patel (2025): Digital payment incentives are linked directly to impulse buying behavior — the speed and convenience of digital transactions amplifies reward-driven purchasing.

Gupta and Verma (2024): Consumers were willing to pay higher prices when attractive cashback was available — a distortion of rational price comparison.

Prelec and Loewenstein (1998): The 'red and black' model describes mental accounting of savings and debt, foundational to understanding reward-induced spending behaviour.

3. Research Methodology:

This study adopts a descriptive quantitative research design. Primary data was collected through a structured questionnaire administered via Google Forms between December 2025 and February 2026, collecting 104 valid responses across Generation Z and adult consumer groups. Data was analyzed using R Studio. Reliability of Likert-scale items was confirmed using Cronbach's Alpha (above 0.70). Six hypotheses were tested using Chi-Square Test of Independence at the 5% level of significance.

4. Hypothesis Testing Results:

H	Independent Variable	Dependent Variable	p-value	Decision
H1	Reward Frequency	Usage Frequency	< 0.001	Rejected
H2	Reward Type	Spending Behavior	0.0006	Rejected
H3	Purchase for Offers	Overall Spending	< 0.001	Rejected
H4	Reward Perception	Habit Change	0.000025	Rejected
H5	Reward Preference	Usage Loyalty	< 0.001	Rejected
H6	Comparison Habit	Choice Influence	0.032	Rejected

5. Discussion of Findings:

H1 — Reward Frequency: Consumers who receive rewards very frequently show the highest proportion of 'Strongly Agree' responses regarding increased digital usage, validating the reward-habit loop.

H2 — Reward Type: Instant UPI cashback and wallet cashback show the highest proportion of responses regarding increased spending compared to reward points or discounts — the 'Free Money' fallacy.

H3 — Offer-Induced Purchasing: Consumers who make purchases specifically to avail offers report significant increases in overall spending (15-20% higher monthly transaction values) — the 'bait-and-spend' effect.

H4 — Reward Perception: Consumers who perceive rewards as making spending 'feel less expensive' are significantly more likely to report permanent changes in spending habits — Hedonic Framing.

H5 — Platform Loyalty: Loyalty to digital payment platforms is almost entirely reward-dependent — 'mercenary loyalty' rather than intrinsic brand preference.

H6 — Comparison Behaviour: Consumers who actively compare multiple payment methods for the best reward are more — not less — influenced by those rewards in their final choice.

6. Findings and Discussion:

- The reward-frequency loop is the dominant driver of digital payment adoption, with consumers valuing the emotional reinforcement of rewards over convenience.

- The format of the reward matters as much as its monetary value — instant cashback triggers stronger spending responses than reward points.
- Offer-induced purchasing is the single largest contributor to budget leakage, representing a fundamental inversion of rational purchasing logic.
- Digital rewards successfully reduce the pain of paying by framing transactions as opportunities for gain.
- Experience with digital apps does not appear to reduce susceptibility to reward-driven biases — these responses are deeply ingrained.
- Consumers' comparison behavior and reward optimization primarily serves to increase overall expenditure rather than reduce it.

7. Conclusion:

This study demonstrates empirically that digital payment rewards significantly influence consumer spending behavior in ways that extend well beyond the choice of payment method. Rewards reduce the emotional cost of spending, encourage offer-induced purchasing, create reward-dependent platform loyalty, and produce measurable increases in total monthly expenditure. Financial well-being in the digital economy depends less on knowledge of budgeting tools and more on psychological awareness and emotional self-regulation. Recognizing digital rewards as marketing instruments — rather than genuine financial benefits — is the first step toward more disciplined spending.

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The Influence of Social Media on Bank Selection and Financial Decisions

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Abstract:

This study explores the influence of social media on bank selection and financial decision-making among consumers in a rapidly evolving digital environment. A quantitative research design was adopted, and primary data was collected from 104 respondents using a structured questionnaire. The results reveal that social media plays a meaningful role in increasing awareness and improving understanding of financial products and services. However, despite this increased exposure, the statistical findings show that social media does not significantly influence consumers' final decisions regarding bank selection or financial activities. The study highlights that consumers continue to prioritize traditional factors such as trust, institutional reputation, service quality, and reliability when making financial choices.

Keywords: *Social Media, Bank Selection, Financial Decision-Making, Consumer Behavior, Trust and Credibility, Digital Banking, Financial Awareness*

1. Introduction:

The rapid growth of digital technology has transformed how individuals communicate, access information, and make financial decisions. Among these developments, social media has emerged as a powerful force influencing consumer behavior. In the banking sector, platforms such as Instagram, YouTube, LinkedIn, Facebook, and X are increasingly used to promote services, engage customers, and strengthen institutional image.

Traditionally, bank selection depended on factors such as trust, reputation, service quality, and personal recommendations. However, the rise of smartphones, internet accessibility, and digital awareness has reshaped this process. This study aims to examine the extent to which social media influences bank selection and financial decision-making.

2. Literature Review:

Kaplan & Haenlein (2010): Social media has transformed how consumers access and process financial information by enabling user-generated content and interaction between firms and consumers.

Gerrard & Cunningham (2001); Devlin & Gerrard (2005): Traditional factors such as trust, institutional reputation, service quality, and reliability continue to dominate consumer choices despite social media marketing.

Barber & Odean (2001): Social media exposure interacts with behavioural and psychological factors — digital platforms can encourage herd behaviour and overconfidence through social validation.

3. Research Methodology:

Sample: 104 respondents via structured Google Form questionnaire, analyzed using correlation, regression, and chi-square tests.

4. Hypotheses:

H₀₁/H₁₁: Influence of Social Media on Bank Selection

H₀₂/H₁₂: Impact of Social Media on Financial Decision-Making

H₀₃/H₁₃: Social Media and Consumer Trust

H₀₄/H₁₄: Moderating Effect of Demographic Factors

5. Data Analysis:

The occupational profile shows that students form the majority (73.1%), followed by employed individuals (14.4%). 68.3% of respondents earn ₹20,000-₹50,000. 57.7% of respondents do not follow financial influencers or banking pages. 37.5% use public sector banks, 32.7% private banks. 51% agree social media helps them understand financial products. 81% do not trust a bank more due to its social media presence. Bank reputation and history are the top factors in account selection.

6. Hypothesis Testing Results:

Hypothesis	Test Used	Statistic	Decision	Interpretation
H ₀₁ vs H ₁₁	Correlation Analysis (Spearman's Rank)	$p > 0.05$	Fail to Reject H ₀₁	Social media exposure does not significantly influence bank choice; trust and reputation remain dominant
H ₀₂ vs H ₁₂	OLS Regression Analysis	$p = 0.148$	Fail to Reject H ₀₂	Social media explains only a minimal portion of variation in financial decision-making
H ₀₃ vs H ₁₃	Spearman's Rank Correlation	$r_s=0.06$, $p=0.6299$	Accept H ₀₃	Perceived credibility of social media content does not translate into trust in banking information
H ₀₄ vs H ₁₄	Chi-square Test	$\chi^2=10.248$, $p=0.1146$	Accept H ₀₄	Influence of social media does not vary significantly across demographic groups

7. Discussion of Findings:

The study finds that social media's impact on bank selection and financial decision-making is largely limited and indirect. Respondents primarily rely on factors such as reputation, trust, and service quality. Consumer trust is also not strongly affected by a bank's social media presence, reflecting a cautious attitude toward online financial content. Although social media serves as an effective tool for information and awareness, it rarely acts as a decisive factor. Even among younger, digitally active users, financial choices are made rationally rather than impulsively.

8. Conclusion:

The study concludes that social media has a limited and indirect influence on bank selection and financial decision-making. While it serves as an effective platform for creating awareness and providing information about financial products, it does not significantly impact consumers' final decisions. Traditional factors such as trust, reputation, service quality, and convenience continue to play a dominant role in shaping banking choices. The findings emphasize the continued importance of credibility and reliability in the banking sector.

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The Pulse of Growth: How Financial Markets Drive India's Economy

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Abstract:

Financial markets are extremely important for the economic development of a country as they help in the formation of capital. This paper explores the link between financial markets and the Indian economy, with a special focus on the perception of investors, market engagement, confidence in regulation, and the stock market's contribution to economic development. The results suggest that a high number of participants are actively participating in capital market investments and regard the stock market as an important contributor to the economic development of India. The study seeks to establish correlation between the development of financial markets and leading indicators of economic growth, attributing development to increased flow of capital to productive sectors, generation of employment, and rising incomes.

Keywords: *Financial Markets, Economic Growth, Stock Market, Money Market, Correlation, Investor's Perception*

1. Introduction:

Financial markets are at the centre of any modern economy as they help in channelizing savings into productive investments in an efficient manner. They provide a formal mechanism for individuals, institutions, and governments to raise funds for activities such as expansion, innovation, and infrastructure building. Over the past few decades, India's financial system has witnessed remarkable transformation driven by regulatory reforms, technological advancements, and increased participation of retail investors.

1.2 Research Problem

Even though users now have better access to financial instruments, there is still a massive gap between market availability and investor awareness. Less financial knowledge is one of the reasons why most people make poor investment decisions, take more risk than they should, or don't even consider safer options such as money market securities.

2. Objectives:

1. To explore the correlation between financial market development and economic growth in India.
2. To study the investment behaviour and choices of investors in financial markets.
3. To evaluate the level of financial literacy of investors on investment instruments and allocation strategies.
4. To measure investor trust in regulatory frameworks and their opinion of the stock market's role in economic development.

3. Literature Review:

Ross Levine (1996): Stock market liquidity has a significant impact on the rate of economic growth — efficient markets lower transaction costs and risks, attracting local and international investors.

Mohtadi & Agarwal (2000): Strong positive association of economic growth with stock market metrics, particularly market capitalization and liquidity, across 21 emerging economies.

Paramati & Gupta (2018): Two-way causality between industrial output and stock prices in India — economic growth leads to increased stock market performance and vice versa.

Sattar et al. (2018): Highly significant positive association between stock market capitalization and economic growth across India, Pakistan, and China.

4. Research Methodology:

Primary data was gathered through a structured questionnaire developed via Google Forms among students and working professionals involved in stock markets. A total of 101 properly filled questionnaires were used. Secondary data consists of research articles, RBI publications, government reports, and empirical studies.

5. Data Analysis:

Indicator	Finding
Age Distribution	46.9% aged 18-25; 36% aged 26-45; 17.2% above 45
Investment Participation	More than 90% of respondents invest their savings
Market Preference	~75% prefer capital market (stocks); ~34% money market
Savings Allocation	57.4% allocate 10-30% of savings to investments
Risk Perception	54.8% consider stock market riskier than money market
Profitability Experience	70.9% report consistent or occasional profitability
Role in Economic Growth	72.6% believe stock market is a major driver of the Indian economy
Confidence in Regulations	74% have high or very high confidence in regulation

6. Results and Discussion:

Respondents had very strong participation in financial markets. More than 90% have actively invested their savings, showing high engagement with financial instruments. Most prefer capital market products such as equity shares over money market instruments, indicating a move toward long-term wealth creation. Although 54.8% perceive the stock market as riskier, ongoing investment activities show investors are prepared to take bigger risks for higher returns, reflecting confidence in equity markets' potential for long-term wealth creation.

7. Conclusion:

This study examined the relationship between financial market development and economic growth in India, along with investor behaviour and awareness levels. The findings show strong participation in capital markets and a broad perception that stock markets contribute to economic expansion through capital formation and employment generation. Despite being viewed as relatively risky, investors continue to engage actively, reflecting confidence in long-term wealth creation. However, moderate awareness

regarding investment allocation highlights the need for improved financial literacy and stronger regulatory trust to sustain market-driven economic growth.

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To Explore Consumer Buying Preference Towards Blinkit Vs Flipkart in New Panvel

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Abstract:

The expansion of digital technologies and the growing availability of internet services have significantly influenced the purchasing patterns of consumers in India. In this evolving digital commerce platform two major online shopping models have become highly popular: traditional e-commerce and quick commerce (Q-commerce). This study investigates several influencing factors, including delivery speed, convenience, product availability, pricing, frequency of purchases, trust in the brand, and overall customer satisfaction. The results indicate that consumer choices mainly depend on the urgency and nature of the purchase — quick commerce platforms such as Blinkit are primarily preferred for immediate and routine purchases, while traditional e-commerce platforms like Flipkart are generally selected for planned purchases.

Keywords: *Consumer Behavior, Quick Commerce, E-commerce, Online Shopping, Blinkit, Flipkart, Consumer Preference, Delivery Speed*

1. Introduction:

1.1 Background of the Study

The rapid advancement of digital technology, increased availability of the internet, and widespread use of smartphones have significantly transformed the retail landscape in India. Traditional e-commerce platforms such as Flipkart emphasize providing a wide variety of products, attractive pricing, and organized delivery timelines. Quick commerce platforms like Blinkit focus on fast delivery, user-friendly experiences, and instant access to common household products.

Overview: Flipkart was established in 2007 by Sachin Bansal and Binny Bansal, beginning as an online bookstore. Blinkit, previously called Grofers, was established in 2013 by Albinder Dhindsa and Saurabh Kumar, rebranding as Blinkit in 2021 to focus on delivering groceries and everyday items within 10-15 minutes.

2. Review of Literature:

Banerjee & Upadhyay (2025): Consumer Perception of Product Quality in Quick Commerce — Blinkit tends to receive comparatively higher ratings from consumers regarding consistency and perceived product quality.

Singla (2025): Quick Commerce vs E-Commerce — both quick commerce and traditional e-commerce models are likely to coexist and serve different consumer needs rather than replacing one another.

Senapati (2025): The availability of instant delivery services encourages impulsive buying behavior among consumers, transforming consumer behavior through convenience and frequent purchases.

3. Research Objectives:

1. To examine usage patterns, platform preferences and buying behavior of consumers on quick commerce and e-commerce platforms.
2. To compare frequency of purchase between quick commerce and e-commerce consumers.
3. To analyse the effect of pricing, discounts, and promotional offers on consumer buying behavior.
4. To measure overall consumer satisfaction with quick commerce and e-commerce platforms.

4. Research Methodology:

Sampling Method: Convenience Sampling, sample size of 100 respondents from New Panvel. Primary data collected via structured Google Form questionnaire; secondary data from research journals, books, and company websites.

5. Hypothesis Testing — Chi-Square Test:

5.1 Hypothesis 1 — Purchase Frequency

Purchase Frequency	Blinkit	Flipkart	Total
Frequently	24	12	36
Occasionally	16	20	36
Rarely	10	18	28
Total	50	50	100

Chi-Square Value = 6.73, df = 2, p-value = 0.035 — H_0 Rejected. There is a significant difference in purchase frequency between Blinkit and Flipkart users.

5.2 Hypothesis 2 — Delivery Speed Impact

Delivery Speed	Purchase Influenced	Not Influenced	Total
Fast	38	7	45
Moderate	20	10	30
Slow	8	17	25
Total	66	34	100

Chi-Square Value = 19.71, df = 2, p-value = 0.0001 — H_0 Rejected. Delivery speed significantly influences consumer purchase decisions.

5.3 Hypothesis 3 — Consumer Satisfaction

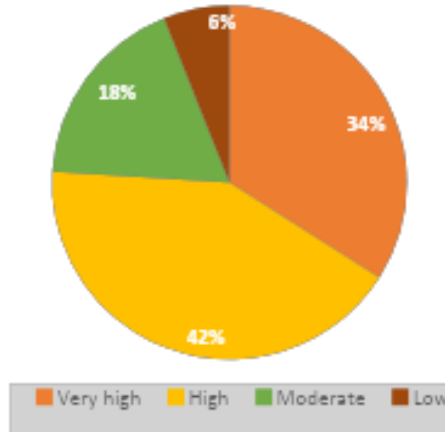
Satisfaction Level	Blinkit	Flipkart	Total
Highly Satisfied	30	16	46
Satisfied	18	20	38
Dissatisfied	7	9	16
Total	55	45	100

Chi-Square Value = 3.92, df = 2, p-value = 0.141 — H_0 Accepted. No significant difference in satisfaction between Blinkit and Flipkart users.

6. Data Analysis and Interpretation:

6.1 Trust in Online Payments and Customer Support

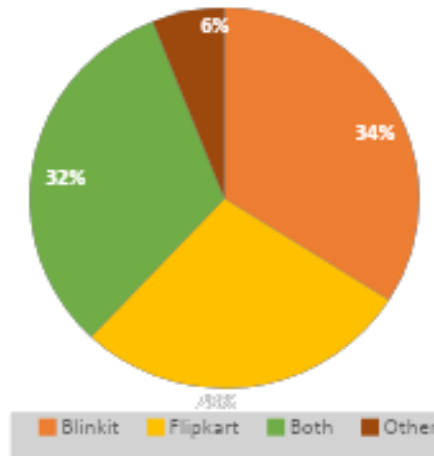
1. Trust Level Toward Online Payments



Interpretation: The majority of respondents indicate a high level of trust, with 42% showing strong confidence in online payment systems, followed by 34% with very high trust. This indicates that most respondents have a high level of confidence in online payment methods used by both platforms.

6.2 Platform Preference for Future Use

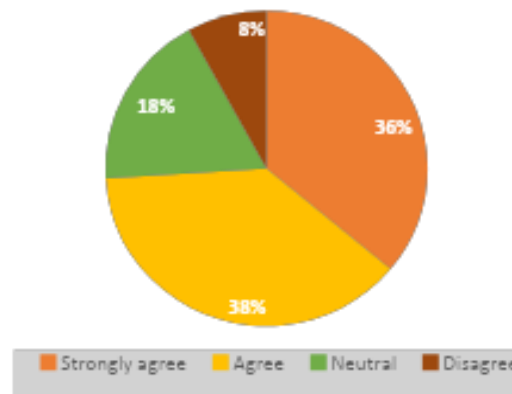
2. Platform Likely to Continue Using



Interpretation: Most respondents showed a preference for Blinkit (34%), closely followed by those who plan to use both Blinkit and Flipkart (32%). Flipkart is the preferred choice of 28% of respondents. While Blinkit has a slight advantage, many respondents remain open to using multiple platforms.

6.3 Comfort Purchasing High-Value Items Online

3. Comfortable Purchasing High-Value Items Online



Interpretation: 38% of respondents agree they feel comfortable buying expensive items online, closely followed by 36% who strongly agree. This indicates an increasing level of confidence in online shopping for high-value purchases.

7. Findings:

- Consumers engage with multiple platforms — Blinkit is mostly chosen for urgent and everyday needs like groceries, whereas Flipkart is more commonly used for planned purchases such as electronics, clothing, and home goods.
- The speed of delivery is a crucial factor in influencing customer decisions. Blinkit's rapid delivery system provides a feeling of ease and immediate fulfilment.
- Consumers tend to make purchases more frequently on quick commerce platforms as they are mainly used for regular needs.
- Pricing policies, discounts, and promotional deals play an important role in shaping consumer buying behavior.
- The reputation and brand image of a platform have a strong impact on consumer decision-making.

8. Suggestions:

- Introducing more attractive subscription benefits or reducing delivery costs can help increase customer loyalty.
- Using artificial intelligence to provide personalized recommendations and promotions can improve customer engagement.
- A more thorough analysis of impulse buying behavior within the quick commerce industry can provide additional valuable insights.

9. Conclusion:

Consumers opt for Blinkit to fulfill urgent, daily, and impulsive purchasing requirements such as groceries and essential items because of its incredibly fast delivery and user-friendly experience. On the other hand, Flipkart is commonly preferred for planned and high-involvement purchases such as electronics, fashion, and home products. From an academic perspective, this study tackles an important research gap by conducting a comparative and evidence-based examination of Blinkit and Flipkart using primary data gathered directly from consumers.

