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APPLIED MANAGEMENT PERSPECTIVES

January 2026, Volume: 04, Issue: 02 - E-ISSN: 2583-0546

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From the Editor-in-Chief's Desk

Dear Readers,

It is my pleasure to present Volume 04, Issue 02 (2025) of Applied Management Perspectives, a biannual peer-reviewed journal dedicated to developing applied, relevant, and methodologically research in management and related fields. This issue combines a variety of scholarly contributions showcasing the shifting priorities of contemporary organizations, markets, and societies in a time of technological change and inclusive development.

The articles featured in this issue address key dimensions and aspects of strategic management and organizational reform, such as alternative patterns of corporate restructuring, changing roles and functions of procurement, and decision-making in dynamic business environments. As a group, these studies provide important insights on how to improve competitiveness, efficiency, and long-term value creation.

A significant focus of this issue is the increasing influence of digital technologies and artificial intelligence across managerial functions. Contributions examining AI-driven investment decisions, artificial intelligence analytics in digital marketing, automation in performance management systems, and the emergence of phygital consumers in the context of Industry 6.0 highlight the profound impact of technology on finance, marketing, human resources, and consumer behavior.

The issue also emphasizes sustainability, inclusion, and development-oriented management practices. Research on sustainable business models and digital financial inclusion through self-help groups, rural consumers' online shopping behavior, religious tourism aligned with national development objectives, and the intersection of AI-enabled workforce restructuring with ESG commitments underscores the role of management in balancing economic performance with social and ethical responsibility.

Applied Management Perspectives stands by stringent double-blind peer review and ethical publication protocol. I thank the authors, reviewers and editorial team for their dedication to rigorous academic work. I hope that the evidence discussed here will stimulate significant scholarly dialogue and influence managerial practice.

Warm regards,
Dr. Krishna Kumar K
Professor, School of Management,
Editor-in-Chief Applied Management Perspectives
Presidency University, Bengaluru

Editorial Note

Dear Esteemed Readers,

It is my pleasure to present Volume 04, Issue 02 (2025) of Applied Management Perspectives, a biannual journal that contributes to progress in applied, practice-oriented research in the management field. This collection of studies represents a broad array of research showing the current dynamic interrelations between strategy, technology, sustainability and human behaviour in modern business contexts.

Over the past four years, Applied Management Perspectives has been published with unwavering regularity and academic discipline. As a biannual journal, the publication has consistently released two issues every year without interruption, reflecting the editorial team's strong commitment to timeliness and scholarly integrity.

Every manuscript submitted to the journal undergoes a rigorous double-blind peer review process and mandatory plagiarism screening, ensuring adherence to ethical publishing standards and academic originality. Only manuscripts that demonstrate conceptual clarity, methodological rigor, and practical relevance are selected for publication. Building on this foundation of quality and consistency, the journal is now entering a phase of strategic and aggressive indexation, aimed at enhancing its academic visibility, citation impact, and global reach in the coming months.

A key feature of this issue is the growing influence of digital technologies and artificial intelligence in a number of managerial roles. These studies explore AI-powered investment decisions, digital marketing analytics, performance management automation and the rise of the phygital consumer demonstrate how technology is transforming finance, marketing, human resources and consumer interaction through Industry 6.0.

I wish to express my heartfelt thanks to the authors for the high level of scholarly contributions they have made, the reviewers for the strict assessments they have carried out and the editorial board to support me in my work. The above efforts have served to enhance the academic quality and utility of this journal.

I hope that this issue of Applied Management Perspectives will be a useful and valuable source for researchers, academicians, practitioners and policy-makers alike, and will serve as a springboard for further research and informed practice of management.

Warm regards,
Dr. Virupaksha Goud G
Associate Professor, Presidency University
Editor, Applied Management Perspectives

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Beyond M&A: Spin-offs as a Catalyst for Shareholder Value Creation in India

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Abstract

The yearly pruning of apple trees in an orchard, which is necessary to preserve health and maximize yield, is comparable to divestiture exercises. As a particular type of divestiture, spin- offs cause the parent company's size to decrease. While mergers and acquisitions have historically been the main focus of corporate restructuring, an increasing number of corporations in India have chosen to streamline their operations by spinning off divisions in recent decades. Mergers are generally understood to create synergies, but spin-offs are also anticipated to add value to shareholders' wealth due to increased corporate focus. This study aims to analyse the impact of spin-off announcements on the share prices of companies, focusing on shareholder value addition in the Indian context. Data for the study was collected over a period of one year, from January 2016 to December 2016, and the dates of the announcements were obtained from the BSE database. The population for the research was 16 spin-off announcements, and 12 announcements were excluded because they fell into various categories such as composite schemes, spin and merge schemes, the resulting companies were not listed, and some announcements involved partial spin-offs. The result was that the research used the sample population of 4 companies, which involved an exclusive spin-off, and the new company was listed on the BSE after the spin-off. The short-term effects of spin-off announcements were examined using the event study methodology, and the cross-sectional dependence of abnormal returns was examined using the crude adjustment method t-test. The study results consistently show that spin-off announcements increase shareholder value by having a positive impact on shareholder wealth.

Keywords: *divestiture, spin-off, shareholder's wealth, , event study, abnormal return*

Introduction

Just as smart apple farmers meticulously prune their trees by removing dead, weakened, or even vigorous limbs that hamper overall growth, a similar disciplined approach is vital for the sustained health and productivity of any business enterprise. This analogy underscores the essential lesson for managers regarding the strategic exercise of divestitures. While companies traditionally dedicate considerable effort to acquiring new businesses and refining existing operations for rapid growth, divestitures offer a complementary and powerful pathway to achieve growth and sustainability. Divestitures entail the deliberate choice to retain economically desirable business segments while eliminating those that are no longer making a sufficient contribution, frequently as a result of a changing business environment, new competitors, changing consumer preferences, the availability of raw materials, or advancements in technology.

Instead of focusing only on acquisitions or new projects for growth targets, a thorough and comprehensive focus on divestitures can encourage managerial thought toward regular divestiture initiatives where necessary. The company and its shareholders could benefit greatly from such a well-thought-out divestiture program.

A unique type of divestiture which leads the parent company's size to decrease is spin-off. Corporates in India have been strategically shrinking by spinning off one or more divisions in recent decades. While spin-offs are generally anticipated to increase shareholder wealth by allowing for a greater focus on core operations within the newly separated entities, mergers are frequently linked to the creation of synergy. When a company spins off, it creates two or more separate legal entities. The shareholders of the parent company get a share of the new businesses in proportion to their ownership of the parent company. The new business, called the "resulting company," becomes its own decision-making body and no longer has to report to the parent company. It's important to remember that after the spin-off, the same stockholders still own both the parent company and the new company. The purpose of this study is to examine the impact of spin-off announcements on the stock prices of Indian companies, particularly in terms of their short-term value to shareholders.

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Literature Review

Schipper & Smith, (1983) test the effect of spin-off on shareholders' wealth. Their sample consisted of 93 spin-offs over the period 1963 - 1981. Using the market model to estimate the abnormal returns, the findings reveal a significant positive abnormal return to parent companies around the announcement of a spin-off. By the same token, Hite and Owers (1983) report significant positive abnormal returns to shareholders of 116 firms involved in spin-off activities during the period 1963 - 1981.

Alexander et al., (1984) found that voluntary corporate sell-offs lead to positive announcement returns, yet that these returns were preceded by a period of negative abnormal returns. The authors state that this suggest that voluntary sell-offs are preceded by a period of negative news about the company, yet it could just as well be that the company was performing poorly. The authors do not consider this point of view.

Cusatis et al., (1993) measured the impact of spin-offs on changes in operating performance in the long-run. Their sample is based on 51 American spin-off events between 1972 and 1986. The results present that American spin-offs do not improve operating performance in the long-run. A three-year post-spin-off period shows even lower return on assets, sales growth and market-to-book ratios than in the period before the spin-off. Moreover, the authors claim that the increase in corporate focus has no impact on the operating performance of parent firms within three years after the spin-off.