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To Study the Preferences Among Mobile Users Between iPhone and Samsung in Navi Mumbai

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Abstract:

In the present digital era of technology, smartphones have become a significant tool in the daily life of individuals. Among the various brands of smartphones available in the market, the iPhone of Apple and Samsung smartphones are two of the most competitive brands. The objective of this study is to determine the preferences of mobile phone users between the iPhone and Samsung smartphones in Navi Mumbai, and to identify the factors that influence customer purchasing decisions. The study used a structured questionnaire given to 101 customers in Navi Mumbai, analysed using percentage analysis. The study indicates that both iPhone and Samsung have good consumer acceptance, but a little higher among Samsung users, with battery life, camera capabilities, and brand reputation as key influencing factors.

Keywords: *Consumer Preference, Brand Image, Smartphone*

1. Introduction:

The conceptual model for this study is based on theories of consumer behaviour and brand perception, illustrating the relationship between different factors that influence a consumer's decision while choosing between iPhone and Samsung smartphones. Brand image and brand equity play an important role in influencing consumer preferences. iPhone is generally associated with a premium brand image, security, and prestige, whereas Samsung is associated with an innovative brand image, technology, and availability of products in various price segments.

2. Review of Literature:

Singh and Gupta (2024): Brand trust is an essential element for repurchase intention among premium smartphone users.

Talsaniya, Dhanja, and Vidani (2024): Smartphone users' preferences among Generation Z are not only about communication but also about lifestyle or status symbol.

Aprilla, Fuadi, and Eramawati (2024): Sensory brand experience is an essential element for increasing user satisfaction.

Abdul Wahab, Mahadevan, and Maestri (2023): Product quality and durability are the most important drivers for customer loyalty for iPhone or Samsung users.

3. Research Methodology:

Parameter	Details
Sample Size	101 Respondents
Area	Navi Mumbai (Panvel, CBD, Vashi, etc.)
Time	January–February 2026
Sampling Method	Convenience Method
Data Collection	Primary: Questionnaires; Secondary: Journals, Books & Internet
Tools for Analysis	Percentage Analysis, Bar Charts, Google Sheets

4. Hypothesis Testing:

Hypothesis	Test Used	Sample	Calc. Value	Critical Value	Decision
H01: No significant difference in consumer preference	Chi-Square	101	2.22	3.84	Accepted
H02: Price does not significantly influence preference	Z-test	101	3.02	1.96	Rejected

Chi-Square value (2.22) is less than table value (3.84) at 5% significance — H01 is accepted, meaning there is no significant difference in consumer preference. The Z-test value (3.02) is greater than 1.96 — H02 is rejected, meaning price has a significant impact on consumer preference.

5. Data Analysis and Interpretation:

5.1 Factors Considered While Choosing a Smartphone

Factor	Percentage
Camera Quality and features	58.4%
Battery life and charging speed	64.4%
Operating System (iOS vs. Android)	54.5%
Design and build materials	56.4%

Battery longevity and charging efficiency (64.4%) is the primary consideration for selecting a smartphone, closely followed by camera quality and capabilities (58.4%).

5.2 Brand Associated with Status/Prestige

Brand	Percentage
iPhone	44.1%
Samsung	32.7%

Both	28.7%
------	-------

44.1% view iPhone as a marker of status and exclusivity, while a substantial portion still recognises Samsung as a high-end brand.

5.3 Perception of Pricing

Response	Percentage
iPhone is overpriced but worth it	47.5%
Samsung is also becoming overpriced	26.7%
Both fairly priced	21.8%
Mid-range phones offer better value	27.7%

47.5% view the iPhone as expensive but a sound purchase, while 27.7% prefer mid-tier smartphones, considering them better value.

5.4 Innovation Perception

Response	Percentage
iPhone's Dynamic Island/Action Button	41.6%
Samsung's Galaxy AI Features	29.7%
Both equally innovative	28.7%

41.6% indicated stronger appreciation for iPhone features like Dynamic Island, while 29.7% favored Samsung's AI features in the Galaxy line.

6. Findings:

- Both brands have a strong preference among consumers — iPhone preferred for premium image and security, Samsung preferred for features and variety.
- Price, brand image, camera quality, battery life, operating system, and innovation are the main factors influencing purchase decisions.
- Price significantly influences middle-income consumers; features and brand reputation strongly affect overall brand preference.

7. Suggestions:

7.1 For Apple

- Introduce more affordable iPhone models for price-sensitive consumers.
- Improve battery life and overall battery performance.
- Increase the number of service centres in Navi Mumbai.

7.2 For Samsung

- Strengthen the premium brand image of Samsung smartphones.
- Continue developing advanced Galaxy AI and innovative features.
- Provide longer software and security update support.

8. Conclusion:

To Study the Preferences Among Mobile Users Between iPhone and Samsung in Navi Mumbai

Both iPhone and Samsung are in a good position in the mobile phone market, but the reasons for their popularity differ. Samsung is in a relatively better position in terms of consumer base because of the different types of mobile phones offered at different price ranges. iPhone is in a relatively better position in terms of luxury experience with technology and compatibility across devices. Battery life, camera, design, and operating systems play a huge role in influencing buying decisions. The competition between Samsung and iPhone is still at its peak, and both brands will continue to focus on innovation, better capabilities, and provision of better value to customers.

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Urban Youth Underemployment and its Impact on Financial Well-Being and Future Aspirations: A Case Study of MMR (Mumbai Metropolitan Region)

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Abstract:

India's youthful demographic is often cited as a key asset, with over a quarter of its people aged 15 to 29. However, in fast-growing urban regions like the Mumbai Metropolitan Region (MMR), many young people find themselves underemployed — working limited hours, earning low pay, or taking jobs that do not reflect their qualifications. This study examines how underemployment affects the financial well-being and future aspirations of young people living in MMR, utilizing a survey of 100 young adults alongside secondary data from MoSPI and national labor market reports. The data indicates that a significant portion of surveyed individuals are either unemployed or working part-time, leading to financial strain, difficulty managing everyday costs, and dependence on external financial assistance.

Keywords: Urban Youth, Underemployment, Financial Well-being, Future Aspirations, Mumbai Metropolitan Region, Labour Market

1. Introduction:

The current global economic story is being shaped by changes in population in emerging countries, with India at the core. India has about 26.6% of its population between the ages of 15 and 29 — a 'demographic dividend' that provides a rare chance for economic growth if the labour market can find stable and productive jobs for this young, increasingly educated workforce. The achievement of this dividend is increasingly jeopardized by escalating underemployment, especially in rapidly growing metropolitan corridors. The Mumbai Metropolitan Region (MMR) — covering Mumbai, Thane, Palghar, and Raigad districts over 6,328 square kilometres — is India's economic engine, working toward becoming a trillion-dollar economy by 2047. The region is a centre for high-productivity industries like finance, IT, media, and advanced manufacturing. However, the increase in urban migration has not been matched by formal, high-quality job openings, forcing many young people into temporary, informal jobs.

2. Labour Market Indicators (2024-2025):

Indicator	Nov 2025 (%)	Oct 2025 (%)	Trend
National Unemployment Rate (15+)	4.7	5.2	Improving
Urban Unemployment Rate	6.5	7.0	Modest Decline
Rural Unemployment Rate	3.9	4.4	Slight Fall
Youth Unemployment (15-29 yrs)	14.1	14.9	Improving
Female Youth Unemployment	~16.3	~17.5	Improving
Male Youth Unemployment	~13.4	~14.2	Improving

Urban Youth Underemployment and its Impact on Financial Well-Being and Future Aspirations: A Case Study of MMR (Mumbai Metropolitan Region)

This data reveals that youth remain particularly vulnerable to joblessness despite a general stabilization of the broader labour market. The gap between male and female youth unemployment (13.4% vs 16.3%) further underscores persistent gender disadvantages in urban labour absorption.

3. Objectives:

1. To examine the extent and nature of underemployment among urban youth in MMR.
2. To analyze the impact of underemployment on financial well-being — income stability, savings, and dependence on debt.
3. To assess the effect of underemployment on psychological well-being including stress and anxiety.
4. To evaluate how underemployment influences future aspirations and career confidence of urban youth.
5. To identify key structural barriers — skill mismatch, high competition, low wage levels.
6. To suggest policy measures aimed at improving employment quality and financial outcomes.

4. Literature Review:

MacDonald (2011); Churchill and Khan (2021): Youth often move between unstable jobs and periods of inactivity, creating a pattern of irregular employment rather than stable careers.

Mncayi and Meyer (2022); Betcherman and Khan (2018): Underemployment should be seen as a spectrum including overeducation, skill mismatch, and informal work — even educated youth accept jobs that do not match their qualifications.

Nawaz and Vm (2025); Li et al (2023): Young workers with unstable jobs face income insecurity and struggle to meet daily expenses, often depending on family support or debt.

Biswas et al (2024): Financial stress leads to anxiety and low self-confidence — underemployed youth experience frustration and uncertainty about the future.

Abdullah et al (2024); Dhingra and Kondirolli (2023): Educated youth in India face high competition with limited formal jobs, sometimes leading to voluntary unemployment reflecting a mismatch between education and labour market demand.

5. Research Methodology:

This study utilizes a survey conducted with a sample of 100 young adults from 2025 to 2026, alongside secondary data obtained from the Ministry of Statistics and Programme Implementation (MoSPI) and additional national labor market reports. The analysis focuses on employment status, financial stability, stress-related indicators, and the degree of career confidence exhibited by participants.

6. Findings:

- A significant portion of surveyed individuals are either unemployed or working part-time, often not earning enough to meet financial needs.
- In a high-expense urban environment, this frequently translates into difficulties managing everyday costs, maintaining minimal savings, and relying on external financial assistance.
- Even with overall positivity among many young adults, a considerable number worry about securing steady, well-compensated employment.

- Mental distress is influenced not only by underemployment but also by broader urban challenges including heightened competition and escalating living costs.
- Total self-employment share rose from 52.2% (2017-18) to 58.4% (2023-24) — suggesting many work for themselves not out of choice but because regular salaried jobs are limited.
- The region's GDP is expected to reach about 25 lakh crore in five years with major infrastructure investments, but this growth must translate into meaningful employment for young people.

7. Discussion:

The primary obstacle within the MMR context extends beyond the sheer volume of available employment — it encompasses the caliber and stability of those positions. When young people do not have steady incomes, it affects their confidence and independence, leading many to postpone major life decisions like marriage, buying a house, or supporting their families financially. By 2030, the region anticipates over 35 lakh young people joining the workforce, requiring at least 15 lakh new jobs in fields like IT, AI, banking, media, and chip manufacturing — an ambitious strategy that makes life particularly risky for the current generation of young people.

8. Conclusion:

This study's findings indicate that providing educated young individuals with substantial and quality employment prospects is a critical factor in fostering sustained economic advancement within the Mumbai Metropolitan Region. The gap between economic growth and the quality of jobs is clearly visible — even as overall employment increases, the rising share of involuntary self-employment and persistent urban unemployment among youth demonstrate that the core challenge is not job creation alone, but the creation of stable, quality employment matched to educational qualifications.

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Visualization Techniques for Error Analysis and Statistical Data

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Abstract:

Visualization techniques play a crucial role in the analysis and interpretation of statistical data, particularly in identifying and understanding errors inherent in experimental and observational studies. Error analysis is fundamental to scientific research, as it determines the reliability, precision, and accuracy of collected data. This research paper explores various visualization techniques used for error analysis and statistical data interpretation, including scatter plots with error bars, box-and-whisker plots, histograms, residual plots, violin plots, heatmaps, and Bland–Altman plots. The findings indicate that no single visualization method is universally optimal; rather, the choice depends on the nature of the data, type of error, and target audience.

Keywords: Data Visualization, Error Analysis, Statistical Data, Uncertainty, Scientific Communication

1. Introduction:

Statistical data analysis is a cornerstone of scientific research, enabling researchers to draw conclusions from experimental and observational data. However, all measurements are subject to errors arising from instrumental limitations, environmental factors, and human intervention. Error analysis, therefore, is essential for evaluating the reliability and validity of experimental results. While mathematical and statistical techniques provide quantitative measures of error, they often lack intuitive clarity, especially for complex datasets.

Visualization techniques offer a powerful means of representing statistical data and associated errors in visual form that enhances understanding and interpretation. Graphical representations allow researchers to quickly identify trends, outliers, variability, and systematic biases that may not be apparent from numerical summaries alone.

2. Concept of Error Analysis:

Errors in measurements are generally classified into three main types: systematic errors arise from consistent biases in measurement instruments or experimental procedures; random errors occur due to unpredictable fluctuations in experimental conditions; and gross errors result from human mistakes such as incorrect readings or calculations. Statistical measures such as mean, standard deviation, variance, and confidence intervals are commonly used to quantify errors, but these numerical indicators do not always convey the full structure of data variability.

3. Importance of Visualization in Statistical Analysis:

- Identifying outliers and anomalies
- Understanding data distribution and spread
- Comparing multiple datasets or experimental conditions
- Communicating uncertainty and confidence levels
- Supporting transparent and reproducible research

4. Visualization Techniques for Error Analysis:

4.1 Scatter Plots with Error Bars

Widely used to represent measured values along with their associated uncertainty. Error bars typically indicate standard deviation, standard error, or confidence intervals. Particularly useful for comparing experimental results across different conditions, though excessive use can lead to visual clutter.

4.2 Histograms

Display the frequency distribution of data and are effective for visualizing random errors and data spread. Help identify skewness, symmetry, and multimodal distributions, though sensitive to bin width selection.

4.3 Box-and-Whisker Plots

Summarize data using quartiles, median, and extreme values. Effective for comparing distributions across multiple datasets and identifying outliers, though they do not reveal detailed distribution shapes.

4.4 Residual Plots

Display the difference between observed and predicted values in regression analysis. Essential for diagnosing systematic errors, non-linearity, and heteroscedasticity. A random scatter of residuals indicates a good model fit.

4.5 Violin Plots

Combine features of box plots and density plots, providing detailed information about data distribution. Particularly useful for comparing error distributions across groups, though may be difficult for audiences unfamiliar with density estimation.

4.6 Heatmaps

Represent data values using color gradients, commonly used for correlation matrices and error matrices. Enable rapid identification of relationships and patterns but may oversimplify precise numerical values.

4.7 Bland–Altman Plots

Used to assess agreement between two measurement methods. By plotting the difference against the mean of two methods, these plots reveal systematic bias and limits of agreement, highly effective for method comparison studies.

5. Methodology:

This study adopts an exploratory research design using both simulated and experimental datasets. Statistical data were analyzed using descriptive statistics, followed by visualization using standard plotting techniques. The effectiveness of each visualization method was evaluated based on clarity, interpretability, and ability to reveal error patterns.

6. Results and Discussion:

The comparative analysis demonstrates that simple visualization techniques such as histograms and box plots are effective for initial error assessment, while advanced plots like violin and Bland–Altman plots provide deeper insights into data structure and measurement agreement. The choice of visualization should be guided by data type, research objective, and target audience.

7. Limitations of the Study:

The study is limited by the use of selected datasets and visualization tools. Interpretation of visualizations may vary based on user expertise. The study is based on comparative analysis and secondary sources; practical classroom-based quantitative assessment could further strengthen the findings. Future research may incorporate interactive and multidimensional visualization techniques.

8. Conclusion:

Visualization techniques significantly enhance error analysis and statistical data interpretation. By complementing numerical methods, visual tools improve accuracy, transparency, and communication in scientific research. Researchers are encouraged to adopt appropriate visualization strategies tailored to their data and research goals, recognizing that no single visualization method is universally optimal across all contexts.

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Digital Competency Development and Human Capital Readiness in the Digital Era

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Abstract:

This study examines how people need new skills and enhance existing skills to meet evolving workforce needs, especially in the information technology sector. Rapid digital advancement has compelled organizations to integrate new technology into their operations, hence rapidly capability enhancement among professionals. Based on a conceptual review of existing research, this study examines the relationship between digital competency development, ethical technology use, and educational reform with reference to India's National Education Policy (NEP) 2020. The study proposes the Digital Competency-Workforce Readiness Integration Model (DCWRIM) to explain the integration of digital capability, cognitive intelligence, ethical governance, and continuous upskilling.

Keywords: *Strategic Upskilling, Digital Competency, Organizational Agility, Innovation*

1. Introduction:

Technological advancement is profoundly reshaping today's work environment and the way organizations function. Emerging technologies such as Artificial Intelligence, automation, machine learning, and big data are changing how work should be done and what skills employees should develop. Employees' technical skills alone are not enough for an organization's work accomplishment — they should update and upgrade their digital skills, adapt to new technology, and think ethically.

In India, government initiatives such as Digital India and educational reforms introduced through the National Education Policy (NEP) 2020 strongly emphasize digital literacy, technology-enabled learning, and practical-oriented education. This indicates a strategic shift from conventional credential-driven employment towards a competency-based workforce model, where practical skill and digital capabilities take precedence.

2. Objectives of the Study:

1. To analyze the role of digital competencies in enhancing workforce preparedness amid accelerated technological transformation.
2. To evaluate the effect of advanced and emerging technologies on changing skill requirements.
3. To evaluate the significance of lifelong learning and skill enhancement in sustaining employability.
4. To determine the major challenges and limitations in existing workforce upskilling and reskilling initiatives.
5. To examine the contribution of academic institutions and training frameworks in facilitating digital skill enhancement.
6. To analyze the importance of ethical and responsible use of technology in workforce capacity building.

3. Review of Literature:

Vietnam's policy on digital transformation focuses on improving digital awareness among people, and developing human resources is important for successful digital transformation. Other studies identify important digital skills needed for Artificial Intelligence and discuss key challenges and future enhancements. Studies have also examined crucial competencies needed by HR Practitioners in digitally transformed organizations, especially from the perspective of line managers, finding HRP's need to develop key skills across critical areas to effectively contribute to organizational success. Surveys show digital literacy, digital accessibility and human capital all improve innovation, helping entrepreneurs stay strong during challenges.

4. Research Gap:

Existing literature on digital competency development and workforce readiness reveals several significant research gaps, especially less attention paid to ethical concerns and continuous learning. Most studies examine acceptance of technical skills but give less attention to the integration of ethical consideration alongside digital skill development.

5. Research Methodology:

The research adopts a descriptive and conceptual research design solely based on secondary data. Data sources include educational journals, government policy documents, international organizational journals, and education policy frameworks. The analysis is conducted through thematic synthesis and conceptual mapping to enhance an integrated understanding of workforce skill development in the digital era.

6. Conceptual Framework: Digital Competency-Workforce Readiness Integration Model (DCWRIM):

6.1 Foundation Workplace Digital Literacy

Shows the important technical and functional competency needed to operate within a digitized work environment, including platform proficiency and ICT fluency — the ability to navigate diverse digital ecosystems like Cloud, CRM, and ERP seamlessly.

6.2 Analytical Intelligence and Digital Decision Making

Data Literacy elevates the ability to manage, interpret and derive actionable insights from complex datasets. Decision Making refers to the capacity to access AI-driven tools and automated systems to solve problems and make judgments.

6.3 Digital Ethics and Strategic Governance

Addresses the institutional requirements of digital competency development, adding individual ethical awareness with institutional governance to ensure digital transformation implements a culture of trust, transparency and social responsibility.

6.4 Institutional Learning and Reskilling System

Expands digital competency beyond individual skills to include institutional responsibility and government framework — covering ethical governance like data privacy, algorithm bias, and cybersecurity responsibilities.

7. Discussion and Findings:

- Workforce readiness in the digital era cannot be achieved through isolated skill training initiatives; digital competency development must be continuous, context-based and guided by ethical principles.
- Organizations investing in structured upskilling programs demonstrate enhanced adaptability, greater innovation and improved workforce retention.
- Technical digital skills alone are not sufficient — soft skills such as critical thinking, problem solving, communication and adaptability enhance the efficient use of digital technologies.

- A persistent skill gap exists between academic curricula and industry need, requiring stronger collaboration between educational institutions and industries.
- NEP 2020 plays an essential role in making an ecosystem that supports skill-based education, flexibility, and multi-disciplinary learning.

8. Conclusion and Suggestions:

The study concluded that digital competency development and upskilling are essential foundations for workforce readiness in an era of continuous technological change. Workforce preparedness is no longer determined by fixed qualifications but is effectively defined by the ability to engage in continuous learning, ethical practices, and digital adaptability.

Educational institutions should incorporate digital skill, ethical awareness, and sustainability concepts into their academic curriculum. Organizations should implement competency-based frameworks and promote continuous upskilling models for workforce development. Future research may focus on evaluating the outcomes of skill development initiatives across various firms/organizations.

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A Study on Consumer Perspective Towards Saving and Their Investment Preferences

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Abstract:

This study looks at how people today choose to save and invest their money. The research explores why people choose certain options, like gold, stocks, or property, and what stops them from trying new financial products. The research shows that a person's age and income play a huge role in the choices — older people often prefer safe options like fixed deposits, while younger people are more willing to take risks with mutual funds or the stock market because they want higher returns over a long time. The study concludes that while people are getting smarter about their money, there is still a big need for simple information and better guidance.

Keywords: *Saving Habits, Investment Choices, Money Management, Risk, Financial Awareness, Wealth Growth*

1. Introduction:

Investment is any item obtained with the objective of generating some income or appreciation of value over time. Whenever any individual buys a good as investment, the intention is not to consume but rather to save it for future creation of wealth. Investment may foster more income for one in two ways — through profit from saleable assets or through accumulation of gains via return generating plans.

The COVID-19 pandemic affected many households across the world, including India, notably changing their scale of consumption, purchase, and savings patterns. The CPH survey (Consumer Pyramids Household) carried out by the Centre for Monitoring Indian Economy studied 65,653 households in India over 2019-2020 to determine changes in purchasing behaviour.

2. Research Problem:

Many people experience anxiety when transferring savings into investment accounts. The inspiration for this project is simply a question: Why do people frequently postpone their decision to invest excess cash? The emotional struggle between 'security' and 'growth' explains part of the problem — while minds understand that investing in equities and mutual funds is necessary, emotions often hold people back due to concerns about market risk.

3. Objectives:

1. Investigate consumers' savings habits.
2. Identify preferred methods of making investments.
3. Assess the relationship between income amount and method of investing.
4. Investigate how age and willingness to take risks affect the investor's choice of method.
5. Estimate the effect of financial knowledge on the investor's choice of investment method.

4. Hypotheses:

H1: Individuals with defined objectives for the future tend to be more likely to invest than those who merely save for emergencies.

H2: Younger individuals appear to have greater comfort level with utilizing mobile applications for investment versus older individuals.

H3: The majority of individuals refrain from investing because of confusion regarding financial terminology or fear of losing accumulated money.

H4: Childhood environment and advice from parents more strongly affect day-to-day money management than current financial news.

5. Review of Literature:

Amrit and Sujit (1996): Important factors influencing investors of business class group and salary to invest in mutual funds were tax benefits.

Sasi Kumar and Vikkaraman (2010): Investors preferred more to invest in gold, followed by bank as the safe investment, and insurance for security purposes.

G. Velmurugan, V. Selvam, N. Abdul Nazar (2015): Order of preferences for various investment options are same across genders except for gold and post office.

Chalam (2003): Found that for most investors, the first choice of investment is real estate, second preference being mutual fund schemes followed by gold and other metals.

6. Research Methodology:

This study used a descriptive design to examine trends, patterns and relationships pertaining to consumers' savings habits and preference to invest. Primary data was collected using a quantitative questionnaire including closed-ended and Likert scale questions. Secondary data was reviewed from RBI publications, university journals, and finance-related websites. Sampling method used was convenience sampling. Data was analyzed using Percentage Analysis, Descriptive Analysis, and Graphs.

7. Data Analysis and Findings:

- Saving regularly from earned income was almost universally practised by survey respondents.
- Many respondents prefer to invest in bank deposits and insurance products, deemed safe with proper management returns.
- Higher potential returns associated with mutual fund investing are attracting a larger number of younger investors.
- While equity investing continues to be relatively under-utilized, there has been a substantial increase in financially literate individuals participating in equity investments.
- There is a strong relationship between a respondent's income level and asset allocation across different asset classes.
- For most respondents, the importance of liquidity/safety outweighs the importance of achieving or maximising earnings/returns.

8. Results and Discussion:

Younger respondents appear increasingly interested in investing in mutual funds and/or the stock market due to anticipated higher return rates and long-term accumulation of wealth. With the growing use of digital banking services for investing purposes and increased education regarding finance, there is a slow transition from lower-risk investments towards higher-risk investments. The investment method someone chooses based on their income level is directly correlated with how they diversify their investment portfolio — those with higher incomes often diversify through multiple investment types, while lower-income individuals generally do not.

9. Recommendations:

9.1 Financial Institutions

- Implement initiatives to promote financial literacy and awareness.
- Support diversified investment options such as SIPs and hybrid funds.
- Simplify the investment process and improve transparency.
- Provide risk assessment tools so clients can make appropriate investment choices.

9.2 Individual Investors

- Diversify investments into other asset types such as property or equities.
- Make investment decisions at a risk level suitable for personal objectives.
- Continually build financial knowledge to make informed decisions.

10. Conclusion:

Consumer investment preferences are influenced by four key factors: risk appetite, safety, income and financial literacy. Most investors today prefer traditional investment types due to increased security, stability and guaranteed returns. Investors below age 50 with decent financial literacy are now investing in mutual funds and equities more frequently than ever before. Overall, an improvement in either financial literacy or the encouragement to diversify investments will help improve an investor's future financial security and assist in building a sustained economic environment.

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The Study on the Power of Social Media Influencers in Shaping Gen Z Buying Decisions in Navi Mumbai

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Abstract:

The explosion of social media has changed the landscape of modern marketing, with social media influencers as one of the most compelling influences on consumer behaviors, particularly from Generation Z. This paper investigates the impact of social media influencers in influencing the purchasing decision of Gen Z consumers in Navi Mumbai, through influencers' credibility, authenticity and expertise. The study is based on empirical information from a structured questionnaire completed by 60 Gen Z respondents. Results show Instagram is rated highest with 70% of respondents, 78% are persuaded by influencer content, and 71% indicate influencer content shapes their preference for environmentally and ethically responsible brands.

Keywords: *Social Media Influencers, Buying Decisions, Navi Mumbai, Source Credibility, Sustainable Consumption*

1. Introduction:

Social media has expanded at an unprecedented pace, changing the face of contemporary marketing from traditional advertisement tools to interactive, digital solutions. Generation Z (born 1997-2012) is highly digitally savvy and socially conscious, heavily relying on social media and online content. Gen Z consumers value sustainability, ethical practices, and consumption practices, making it necessary to comprehend the influence of social media influencers on consumer purchase-making.

2. Review of Literature:

Abdullahi & Otori (2020): Influencers are considered a relevant group, known to have similar lifestyles, attitudes, values, and experiences with their followers.

Ahmed, Islam & Ghaffar (2024): When consumers perceive influencers to be knowledgeable, reliable and authentic, they develop positive attitudes towards the brands being promoted.

Çelik (2022): Engagement through comments, likes, and shares gives a sense of belonging to followers, building feelings toward the influencer and what they endorse.

Jun & Yi (2020): Audiences enjoy natural, honest, and relatable content that drives consumer response, amplifying consumer confidence.

3. Objectives:

1. To examine the level of influencer credibility as perceived by Generation Z consumers in Navi Mumbai.
2. To assess the perceived authenticity of content shared by social media influencers.

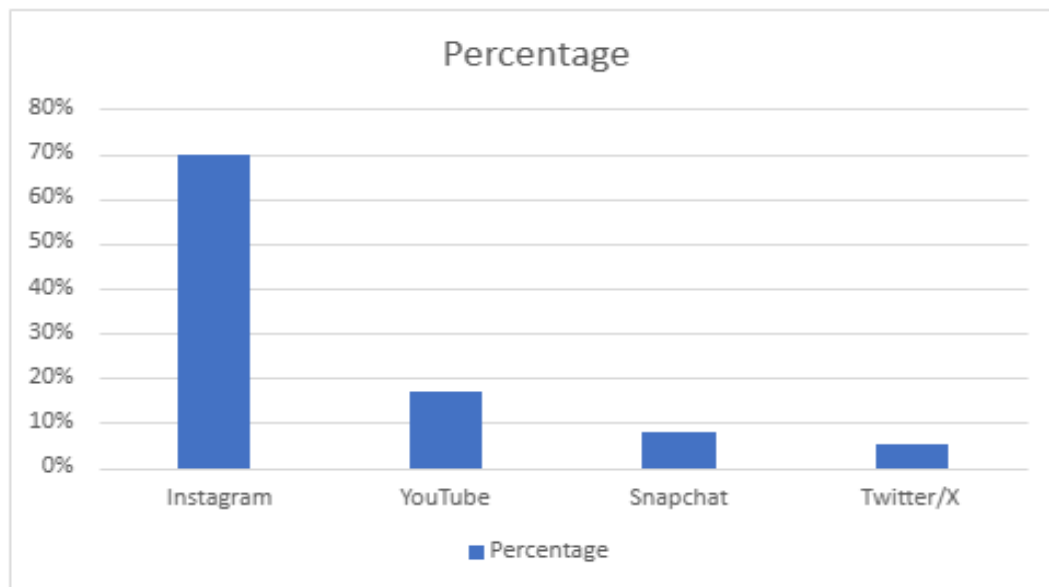
3. To analyze the relationship between influencer credibility and buying decisions.
4. To determine the impact of influencer authenticity on Gen Z's purchase intention and brand loyalty.

4. Research Methodology:

Particular	Description
Type of Research	Descriptive Research
Sample Size	60 Respondents
Sampling Technique	Simple Random Sampling
Tools Used	Percentage Analysis, t-Test, Charts & Graphs
Mode of Data Collection	Online (Social Media Platforms)

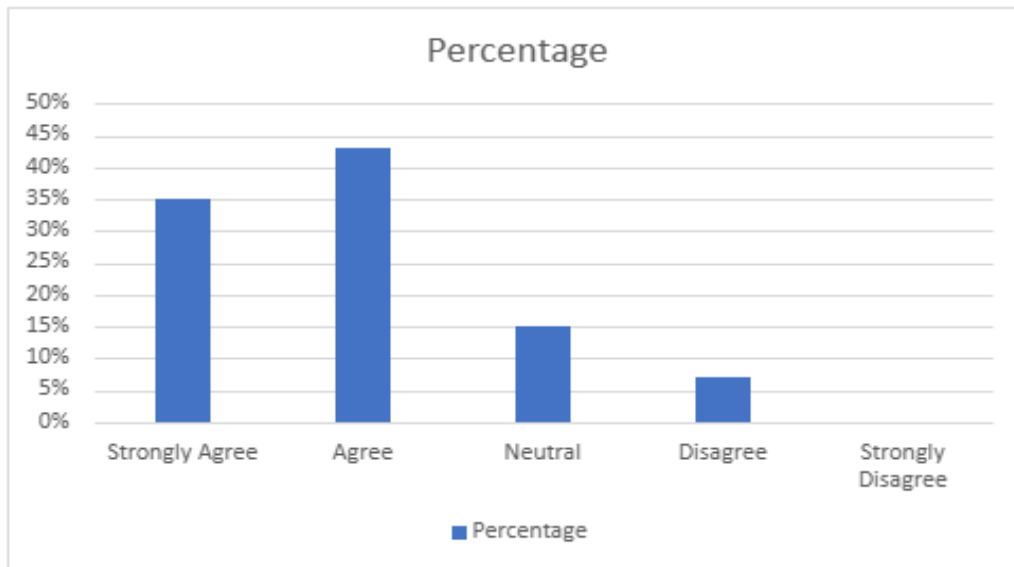
5. Data Analysis and Interpretation:

5.1 Social Media Platform Preference of Gen Z Respondents



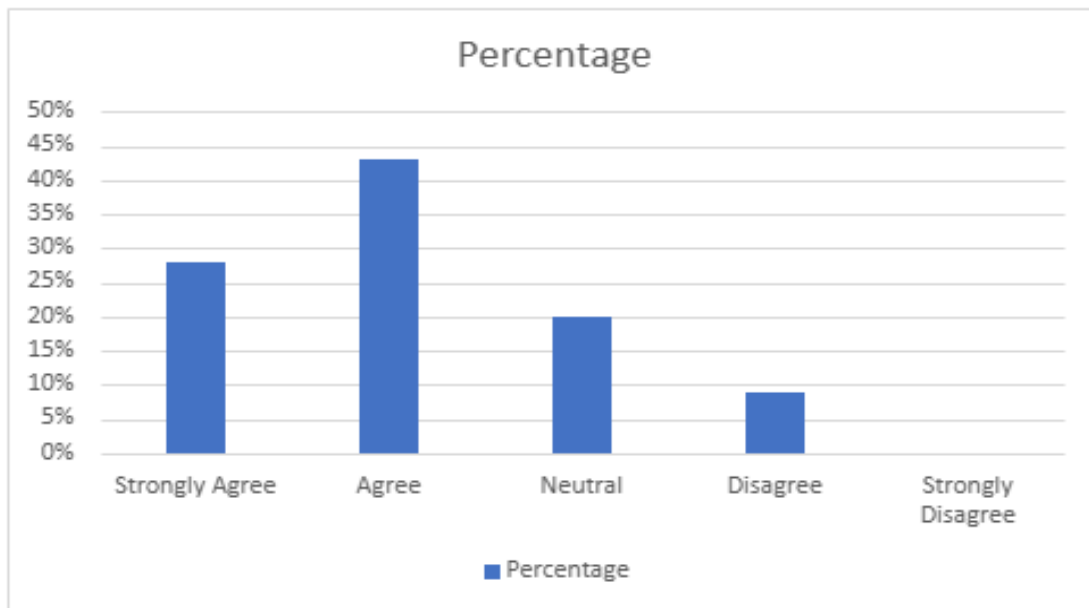
Interpretation: Instagram is the most favored social media platform for Gen Z consumers in Navi Mumbai (70% of respondents), followed by YouTube at 17%. Other platforms such as Snapchat and Twitter have relatively lower influence, suggesting Instagram's dominance in influencer marketing and purchase-related content consumption.

5.2 Influence of Social Media Influencers on Purchase Decisions



Interpretation: About 78% of respondents either strongly agree or agree that influencer-generated content impacts their buying behaviour. Influencers are seen as trustworthy, credible, and relatable sources of information which increases their power to influence consumer attitudes and preferences.

5.3 Influence of Social Media Influencers on Sustainable Buying Behavior



Interpretation: Almost 71% of respondents indicated that influencer-created content influences their preference for environmentally and ethically responsible brands. This finding indicates a noticeable shift in consumer behaviour from purely price- or trend-driven purchasing to value-driven consumption.

6. Hypothesis Testing — t-Test (5% Significance):

Hypothesis	Mean (Agree/Neutral)	t Stat	t Critical	p-value	Decision
H1: Social Media Influencers → Buying Decisions	4.15 / 3.00	3.21	2.00	0.002	Rejected

H2: Influencer Credibility → Purchase Intention	4.18 / 3.05	3.08	2.00	0.003	Rejected
H3: Influencers → Sustainable Buying Behaviour	3.95 / 3.10	2.42	2.00	0.018	Rejected

7. Conclusion:

The research finds that social media influencers influence Gen Z buying behavior in Navi Mumbai. Influencer content has an impact on purchase intention, brand preference, and brand awareness. The study also provides evidence that social media facilitates value-based and sustainable consumption among Gen Z. Digital platforms and influencer endorsements foster trust and reduce perceived risk among young consumers, increasing their confidence in the purchase decision process.

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A Predictive Analytics Framework for Identifying High-Impact Research and Strengthening Intellectual Property Outcomes

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Abstract:

In knowledge-driven economies, Higher Education Institutions are progressively assessed not just on academic performance but also on their capacity to produce intellectual property (IP), stimulate innovation, and enhance socio-economic growth. This study presents a robust predictive analytics framework that incorporates bibliometric, cooperation, financial, and innovation characteristics using supervised machine learning methods including Logistic Regression, Support Vector Machines, Random Forest, and Gradient Boosting Machines. Experimental results demonstrate that incorporation of financing and innovation factors significantly improves forecast accuracy relative to models based only on bibliometrics, with Random Forest attaining a ROC-AUC score of 0.89.

Keywords: *Predictive Analytics, Intellectual Property, Machine Learning, Research Evaluation, Innovation Management, Technology Transfer, Bibliometrics*

1. Introduction:

The worldwide shift towards innovation-driven economies has profoundly altered the function of Higher Education Institutions. Universities are widely seen as essential participants in national innovation ecosystems, contributing to knowledge generation, technological transfer, entrepreneurship, and economic competitiveness. Notwithstanding this transition, research evaluation methodologies continue to rely significantly on citation-based measures that provide retroactive analysis, failing to sufficiently predict intellectual property results or commercialization viability.

2. Literature Review:

Bibliometric analysis has always been the foundation of research evaluation. Citation counts, impact factors, and h-index metrics assess academic importance, yet research indicates a weak association between citation impact and patent output. Innovation success is often evaluated by patent numbers, forward citations, technological disclosures, and licensing income, though these indicators are seldom incorporated with bibliometric metrics in prediction systems. Recent developments in machine learning have facilitated citation predictions, grant success prediction, and cooperation network modelling using algorithms like Random Forest and Gradient Boosting.

3. Research Objectives:

1. Incorporate bibliometric, collaborative, financial, and innovation metrics.
2. Utilize supervised machine learning algorithms for impact categorization.
3. Assess performance via stringent validation techniques.
4. Augment interpretability by explainable AI methodologies.

4. Research Methodology:

The framework consolidates institutional datasets including publication metadata, citation records, journal rankings, funding information, co-authorship networks, patent databases, technology disclosures, and industry partnership records. Factors are classified into bibliometric measures (citation counts, journal quartile rankings, field-weighted citation effect), cooperation indicators (co-author quantity, international

cooperation ratio, network centrality), funding attributes (grant magnitude, funding source type, industry sponsorship percentage), and innovation metrics (patent citations, technological disclosures, industry involvement).