Daley et al. (1997) investigated changes in operating performance of parent firms after a spin-off was undertaken by examining the return on assets in the time period of two years prior to the spin-off until two years after the spin-off. The used sample consists of 85 spin-offs, whose 60 are focus increasing spin-offs and 25 are non-focus-increasing spin-offs. The authors show improvements in operating performance for focus-increasing spin-offs (+2.3% ΔROA) but smaller changes for non-focus-increasing spin-offs (+0.7% ΔROA). This result is consistent with the statement that spin-offs might create value by removing negative operating synergies and allowing managers of the parent firm to focus more on their core operations.

Mulherin & Boone, (2000) view divestitures and acquisitions as a way to adapt to the environment. Their results are consistent with the synergistic theory of corporate restructuring which states that changing economic conditions and industry

shocks influence restructuring activity. It is about adapting to the environment and not reacting to a weaker economy. They concluded that both divestitures and acquisitions lead to positive announcement returns and that this effect is related to the size of the particular event.

Byerly et al., (2003) find that prior levels of diversification (single-, related-constrained-, related-linked- and unrelated businesses) and the mode of restructuring influence the stock market's reaction to restructuring announcements. The research fund out that the more significant the impact of the restructuring is, the more positive the stock market's reaction is. The authors also find that strategy of pursuing new business opportunities while ditching a few old ones is valued positively by the stock market. This type of change also brings about the largest announcement returns.

Research by Kirchmaier, (2003) reports only insignificant long-run abnormal returns for European spin-offs over a time period of one and two years after the restructuring. This is very surprising since many American studies came up with statistically significant figures. Kirchmaier explains this discrepancy by the difference in capital market efficiency between the countries. Furthermore, the long-run analyses demonstrated that the size of the spin-off plays an important role in shareholder wealth effects. Small spin-offs (+6.4%) were far more successful than large spin-offs (+1.6%) based on a sample of 29 spin-offs.

Many of the previous researchers in relation to growth and success of companies had been concentrating much on the concept of mergers and acquisitions as a vital tool to reach their end. However, the theoretical literature available and also the practical applications of the concept of divestitures have proved to contribute for the growth and success of companies. These facts have not been either highlighted or further probed by the researchers to the extent it ought to have been. This has left a substantial gap in the objective of research in furnishing enough relevance for the benefit of the corporates in identifying additional mechanisms through divestitures for growth and prosperity. Perhaps the gap has occurred because of the partial reasoning of the researchers viewing the implication of the buyers' perspective on growth and success, literally ignoring the approach from the seller's point of view, which should have been complimented in the research done so far in many instances. Hence the concentration of this study is on the impact of spin-off in respect of value addition to shareholders.

Data and Methodology

Data

This study was undertaken to examine the influence of the spin-off announcement on the share prices of Indian companies. The researcher initially contemplated the demographic of Indian spin-offs registered on the Bombay Stock Exchange (BSE). The data covered a year, from January 2016 to December 2016, and the dates of the announcements came straight from the BSE corporate announcements database. There were 16 Indian spin-off announcements in the original group. However, 12 of these spin off announcements were taken out of the study for different reasons, such as composite arrangements, spin-and-merge transactions, cases where the new company stayed unlisted, or partial spin-offs. The researcher then chose a final sample of four companies that had gone through an exclusive spin-off. After the spin-off was finished, the new company was listed on the BSE. The announcement date was the day that the company officially told the stock exchange about its decision to spin off, after getting approval from the shareholders' meeting. Daily share price data for these securities were obtained from the BSE, and the S&P BSE 500 index was utilized as a proxy for market movement to calculate expected returns.

Methodology

Finance literature authenticate that even study methodology is extensively used in evaluating the impact of a certain event on the stock prices. Hence, event study methodology has been used in the present study to examine short-term stock price reaction to the announcements of spin-offs. Along with event study descriptive statistics and correlation is also calculated.

The following are the steps in event study methodology:

The first step in the event study methodology is to define the event date (the date on which the event is first announced to the public). The date on which the company informs BSE about its board approval of spin-off is considered as announcement date in the study. These dates are identified from the corporate announcements of BSE.

The next step is to describe the estimation window (period prior to the event) and event window (the period around spin-off announcement date). Estimation window of 160 days (-181, -21), event window of 41 days (-20 to +20) is considered in the study. During the event window, the stock market reaction to the announcement is studied through cumulative abnormal returns. Fama et al. (1969) advised to study the abnormal return before and after the announcement

date also. The abnormal returns for different windows (–20, −15), (–15, −10), (–10, −5), (–5, 0) (–1, 0), (–1, +1), (0, +1), (0, +5), (+5, +10), (+10, +15), and (+15, +20) have been considered in the study. To assess the expected returns Market model is used.

Regression of stock's returns against market index is done to calculate the expected returns. The strategic issue in event study is to determine the part of the price movement that is essentially affected by the event under study. It is imperative to measure the effect of the specific event on stock returns. This generates the concept of Abnormal Returns (AR). The AR is the difference between the actual return and the expected return on a particular day.

The following equation is used to calculate the abnormal return.

$$AR_{jt} = R_{jt} - E(R_{jt})$$

The market model relates the return of a security to the return of the market portfolio as per

the following equation:

$$R_{jt} = \alpha_j + \beta_i R_{mt} + \varepsilon_{jt}$$

where, t = -181, …, –21, α_j is a constant term for the j^{th} stock, β_j is the beta of the j^{th} stock, R_{mt} is the market returns, and ε_{jt} is an error term. The parameters of the model will be assessed by using the time-series data from the estimation period before every particular announcement. The estimated parameters will be used in the calculation of ARs for each day in the event window. These will then be compared with the actual returns during the event period. The daily excess return, that is, the AR of firm j for the day t(AR_{jt}) is estimated from actual returns across the event period and the estimated coefficients from the estimation period as per the following equation:

$$AR_{jt} = R_{jt} - (\alpha + \beta R_{mt})$$

where t = –20, …, +20

The average abnormal return (AAR_t) for each day in the event window is calculated as per the following equation:

$$AAR_t = 1/N(\Sigma AR_{tj})$$

where N is the number of companies.

The cumulative average abnormal return (CAAR) for day t, is defined by:

$$CAAR_t = \sum_{k=-20}^{t} AAR_k$$

To consider any cross-sectional dependence of the abnormal returns over the observation period, t-tests are performed using the crude adjustment method suggested by Brown and Warner (Rosenfeld, 1984)

Analysis and Findings

Descriptive statistics of abnormal returns are shown in Table No. 1. Average

abnormal return over a period of 202 days (estimation window plus event window) of CG Power is 0.0002591, Mohit Industries -0.000577, GB Global 0.000121 and TCI Ltd. Is 0.000564. Overall TCI Ltd. Has highest positive average return and Mohit Industries has negative average abnormal return. We can also observe high volatility in returns of Mohit Industries.

Table No. 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CG_Power	202	-.039398	.058957	.00025911	.017655741
Mohit_Industries	202	-.130526	.128508	-.00057703	.031001307
GB_Global	202	-.044696	.068397	.00012189	.017400684
TCI_Ltd	202	-.081965	.168864	.00056433	.024447080
Valid N (listwise)	202				

Correlation is calculated to know the relationship among returns. Table No. 2 shows the correlation among returns of 4 companies.

Table No. 2: Correlation of Returns

		CG_Power	Mohit_Industries	GB_Global	TCI_Ltd
CG_Power	Pearson Correlation	1	-.102	-.018	.039
	Sig. (2-tailed)		.147	.803	.585
	N	202	202	202	202
Mohit_Industries	Pearson Correlation	-.102	1	.068	-.026
	Sig. (2-tailed)	.147		.337	.709
	N	202	202	202	202
GB_Global	Pearson Correlation	-.018	.068	1	.013
	Sig. (2-tailed)	.803	.337		.853
	N	202	202	202	202

TCI_Ltd	Pearson Correlation	.039	-.026	.013	1
	Sig. (2-tailed)	.585	.709	.853	
	N	202	202	202	202

We can observe positive correlation among abnormal returns of companies except Mohit Industries. Mohit Industries has negative correlation with CG Power and TCI Ltd. and positive correlation with GB Global. GB Global also has negative correlation with CG Power. It can be said that the returns are moving in a same direction.