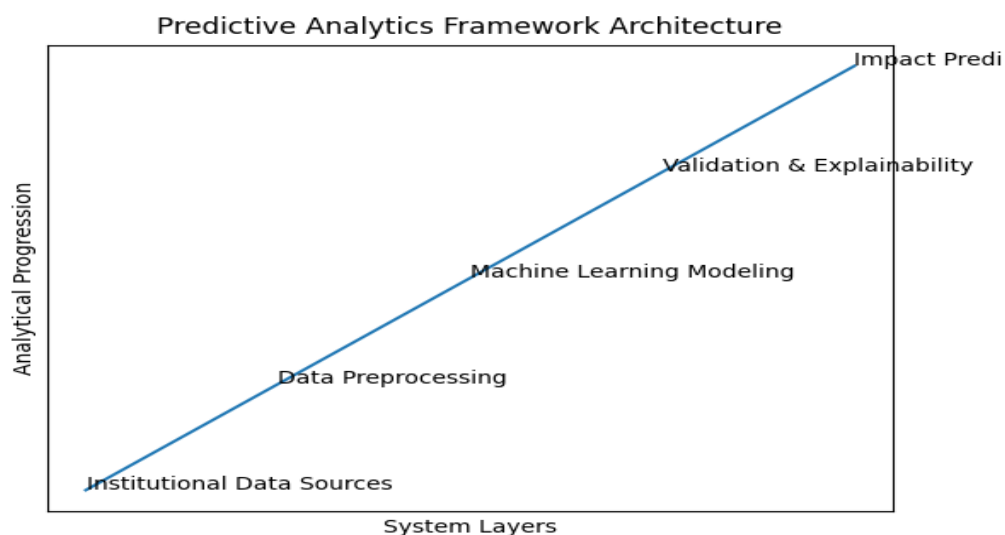
5. Data Preprocessing:

Missing values are addressed by statistical imputation methods. Continuous variables undergo normalization by Min-Max scaling. Outliers are identified through interquartile range analysis. Feature engineering produces composite indices for creativity and cooperation, while correlation-based feature selection mitigates multicollinearity.

6. Predictive Modeling:

Four supervised learning algorithms have been built. Logistic Regression functions as a benchmark owing to its interpretability. Support Vector Machines proficiently manage high-dimensional feature spaces. Random Forest models non-linear interactions and offers feature importance rankings. Gradient Boosting Machines enhance predicting accuracy via sequential learning. Research outputs are categorized into four distinct classifications: Significant Scholarly Impact and Elevated IP Potential; Significant Impact and Diminished IP Potential; Moderate Effect; Minimal Effect.

7. Framework Architecture:



The framework consists of five layers: Institutional Data Sources, Data Preprocessing, Machine Learning Modeling, Validation and Explainability, and Impact Prediction and Decision Support. The system produces early-warning insights, enabling proactive administrative action and strategic research planning.

8. Model Validation and Results:

Stratified k-fold cross-validation ($k=10$) guarantees equitable class representation. Evaluation conducted using Accuracy, Precision, Recall, F1-Score, ROC-AUC, and Confusion Matrix analysis. Comparative analysis demonstrates that ensemble models surpass linear models in predicting accuracy. The amalgamation of financial and innovation factors significantly enhances classification efficacy — the level of collaboration significantly affects the likelihood of intellectual property outcomes. Random Forest attained a ROC-AUC score of 0.89, while Gradient Boosting demonstrated enhanced memory in identifying high-IP potential outputs.

9. Practical Implications:

A Predictive Analytics Framework for Identifying High-Impact Research and Strengthening Intellectual Property Outcomes

The method enables strategic allocation of resources, prioritization of technology transfer, optimization of research portfolios, and enhancement of institutional rankings. Technology Transfer Offices may use predictive evaluations to prioritize patent applications and commercialization efforts.

10. Limitations and Future Scope:

Constraints include dependence on data integrity, disciplinary diversity, limited access to proprietary patent databases, and the potential for algorithmic bias. Continuous data audits and transparency initiatives are necessary. Future investigations may include deep learning models, real-time dashboards, altmetrics incorporation, cross-institutional benchmarking, and AI-driven grant selection systems.

11. Conclusion:

This paper introduces a scalable predictive analytics approach that incorporates bibliometric, cooperation, financial, and innovation characteristics to anticipate research impact and intellectual property results. By transitioning from retrospective assessment to proactive forecasting, institutions may fortify innovation ecosystems, optimize funding distribution, and improve commercialization outcomes in competitive global contexts.

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Cross-Sector Analysis of Hidden and Invisible Forces Influencing Price Fluctuations in the Indian Market

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Abstract:

Price fluctuations in the Indian market are traditionally explained through observable economic variables such as demand-supply imbalances, cost-push pressures, monetary policy adjustments, and global commodity shocks. However, current market trends show that most price volatility arises from hidden and structurally embedded forces outside the scope of macroeconomic measurement. This research takes a cross-sectoral analysis of invisible forces driving price fluctuations across agriculture, manufacturing, and services over 2024-2025. Strict volatility (SV) models by sector find that invisible or non-traditional drivers account for 18 percent of agriculture, 21 percent in manufacturing, and 27 percent of price volatility in services.

Keywords: *Price Volatility, Invisible Market Forces, Cross-Sector Analysis, Behavioral Economics, Algorithmic Pricing, Information Asymmetry, Indian Market*

1. Introduction:

Price stability is very important for the economy of India. Prices of important goods and services often change, affecting consumers, businesses, and the country's overall economy. During 2015 to 2024, India faced various challenges, such as large changes in commodity prices, import problems, the rise of e-commerce, and changes in consumer behavior. Although inflation rates and interest rates give a partial indication of price variability, they fail to capture instances of large price variability. Hidden factors including households' future price expectations, speculation, unequal access to information, algorithmic pricing, and behavioral biases play essential roles in understanding price systems.

2. Problem Statement:

Prices in the market keep changing because of clear reasons like demand and supply, government policies, and economic conditions. But there are also hidden factors that affect prices — some people buy goods only to sell them later at a higher price, businesses may store products to sell in the future, and companies may sometimes work together to influence prices. These factors affect different sectors like agriculture, manufacturing, and services, but their impact is not the same everywhere.

3. Objectives:

1. To understand the hidden factors that affect price changes in the Indian market.
2. To study how these hidden factors influence different sectors like agriculture, manufacturing, and services.
3. To compare how these factors affect each sector and find out which sectors are more affected.
4. To understand why normal economic reasons are sometimes not enough to explain price changes.
5. To give useful suggestions for policymakers, businesses, and investors.

4. Literature Review:

Marshall (1890) — Classical Theory: Price of a product is decided when demand and supply become equal in the market (equilibrium point). However, in developing countries like India, markets do not always work this way due to incomplete information and government interference.

Friedman (1968) — Monetarist Theory: Inflation happens when there is too much cash in the economy. However, sometimes prices in certain sectors change quickly even when money supply does not change much, showing other aspects such as retail market conditions also affect prices.

Keynes (1936) — Role of Expectations: Economic decisions are often made based on what people expect will happen in the future. Prices may shift not only because of current demand and supply but also because of future expectations, causing prices to move up and down quickly.

Kahneman & Tversky (1979) — Behavioural Economics: Perfectly logical decisions are not always made by people; choices are often determined by following what others are doing or being too confident about expectations, causing prices to change in unpredictable ways.

Akerlof (1970) — Information Asymmetry: Markets can become one-sided when more information is held by one person than another. In India, this often happens in farm product markets where middlemen know more about prices than farmers, leading to inefficient markets.

5. Research Methodology:

This research studies the market through a structural decomposition approach combined with quantitative volatility assessment, using existing theories, ideas and information from different sources instead of surveys or experiments. Three sectors of the Indian economy — agriculture, manufacturing, and services — were chosen to show the variety of the Indian market over 2015-2024. Information was taken from academic study materials, government reports, policy documents, economic surveys, industry studies, and banking reports.

6. Analysis and Discussion:

6.1 Sector Insight

Most respondents who answered the survey are young, with about 80.5% between 20 and 25 years old. Many are students or work in consumer-related areas, providing insights into how young, internet-savvy consumers perceive price changes.

6.2 Frequency and Visible Factors

Many respondents notice price changes every week or month and believe government decisions, supply problems, and weather conditions can affect prices — showing they understand the connection between price changes and real economic or environmental situations.

6.3 Hidden Market Influences

Many respondents believe hoarding of goods, speculation, and market expectations can change prices. Some also feel digital platforms and automatic pricing systems influence prices, showing awareness that prices depend on more than demand and supply.

6.4 Perception of Artificial and Informal Practices

More than half believe informal or black market practices affect prices, with some feeling prices are sometimes increased purposely. Overall, many feel price changes are not always clear or fair, and that different sectors and market practices influence consumer-experienced prices.

7. Sector-wise Volatility Findings:

Sector	Invisible Driver Contribution	Key Hidden Factors
Agriculture	18%	Hoarding, speculation, weather expectation effects
Manufacturing	21%	Inter-sectoral spillover, cost-expectation pricing
Services	27%	Fast information transmission, wage-expectation spiral, algorithmic/digital pricing

The services sector is most exposed due to fast transmission of information, a wage-expectation spiral, and algorithmic pricing on digital platforms. Speculative futures trading makes spot prices unrelated to local demand-supply conditions, while logistical bottlenecks, regional segmentation of markets, and asymmetric access to information further compound localized price distortions.

8. Conclusion:

This study finds that common economic factors like demand and supply alone cannot fully explain why prices keep changing in India. Other factors such as people's expectations about the future, lack of proper information, and uncertainty in government pricing policy also play an important role. These factors do not affect every sector in the same way — the service sector is affected the most because information spreads quickly there and many businesses use digital or automatic pricing systems. The study suggests that keeping prices stable in India cannot depend only on traditional economic factors — it is also important to consider people's behaviour, access to information, and the role of technology when making policies or business decisions about prices.

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Role of Intellectual Property Rights in Promoting International Trade: A Comparative Policy Analysis of Indian Laws and Global IPR Frameworks

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Abstract:

Intellectual property rights (IPR) play a crucial role in shaping international trade patterns in today's knowledge-driven global economy. By safeguarding innovation, creativity, and brand identification, IPR systems promote R&D, facilitate technology transfer, and increase global competitiveness. By comparing the intellectual property rules of India with those of other countries, this study investigates how IPR might improve international trade. The study uses secondary data from government records, policy documents, and academic publications to evaluate how effectively India's national policies mimic international intellectual benchmarks. Findings show India's laws are generally well-aligned with TRIPS standards, though obstacles like lack of awareness among small enterprises, procedural delays, and enforcement constraints continue to hinder effective application.

Keywords: *Intellectual Property Rights, International Trade, TRIPS Agreement, Competitiveness, Awareness*

1. Introduction:

In today's global economy, intellectual capital has become a vital force behind international trade and economic growth. Strong intellectual property protection promotes fair competition, innovation, and the sharing of information in international markets, enabling countries to engage in international trade networks and draw in foreign investment. India's intellectual property system has significantly improved since joining the World Trade Organization in 1995 and signing the TRIPS Agreement, leading to increased foreign investment, better modernization ecosystems, and stronger integration with the global economy.

2. Review of Literature:

Maskus and Ridley (2021): Trade agreements containing stronger intellectual property provisions significantly increase exports in IP-intensive industries such as pharmaceuticals and medical technologies.

Howard, Maskus, and Ridley (2023): Agreements with stronger IP standards lead to increased patent applications among member countries, indicating greater innovation and technological collaboration.

Islam, Kaplan, and Wirtz (2019): Stronger intellectual property protection may lead to increased pharmaceutical prices affecting affordability, though effects vary depending on economic conditions and policy environments.

Jee, Hotte, Ring, and Burrell (2024): IPR can support innovation and technology transfer in climate technology when combined with supportive institutional policies and financial mechanisms.

3. Objectives:

1. To examine the concept of Intellectual Property Rights in international trade.
2. To analyse intellectual property laws in India.
3. To study the global intellectual property framework governing international trade.
4. To compare Indian intellectual property laws with international intellectual property standards.
5. To evaluate the effect of IPR protection on trade competitiveness and economic development.

4. Research Methodology:

The present study is both analytical and descriptive in nature, examining the legal framework governing intellectual property protection in India and around the world. Secondary data was gathered from official publications, policy papers, government reports, and publications from international organizations like the WTO and WIPO. A comparative policy analysis methodology examines parallels and differences between India's intellectual property laws and international standards established by TRIPS.

5. Categories of Intellectual Property Rights:

Patents offer protection for novel ideas and technological advancements by giving inventors temporary exclusive rights. Trademarks protect brand names, logos, symbols, and distinguishing indicators. Copyrights protect books, movies, music, software, and other literary and creative works. Industrial designs protect ornamental or aesthetic features of items. Geographical indications designate goods that come from a specific area with attributes.

6. Role of IPR in Promoting International Trade:

6.1 Encouraging Innovation and Research

Intellectual property protection plays a critical role in motivating businesses and individuals to invest in innovation by offering legal security for ideas and creative works.

6.2 Enabling Technology Transfer

Strong IPR protection enables businesses to retain ownership rights while licensing their patents and confidential knowledge to international partners, promoting international cooperation and the global dissemination of new breakthroughs.

6.3 Helping Foreign Direct Investment

Nations with robust intellectual property protection laws typically attract higher levels of foreign direct investment, as multinational firms favor doing business in countries that provide legal protection for their intellectual property.

6.4 Attracting Export Competitiveness

Businesses can differentiate their products in foreign markets through registered patents, trademarks, and copyrights — strong brand protection increases consumer identification and trust.

6.5 Supporting Information-Based Industries

IPR protection is crucial for knowledge-based sectors including biotechnology, pharmaceuticals, information technology, and entertainment, promoting the expansion of high-value industries.

7. Indian Intellectual Property Framework:

India has established a comprehensive legislative framework including the Patents Act of 1970, the Trade Marks Act of 1999, the Copyright Act of 1957, and the Geographical Indications of Goods (Registration and Protection) Act of 1999. Over the years, India has made several changes to these laws to comply with WTO TRIPS obligations. Government initiatives such as the National IPR Policy 2016 have played an important role in promoting innovation, enhancing awareness, and strengthening the overall intellectual property ecosystem.

8. Comparative Analysis: Indian and Global IPR Frameworks:

India's intellectual property rules show a high degree of conformity with the WTO TRIPS Agreement. Through legislative measures, the Indian legal system ensures complete protection for patents, trademarks, and copyrights, with dispute resolution procedures to defend the interests of innovators. However, MSMEs' limited knowledge of intellectual property rights limits their capacity to take full advantage of these safeguards, and procedural delays in patent examination and registration processes pose additional challenges.

9. Findings:

- Robust intellectual property protection is essential to promoting innovation and technological advancement by giving artists and innovators legal protections.
- Effective IPR regimes help increase international trade prospects and draw in foreign direct investment.
- India's intellectual property laws are generally in line with international TRIPS norms.
- Despite this congruence, enforcement restrictions, procedural delays, and stakeholder ignorance lower the overall efficacy of the program.
- Strengthening institutional capacity, improving enforcement mechanisms, and promoting greater awareness about IPR are essential steps to enhance global trade competitiveness.

10. Suggestions:

- MSMEs and startups need to be made more aware of intellectual property rights, as many small businesses remain unaware of the benefits and protections offered.
- Regulatory procedures need to be improved to effectively address issues like piracy and counterfeiting.
- Simplifying the procedure of registering intellectual property may motivate more companies and inventors to formally protect their ideas, trademarks, and creative works.
- Government funding for research and development can promote innovation and technological advancement.

11. Conclusion:

In the context of a knowledge-driven and innovation-based economy, intellectual property rights have become an essential feature of the contemporary global economic system. By offering creators, innovators, and companies legal protection, IPR fosters innovation, eases technology transfer, and advances fair competition in global marketplaces. India has made great strides toward creating an all-encompassing intellectual property law that complies with international norms, but continued efforts in enforcement capacity and stakeholder awareness are essential to enhance India's trade competitiveness and maintain economic growth.

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A Study on Use and Awareness of Crowdfunding and P2P Lending Platforms Among College Students for Start-Ups

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Abstract:

Many college students want to start their businesses but struggle to get money from traditional sources like banks due to lack of income or credit history. New ways of getting money have become popular — crowdfunding and peer-to-peer lending platforms — which let people raise money online from private lenders without going through financial institutions. This study looks at how aware college students are of these platforms, their perception, and willingness to use them for start-up financing, based on 105 college student responses. We found that most students know a bit about crowdfunding but don't know much about peer-to-peer lending, with fraud risk and trust as main concerns.

Keywords: *Crowdfunding, P2P Lending, College Students, Start-up Financing, Fintech, Awareness*

1. Introduction:

In recent years digital financial technologies have changed the way people get money to start their own businesses. Normally banks take time to give loans and want a lot of information and security, making it hard for college students with business ideas to get loans. Crowdfunding is when a lot of people give money to help someone start a business. Peer-to-peer lending is when someone borrows money from another person, not a bank. These ways are good for students who have ideas but not a lot of money.

2. Review of Literature:

Belleflamme, Lambert & Schwienbacher (2014): People use crowdfunding not only to get money but also to see if their business idea is good and to get customers, helping investors and business owners understand each other.

Lin, Prabhala & Viswanathan (2013): Investors look at a person's credit history and other information when making decisions on P2P lending platforms. Platform design can help reduce the risk of borrowers not paying back the money.

Freedman & Jin (2017): Crowdfunding and P2P lending have grown but face challenges like fraud and borrowers not paying back. Regulations and good management of platforms are necessary for success.

Agrawal, Catalini & Goldfarb (2015): Digital platforms can help businesses get money from people over the world, not just locally. Having an online presence and social connections help a business succeed with crowdfunding.

3. Objectives:

1. To see how much students in college know about crowdfunding platforms and what they think about them.

2. To see how much students know about P2P lending platforms.
3. To see if students are willing to use these platforms to get money for their businesses.
4. To find out what students are worried about regarding these platforms.
5. To see if students think these platforms are better than getting loans from banks.

4. Hypothesis:

H0: Students in college do not really prefer crowdfunding and P2P lending platforms as ways to get money to start their businesses.

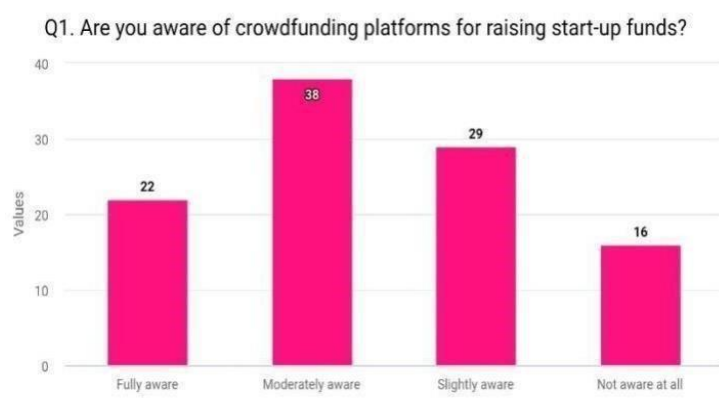
H1: Students in college really prefer crowdfunding and P2P lending platforms as ways to get money to start their businesses.

5. Methodology:

We used a questionnaire made with Google Forms to get answers from 105 students in college, with choice questions to see what students know and think about crowdfunding and P2P lending platforms. We used tools and graphs to look at the answers and information from books, reports and websites to help understand the results.

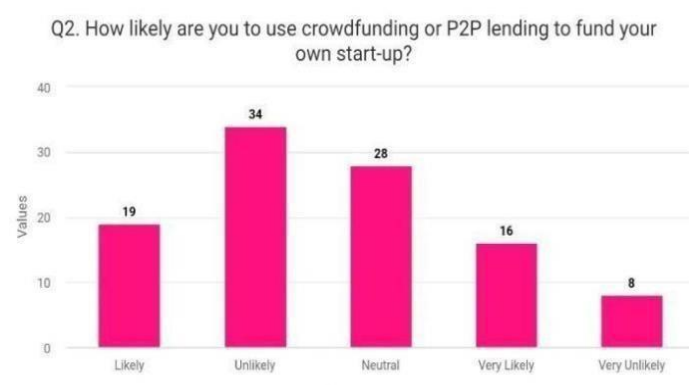
6. Data Analysis and Interpretation:

6.1 Awareness of Crowdfunding Platforms



Interpretation: A majority of students are either moderately or slightly aware of crowdfunding platforms, while a smaller proportion is fully aware. This suggests crowdfunding has gained visibility among college students, possibly due to social media exposure and popular start-up stories.

6.2 Awareness of P2P Lending Platforms

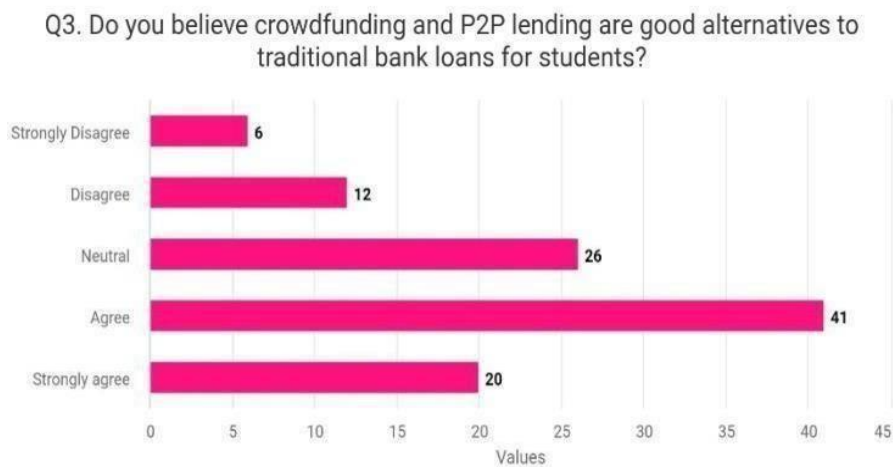


Interpretation: Awareness of P2P lending platforms is lower compared to crowdfunding. Most respondents fall into the categories of slight or moderate awareness, while a considerable number remain

A Study on Use and Awareness of Crowdfunding and P2P Lending Platforms Among College Students for Start-Ups

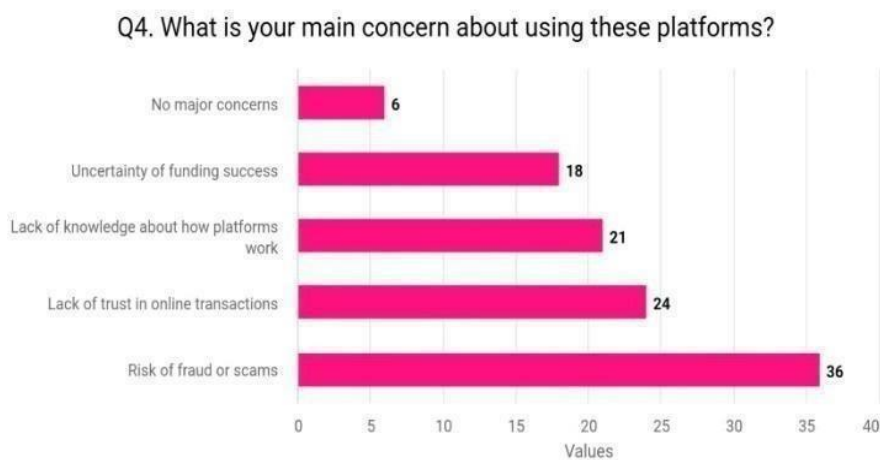
completely unaware, likely because P2P lending involves borrowing and repayment obligations making it less widely discussed.

6.3 Willingness to Use These Platforms



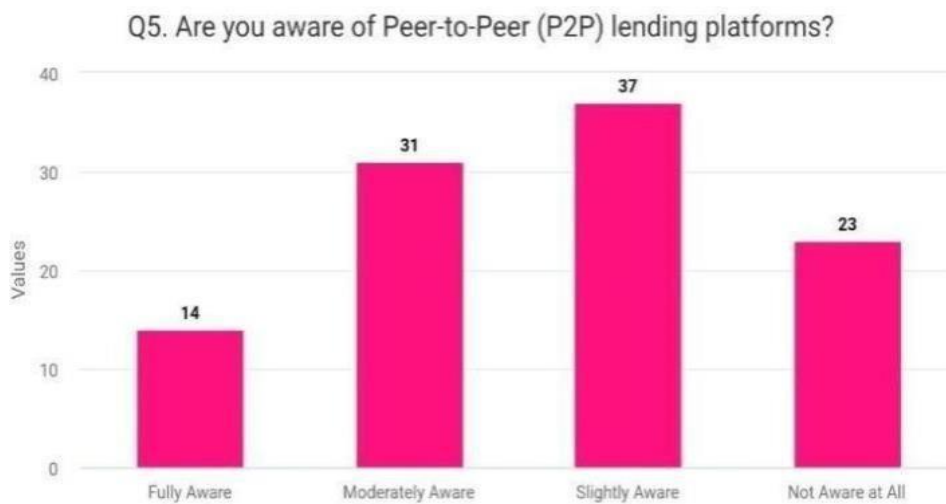
Interpretation: Responses show mixed willingness to use these platforms — while some students expressed high likelihood of using them, a significant portion remained neutral or unlikely, reflecting hesitation despite awareness.

6.4 Platforms as Alternative to Bank Loans



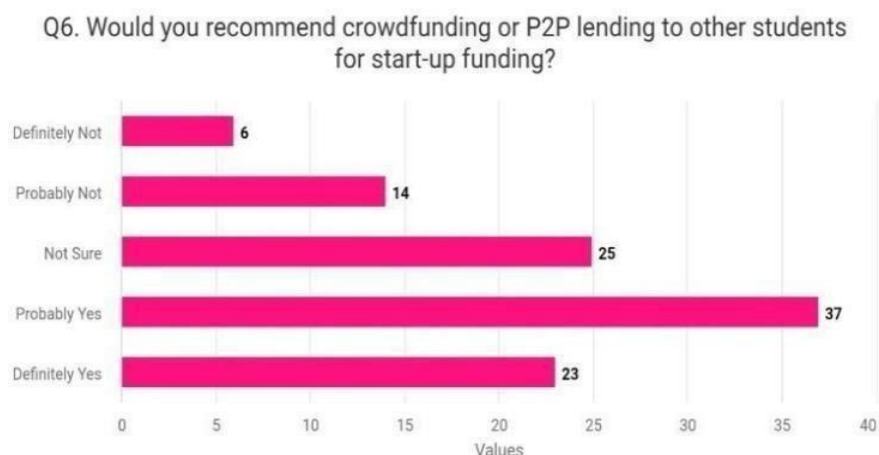
Interpretation: Most students either agreed or strongly agreed that crowdfunding and P2P lending can serve as alternatives to bank loans. However, a notable portion remained neutral, indicating uncertainty about their practical reliability.

6.5 Major Concerns About These Platforms



Interpretation: The dominant concern among students is the risk of fraud or scams, followed by lack of trust in online transactions and insufficient knowledge about platform functioning, indicating perceived risk is a major barrier to adoption.

6.6 Likelihood of Recommending to Others



Interpretation: A large proportion of respondents indicated they would probably or definitely recommend these platforms to others, while some remained unsure, demonstrating cautious optimism.

7. Hypothesis Testing:

The survey showed that most respondents know about crowdfunding and P2P lending platforms and think these platforms are good — better than getting bank loans. They would tell their friends about these platforms. So we reject the first hypothesis (H0) that students do not prefer crowdfunding and P2P lending platforms. We accept the alternative hypothesis (H1) — college students really like crowdfunding and P2P lending platforms and think they can use these platforms to get money to start their businesses. However, students are still worried about the risks and want to know if they can trust these platforms.

8. Conclusion:

This study found that many students know about crowdfunding platforms, but not as many students know about P2P lending platforms. The study also found that students think crowdfunding and P2P lending platforms are alternatives to getting a loan from a bank, since banks want a lot of information and money. Even though students are worried about fraud and trust, many said they would use crowdfunding and P2P

A Study on Use and Awareness of Crowdfunding and P2P Lending Platforms Among College Students for Start-Ups

lending platforms and recommend them to friends. If we can teach students more about money and how to use these platforms, and ensure they are safe and trustworthy, then crowdfunding and P2P lending platforms could be really helpful for students who want to start their businesses, which can help the economy grow.

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Developing Transparent and Ethical Neural Architectures for Secure and Trustworthy Artificial Intelligence

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Abstract:

Artificial Intelligence systems based on deep neural networks are increasingly used in critical domains such as healthcare, finance, governance, and autonomous systems. Although these models achieve high predictive accuracy, their decision-making processes often remain opaque, raising concerns about transparency, fairness, privacy, and security. This paper explores the development of transparent and ethical neural architectures to support secure and trustworthy artificial intelligence, examining core dimensions of trustworthiness including explainability, fairness, robustness, privacy preservation, and accountability. A conceptual framework is proposed integrating transparency, ethical optimization, privacy protection, and security mechanisms into a unified neural architecture.

Keywords: *Trustworthy Artificial Intelligence, Transparent Neural Architectures, Ethical AI, Explainable AI (XAI), Deep Neural Networks, Fairness and Bias Mitigation, Privacy-Preserving Machine Learning*

1. Introduction:

Artificial Intelligence has revolutionized modern technological systems, especially in terms of developing advanced decision-making systems in healthcare, finance, education, and governance. However, deep learning systems have exhibited a major drawback, being a 'black box' system where it is difficult to interpret the decision-making process, which may result in biased decisions, security risks, and lack of trust. Over the past few years, significant emphasis has been placed on developing trustworthy AI systems that include transparency, fairness, security, privacy, and accountability.

2. Literature Review:

Explainable Artificial Intelligence (XAI) has become a prominent research direction to increase transparency, with techniques like feature attribution, saliency, and attention visualization enabling identification of features used for predictions. However, most of these approaches are not intrinsically interpretable but rather provide secondary forms of interpretability. Differential Privacy, proposed by Cynthia Dwork, offers a mathematical framework to ensure individual data points are not identifiable based on model outputs. Adversarial training has been proposed to increase robustness against adversarial attacks, while Federated Learning frameworks enable decentralized training without compromising local data storage.

3. Research Gap:

Despite recent advances in transparent AI systems, privacy-preserving machine learning models, and fair machine learning models, the majority of existing research focuses on individual dimensions rather than integrating all elements into a single model. Most existing explainable AI systems only provide post-hoc explanations rather than developing inherently interpretable neural networks. This study aims to bridge this gap by developing a comprehensive AI architecture that integrates transparency, fairness, privacy preservation, and security into a single model.

4. Core Dimensions of Trustworthy AI:

4.1 Explainability

Ensures decisions and actions of an AI system are interpretable and understandable by humans, achieved using transparent neural modules, attention-based models, and rule extraction models.

4.2 Fairness and Bias Mitigation

Fairness-aware learning ensures fairness by adding constraints to the learning algorithm to guarantee equal treatment of all people in a given demographic category.

4.3 Robustness and Security

Adversarial learning and validation help ensure AI systems are robust against attacks where slight changes in input cause incorrect predictions.

4.4 Privacy Preservation

Differential Privacy, secure multi-party computation, and Federated Learning ensure that the data of individuals handled by AI systems is not compromised.

4.5 Accountability

Logging mechanisms in AI systems provide ways to monitor and correct the system if needed, ensuring traceability in decision-making processes.

5. Architectural Approaches for Transparency:

- **Interpretable Neural Modules:** Inherently interpretable models with modules that facilitate easier understanding of internal operations, reducing the need for post-hoc explanation methods.
- **Attention-Based Mechanisms:** Weigh the importance of features in input data, enabling identification of the most important features in the decision-making process for applications like medical diagnosis and financial analysis.
- **Hybrid Neuro-Symbolic Models:** Combine deep learning and rule-based symbolic reasoning to facilitate improved explainability.

6. Ethical Design Strategies:

- **Bias-Aware Learning:** Bias detection and mitigation integrated within data preprocessing and model training stages.
- **Fairness-Constrained Optimization:** Fairness constraints directly integrated within the loss function to optimize performance and fairness simultaneously.
- **Human-in-the-Loop Systems:** Human involvement in critical decision-making processes, with experts reviewing AI output in fields like healthcare and law.

7. Proposed Conceptual Framework:

The proposed work includes a four-layer conceptual framework:

Transparency Layer: Includes interpretability, attention, and visualization elements to achieve transparency in AI decisions.

Ethical Optimization Layer: Includes fairness and bias elements to achieve fairness in AI decisions.

Privacy Protection Layer: Includes differential privacy and federated learning elements to achieve privacy.

Security Layer: Includes adversarial training elements to achieve robust training of the AI system.

8. Research Methodology:

The research adopts a conceptual and theoretical research methodology based on literature studies related to existing research in explainable AI, ethical machine learning, privacy-preserving methods, and adversarial robustness. The methodology includes identification of major challenges in existing AI systems and comparative studies of existing techniques.

9. Performance Evaluation Metrics:

Transparency can be measured based on explainability metrics, fairness can be measured based on statistical parity metrics and bias detection metrics, privacy protection can be measured based on differential privacy metrics, and security performance can be measured based on adversarial robustness testing metrics.

10. Limitations and Future Work:

This paper is more conceptual in nature, devoid of empirical implementation or experimental validation on real-world datasets. Incorporating multiple trustworthiness mechanisms within a single architecture may increase computational complexity. Future studies need to focus on implementing the suggested framework in real-world AI systems and evaluating performance on benchmark datasets.

11. Conclusion:

This research paper introduced a conceptual framework for the development of transparent and ethical neural architectures that can be utilized for the promotion of trustworthy AI technologies. The proposed framework includes transparency, fairness, privacy, and security into the fundamental structure of AI systems. The development of trustworthy AI systems will be essential for the promotion of the benefits of artificial intelligence technologies and the minimization of risks and ethical concerns posed by these technologies.

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Rethinking Peer Review: Principles, Contemporary Challenges, and a Conceptual Framework for Best Practice

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Abstract:

This paper is a critique of modern peer review practices and an effort at developing a systematic plan to enhance its efficacy and reliability. Peer review serves as a quality and intellectual filter and gatekeeper, but the system has been continuously criticised for prejudice, unjust evaluation, evaluator fatigue, and minimal transparency between 2020 and 2025, as submissions worldwide have increased dramatically. The article summarises emerging empirical evidence and proposes a reasonable conceptualisation of interrelation between ethical principles, practice-oriented operations, technological facilitation and measurable outcomes, arguing that reform should be both systemic and coordinated rather than piecemeal.

Keywords: *Peer Review, Academic Publishing, Transparency, Bias, Reviewer Fatigue, Conceptual Framework, Scholarly Communication*

1. Introduction:

1.1 The Centrality of Peer Review

The knowledge production of academia is centred on peer review, which examines studies for methodological rigor, originality, theoretical value, and compliance with ethics. Journals, funding, promotion, and validity of published results are accepted based on review outcomes. Besides quality control, peer review is employed in the development of disciplinary standards and expectations, dictating consistency and credibility to academic publishing.

1.2 Historical Context and Evolution

Formal peer review evolved over centuries. Up to the twentieth century, editorial judgment and informal scholarly consultation were the main approaches to quality evaluation. With the growth of academic publishing, peer review became institutionalized, and different models were adopted (single-blind, double-blind, open review) based on conceptions regarding fairness and responsibility. The shift to digital manuscripts radically changed the situation, with submission numbers increasing exponentially.

1.3 Reason to Redesign Existing Practices

Contemporary peer review experiences great structural pressure. The accelerated increase in research output between 2020-2025 has further increased the shortage of reviewers and long turnaround times. Reviewer fatigue is widespread, with concerns and prejudices regarding gender, geography, and institutional prestige persisting even in double-blind systems.

2. Basic Tenets of Peer Review:

2.1 Epistemological Function

Peer review establishes the limits of viable knowledge related to disciplines. The reviewers evaluate theoretical coherence, methodological soundness, evidentiary adequacy, and analytical rigor, helping exclude poor arguments and unsubstantiated claims.

2.2 Gatekeeping and Quality Assurance

Peer review is the major quality assurance measure used in academic publications. Reviewers influence editorial decisions while providing revision suggestions that enhance arguments, methodology, and clarity in subsequent drafts.

2.3 Meritocracy and Academic Legitimacy

Ideally, peer review works through meritocracy, evaluating manuscripts not based on author identity, reputation, or institutional affiliation. Double-blind review systems were specifically designed to safeguard this principle.

3. Classical Review Models:

3.1 Single-Blind Review

The reviewer is aware of the author, but the latter is not aware of the former. This model assumes contextual knowledge of the author's background is beneficial in evaluative judgment, but critics note institutional prestige or interpersonal relationships might subtly influence judgment.

3.2 Double-Blind Review

Both author and reviewer remain unknown to each other, indicating greater institutional devotion to procedural fairness and merit-based judgment. This model is widely supported in social sciences and humanities for equity reasons.

3.3 Open Review

Achieved through disclosure of reviewer identity, dissemination of review reports alongside articles, or solicitation of community commentary. Bases its theory on accountability and open scholarship, though it can suppress open criticism in hierarchical academic cultures.

4. Literature Review — Bias and Inequality:

Aczél et al. (2025): Institutional affiliation and geographic location can have subtle but significant effects on review outcomes — manuscripts from prestigious universities occasionally receive better reviews than methodologically comparable articles.

Zhang and Chen (2025): The rate of increased submissions worldwide has exceeded the rate of increase in active reviewer population, leading to declining review invitation acceptance.

Kumar and Patel (2024): Editors are dependent on a comparatively small circle of seasoned reviewers, leading to concentration and burnout among reviewers.

Lee and Ahmad (2024): Transparency through open peer review enables more author-reviewer communication and produces more public trust, but also generates new conflicts as junior scholars might lack confidence to criticise senior scholars publicly.

5. Current Problems in Peer Review:

The peer review system today functions under conditions it was not initially set to maintain. Electronic platforms have made manuscript submissions faster, participation more global, and interdisciplinary

Rethinking Peer Review: Principles, Contemporary Challenges, and a Conceptual Framework for Best Practice

studies more difficult to match with appropriate reviewers. The lack of reviewers aggravates this, with a disproportionately small group of senior scholars taking up most review invitations. Legacies of structural bias still influence peer review results, disfavours underrepresented scholars from certain regions, career stages, and institutional backgrounds.

6. Innovations and Reform Strategies:

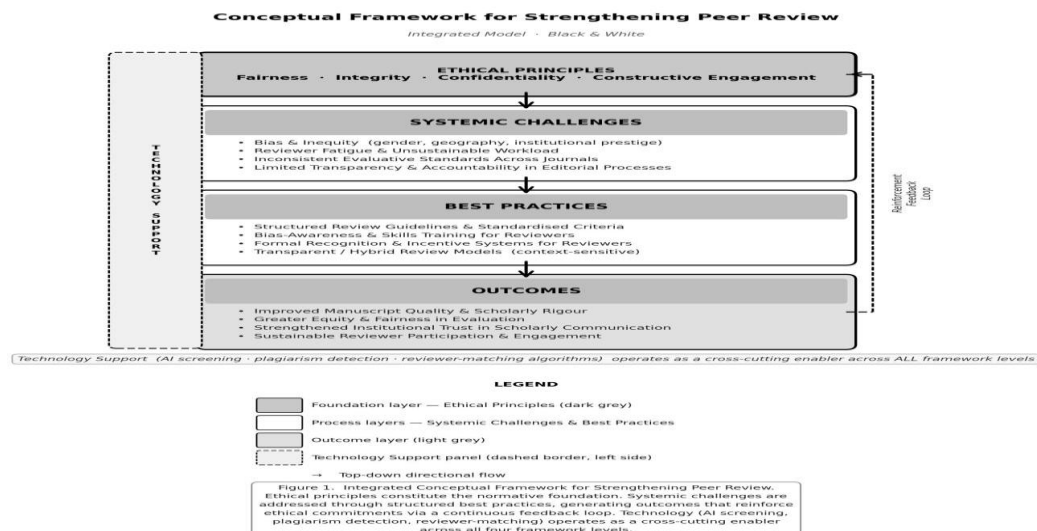
6.1 Open and Post-Publication Review

Journals like eLife and platforms like F1000Research have shown open review can provide rigorous and constructive feedback, though fear of intimidation for early-career reviewers persists. Post-publication review platforms like PubPeer enable continuous quality enhancement as evidence changes.