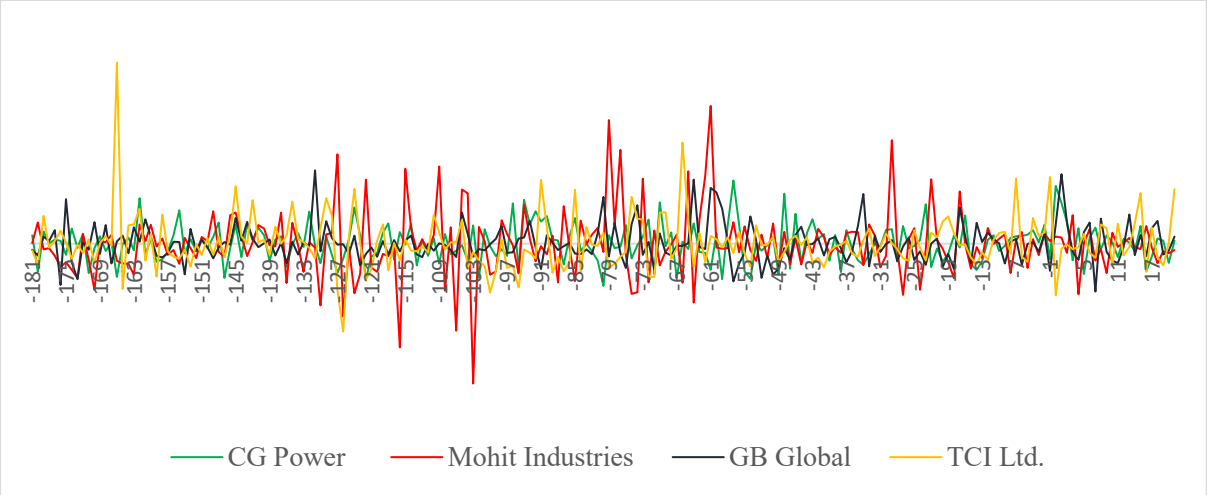

Figure No. 1: Abnormal Returns during Estimation and Event Window

Figure No. 1 displays the abnormal returns of CG Power, Mohit Industries, GB Global and TCI Ltd. for a period of 202 days (estimation period plus event period). Massive volatility in the abnormal returns of Mohit Industries can be observed.

Event study is conducted to analyse the impact of spin-off announcement on share price. Table No. 3 denotes the day-wise AAR and CAAR over the event window. AARs and CAARs have been calculated for all 40 days in the event window.

Table No. 3: Analysis of day-wise Abnormal Returns

Day	AAR	CAAR	t	p values
-20	-0.005674	-0.005674	-0.601484	0.589932
-19	-0.002616	-0.008290	-0.275058	0.801128
-18	-0.009595	-0.017885	-0.895246	0.436622

-17	0.019271	0.001386	1.475975	0.236431
-16	0.008085	0.009471	1.269952	0.293657
-15	-0.018510	-0.009039	-8.928292	0.002964
-14	-0.006788	-0.015827	-0.689094	0.540277
-13	-0.009068	-0.024895	-2.316491	0.103415
-12	0.003316	-0.021578	0.506835	0.647176
-11	0.003862	-0.017716	2.395535	0.096260
-10	0.001929	-0.015787	0.542574	0.625135
-9	-0.000246	-0.016033	-0.036392	0.973256
-8	-0.007458	-0.023491	-1.005436	0.388761
-7	0.018844	-0.004647	1.345859	0.271020
-6	-0.003425	-0.008072	-0.462032	0.675503
-5	-0.007889	-0.015961	-1.096987	0.352810
-4	0.010541	-0.005420	2.097562	0.126859
-3	-0.002456	-0.007876	-0.601676	0.589820
-2	0.011776	0.003900	5.884065	0.009796
-1	0.006122	0.010021	0.313768	0.774250
0	0.007535	0.017556	0.357418	0.744444
1	0.025990	0.043546	1.645444	0.198429
2	0.007667	0.051213	1.045864	0.372469
3	-0.000467	0.050746	-0.050510	0.962891
4	-0.012872	0.037875	-0.989819	0.395233
5	-0.001993	0.035882	-0.220361	0.839735
6	0.007629	0.043512	1.251144	0.299566
7	-0.014611	0.028901	-1.196422	0.317465
8	0.007718	0.036619	1.022985	0.381607
9	-0.003224	0.033395	-0.346317	0.751971
10	-0.005874	0.027521	-0.844815	0.460261
11	-0.003717	0.023804	-0.460621	0.676408
12	-0.002246	0.021558	-0.669856	0.550898
13	0.007593	0.029150	1.126989	0.341750
14	-0.000484	0.028666	-0.073433	0.946083
15	0.016675	0.045341	1.497499	0.231185

16	-0.011842	0.033499	-1.178316	0.323625
17	0.003366	0.036865	0.501756	0.650349
18	-0.001214	0.035651	-0.136391	0.900151
19	-0.008787	0.026864	-1.856139	0.160444
20	-0.008261	0.018603	-2.165354	0.118975

It can be observed in Table No. 3 that the abnormal returns being 0.02599 is the highest on Day 1, i.e. next day of announcement of the spin-off. Day 1 has a t-value of 1.645 which is insignificant at 5 per cent level. Apart from Day 1, Day -7 and Day -17 also shows high abnormal returns. Day -7 has abnormal return of 0.0188 and Day -17 has abnormal return of 0.0192. day -2 has a abnormal return of 0.0117 with a t-value 5.884 which is significant at 5 per cent level. This signifies that the information about spin-off starts impacting the stock price of the parent company even before it is officially announced. This could be due to the information leakage before it officially strikes the market. As per Table II, the market's response to the spin-off. The CAAR is maximum on Day +2 signifying that the returns to the shareholders would be highest on Day +2.

Further Table No. 4 analyses the AAR and CAAR over different intervals during the event window.

Table No. 4: Analysis of AAR over different intervals

Interval	**AAR**	**CAAR**	**t**	**p**
(-20 to -15)	-0.009039	-1.988538	-33.828561	0.000057
(-15 to -10)	-0.025258	-2.122233	-36.102949	0.000047
(-10 to -5)	0.001755	-0.178103	-3.029855	0.056317
(-5 to 0)	0.025628	1.738537	29.575603	0.000085
(-1 to 0)	0.013657	0.167796	4.944160	0.015873
(-1 to +1)	0.039646	0.579157	13.933527	0.000800
(0 to +1)	0.033525	0.500715	14.753706	0.000676
(0 to +5)	0.025861	0.447009	7.604411	0.004719
(+5 to +10)	-0.010354	-0.083446	-1.419571	0.250802
(+10 to +15)	0.011946	0.143941	2.448686	0.091787
(+15 to +20)	-0.010064	-0.834236	-14.191833	0.000758

The AAR of 0.039 is maximum for the interval of (-1, +1) with a t-value of 13.93 which is significant at 5 per cent level. The interval (0, +1) and (0, +5) also shows a positive AAR of 0.0335 and 0.0258 respectively. Both are significant at 5 per cent level. The CAAR for the interval (-5, 0) is the highest. This makes the interval to be highest return giving interval in the entire event window period. After Day +5, the stock prices of the parent company do not seem to be impacted by the spin-off announcement. Table No. 4 shows that AARs are significant for interval before the official announcement of the spin-off except one interval, namely (−10, -5). After the spin-off announcement, AAR is significantly positive for the interval (0, +1) and (0, +5). After that AAR is not significant for any other interval except (+15, +20). For this interval the AAR is significantly negative at the 5 per cent level.

With this we can say that the stock prices of the parent company start getting impacted before the official announcement of the spin-off.

Conclusion

The results for the sample of 4 spin-offs show that spin-off announcements have a positive effect on shareholder wealth and such announcement increases shareholder value. The spin-off announcement has a significantly positive impact on the stock prices of the parent company. The impact starts coming two day before the official announcement and remains till two days
after the official announcement. The CAAR is highest on Day +2. The pre-announcement period is more affected more in terms of impact on share prices as compared to the post announcement period. The shareholders of the parent company gain as a result of the spin-off announcement.

Contribution to Literature and Managerial Implications

This study addresses a substantial gap in the existing research by focusing on divestitures, specifically spin-offs, from the "seller's point of view" in the Indian context. While much of the corporate restructuring literature emphasizes mergers and acquisitions, our findings underscore the vital role of strategic divestitures in value creation, aligning with some international studies (e.g., Schipper & Smith, Hite & Owers) that found positive abnormal returns around spin-off announcements. The observation of pre-announcement market reaction also contributes to the understanding of market efficiency and information dissemination around corporate events in India.

For corporate managers, these findings carry significant practical implications. The consistent positive market reaction to spin-off announcements should propel management teams to seriously consider divestiture initiatives as a viable and effective strategy for value creation and sustained growth, not just as a reaction to distress but as a proactive tool for corporate restructuring. Spin-offs can enhance shareholder value by allowing both the parent and spun off entities to increase focus on their core competencies, potentially leading to improved operational efficiency and market recognition. Managers should also be aware of the market's anticipatory behavior and the potential for information leakage, which necessitates stringent internal controls around such sensitive corporate actions. The short-term nature of the most significant positive impact suggests that the immediate market gains are largely realized within the first few days around the announcement.

Limitations and Future Research

Despite these valuable insights, it is important to recognize the limitations of the research. The small sample size of only 4 companies significantly affected the generalization of the results. Although rigorous selection criteria have been applied, future research should include a larger and more diverse sample of Indian spin-offs in order to increase the statistical power and greater applicability of the results. Furthermore, the limited one-year period (January 2016 to December 2016) may not fully capture long-term performance trends or market behavior in various economic cycles. Future research may extend the observation period and possibly conduct long-term performance analyses (such as Cusatis et al. or Daley et al.) to determine whether initial short-term gains are sustained over time. Further research could also explore specific factors influencing different reactions between companies (e.g. industry, reason for bankruptcy, size of the bankruptcy entity, management decisions after bankruptcy) in order to better understand the bankruptcy phenomenon in India.

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SUSTAINABLE BUSINESS MODELS AND DIGITAL FINANCIAL INCLUSION: A CASE STUDY OF SHGS IN RURAL DAKSHINA KANNADA DISTRICT

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ABSTRACT

This study examines how sustainable business models are being supported through digital financial inclusion among Self-Help Groups (SHGs) in rural Dakshina Kannada, Karnataka. SHGs, especially those led by women, have played a vital role in promoting grassroots entrepreneurship and enhancing financial access in underserved communities. With the increasing availability of digital tools in rural India, the research aims to understand how technologies such as mobile banking, e-wallets, and microfinance platforms are being adopted by SHGs and their impact on group sustainability and economic resilience. A mixed-method approach was used, including structured interviews, surveys, and focus group discussions with SHG members, local NGOs, and banking representatives. Secondary data from official government reports and previous research were also used to support the analysis. The findings indicate that digital financial tools have improved SHG operations by lowering transaction costs, enhancing transparency, and simplifying record-keeping. Despite these benefits, challenges remain—particularly gaps in digital literacy, inconsistent internet access, and concerns over data security. The analysis suggests that while digital tools offer significant advantages, their full potential can only be realized with targeted training, infrastructure improvements, and stronger institutional support. The study concludes that a coordinated approach involving government agencies, financial institutions, and civil society is essential to ensure inclusive and sustainable digital transformation. Overall, this research provides localized insights that can inform policies aimed at strengthening SHGs and promoting equitable financial inclusion in rural India.

Keywords: Sustainable Business Models, Digital Financial Inclusion, Self-Help Groups (SHGs), Rural Development, Women Empowerment, Mobile Banking, Financial Literacy

INTRODUCTION

In the dynamic sphere of rural development, the convergence of sustainability and digital innovation is gaining increasing importance. As India advances towards a more inclusive financial system, Self-Help Groups (SHGs) have become instrumental in driving socio-economic progress, particularly in rural regions. These women-led community organizations play a crucial role in promoting collective savings, credit access, entrepreneurship, and empowerment at the grassroots level.

Aligned with the national initiatives like *Digital India* and expanding financial inclusion, SHGs are progressively adopting digital tools to engage with formal financial systems. Technologies such as mobile banking, digital wallets, and fintech platforms have reduced barriers for rural populations, enabling easier access to banking and financial services. However, this shift prompts key questions: Are these digital innovations truly contributing to the long-term sustainability of SHGs? What digital challenges are these groups encountering? And how is digital inclusion reshaping conventional SHG frameworks?

This research seeks to answer these questions through a focused study in Dakshina Kannada, Karnataka—a district known for its blend of rural tradition and urban accessibility, alongside strong SHG networks and supportive socio-economic infrastructure. The study examines how digital financial tools are transforming SHG operations and contributing to their sustainability. By analyzing the practical experiences of SHGs in this district, the research aims to offer valuable insights for both academic discussions and policy development on promoting sustainable and inclusive financial systems in rural India.

REVIEW OF LITERATURE

Self-Help Groups (SHGs) have long been recognized as effective mechanisms for promoting financial inclusion, particularly among women in rural India. Their integration into the digital financial ecosystem represents a significant shift in grassroots development, contributing not only to economic empowerment but also to sustainable rural livelihoods. According to Ghosh and Van Tassel (2013), SHGs have historically functioned as informal savings and credit institutions, facilitating microloans and community-based financial resilience. However, with the advent of digital financial tools such as mobile banking, digital wallets, and fintech-enabled microfinance platforms, SHGs are increasingly engaging with formal financial systems in transformative ways (Mor et al., 2017).

Digital financial inclusion, as defined by the World Bank (2014), involves deploying digital platforms to expand access to financial services for the underserved, reducing both geographic and social barriers. In India, initiatives like the Pradhan Mantri Jan Dhan Yojana (PMJDY), Aadhaar-enabled payment

systems, and the Unified Payments Interface (UPI) have accelerated this shift (RBI, 2019). Gupta and Sharma (2020) found that the digitization of SHG operations has enhanced transparency, reduced transaction costs, and improved the efficiency of fund disbursement and tracking. Similarly, Rani and Jyothi (2019) observed that digital bookkeeping and mobile-based financial applications have streamlined internal accounting processes, strengthened credit linkages, and increased the creditworthiness of SHGs.

The sustainability of SHGs is increasingly tied to their ability to adopt digital technologies effectively. As per Yunus, Moingeon, and Lehmann-Ortega (2010), sustainable business models in the social sector must combine social impact with economic viability. In the context of SHGs, this involves leveraging digital tools to support income-generating activities, maintain robust financial records, and access broader markets. Das and Purohit (2021) emphasize that digital financial inclusion plays a critical role in scaling micro-enterprises operated by SHG members, thereby improving their long-term sustainability.

Despite these benefits, significant barriers remain. Digital illiteracy, especially among older SHG members and women with limited formal education, continues to hinder the widespread adoption of digital tools (Bansal & Aggarwal, 2019). Singh, Kaur, and Sahu (2021) reported that even in areas with high mobile penetration, the effective use of digital banking applications is often limited due to a lack of user training and unfamiliarity with financial jargon. In addition, infrastructure challenges such as unreliable internet connectivity and electricity supply in rural areas further complicate digital adoption (Chandrasekhar & Ghosh, 2020). Concerns around cybersecurity, data privacy, and potential fraud are also prevalent, especially when SHG members share mobile devices or operate through proxy users (KPMG, 2020).