6.2 Portable Review and AI-Assisted Evaluation

Services like Review Commons produce systematised review reports that can be carried through journal submissions to preserve reviewer effort. AI tools like stat checkers and natural language processing systems assist in technical verification and administrative efficiency but lack contextual judgment for substantive scholarly evaluation.

7. Conceptual Framework for Strengthening Peer Review:



This article presents a comprehensive conceptual framework structured around four mutually supportive elements: ethical principles (fairness, confidentiality, integrity), systemic challenges (bias, burnout, inconsistency, transparency), best practices (rigorously reviewed guidelines, bias-awareness training, formal recognition systems), and measurable outcomes (manuscript quality, equity, institutional trust). Technological support serves as a cross-cutting enabler at all levels, with AI tools complementing human judgment but never substituting it.

8. Discussion and Implications:

Literature does not depict peer review as essentially faulty but as a system whose structures are straining under pressure. Bias appears contextual rather than general, differing according to disciplines, geographic area, and institutional culture. The most obvious aspect of the synthesis is that individual reforms are insufficient and even counterproductive — sustainable improvement requires congruent policy, technology, training, and professional norm alignment.

9. Conclusion:

Peer review must not and cannot be discarded — it remains the main way through which the academic community sifts knowledge claims and certifies research before it enters the permanent academic register.

However, peer review operates under conditions that have substantially revolutionised since the system's establishment. Replacement is not the way, but reinforcement and reform. The four pillars of sustainable improvement are ethical clarity, balanced technological integration, systematically implemented best practices, and real institutional acknowledgement of reviewer work. When collective and deliberate reform is carried out and supported by institutions, peer review can remain believable, fair, and sound-minded — up to the standards of twenty-first century scholarship.

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A Study on Impact of Social Media Finance Influencers on Investment Decision in Koparkhairane

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ABSTRACT:

The growing presence of financial content creators on social media platforms has significantly changed how retail investors access investment-related information. Influencers simplify complex financial concepts, provide stock recommendations, and share personal investment strategies, thereby shaping investor perceptions and behavior. This study examines the extent to which social media influencers affect investment decisions, particularly among young retail investors. Primary data was collected using a structured questionnaire distributed through Google Forms. The findings indicate that social media influencers have a noticeable impact on short-term investment behavior, especially among younger individuals. However, investors with higher financial awareness tend to cross-check information before making financial commitments. The study highlights the importance of financial literacy and responsible content creation in the digital investment ecosystem.

KEY WORDS: *Social Media Influencers, Retail Investors, Investment Decisions, Financial Literacy, Investor Behavior, Stock Recommendations, Behavioral Finance*

1. Introduction:

The digital revolution has significantly reshaped the way financial information is created, shared, and consumed. While investment decisions were once guided by financial advisors, brokerage reports, newspapers, and television channels, social media platforms such as YouTube, Instagram, and Twitter have now become influential sources of investment-related content.

Financial influencers, commonly known as "finfluencers," produce simplified and engaging content on stock markets, cryptocurrencies, mutual funds, and personal finance. Their relatable communication style has attracted a large base of young and first-time investors. By breaking down complex financial concepts into accessible formats, they have increased financial participation and awareness.

However, this growing digital influence has also raised important concerns. The absence of regulatory oversight, the possibility of misinformation, and the amplification of herd behavior through viral content may distort rational investment judgment. The persuasive nature of social media engagement often creates perceived credibility that may not always reflect expertise.

This study seeks to examine the extent to which social media finance influencers impact investor decision-making, evaluate the level of trust placed in them, and determine whether investors independently verify information before making investment decisions.

2. Literature Review:

To understand the impact of social media finance influencers on investment decisions, it is important to consider key theories of investor behavior.

In *Thinking, Fast and Slow*, Daniel Kahneman explains that individuals often rely on quick and emotional thinking rather than careful analysis, which can lead to impulsive decisions. This is relevant in social media investing, where trends and viral advice spread rapidly.

Robert J. Shiller, in *Irrational Exuberance*, highlights how media-driven optimism can influence markets and encourage herd behavior. Social media platforms can amplify such effects among retail investors.

In contrast, Benjamin Graham's *The Intelligent Investor* promotes disciplined investing based on research and long-term value.

While these theories explain investor psychology, limited research specifically studies the role of finance influencers. This study aims to examine how such influencers affect investment decisions.

3. Scope of the Study:

The present study focuses on understanding how social media influencers affect the investment decisions of young investors. It primarily covers individuals between the age group of 18 to 26 years who are active on social media platforms and participate in investment activities such as stocks, mutual funds, or other financial instruments.

The study examines the level of trust in influencers, the extent to which their opinions impact decision-making, and whether investors verify information before investing. The geographical scope is limited to the selected respondents who participated in the survey. The findings are therefore specific to this sample and may not represent the entire investor population.

4. Relevance of the Study:

In recent years, social media has become a major source of financial information. Many young individuals rely on influencers for stock tips, investment ideas, and market updates. This shift makes it important to understand whether such influence leads to informed decisions or impulsive investments.

The study is relevant because it highlights the behavioral impact of digital content on financial choices. It also emphasizes the importance of financial literacy and responsible communication in the online investment space.

The findings may be useful for investors, educators, and policymakers in understanding emerging investment trends among youth. Furthermore, the rapid growth of platforms such as **Instagram**, **YouTube**, and **Twitter** have made financial content more accessible than ever before. While this accessibility increases awareness about investment opportunities, it also raises concerns regarding misinformation, biased opinions, and unverified advice.

Therefore, examining the credibility and influence of finance influencers becomes crucial in today's digital era.

As more young investors enter the financial markets without formal training, analyzing their dependence on online influencers can help identify gaps in knowledge and areas where regulatory guidelines may be necessary. Hence, the study holds practical importance in promoting responsible investing and strengthening financial decision-making among the youth.

5. Objectives of the Study:

A Study on Impact of Social Media Finance Influencers on Investment Decision in Koparkhairane

The primary objectives of this research are:

1. To examine the extent to which social media finance influencers impact investment decision-making among retail investors.
2. To evaluate the relationship between influencer credibility and the level of trust placed by investors.
3. To analyse whether exposure to influencer-driven financial content affects investors' risk perception and risk-taking behavior.
4. To assess the degree to which investors independently verify information obtained from social media before making investment decisions.

6. Hypothesis of the Study:

To examine the relationship between social media finance influencers and investment decision-making, the following hypotheses are proposed:

HYPOTHESIS 1

Ho₁ (Null Hypothesis): Social media finance influencers do not have a significant impact on the investment decisions of retail investors.

H₁₁ (Alternative Hypothesis): Social media finance influencers have a significant impact on the investment decisions of retail investors.

HYPOTHESIS 2

Ho₂ (Null Hypothesis): There is no significant relationship between the level of financial literacy and dependence on social media influencer advice for investment decisions.

H₁₂ (Alternative Hypothesis): There is a significant relationship between the level of financial literacy and dependence on social media influencer advice for investment decisions.

7. Research Methodology:

7.1 Research Design

The study adopts a survey-based descriptive research design. It aims to understand how social media influencers impact investment decisions. No experimental method was used, as the focus is on analyzing opinions and existing behavior of investors. The analysis is based on primary data collected from 116 respondents through a structured questionnaire.

Research Design	Survey-based descriptive research design.
Types of data collected	Primary data – Structured questionnaire (Google Forms) Secondary data – books, journals, and online sources.
Sample Size	116 respondents
Tools for Analysis	Chi-Square Test, Percentage Analysis, Charts

7.2 Nature of Data

Both primary and secondary data were used.

Primary data was collected through a structured questionnaire using Google Forms. The responses were mainly quantitative, which helped in easy analysis.

Secondary data was obtained from books, journals, and reliable online sources to support the theoretical framework of the study.

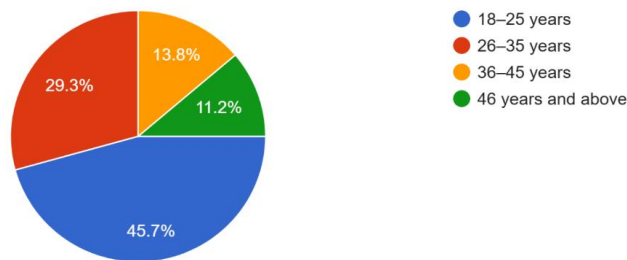
7.3 Class of Respondents

The respondents include young investors between the age group of 18 to 26 years who are active on social media and involved in investment activities.

8. Data Analysis and Findings:

8.1 Age Group of Respondents

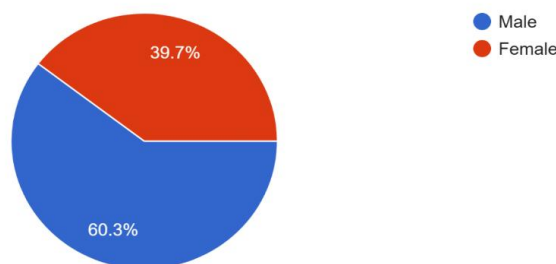
Age group
116 responses



INTERPRETATION: - The majority of respondents (45.7%) fall in the 18–25 years age group, reflecting a primarily young and digitally active sample. Respondents aged 26–35 years form a significant portion (29.3%), followed by 36–45 years (13.8%) and 46 years and above (11.2%). This age group is most likely to engage with social media platforms and follow finance influencers for investment guidance.

8.2 Gender of Respondents

Gender
116 responses



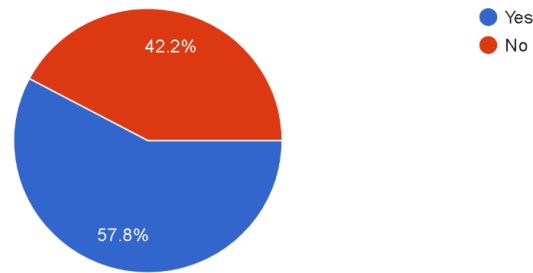
INTERPRETATION: - Out of 116 respondents, 60.3% are male and 39.7% are female. This shows that more males participated in the survey compared to females. While the responses include views from both genders, the findings slightly reflect male perspectives due to their higher participation. However, female respondents also form a significant portion, helping provide a fairly balanced view of investor behaviour.

8.3 Influence of Finance Influencers on Investment Decisions

A Study on Impact of Social Media Finance Influencers on Investment Decision in Koparkhairane

Have you ever invested in any financial product after watching or following a finance influencer?

116 responses

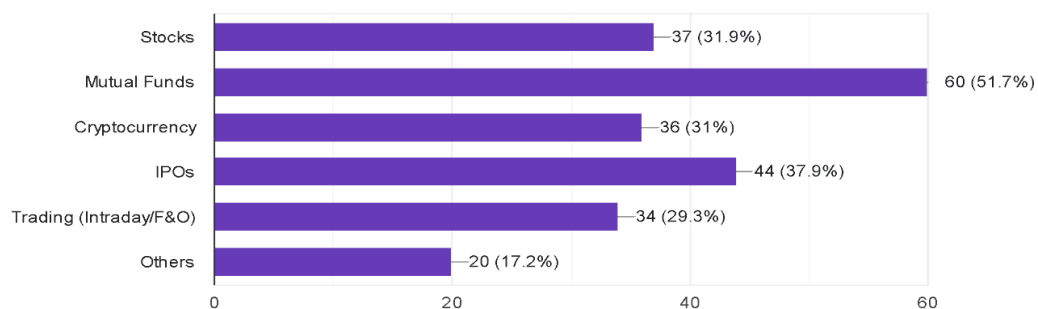


INTERPRETATION: The chart shows that out of 116 respondents, 57.8% have invested in a financial product after following a finance influencer, while 42.2% have not. This indicates that social media influencers have a noticeable impact on actual investment decisions, though a significant number of people still rely on their own research or other sources before investing.

8.4 Types of Investments Made Based on Influencer Advice

What type of investment did you make based on influencer advice?

116 responses

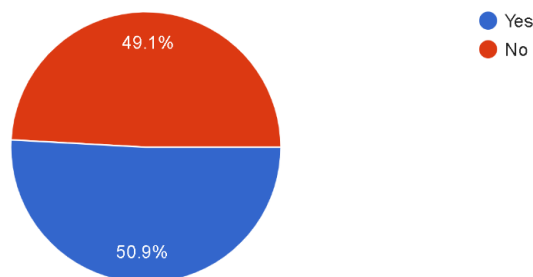


INTERPRETATION: The chart shows the types of investments people made based on influencer advice. The highest preference was **Mutual Funds (51.7%)**, followed by **IPOs (37.9%)**, **Stocks (31.9%)**, and **Cryptocurrency (31%)**. **Trading such as Intraday/F&O (29.3%)** was also common, while **Others (17.2%)** had the lowest share. This indicates that most respondents preferred comparatively safer or popular options like mutual funds, but a notable number were also influenced toward riskier choices such as crypto and trading.

8.5 Losses Incurred Due to Influencer-Driven Investments

Have you ever faced losses due to investments influenced by finance influencers?

116 responses

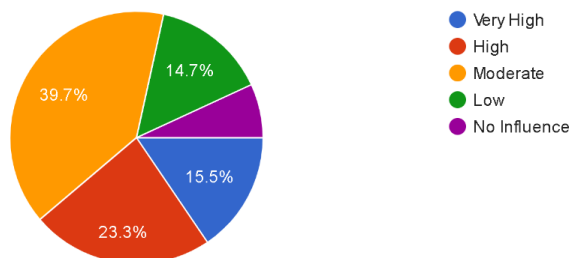


INTERPRETATION: The chart shows that **50.9%** of respondents have faced losses due to investments influenced by finance influencers, while **49.1%** have not. This indicates that almost half of the participants experienced negative financial outcomes, suggesting that influencer-based investment decisions can carry significant risk if not supported by proper research.

8.6 Nature of Investment Decisions After Following Finance Influencers

To what extent do finance influencers affect your investment decisions?

116 responses

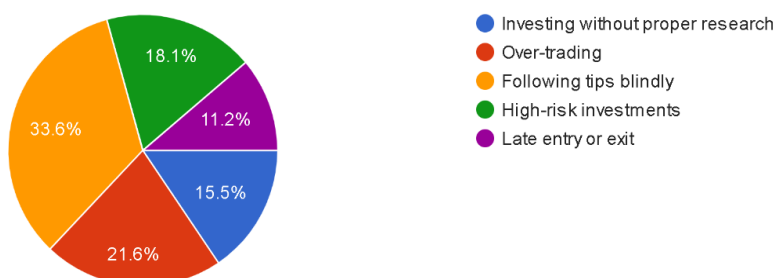


INTERPRETATION: The chart shows that most respondents feel finance influencers affect their investment decisions at a **moderate level (39.7%)**. About **23.3%** experience a high influence and **15.5%** a very high influence, while **14.7%** report low influence and only a few say there is no influence. This indicates that influencers impact decisions, but mainly to a balanced or moderate extent rather than complete dependence.

8.7 Nature of Investment Decisions After Following Finance Influencers

What kind of decision did you make after following finance influencers?

116 responses



INTERPRETATION: The chart shows that **33.6%** of respondents followed tips blindly after watching finance influencers, which is the highest portion. **21.6%** did over-trading, **18.1%** chose high-risk investments, **15.5%** invested without proper research, and **11.2%** faced late entry or exit. This indicates that many people made quick or risky decisions influenced by social media content.

9. Testing of Hypothesis:

9.1 Introduction to Chi-Square Test

Chi-Square testing is used in this analysis to examine the relationship between two categorical variables. It is a non-parametric statistical method that helps determine whether a significant association exists between them. In this study, the Chi-Square test is applied to analyze whether social media finance influencers have a significant impact on the investment decisions of respondents in Koparkhairane.

The level of significance used for testing the hypotheses is **5% (0.05 level of significance)**

9.2 Hypothesis 1

Impact of Following Finance Influencers on Investment Decisions

Null Hypothesis (H_{01}): There is no significant relationship between following finance influencers and making investment decisions based on their advice.

Alternative Hypothesis (H_{11}): There is a significant relationship between following finance influencers and making investment decisions.

Contingency Table

Following Influencers	Invested (Yes)	Invested (No)	Total
Yes	48	19	67
No	19	30	49
Total	67	49	116

Chi-Square Calculation Results

Calculated Chi-Square Value (χ^2) = 11.22

Degrees of Freedom (df) = 1

Critical Value at 5% significance level = 3.84

p-value = 0.0008

Decision Rule

Since:

χ^2 calculated (11.22) > χ^2 critical (3.84)

p-value (0.0008) < 0.05

Therefore, the null hypothesis is rejected.

Interpretation

There is a statistically significant relationship between following finance influencers and making investment decisions based on their advice. This indicates that social media finance influencers have a measurable impact on the investment behavior of respondents.

9.3 Hypothesis 2

Occupation and Type of Decision Taken After Following Influencers

Null Hypothesis (H_{02}): There is no significant relationship between occupation and the type of investment decision taken after following finance influencers.

Alternative Hypothesis (H_{12}): There is a significant relationship between occupation and the type of investment decision taken.

Chi-Square Calculation Results

Calculated Chi-Square Value (χ^2) = 20.49

Degrees of Freedom (df) = 16

Critical Value at 5% significance level $\approx$ 26.30

p-value = 0.1987

Decision Rule

Since:

χ^2 calculated (20.49) < χ^2 critical (26.30)

p-value (0.1987) > 0.05

Therefore, the null hypothesis is not rejected.

Interpretation

There is no statistically significant relationship between occupation and the type of decision taken after following finance influencers. This suggests that the influence of finance influencers affects individuals across different occupational categories in a similar manner.

9.4 Overall Conclusion from Chi-Square Analysis

The Chi-Square analysis confirms that:

- Social media finance influencers significantly impact investment decisions.
- However, occupation does not significantly determine the type of investment decision taken after following influencers.

This strengthens the primary objective of the study by providing statistical evidence that finance influencers play an important role in shaping investment behavior among respondents in Koparkhairane.

10. Findings of the Study:

- Out of 116 respondents, more than half actively follow finance influencers on social media platforms.
- A considerable number of respondents have made investment decisions based on influencer advice.
- Most participants reported a moderate level of influence, while some experienced high influence.
- Mutual funds and IPOs were the most preferred investment options influenced by social media content.
- Nearly half of the respondents faced financial losses after acting on influencer recommendations.
- Several respondents admitted to making impulsive, high-risk, or poorly researched investment decisions.

- Statistical analysis confirmed a significant relationship between following influencers and making investment decisions.
- The level of influence remains similar across different occupational groups.

11. Conclusion:

The findings of this study clearly indicate that social media finance influencers play a meaningful role in shaping the investment behaviour of individuals, especially young and digitally active investors. A significant number of respondents admitted that they follow finance influencers regularly, and many have made investment decisions based on the information, tips, or opinions shared by them. This shows that social media has gradually become an informal yet powerful source of financial guidance.

However, the influence is not entirely one-sided or blindly accepted. While several respondents expressed moderate to high levels of trust in finance influencers, a noticeable portion also acknowledged experiencing losses or making rushed decisions after following online advice. This suggests that although influencers can motivate people to participate in financial markets, they may also encourage risk-taking without thorough personal research.

The study further highlights an important behavioural aspect: popularity indicators such as followers, likes, and online engagement often affect the perceived credibility of influencers. This reflects how digital reputation can sometimes replace professional qualifications in the minds of investors. At the same time, awareness regarding sponsored or paid content is growing, indicating that investors are slowly becoming more cautious and informed.

Overall, the research concludes that finance influencers significantly impact investment decisions, but their influence operates within a mix of trust, emotion, social validation, and limited financial literacy. Social media has expanded access to financial knowledge, yet it also brings challenges related to misinformation and herd behaviour. Therefore, while finance influencers can serve as a starting point for learning, individual research, critical thinking, and disciplined decision-making remain essential for responsible investing.

12. Suggestion:

- Investors should avoid making decisions solely based on influencer recommendations and must verify information through reliable financial sources before investing.
- Individuals should develop basic financial literacy to better understand risk, returns, and market fluctuations before committing funds.
- Social media finance influencers should clearly disclose sponsored content, paid promotions, and potential conflicts of interest to maintain transparency.
- Regulatory authorities should continue strengthening guidelines for digital financial content to reduce the spread of misleading or exaggerated claims.
- Educational institutions and financial organizations should conduct awareness programs to promote responsible investing among young investors.
- Investors should focus on long-term financial planning rather than short-term trends or viral market tips.
- Social media platforms can introduce clearer risk disclaimers and monitoring mechanisms for investment-related content.
- Retail investors should practice disciplined investing by conducting personal research and consulting qualified financial advisors when necessary.

13. Limitations of the Study:

- **Limited Sample Representation:** Although the study collected over 100 responses, the sample may not fully represent the views of all investors across different regions and income groups.
- **Convenience Sampling:** The data was collected through online forms and voluntary participation, which may lead to sampling bias.
- **Response Bias:** Some participants may have answered in a socially desirable manner or based on perception rather than actual investment behaviour. There is also a possibility that respondents overstated or understated the influence of finance influencers.
- **Time Constraint:** The study was conducted within a limited academic timeframe, which restricted deeper longitudinal analysis.
- **Focus on Retail Investors:** The research mainly reflects the behaviour of retail and young investors and does not include institutional or professional investors.

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Higher Education Institutions as Hubs for Innovation and Intellectual Property Rights: Promoting Quality Research and Publication Practices

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Abstract:

Higher Education Institutions (HEIs) are increasingly being repositioned from centres of instruction to engines of knowledge creation, innovation, and intellectual property generation. This shift is being driven in India by the National Education Policy (NEP) 2020, the establishment of the Anusandhan National Research Foundation (ANRF), and the proliferation of Institution's Innovation Councils (IICs) and Research and Development Cells (RDCs) across universities and colleges. This paper examines the evolving role of HEIs as hubs of innovation and Intellectual Property Rights (IPR), and critically discusses the practices required to promote quality research and ethical publication among faculty and students. Using a conceptual and descriptive approach grounded in current policy documents and secondary literature, the paper identifies the institutional mechanisms that support innovation (IPR cells, incubation centres, industry linkages), the persistent challenges to research quality (predatory publishing, plagiarism, lack of researcher training, inadequate incentive structures), and proposes a framework of institutional strategies to strengthen a genuine culture of research integrity, innovation, and IPR generation. The paper concludes that sustained investment in researcher capacity building, robust IPR support systems, and ethical publication practices is essential if HEIs are to fulfil their emerging mandate as national engines of innovation.

Keywords: Higher Education Institutions, Innovation, Intellectual Property Rights, Research Quality, Publication Ethics, NEP 2020

1. Introduction:

The role of Higher Education Institutions (HEIs) has undergone a fundamental transformation over the past two decades. Traditionally viewed as centres for imparting instruction and producing graduates, HEIs across the world, and increasingly in India, are now expected to function simultaneously as generators of new knowledge, incubators of innovation, and custodians of intellectual property. This transition reflects a broader global recognition that sustainable economic growth is knowledge-driven, and that universities occupy a unique position at the intersection of teaching, research, and societal application.

In India, this shift has been substantially reinforced by the National Education Policy (NEP) 2020, which envisions a research ecosystem built around the Anusandhan National Research Foundation (ANRF), established under the 2023 Act with a hybrid funding model aimed at strengthening research and development across more than 2,500 HEIs and 300 universities. The policy further encourages industry-academia linkages, the creation of start-up ecosystems within campuses, and the establishment of Innovation Cells to promote entrepreneurial thinking among students and faculty alike. As of recent reporting, over sixteen thousand Institution's Innovation Councils (IICs) have been established across Indian states and union territories, positioning HEIs as catalysts in the country's broader innovation journey.

Alongside this innovation agenda, however, lies a persistent and often under-addressed concern: the quality of research output and the integrity of publication practices within HEIs. This paper argues that innovation and IPR generation on the one hand, and quality research and ethical publication on the other, are two sides of the same coin — an HEI cannot credibly claim to be an innovation hub unless the research underpinning that innovation is methodologically sound, original, and ethically disseminated.

2. Objectives of the Study:

1. To examine the evolving role of Higher Education Institutions as hubs of innovation and intellectual property generation in the Indian context.

2. To identify the institutional mechanisms (IPR cells, IICs, RDCs, incubation centres) that support innovation within HEIs.
3. To analyse the key challenges affecting research quality and publication integrity in HEIs.
4. To propose a framework of strategies through which HEIs can strengthen research quality, publication ethics, and IPR outcomes simultaneously.

3. Research Methodology:

This paper adopts a conceptual and descriptive research design, drawing upon an analysis of national education policy documents, regulatory guidelines issued by bodies such as the University Grants Commission (UGC), and secondary literature on innovation ecosystems and research integrity in higher education. As a conceptual paper, it does not employ primary data collection; rather, it synthesises existing institutional frameworks and scholarly discussion to build an integrated understanding of how innovation, IPR, and research quality intersect within the Indian HEI landscape.

4. Higher Education Institutions as Hubs of Innovation:

The repositioning of HEIs as innovation hubs rests on several interlinked institutional mechanisms that have gained momentum in the post-NEP 2020 period.

4.1 Institution's Innovation Councils (IICs) and Incubation Centres

IICs, promoted under the Ministry of Education's Innovation Cell, are tasked with creating a culture of innovation among students and faculty through mentorship programmes, hackathons, and idea-generation challenges. Many HEIs have complemented these councils with incubation centres that provide seed funding, mentorship, and infrastructural support to student and faculty start-ups, thereby shortening the distance between an idea and a marketable innovation.

4.2 Research and Development Cells (RDCs)

The UGC's guidelines for establishing Research and Development Cells within HEIs are intended to foster multidisciplinary research, streamline the process of securing research grants, and provide institutional support for faculty seeking to publish in reputed journals or file patents. RDCs are increasingly expected to work in tandem with IPR cells to ensure that promising research outcomes are evaluated for their commercial and protectable potential before publication.

4.3 Industry-Academia Linkages

Collaborative arrangements with industry allow HEIs to align research with real-world problems, access funding beyond government grants, and create pathways for technology transfer. Such linkages also expose faculty and students to the commercial dimension of research, reinforcing the importance of protecting intellectual property before public disclosure.

5. Intellectual Property Rights: An Institutional Imperative:

Intellectual Property Rights — encompassing patents, copyrights, trademarks, designs, and geographical indications — are the legal instruments through which the outputs of research and innovation are protected and monetised. For HEIs, an effective IPR ecosystem typically comprises three elements:

- Awareness generation, so that faculty and students understand what is protectable and why early disclosure through publication can jeopardise patentability.
- Institutional IPR cells or policies that guide inventors through the filing process, often in collaboration with patent attorneys or national bodies such as the Intellectual Property India office.
- Incentive and ownership frameworks that clarify revenue-sharing arrangements between the institution and the inventor, essential for sustaining faculty motivation to disclose and pursue IP protection rather than rushing to publish.

A recurring institutional challenge is the sequencing conflict between academic publication and patent filing: research disclosed in a journal or conference before a patent application is filed may lose novelty and become unpatentable in most jurisdictions. HEIs that succeed in building strong IPR outcomes are typically those that have

Higher Education Institutions as Hubs for Innovation and Intellectual Property Rights: Promoting Quality Research and Publication Practices

institutionalised a pre-publication IP screening step, so that researchers routinely consult the IPR cell before submitting manuscripts describing potentially patentable work.

6. Challenges to Quality Research and Publication Practices:

Despite growing policy support for innovation, several structural challenges continue to undermine the quality and integrity of research output in Indian HEIs:

- Publish-or-perish incentive structures: Promotion and appraisal systems that reward the sheer number of publications, rather than their quality or originality, incentivise faculty to publish in low-quality or predatory journals.
- Predatory and low-quality journals: The proliferation of journals with weak or non-existent peer review continues to erode the credibility of published research, despite regulatory efforts such as the UGC-CARE list of approved journals.
- Inadequate research methodology training: Many early-career faculty and doctoral scholars receive limited formal training in research design, statistical analysis, and academic writing, leading to methodologically weak studies.
- Plagiarism and authorship malpractice: Weak enforcement of plagiarism detection and inconsistent norms around authorship and acknowledgement continue to compromise research integrity.
- Limited awareness of IPR: Many faculty members, particularly in non-STEM disciplines, remain unaware of what forms of their work may be protectable, resulting in missed opportunities for patenting or copyright registration.
- Fragmented institutional support: Smaller colleges and regional universities often lack dedicated IPR cells, RDCs, or trained research mentors, creating a wide disparity between well-resourced and under-resourced institutions.

7. Strategies for Promoting Innovation, IPR, and Research Quality:

Based on the discussion above, the following institutional strategies are proposed:

- Realign appraisal systems to reward quality indicators such as citation impact, journal reputation, and patent filings, rather than sheer publication count.
- Institutionalise mandatory pre-publication IPR screening for research with commercial or applied potential, coordinated between the RDC and the IPR cell.
- Conduct regular faculty and scholar training in research methodology, academic writing, research ethics, and the use of plagiarism-detection tools.
- Strengthen mentorship pipelines that pair early-career researchers with experienced faculty and, where possible, industry mentors.
- Establish or strengthen dedicated IPR cells even in resource-constrained institutions, potentially through cluster or consortium arrangements with better-resourced universities.
- Encourage publication in UGC-CARE listed and other recognised, peer-reviewed journals, supported by institutional subscriptions and library access to authenticate journal quality.
- Embed innovation and IPR literacy into the curriculum itself, so that awareness begins at the undergraduate level rather than only at the doctoral stage.

8. Conclusion:

Higher Education Institutions in India stand at a pivotal juncture. Policy instruments such as NEP 2020 and the Anusandhan National Research Foundation have created an enabling environment for HEIs to function as genuine hubs of innovation and intellectual property generation. Realising this potential, however, depends critically on the parallel strengthening of research quality and publication integrity. Innovation built on weak or unethical research is unsustainable, just as strong research that is never protected, translated, or applied fails to achieve its developmental promise. HEIs that succeed in integrating research capacity building, ethical publication practices, and robust IPR support into a single coherent institutional strategy will be best positioned to fulfil their emerging role as engines of national innovation.

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Transforming Academic Research and Scientific Publishing through Artificial Intelligence: A Lifecycle Governance Framework for Innovation, Quality, and Impact

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Abstract:

Artificial intelligence (AI), particularly large language models (LLMs) and machine learning (ML) systems, has become an integral component of modern research and scholarly communication, supporting literature discovery, evidence synthesis, data analysis, and manuscript preparation. However, its rapid adoption also introduces risks such as fabricated citations, confidentiality breaches in peer review, and the expansion of organized scientific fraud through paper mills. This paper synthesizes empirical evidence on AI adoption in research workflows together with policies from publishers, editors, and funding agencies to develop a lifecycle framework for responsible AI integration in research and publishing. The study proposes a stage-based framework incorporating human accountability, disclosure practices, open science reproducibility, and risk management aligned with the NIST AI Risk Management Framework (AI RMF), enabling responsible AI-driven innovation while safeguarding scholarly integrity.

Keywords: *Digital Research Infrastructure, Research Methodology, Interdisciplinary Research, Academic Integrity, Research Innovation, Publication Impact*

1. Introduction:

Academic research is increasingly influenced by rapid growth in digital knowledge production, data-driven methodologies, and rising expectations for transparency and reproducibility. Artificial intelligence (AI), particularly large language models (LLMs) and machine learning systems, now supports literature exploration, data processing, code generation, and manuscript drafting, significantly accelerating research workflows and reducing time spent on labor-intensive tasks.

However, integrating AI into scholarly ecosystems introduces new challenges. Research publishing functions as a trust infrastructure requiring accuracy, accountability, and reproducibility. The International Committee of Medical Journal Editors requires disclosure of AI usage and clarifies that AI systems cannot be listed as authors because accountability must remain human. Major publishers restrict AI use in peer review to protect confidentiality and reliability, while the National Institutes of Health prohibits reviewers from using generative AI tools during grant evaluation due to confidentiality concerns.

This study proposes a lifecycle-based framework for AI-enabled research and scholarly publishing. The framework integrates AI tools across research stages while embedding governance controls, transparency requirements, and quality checkpoints to ensure innovation while preserving methodological rigor and long-term trust in scholarly communication.

2. Empirical and Policy Landscape:

2.1 Productivity and Research Output

Empirical studies indicate that AI adoption is reshaping scientific productivity. Analyses of large language model (LLM) usage in academic writing show increased publication output among researchers using AI-supported workflows. These tools accelerate tasks such as literature scanning, summarization, and code generation, allowing researchers to focus on conceptual and analytical work. AI also improves efficiency in evidence synthesis — machine-learning–assisted screening tools used in systematic reviews significantly reduce workload and screening time while maintaining acceptable accuracy levels. However, increased productivity does not necessarily imply improved research quality. Without effective governance, AI may enable the large-scale production of unreliable or poorly validated research outputs.

2.2 Emerging Policy Responses

Publishers and research organizations are introducing policies governing the use of generative AI in scholarly publishing. Common principles include prohibiting AI systems from being listed as authors, requiring disclosure of AI use in manuscript preparation, and restricting reviewers from uploading manuscripts into AI tools. Elsevier requires disclosure of AI usage and does not permit AI systems to be listed as authors. Springer Nature restricts uploading confidential manuscripts into generative AI platforms during peer review. Professional societies such as the American Chemical Society emphasize transparency and warn against confidentiality breaches in peer review.

2.3 Emerging Integrity Risks

The integration of AI into research workflows introduces several risks. One major issue is citation hallucination, where AI systems generate plausible but nonexistent references, highlighting the need for systematic verification. Another concern is the rise of paper mills, which produce fraudulent research papers using automated writing tools and exploit publication incentives. These challenges show that AI integration must be addressed as a governance and research quality issue across the entire research lifecycle.

3. Research Design and Methods:

This study adopts a framework development approach based on evidence synthesis rather than primary empirical experimentation. It reviews empirical studies on AI adoption in academic workflows, synthesizes policy guidelines from publishers, editorial bodies, and funding agencies, and incorporates open science standards that promote transparency and reproducibility, including FAIR data principles and structured reporting guidelines. The governance architecture aligns with the NIST AI Risk Management Framework, which emphasizes lifecycle risk management through the functions GOVERN, MAP, MEASURE, and MANAGE, and is informed by UNESCO's ethical principles promoting transparency, fairness, and human oversight.

4. Conceptual Architecture of the Proposed Framework:

The proposed framework conceptualizes AI-enabled research as an integrated system consisting of three interacting layers:

1. Research Lifecycle Layer: Represents the operational stages of the research process, including problem formulation, literature review, study design, data collection, analysis, interpretation, manuscript preparation, peer review, and dissemination.

2. Governance and Integrity Layer: Embeds ethical oversight, transparency requirements, confidentiality protections, and accountability mechanisms aligned with global AI governance principles and the NIST AI Risk Management Framework.

3. Evaluation and Impact Layer: Measures research performance through indicators of innovation, methodological rigor, reproducibility, and real-world impact.

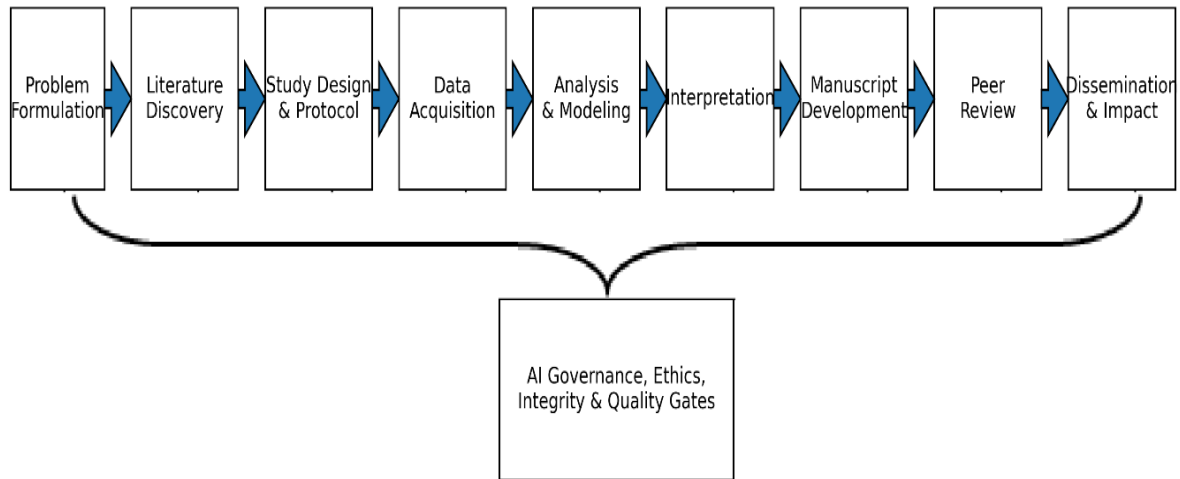
Framework Diagram:

Figure 1: Lifecycle Governance Framework for AI-Integrated Research and Publishing

Together these layers create a structured environment where AI tools improve efficiency while maintaining transparency and scholarly accountability.

5. Lifecycle Framework for AI-Integrated Research and Publishing:

The framework treats research as a continuous lifecycle with quality assurance checkpoints at each stage:

Stage 1: Problem Formulation: AI tools can support early literature exploration and concept mapping. However, researchers must validate AI-generated summaries and document search strategies to avoid bias or incomplete evidence selection.

Stage 2: Literature Review: AI-assisted screening systems can significantly accelerate systematic review processes. To maintain transparency, review procedures should follow structured reporting frameworks such as PRISMA guidelines.

Stage 3: Research Design: AI tools can assist in drafting protocols and identifying potential methodological weaknesses. Nevertheless, final design decisions must remain under human control, and preregistration should be used to enhance transparency.

Stage 4: Data Management: AI-driven research increases the importance of structured data governance. FAIR principles emphasize the importance of accessible and reusable datasets that support reproducibility and collaborative research.

Stage 5: Analysis and Modeling: AI can assist with coding, statistical modeling, and anomaly detection. However, all outputs must be verified through reproducible scripts, documented workflows, and independent validation processes.

Stage 6: Interpretation: Researchers must critically evaluate results and avoid over-reliance on AI-generated interpretations. Explicit uncertainty reporting and robustness analysis help prevent misinterpretation.

Stage 7: Manuscript Preparation: AI may support language editing and formatting tasks. Nevertheless, authors must disclose AI usage and remain responsible for all claims, citations, and conclusions.

Stage 8: Peer Review: Confidentiality requirements restrict the use of generative AI tools during peer review processes. Reviewers must ensure that manuscripts are not uploaded into external AI systems.