The role of institutions is paramount in bridging these gaps. According to Narayan and Krishnan (2022), successful digital financial inclusion is often a result of synergistic collaboration among government bodies, financial service providers, NGOs, and community-based organizations. Public-private partnerships have emerged as a promising model, especially when NGOs take on the role of digital literacy trainers and intermediaries. Programs under the National Rural Livelihoods Mission (NRLM) have made notable progress in introducing SHG members to digital financial services and in

fostering linkages with formal banking institutions (World Bank, 2021).

Dakshina Kannada, with its relatively high literacy rate, cooperative banking culture, and active civil society engagement, provides an ideal case for analyzing the localized impacts of digital financial inclusion. Fernandes and Radhakrishna (2019) highlighted that SHGs in coastal Karnataka, including Dakshina Kannada, have been early adopters of digital tools, facilitated by supportive panchayat institutions and proactive NGOs. However, region-specific studies remain limited, particularly those that examine the long-term sustainability of SHGs in a digitally transformed environment.

Overall, the existing literature supports the assertion that digital financial inclusion, when effectively implemented, enhances the resilience, efficiency, and sustainability of SHGs. However, persistent challenges—such as digital literacy gaps, infrastructure limitations, and trust deficits—must be addressed through a multisectoral approach. This makes localized, empirical research, such as the present study in rural Dakshina Kannada, both timely and essential.

NEED OF THE STUDY

With the growing emphasis on digital financial inclusion in India, Self-Help Groups (SHGs) are increasingly adopting tools like mobile banking and digital wallets to enhance financial access and operational efficiency. However, there is limited localized research on how this digital integration impacts the sustainability and business models of SHGs, especially in rural areas like Dakshina Kannada. Despite high literacy and active SHG networks in the district, digital challenges such as literacy gaps and infrastructure limitations persist. This study is needed to assess the effectiveness of digital financial tools in improving SHG sustainability, identify existing barriers, and provide insights for policy and practice in promoting inclusive rural development.

STATEMENT OF THE PROBLEM

Despite significant strides in promoting digital financial inclusion in India, the actual impact of digital tools on the sustainability and operational effectiveness of Self-Help Groups (SHGs) in rural areas remains underexplored. While SHGs have traditionally empowered rural women through savings, credit, and income-generating activities, the integration of mobile banking, digital wallets, and fintech platforms presents both opportunities and challenges.

In regions like Dakshina Kannada, where SHGs are active and literacy levels are

relatively high, the adoption of digital financial services is growing. However, several issues such as digital literacy gaps, poor infrastructure, limited access to smartphones, and concerns around data privacy hinder the full potential of this transformation. Moreover, there is a lack of empirical research examining how these digital interventions contribute to the long-term sustainability and resilience of SHG-led business models.

Therefore, there is a need to critically examine the extent to which digital financial inclusion supports or constrains the growth, transparency, and viability of SHGs in rural settings. Understanding this relationship is essential for designing policies and interventions that foster inclusive and sustainable rural development.

OBJECTIVES OF THE STUDY

1. To explore the extent to which Self-Help Groups (SHGs) in rural Dakshina Kannada have adopted digital financial tools such as mobile banking, digital wallets, and microfinance platforms.
2. To assess the impact of digital financial inclusion on the operational efficiency, transparency, and accountability of SHGs.
3. To evaluate the challenges faced by SHG members in adopting and utilizing digital financial tools, including issues related to digital literacy, infrastructure, and security concerns.
4. To examine how digital financial tools contribute to the sustainability and resilience of SHG business models, focusing on income generation, group cohesion, and financial management.
5. To provide policy recommendations for enhancing the digital inclusion of SHGs, ensuring equitable access to financial services, and promoting sustainable business models in rural areas.

HYPOTHESES OF THE STUDY

1. **H1:** The adoption of digital financial tools by Self-Help Groups (SHGs) in rural Dakshina Kannada has significantly improved their operational efficiency and financial transparency.
2. **H2:** Digital financial inclusion positively impacts the sustainability and resilience of SHG business models by enhancing income generation and reducing

dependency on external financial support.

3. **H3:** There are significant barriers to the adoption of digital financial tools among SHG members in rural Dakshina Kannada, including digital literacy gaps, infrastructural limitations, and cybersecurity concerns.
4. **H4:** A collaborative approach involving government bodies, financial institutions, and NGOs will significantly improve the effectiveness of digital financial inclusion for SHGs in rural areas.

RESEARCH METHODOLOGY

RESEARCH DESIGN

This study employs a **mixed-methods approach** to explore the impact of digital financial inclusion on the sustainability of Self-Help Groups (SHGs) in rural Dakshina Kannada, Karnataka. The research design combines **qualitative** and **quantitative** techniques to provide a comprehensive understanding of SHGs' digital adoption and its implications on their business models. The mixed-methods approach enables both in-depth exploration of experiences and the generalization of findings through statistical analysis.

POPULATION AND SAMPLING

The study targets SHG members, local NGOs, and banking institutions within rural Dakshina Kannada. A **stratified random sampling** method is employed to select SHGs from various blocks in the district, ensuring representation from diverse rural settings. The sample consists of approximately 100 SHG members, 3-4 local NGO representatives. This diverse sampling ensures comprehensive insights from both SHG practitioners and key institutional stakeholders.

DATA COLLECTION

Data is collected through both **primary** and **secondary** sources:

1. **Primary Data**:
    - **Structured Interviews**: Conducted with SHG members, NGO representatives, and banking officials to explore the adoption, challenges, and perceived benefits of digital financial tools.
    - **Focus Group Discussions (FGDs)**: Group discussions with SHG members to understand collective experiences, challenges, and the impact of digital tools on group cohesion and operations.

- **Surveys/Questionnaires**: A structured survey administered to SHG members collects quantitative data on their use of digital financial tools, benefits, and barriers encountered.

2. **Secondary Data**:
   - **Government and Institutional Reports**: Analysis of government reports and publications from relevant banking and financial institutions to understand the broader context of digital financial inclusion and SHG activities.
   - **Literature Review**: A review of academic papers, industry reports, and case studies to contextualize the research and align it with existing knowledge.

DATA ANALYSIS

The collected data is analyzed using both **qualitative** and **quantitative** methods:

1. **Qualitative Analysis**:
   - Data from interviews and FGDs are subjected to **thematic analysis** to identify key themes, challenges, and patterns related to digital adoption among SHGs. NVivo software will assist in coding and categorizing qualitative data for deeper insights.
2. **Quantitative Analysis**:
   - **Descriptive statistics** (mean, median, mode) are used to analyze survey responses regarding SHG members' use of digital tools and perceived benefits.
   - **Inferential statistical tests** (such as chi-square and t-tests) are applied to test hypotheses concerning the relationship between digital financial inclusion and SHG sustainability.

LIMITATIONS

- **Digital Literacy**: Variations in digital literacy among SHG members may affect the consistency and accuracy of the responses.
- **Infrastructure Constraints**: Poor internet connectivity in certain areas of Dakshina Kannada may limit digital tool usage, impacting the study's findings.

- **Time Constraints**: The data collection period may limit the ability to conduct extensive longitudinal studies or in-depth follow-ups with all participants.

Demographic Details of Respondents

The sample consisted of **100 SHG members** from rural areas in Dakshina Kannada district. The age of participants ranged from **25 to 60 years**, with a **mean age of 41.5 years**. The average number of years associated with an SHG was **7.2 years**, reflecting their long-term engagement with the group. Around **70%** of respondents reported using **mobile banking**, and **60%** used **digital wallets**, indicating a strong adoption of digital financial tools.

DATA ANALYSIS

Qualitative Analysis: To gain an in-depth understanding of the digital adoption journey among SHG members, qualitative data were collected via ten focus group discussions (FGDs) and fifteen semi-structured interviews with SHG leaders, NGO coordinators, and representatives from financial institutions. Thematic analysis was employed to assist with coding, categorizing, and interpreting the data.