Stage 9: Dissemination and Post-Publication Monitoring: AI tools can assist with metadata generation, indexing, and tracking research impact. However, ongoing monitoring is necessary to detect potential integrity violations such as fraudulent publications.

6. Governance, Ethics, and Research Integrity Safeguards:

Effective implementation of AI-enabled research requires strong governance mechanisms. Four safeguard categories are essential:

Accountability: Authorship responsibility must remain human, as emphasized by international editorial standards.

Transparency: Researchers must disclose AI usage in manuscript preparation and analysis workflows.

Confidentiality: Peer review processes must protect intellectual property and unpublished data, limiting AI tool usage during evaluation.

Fraud Prevention: Integrity monitoring systems should detect suspicious publication patterns, paper-mill activities, and manipulation attempts.

Together these safeguards ensure that AI adoption strengthens rather than weakens scholarly trust.

7. Measuring Quality and Impact in an AI-Mediated Research Ecosystem:

Traditional research evaluation often focuses heavily on publication counts or journal impact factors. However, in AI-accelerated research environments, such metrics may fail to capture research quality. Alternative indicators should include:

Innovation Indicators: Time required for protocol development and data analysis; diversity of referenced literature and interdisciplinary collaboration.

Quality Indicators: Compliance with reporting guidelines such as PRISMA and STROBE; availability of open data and reproducible code.

Impact Indicators: Citation metrics and research dissemination; reuse of datasets and software tools; policy or practical implementation of research findings.

Additionally, reference verification systems should be implemented to detect fabricated citations and ensure bibliographic accuracy.

8. Comparison with Existing Research Workflow Models:

Traditional research workflow models typically focus on data management or open science practices. While initiatives such as FAIR principles promote data accessibility, they do not directly address AI integration within research processes. The framework proposed in this study extends these models by integrating AI capabilities, governance safeguards, and lifecycle quality checkpoints within a unified structure. It explicitly addresses emerging challenges such as automated manuscript generation, citation hallucination, and AI-driven integrity threats.

9. Discussion: Implementation Guidance and Practical Controls:

To operationalize the framework, institutions and publishers can implement several practical controls:

- Standardized AI-use disclosure templates within manuscripts.
- Confidentiality policies restricting AI usage in peer review.
- Checklists for reproducibility, reporting guidelines, and data sharing.
- Verification procedures for AI-generated code and analyses.
- Integrity monitoring systems for detecting suspicious publication patterns.

These mechanisms ensure that AI functions as a research assistant rather than an unverified authority.

10. Conclusion:

Artificial intelligence is transforming academic research by accelerating literature discovery, data analysis, and manuscript preparation. Empirical studies show significant productivity gains and improved workflow efficiency. However, AI-assisted research also introduces risks such as fabricated citations, confidentiality breaches, and large-scale research fraud. This paper proposes a lifecycle governance framework integrating AI tools across the research process while embedding quality assurance and ethical safeguards. By aligning AI-enabled research with governance standards such as the NIST AI Risk Management Framework and international editorial policies, the framework supports innovation while protecting scholarly integrity. Future research should evaluate this framework across disciplines and institutional contexts to better understand sustainable AI integration in global research ecosystems.

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Cognitive Shadows in the Market: Behavioural Biases in Equity Research and Their Mitigation Through Artificial Intelligence-Assisted Tools

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Abstract:

Equity research is susceptible to systematic cognitive distortions — behavioural biases — that can impair analyst forecast accuracy and, in aggregate, market efficiency. This paper synthesises the behavioural-finance literature on five biases relevant to sell-side equity research — overconfidence, anchoring, herding, confirmation bias, and optimism bias — and develops a conceptual and methodological framework for studying their joint effect on forecast accuracy and for mitigating them through AI-assisted analytical tools. The empirical illustration reports a calibrated Monte Carlo simulation (412 synthetic analyst profiles) built to match effect-size ranges reported in the cited literature. In the simulated illustration, a standardised multiple regression explains 47.7% of variance ($Adjusted R^2 = .471$), with overconfidence ($\beta = .346$) and optimism bias ($\beta = .219$) as the strongest predictors. The paper proposes an AI-Augmented Debiasing Framework (AADF) — a four-layer intervention model spanning individual analyst workflow, team review process, brokerage-level governance, and regulatory oversight.

Keywords: *Behavioural Bias, Equity Research, Analyst Forecasts, Overconfidence, Anchoring, Herding, Confirmation Bias, Optimism Bias, Artificial Intelligence, Debiasing, Monte Carlo Simulation, NSE, India*

1. Introduction:

Sell-side equity research sits at the centre of price discovery in modern capital markets. Analyst earnings forecasts, target prices, and buy/sell recommendations are consumed by institutional and retail investors alike, and are widely used as a benchmark against which market expectations are calibrated. Yet a substantial and long-standing body of behavioural finance research shows that analyst forecasts are not simply noisy but unbiased estimates of future fundamentals — they are systematically distorted by predictable cognitive patterns. Analysts are human decision-makers operating under time pressure, incentive conflicts, and information overload, and are vulnerable to the heuristics and biases first catalogued by Tversky and Kahneman (1974).

This paper focuses on five biases that recur most consistently in the analyst-forecasting literature: overconfidence, anchoring, herding, confirmation bias, and optimism bias. Because biases are correlated, single-bias studies risk overstating the marginal contribution of any one bias when others are left uncontrolled — what Liu, Peng, Xiong, and Xiong (2022) term the 'bias zoo' problem. The paper makes three contributions: it synthesises the behavioural-bias literature into a single conceptual model for equity research; it develops and transparently discloses a calibrated simulation illustrating how a multi-bias regression design could be analysed; and it proposes the AI-Augmented Debiasing Framework (AADF), a practical four-layer intervention model intended to inform analyst training, brokerage workflow design, and regulatory guidance.

2. Literature Review:

2.1 Overconfidence

Overconfidence is the most extensively documented bias in behavioural finance and refers to a systematic overestimation of the precision of one's own knowledge or forecasting ability. In forecasting tasks specifically, overconfidence manifests as the 'hard-easy effect': confidence declines more slowly than accuracy as task difficulty increases, so that overconfidence is most pronounced precisely where forecasts are least reliable. Liu and Tan (2019) show that overconfident forecasters produce systematically more optimistic and less accurate stock-price forecasts on hard-to-predict stocks. In the Indian context, Kumar and Prince (2022) document overconfidence bias among Indian stock-market participants across a range of market conditions.

2.2 Anchoring

Anchoring, first identified by Tversky and Kahneman (1974), describes the tendency for numeric judgements to be insufficiently adjusted away from an initial reference value — such as a prior price target, a consensus estimate, or a recent historical figure. In equity research, anchoring is thought to manifest as insufficient revision of forecasts following material new information, producing forecast errors that are correlated with the size and direction of pre-existing anchors rather than with the information content of the news itself.

2.3 Herding

Herding refers to analysts' tendency to converge toward the prevailing consensus forecast rather than to rely fully on their own private information. Clement and Tse (2005) classify forecasts as herding or bold and show that boldness increases with analyst ability, brokerage size, and prior accuracy, and that bold forecasts are, on average, more accurate than herding forecasts. Durand, Limkriangkrai, and Fung (2014) find a behavioural signature where analyst confidence and the propensity to deviate from consensus move together.

2.4 Confirmation Bias

Confirmation bias is the tendency to seek out, interpret, and weight information in ways that confirm a pre-existing view while discounting disconfirming evidence. In equity research, this can manifest as selective incorporation of company guidance that supports an existing recommendation, or delayed downgrades following negative news that contradicts a previously issued buy thesis.

2.5 Optimism Bias

Optimism bias refers to a systematic tendency to overestimate the likelihood of favourable outcomes and underestimate unfavourable ones. Analyst earnings forecasts have long been documented as optimistically biased relative to realised earnings on average, a pattern linked to both cognitive optimism and incentive conflicts arising from investment-banking relationships.

2.6 The 'Bias Zoo' Problem and the Case for Joint Modelling

A recurring methodological limitation in this literature is that most studies isolate a single bias, leaving open the possibility that an apparently strong single-bias effect is partly an artefact of omitted, correlated biases. This motivates the joint, multi-bias regression design adopted in this paper: rather than estimating the effect of overconfidence in isolation, the design controls simultaneously for all five biases, allowing each bias's independent contribution to forecast error to be assessed net of the others.

2.7 AI-Assisted Debiasing

A growing literature considers whether structured decision-support and explainable AI tools can counteract cognitive bias in financial decision-making. Explainable automated machine learning using

SHAP (SHapley Additive exPlanations) to make model reasoning auditable has been proposed as a way to increase transparency and reduce the scope for unexamined bias. Tools that force explicit articulation of forecast assumptions, benchmark a given forecast against a base-rate distribution of historical estimates, or flag when a forecast has moved unusually little relative to new information, could plausibly counteract anchoring, confirmation bias, and herding specifically.

3. Conceptual Framework and Hypotheses:

Building on the literature above, this paper models analyst forecast error as a function of five correlated but conceptually distinct bias scores, moderated by regular use of AI-assisted analytical tools:

$$\text{Forecast Error} = f(\text{Overconfidence}, \text{Anchoring}, \text{Herding}, \text{Confirmation Bias}, \text{Optimism Bias} \mid \text{AI-Tool Use})$$

Six hypotheses follow from the literature review:

H1: Overconfidence is positively associated with forecast error, controlling for the other four biases.

H2: Anchoring is positively associated with forecast error, controlling for the other four biases.

H3: Herding is positively associated with forecast error, controlling for the other four biases.

H4: Confirmation bias is positively associated with forecast error, controlling for the other four biases.

H5: Optimism bias is positively associated with forecast error, controlling for the other four biases.

H6: Regular use of AI-assisted analytical tools is associated with lower composite bias scores and lower forecast error, controlling for the five biases above.

4. Methodology:

4.1 Intended Field Design

The framework above is designed to be tested using a mixed-methods field design combining (a) a structured survey of equity analysts at NSE-listed brokerage firms, using validated psychometric instruments for each of the five biases, and (b) archival matching of each surveyed analyst's issued earnings forecasts against realised EPS over a multi-year window, yielding a forecast-error metric at the analyst-quarter level. AI-tool use would be measured as a self-reported frequency-of-use item, ideally corroborated with brokerage-level usage logs where available.

4.2 Why a Simulation Substitutes for Field Data in This Paper

Conducting the survey and archival matching described above, at a sample size sufficient for the regression design, is a multi-month data-collection exercise requiring brokerage access, ethics clearance, and analyst cooperation — none of which could be completed within the scope of this conference paper. Rather than presenting invented numbers as if they were real survey results, this paper reports a Monte Carlo simulation: a synthetic dataset constructed so that its correlational structure and effect sizes are calibrated to fall within ranges reported across the cited literature. This is a standard and transparent device in methods-oriented papers, and is reported here strictly as a worked illustration of the analytical pipeline, not as new empirical evidence about real analysts. Every result in Section 5 should be read with this caveat.

5. Simulation Study:

5.1 Calibration and Data-Generating Process

A synthetic sample of 412 analyst profiles was generated with five correlated latent bias scores drawn from a multivariate normal distribution, truncated to a 1-7 psychometric scale. Inter-bias correlations ($r = .25$ to $.42$) were set within the moderate range implied by the 'bias zoo' literature, reflecting that biases

are related but psychometrically distinct constructs. Forecast error was generated as a weighted linear combination of the standardised bias scores plus substantial random noise, with weights set so that overconfidence and optimism bias receive the largest coefficients. A binary AI-tool-use indicator was generated with a moderate dampening effect on all five bias scores, consistent with the debiasing logic reviewed in Section 2.7.

5.2 Descriptive Statistics

Table 1. Descriptive Statistics — Simulated Sample (N = 412)

Variable	Mean	SD	Min	Max
Overconfidence (1-7)	4.48	0.81	1.85	7.00
Anchoring (1-7)	4.15	0.78	1.93	6.03
Herding (1-7)	3.92	0.87	1.42	6.72
Confirmation bias (1-7)	4.11	0.82	1.77	6.87
Optimism bias (1-7)	4.27	0.91	1.61	7.00
Forecast error (abs. % dev. from EPS)	9.41	4.93	0.50	24.19

**Simulated data — see Section 4.2 notice.*

5.3 Multiple Regression Results

Table 2. Standardised Multiple Regression — Simulated Data (N = 412)

Predictor	Standardised β	SE	t	p
Overconfidence	0.346	0.044	7.91	< .001
Optimism bias	0.219	0.043	5.13	< .001
Confirmation bias	0.169	0.041	4.14	< .001
Herding	0.168	0.039	4.37	< .001
Anchoring	0.063	0.041	1.56	.120 (n.s.)

$R^2 = .477$, $Adjusted\ R^2 = .471$, $F(5, 406) = 74.09$, $p < .001$. **Simulated data.*

In this illustration, overconfidence and optimism bias emerge as the strongest independent predictors of forecast error, consistent with the direction and relative ranking implied by the single-bias literature reviewed in Section 2. Anchoring does not retain a significant independent association with forecast error once the other four biases are controlled — illustrating exactly the 'bias zoo' concern motivating the joint design.

5.4 AI-Tool-Use Comparison

Table 3. AI-Tool Users vs. Non-Users — Simulated Data (N = 412)

Group	N	Mean Forecast Error (%)	SD / t-test	Mean Composite Bias (1-7)
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Regular AI-tool users	242 (58.7%)	8.57	4.91	4.05
Non-users	170 (41.3%)	10.61	4.71	4.38
Difference (non-users – users)		2.04 pp	$t = 4.26, p < .001$	$t = 5.95, p < .001$

**Simulated data. The dampening effect is built into the data-generating process by construction — see Section 5.1.*

Regular AI-tool users show both a lower composite bias score and a lower mean forecast error than non-users, consistent with Hypothesis 6. Because the simulation builds this dampening effect in by construction, this result demonstrates that the analytical pipeline can detect an effect of this kind if present — it does not on its own provide evidence that such an effect exists among real analysts.

6. Discussion:

Read as a worked methodological illustration, the simulation supports three broader points consistent with the literature review. First, the relative ranking of biases mirrors the pattern of effect sizes reported across the single-bias studies reviewed, lending face validity to the calibration exercise. Second, the joint design demonstrates concretely why the 'bias zoo' caution matters — a researcher running five separate single-bias regressions could plausibly report five 'significant' predictors, whereas the joint model suggests one predictor (anchoring) may not survive proper controls. Third, the AI-tool comparison illustrates the kind of effect size (roughly a two-percentage-point reduction in mean forecast error) that would be practically meaningful and statistically detectable at this sample size.

None of this substitutes for field evidence. Simulated data cannot reveal whether real NSE-listed analysts' bias profiles resemble the calibration assumptions, whether the selection pattern linking overconfidence to AI-tool adoption runs in the assumed direction, or whether unmeasured confounders (analyst tenure, brokerage size, sector coverage, career-concern intensity) would attenuate or reverse the AI-tool effect once controlled.

7. The AI-Augmented Debiasing Framework (AADF):

Building on the literature review and the conceptual model, this paper proposes the AI-Augmented Debiasing Framework as a practical intervention model with four layers, each targeting a distinct point of leverage:

7.1 Layer 1 — Individual Analyst Workflow

- Assumption-logging tools that require explicit, timestamped articulation of key assumptions behind a forecast before it is finalised, directly targeting confirmation bias by making the analyst's reasoning auditable to themselves.
- Base-rate benchmarking dashboards that show a proposed forecast against the historical distribution of analyst errors for comparable stocks and sectors, targeting overconfidence and optimism bias.
- Automated anchor-distance flags that highlight when a revised forecast has moved unusually little relative to the information content of intervening news, targeting anchoring.

7.2 Layer 2 — Team Review Process

- Structured 'red-team' review steps in which a forecast is reviewed by a colleague briefed only on the disconfirming evidence, operationalising the confirmation-bias mitigation strategy of seeking out contrary perspectives.

- Consensus-deviation transparency: dashboards showing each analyst's historical distance from consensus alongside subsequent accuracy, to reward informed boldness over uninformed herding — directly informed by the boldness-accuracy relationship documented by Clement and Tse (2005).

7.3 Layer 3 — Brokerage-Level Governance

- Periodic, anonymised calibration reporting: aggregate (not individually punitive) tracking of forecast accuracy versus stated confidence across the analyst pool, to make the hard-easy effect visible at the organisational level.
- Incentive-structure review to assess whether compensation or promotion criteria inadvertently reward herding or optimism over calibrated accuracy.

7.4 Layer 4 — Regulatory and Educational Oversight

- Encouraging regulators (such as SEBI in coordination with NSE) to consider disclosure norms around analyst forecast-tracking records, to increase market-level accountability for calibration.
- Integrating behavioural-finance and AI-tool literacy into analyst training and continuing-education curricula, so that AI tools are used to support judgement rather than to launder it.

The AADF is deliberately designed so that each layer can be adopted independently; a brokerage without the scale to build custom AI tooling can still implement Layers 2 and 3 using existing review processes, while Layer 1 becomes more valuable as AI-assisted tooling matures.

8. Implications:

8.1 For Analyst Training

If the joint-modelling logic holds in real data, training programmes that treat 'overconfidence training' and 'anchoring training' as separable modules may be missing the extent to which these biases co-occur and reinforce one another within a single analyst. Training curricula might instead be organised around the AADF's workflow interventions directly, since these are designed to counteract multiple correlated biases simultaneously.

8.2 For Brokerage Firms

The illustrative AI-tool comparison, if it held in real data, would suggest a plausible business case for investment in decision-support tooling beyond its data-processing efficiency benefits — but firms should be cautious about causal claims until the selection concern is addressed through a properly designed field study.

8.3 For Regulators and Financial Education

Guidance and continuing-education material aimed at analysts should be explicit about bias co-occurrence, not just present a checklist of independent biases to 'watch out for' — the paper's central methodological point has a direct regulatory-education implication.

9. Limitations:

- The core empirical illustration uses simulated, not field-collected, data, and its results should not be cited as findings about real analysts.
- The calibration of the simulation, while grounded in the cited literature, necessarily involves researcher judgement about parameter values that have not been jointly estimated in any single prior study.

- The proposed AADF is a conceptual model informed by the literature and has not yet been piloted; its four layers are testable hypotheses about intervention effectiveness, not validated practices.
- The literature review, while covering the major internationally indexed studies, is not a systematic or exhaustive review, and India-specific analyst-forecasting literature beyond the overconfidence studies cited remains comparatively thin.

10. Conclusion and Field-Study Protocol:

This paper has synthesised the behavioural-finance literature on five biases affecting equity analyst forecasting, developed a joint conceptual model motivated by the 'bias zoo' problem, illustrated the model's analytical pipeline through a transparently disclosed Monte Carlo simulation, and proposed the AI-Augmented Debiasing Framework as a practical intervention model. To move from this conceptual and illustrative contribution to genuine empirical evidence, the following field-study protocol is proposed for future work:

- Sample: a stratified sample of equity analysts across NSE-listed brokerage firms, targeting a minimum of 300-400 respondents with attention to brokerage-size and sector-coverage strata.
- Instruments: validated, published psychometric scales for each of the five biases, pre-registered prior to data collection, with a pilot administration to check reliability (Cronbach's alpha) in the Indian brokerage context.
- Archival matching: analyst-level earnings forecasts matched to realised EPS over a multi-year window (e.g., 2019-2024), computing both signed and absolute percentage forecast error.
- AI-tool-use measurement: self-reported frequency of use of named categories of AI-assisted tools, corroborated where possible with brokerage system logs, explicitly modelled with attention to selection effects.
- Pre-registration: the hypotheses in Section 3, the regression specification in Section 5, and the AADF's testable claims in Section 7 should be pre-registered prior to data collection.

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