Thematic analysis revealed five primary themes:

- **Empowerment Through Digital Tools**: Many women reported improved financial independence and decision-making power after adopting mobile banking and digital wallets.
- **Enhanced Operational Efficiency**: Participants cited faster transactions, better record-keeping, and improved transparency in fund management as outcomes of digital adoption.
- **Barriers to Adoption**: Common challenges included low digital literacy, intermittent internet connectivity, and limited access to smartphones, especially among older members.
- **Institutional Support**: NGOs and local banks were instrumental in conducting digital literacy workshops and facilitating account access.
- **Social Acceptance and Trust**: Growing trust in digital systems and peer influence contributed to increased uptake of digital financial services.

These insights underline the multifaceted nature of digital financial inclusion, influenced by

socio-cultural, technological, and institutional factors.

Quantitative Analysis

A structured questionnaire was administered to a sample of 100 SHG members in rural Dakshina Kannada. Statistical analysis was carried out using SPSS and Excel.

Descriptive Statistics

Descriptive statistics were used to understand the demographic profile and digital behavior of the respondents.

Table 1

Descriptive Statistics of Key Variables

Variable	Mean	Median	SD	Min	Max
Age (years)	41.5	42	10.1	25	59
Years in SHG	7.2	7	3.9	1	14
Monthly Savings (Before)	₹1508	₹1512	₹290	900	2200
Monthly Savings (After)	₹1804	₹1790	₹345	1100	2500
Perceived Benefit Score[1]	3.2	3	1.1	1	5

[1] Likert scale (1 = Very Low, 5 = Very High)

Paired t-Test: A paired t-test was conducted to compare monthly savings before and after digital financial tool adoption.

- **t**(99) = 8.73, **p** < .001

Interpretation: There was a statistically significant increase in savings post-adoption, indicating a positive financial impact of digital inclusion.

Chi-Square Test: A chi-square test was conducted to assess the relationship between mobile banking usage and perceived benefit score.

Mobile Banking Use	High Benefit (4–5)	Low/Moderate (1–3)

Yes	41	29
No	8	22

- $\chi^2(1, N = 100) = 11.48$, **p** = .022

Interpretation: There is a statistically significant association between mobile banking usage and higher perceived benefits among SHG members.

Nearly half of the respondents (49%) rated the benefits of digital tools at 4 or 5, showing an overall positive sentiment toward digital transformation in SHG operations.

Table showing Perceived Benefit Scores

Figure 1

Distribution of Perceived Benefit Scores

Score	**1**	**2**	**3**	**4**	**5**
Count	8	15	28	30	19

The mixed-methods analysis reveals that digital financial inclusion has contributed to enhanced financial performance, better operational outcomes, and increased confidence among SHG members. While the adoption of digital tools has shown measurable benefits, challenges such as digital illiteracy and infrastructural constraints remain. A coordinated, multi-stakeholder approach is essential to deepen and sustain the gains of digital transformation in rural SHG ecosystems.

RESULTS AND DISCUSSION

Results

1. Adoption of Digital Financial Tools by SHGs

The study found that a significant portion of SHG members (approximately 70%) in rural Dakshina Kannada have adopted at least one form of digital financial tool, such as mobile banking, digital wallets, or microfinance platforms. Among the most commonly used tools were mobile banking applications (45%) and digital wallets

(30%), while only 25% of SHGs reported using microfinance platforms.

2. Impact on Operational Efficiency

Digital financial tools have significantly improved the operational efficiency of SHGs. Respondents reported reduced transaction times (82%) and lower costs (60%) for money transfers. Additionally, over 75% of SHG members noted that digital tools made financial record-keeping more accurate and transparent. This digital shift also helped streamline loan disbursements and repayments, reducing administrative burdens on SHG leaders.

3. Impact on Transparency and Accountability

The use of digital platforms contributed to greater transparency and accountability within SHGs. Nearly 80% of members reported improved clarity in financial transactions, with digital records allowing easier tracking and audit of group funds. However, some members (20%) noted difficulties in fully trusting digital systems, citing concerns about potential errors in transaction recording and data security.

4. Challenges Faced by SHGs

Several barriers hinder the full integration of digital tools in SHG operations:

- **Digital Literacy**: About 45% of SHG members reported lacking basic digital literacy, with many members struggling to navigate mobile banking apps or digital wallets.
- **Infrastructure Limitations**: Around 40% of SHGs faced challenges related to poor internet connectivity, especially in more remote areas of Dakshina Kannada.
- **Cybersecurity Concerns**: 35% of participants expressed fears about data security, fearing potential fraud or hacking incidents.

5. Contribution to SHG Sustainability

Digital financial tools have shown potential to enhance the sustainability of SHGs. More than 60% of SHG members indicated that the ease of accessing credit through mobile banking or digital wallets allowed them to invest in small-scale businesses or agricultural activities. Additionally, SHGs reported greater access to external financing, with 50% of members noting improved relationships with banks and microfinance institutions.

Discussion

1. Digital Financial Inclusion and SHG Sustainability

The findings indicate that the adoption of digital financial tools has contributed positively to the sustainability of SHGs. Digital banking and wallet services have

reduced transaction costs and time, thereby improving the financial management capacity of SHGs. The ability to track funds and loans digitally has also enhanced transparency, which is crucial for fostering trust among members and external stakeholders, including financial institutions.

This aligns with existing research that highlights the role of digital tools in improving the financial literacy and autonomy of rural groups (Basu, 2019). In line with the **Sustainable Business Models** framework, digital tools support SHGs in achieving long-term sustainability by improving operational efficiency, reducing dependency on intermediaries, and fostering a culture of accountability.

2. Barriers to Full Digital Integration

Despite the positive outcomes, the study identifies significant barriers to the widespread adoption of digital financial tools. The most prominent of these barriers is **digital literacy**, with nearly half of the SHG members unable to effectively navigate digital platforms. This is consistent with broader literature, which points out that digital literacy remains a major challenge in rural India (Chakraborty & Roy, 2020).

Furthermore, **infrastructure limitations**, such as inconsistent internet access, were cited by 40% of respondents. This reflects the continued urban-rural divide in digital infrastructure, which hampers the effective implementation of government initiatives like Digital India in rural regions.

3. Role of External Support in Overcoming Challenges

The findings suggest that collaboration with **financial institutions**, **NGOs**, and **government bodies** is essential for overcoming these challenges. Over 60% of SHG members expressed the need for more comprehensive **digital literacy training** and **technical support**. This suggests that while SHGs are ready to embrace digital tools, they require institutional support to build their capacity to use these tools effectively.

Additionally, **data security concerns** emerged as a major issue, with participants questioning the safety of online transactions. This highlights the need for robust cybersecurity measures to ensure the trustworthiness of digital platforms in rural financial ecosystems.

4. Policy Implications and Recommendations

The results underscore the need for **targeted policies** that focus on bridging the

digital divide in rural areas. Specific interventions should include:

- **Digital Literacy Programs**: Focusing on improving the basic digital skills of SHG members. **Infrastructure Development**: Improving internet connectivity in remote areas to facilitate seamless digital transactions.
- **Collaboration with Financial Institutions**: Promoting partnerships between SHGs and banks to ensure smooth access to credit and financial services.

FINDINGS

1. **Widespread Adoption of Digital Financial Tools** A significant proportion of SHGs in rural Dakshina Kannada have adopted digital tools such as mobile banking, digital wallets, and microfinance platforms. Mobile banking emerged as the most frequently used tool, driven by ease of access and increasing smartphone penetration.
2. **Improved Operational Efficiency and Transparency** Digital financial inclusion has enhanced SHG operations by reducing transaction time and costs. SHG members reported improved transparency in financial dealings, particularly in loan disbursement, repayment tracking, and group savings management.
3. **Positive Impact on SHG Sustainability** The adoption of digital tools has contributed to the long-term sustainability of SHG business models. Members indicated better access to financial services, improved credit linkages, and increased investment in income-generating activities due to faster and more reliable fund transfers.
4. **Digital Literacy Gaps Among Members** Despite progress, a substantial number of SHG members—especially older and less educated women—lack the digital literacy required to independently operate mobile banking apps and financial platforms. This has led to dependence on intermediaries or younger group members.
5. **Infrastructure and Connectivity Challenges** Poor internet connectivity and limited access to digital devices in remote areas remain major barriers to full-scale digital adoption. Unreliable electricity and weak mobile networks further hinder usage, particularly during group transactions or financial reporting.

6. **Concerns Over Data Security and Trust** A portion of SHG members expressed concerns regarding the safety of digital transactions, including fears of fraud, misuse of personal data, and errors in mobile app usage. These concerns have led to hesitancy in fully embracing digital tools.
7. **Role of External Support in Digital Transition** The presence of NGOs, government schemes (like NRLM), and banks has been crucial in promoting digital adoption among SHGs. Training sessions, awareness programs, and technical assistance provided by these institutions were key enablers in the digital transition process.

SUGGESTIONS

1. **Enhance Digital Literacy Programs** Given the significant digital literacy gaps among SHG members, particularly older and less educated women, it is essential to implement targeted **digital literacy programs**. These programs should focus on building foundational skills, such as navigating mobile banking apps, using digital wallets, and understanding basic cybersecurity principles. NGOs, government bodies, and financial institutions should collaborate to design these programs, ensuring that they are accessible, practical, and contextually relevant to rural women.

2. **Strengthen Digital Infrastructure** The **poor internet connectivity** and limited access to digital devices in remote areas are substantial barriers to digital financial inclusion. To address this, it is crucial to invest in improving **digital infrastructure** in rural regions. This could include upgrading mobile networks, ensuring reliable electricity supply, and providing affordable devices to SHGs. Government policies and private sector partnerships can play a key role in expanding digital infrastructure in underserved areas.

3. **Promote Data Security Awareness** Addressing **cybersecurity concerns** is crucial to increasing trust in digital platforms. Financial institutions and digital platform providers should conduct **awareness campaigns** to educate SHG members about online fraud prevention, secure transaction practices, and the importance of strong passwords. Additionally, digital platforms used by SHGs

should ensure they adhere to stringent security protocols to protect user data.

4. **Foster Partnerships Between SHGs and Financial Institutions** The study shows that **access to external financing** has improved with the use of digital tools. To further enhance this, SHGs should be encouraged to establish strong, long-term partnerships with **banks** and **microfinance institutions**. Financial institutions could offer tailored financial products that meet the specific needs of SHGs, such as low-interest loans and digital savings plans, thus improving their financial stability and business model sustainability.

5. **Create Custom Digital Solutions for SHGs** Many SHGs face difficulties in using off-the-shelf financial tools due to their unique needs and limited digital skills. There is a need for **customized digital solutions** designed specifically for rural SHGs. These could include simplified mobile apps, voice-based banking services, and offline modes for areas with unreliable internet. Financial technology (FinTech) companies can collaborate with SHGs to create such solutions that are user-friendly and designed for low-tech environments.

6. **Incorporate Digital Skills into SHG Training Programs** SHG **capacity-building programs** should integrate digital financial tools and basic digital skills as core components. SHGs that focus on entrepreneurship and income generation can particularly benefit from learning how to use digital platforms for marketing, product sales, and financial management. These digital skills can increase SHG members' income-generating potential and improve business sustainability.

7. **Support Policy Development for Inclusive Digital Finance** Policymakers should focus on **inclusive digital finance** by promoting regulations that foster the adoption of digital financial tools in rural areas. Initiatives such as **cash incentives**, **tax exemptions for digital platform providers**, and **subsidized internet access** can encourage SHGs to adopt digital tools. Additionally, government programs like **Digital India** should

be scaled up with a focus on empowering SHGs through both infrastructure and training.

8. **Encourage Community-Based Digital Mentorship Models** As digital literacy is a key barrier, **peer-to-peer mentorship** can be an effective model for improving digital skills among SHG members. More digitally savvy members could act as mentors to help others in the group understand digital tools. NGOs and financial institutions could support this model by organizing **community-based digital mentorship** sessions where more experienced users can provide one-on-one assistance.

9. **Regular Monitoring and Evaluation** To ensure that the adoption of digital tools continues to benefit SHGs, it is essential to have **regular monitoring and evaluation** mechanisms in place. This could involve periodic surveys, feedback collection from SHG members, and impact assessments to track the progress of digital adoption and its effects on group sustainability. Based on the results, modifications can be made to training programs, infrastructure, or policy frameworks.

CONCLUSION

The study highlights that the adoption of digital financial tools has significantly improved the operational efficiency, transparency, and sustainability of Self-Help Groups (SHGs) in rural Dakshina Kannada. Despite the positive impacts, challenges such as digital literacy gaps, infrastructure limitations, and cybersecurity concerns remain. To fully realize the potential of digital financial inclusion, it is essential to address these barriers through targeted digital literacy programs, improved infrastructure, and strong partnerships between SHGs, financial institutions, and government bodies. By doing so, SHGs can strengthen their business models, foster financial inclusion, and contribute to sustainable rural development.

SCOPE FOR FURTHER RESEARCH

Future studies could explore the **long-term impact** of digital financial tools on the economic outcomes of SHGs, focusing on **income generation**, **poverty reduction**, and **entrepreneurial growth**. Research could also investigate the role of **gender dynamics** in the adoption of digital tools within SHGs, examining how digital financial inclusion influences **women's**

empowerment and decision-making power within these groups. Additionally, future studies could compare SHGs in other regions of India or internationally to identify **regional disparities** in digital financial adoption and uncover successful models that can be replicated. Furthermore, exploring the **effectiveness of specific digital tools**—such as mobile wallets or microfinance platforms—in improving SHG sustainability and resilience could provide deeper insights into the types of technologies most beneficial for rural financial inclusion. Lastly, examining the **policy implications** and assessing the role of government interventions in promoting **inclusive digital finance** could guide future policy recommendations for rural development initiatives.

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RELIGIOUS TOURISM AND VIKSIT BHARAT: A STUDY OF HUMAN RESOURCE PRACTICES IN MAHARASHTRA

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INTRODUCTION

Travelling for religious purposes is very common since ages. In fact, tourism started with people visiting various religious and sacred places. There are references that the saints of all religions have travelled to a number of places for their spiritual awakening and growth. Most of the people visit religious places in their old age. That is the time when they have lived their life and want to get away with all worldly attachments and be as close as possible to the God. The person who travels to such sacred places for paying homage or seeking blessings of the God is called as a Pilgrim and the journey undertaken by him is called as "Pilgrimage or Religious Tourism." (Haq, 2011) (Gurung, 2016)

Most of the times cultural tourism and religious tourism is considered as same as the cultural tourist mostly visits to religious site to experience the culture. It is a travel with the primary objective of undertaking various religious activities. (Trauer, 2006)

There can be some points of differences between pilgrimage and religious tourism. The fundamental distinction is motivation for pilgrimage is quite different from the motivation for religious tourism. While the pilgrims travel to the religious destinations to have spiritual experience, the religious tourist may be just a customer who intends to enjoy the tour along with having blessings of the deity. A pilgrim may dress up in the traditional attire during the visit to the sacred site while a religious tourist may use modern clothing like jeans, shorts, and vests. Modern modes of transport, increased disposable income have increased the expectations of the religious tourists and has led to commercialisation of many of the religious tourist destinations. (Singh, 2011) (Blackwell, 2007)

LITERATURE REVIEW

1. Choe, J. Y., & O'Regan, M. (2015) in their research article, "*Religious Tourism Experiences in South East Asia*" cover the entire religious tourism prevailing in South East Asia (SEA).

They also discuss the strategies required to overcome barriers for development of religious tourism. They have focussed their study on religious Buddhist tourism in Thailand.

2. Jesurajan, S. V. A., & Prabhu, S. V. (2012) in their article "*Dimensions of spiritual tourism in Tuiticorin district of Tamil Nadu in India–A critical analysis*" have discussed about determinants of spiritual tourism, satisfaction level of tourists and problems faced by them w.r.t. Tuiticorin district of Tamil Nadu. They have covered important spiritual tourist places in Tuiticorin district such as Tiruchendur, Manapad, Nava Thirupathi and Tuiticorin. After ranking the problems faced by tourists, they have also given suggestions to overcome the problems and also to promote spiritual tourism in the district.
3. Kiran Shinde (2010) in his research paper "*Entrepreneurship and Indigenous Entrepreneurs in Religious Tourism in India*" with the case study of Vrindavan, an emerging religious tourism destination in India explains how religious tourism can contribute in economic progress and how entrepreneurs innovate, develop new products and expand their business to suit the demands of the religious tourism. It demonstrates that religious entrepreneurs drive religious tourism. However, there is difference between entrepreneurship in western countries and other countries.
4. Olsen, D. H., Amos, Fyall, A., & Garrod, B. (2013) in their book "*Managing Religious Heritage Attractions*" have taken into consideration classification of sacred sites given by Shackley (2001). They have also taken note of various management issues at these sites as discussed by authors. The main focus of the paper is to find out management challenges at religious sacred sites in Jerusalem which are discussed w.r.t. four more popular sites in the country. They have provided suggestions for some of the problems like transportation.
5. Potdar, M., & Talekar, P. (2011) in their research article "*Religious Tourism in Kolhapur District: A Geographical Analysis*" assess religious tourist destinations in Kolhapur district of Maharashtra. Based on primary study of tourists visiting the religious destinations in Kolhapur they have given some suggestions for improvement of infrastructure and other facilities.
6. Razaq and Morpeth (2015) in their book "*Religious Tourism and Pilgrimage Management: An International*

Perspective" have compiled and edited articles of several authors on religious tourism, pilgrimage, its management, sustainability in religious tourism and marketing of religious tourism. They have also included case studies related to religious tourism and its management. The book covers various aspects of religious tourism like globalisation of pilgrimage, motivation factors for religious tourism, sustainability in religious tourism and so on.

7. Shinde (2018) in his research paper, *"Governance and Management of Religious Tourism in India"* tries to provide a better understanding of governance and management of religious tourism. The paper takes an overview of policy framework and governance mechanisms for religious tourism. It also discusses formal and informal aspects and models of religious tourism w.r.t. two religious sites i.e. Vrindavan and Shirdi.
8. Singh, R. P. (2013) in his research paper "*Green pilgrimage initiatives*" has stated the concerns about environmental issues at the sacred places due to increase in the number of pilgrims. He focusses on Green Pilgrimage Network (GPN) initiative of Alliance of Religions and Conservation (ARC) along with its benefits and the GPN initiatives taken in India. He suggests certain points for the development of sustainable religious tourist places.
9. Vijayanand, S. (2012) in his research paper "*Pilgrimage tourism management issues and challenges with reference to Tamil Nadu*" has described a number of pilgrimage sites in Tamilnadu. He has discussed cultural and socio-economic importance of pilgrimage tourism and various issues at the pilgrimage sites. He has pointed out shortcomings in the basic infrastructure like non availability of clean drinking water, insufficient parking facilities and accommodation arrangements and so on. He has even suggested certain measures for infrastructure development and temple services.
10. Varma, A. (2019) in her research paper "*Hinduism and Environment*", discuss continuously increasing environmental concerns as discussed by number of scholars. She has described philosophy of Hindu religion, food patterns followed, festivals celebrated and their relation with the environment. She argues that though all these practises are very much eco-friendly changes in life style and commercialisation have led to major shift in celebration of festivals defeating the very principle of these

celebrations and mainly deteriorating the environment.

Definitions of Religious Tourism

1. (Grondys, Ślusarczyk, & Kot, 2014) Religious tourism means "religious-cognitive departures, in which holy place does not constitute the purpose of visit or tourist travel in general, but it is on route or in the destination of the journey held in other purposes than religious."
2. (Shinde K. A., 2011) "Contemporary patterns of travel to sacred sites and pilgrimage sites are increasingly being referred to as Religious Tourism."

Religious Tourism in India and Maharashtra

The world's largest form of mass religious tourism takes place at the Kailash Mansarovar Yatra in China, Kumbh Mela at Haridwar, Allahabad (now Prayagraj), Ujjain and Nashik- Tryambakeshwar in India, annual Hajj pilgrimage in Mecca, Saudi Arabia, the site of Christ's crucifixion in Jerusalem where Christian pilgrims regularly visit. These sites are not only visited by the pilgrims but also by non-religious tourists since they have cultural, historical and religious significance. (Singh R. P., 2011)

India being the land of Gods and Goddesses and follower of many religions, has many religious places. 12 Jyotirlingas of Lord Shiva, Vaishno Devi Temple, Golden temple, Dargah of Ajmer Sharif, Velankanni Church, Hemkund Sahib, Amarnath cave, Rishikesh, Mathura, Vrindavan, Tirupati, Rameshwaram, Badrinath, Bodhgaya and many more. Lots of Indians and foreign tourists visit all these places every year.

In Maharashtra also, there are a number of religious places of different religions. The popular and most visited ones are Ashtavinayak, Shirdi Sai Baba, Haji Ali Dargah, Gurudwara at Nanded, Siddhivinayak, Mahalakshmi in Kolhapur, Shegaon, Vitthal Rukmini temple in Pandharpur and many more. Lakhs of tourists visit these places every year. (Gurung, 2016) (Patange, Srinithivihahshini, & Mahajan, 2013)

Concept of Viksit Bharat Mission

Viksit Bharat Mission is a government initiative launched by the Government of India with the aim of transforming India into a developed nation by 2047. The mission focuses on inclusive and sustainable development across sectors such as Infrastructure, Education, Healthcare, Digital economy, Clean energy, Agriculture, Employment and

many more. It involves active citizen participation, policy reforms, and strategic investments to improve the quality of life, boost economic growth, and ensure that development reaches every corner of the country. The Viksit Bharat mission also aims to make India self-reliant and globally competitive.

Importance of Religious Tourism in Viksit Bharat

The concept of Viksit Bharat (Developed India) 2047 places a high value on religious tourism as it focuses on sustainable tourism, social integration, economic growth, and cultural legacy into a single, potent industry. The importance of religious tourism can be in the following aspects:

1. **Economic Growth and Employment –** Religious tourism contributes significantly to local and national economies. According to the Ministry of Tourism, religious tourism contributes over 60% of domestic tourism in India. It generates employment across hospitality, transportation, guiding services, and local crafts. Programs like PM Gati Shakti PRASHAD (Pilgrimage Rejuvenation and Spiritual Augmentation Drive) are useful in the development of religious sites.
2. **Cultural Preservation and National Identity -** Religious tourism helps preserve India's ancient cultural heritage. Temples, mosques, churches, monasteries, and gurudwaras are centers of architecture, art, music, and traditions. Visit to such places makes the tourists aware about the rich culture and Indian civilizational values aligning with the Viksit Bharat goal of a culturally rooted modern nation.
3. **Social Harmony and Inclusivity -** Religious tourism encourages cross-cultural and interfaith dialogue. People from different regions and communities interact, promoting mutual respect and understanding. Pilgrimages like the Char Dham Yatra, Haj, Velankanni or Golden Temple visits reduce regional divides and develop national integration.
4. **Sustainable and Regional Development -** Many religious sites are in tier-2 and rural regions. Investment in tourism helps to improve rural infrastructure, boosts local economies, creates sustainable livelihoods and promotes eco-tourism and responsible travel. Under Swadesh Darshan Scheme, thematic circuits like the Buddhist

Circuit, Ramayana Circuit, and Spiritual Circuit are being developed to enhance infrastructure and accessibility.

5. **Global Soft Power** – India's spiritual legacy is a global attraction. Sites like Bodh Gaya, Rishikesh, and Varanasi attract millions of international tourists annually. Yoga, Ayurveda, and Indian spirituality are seen as soft power tools to enhance India's global influence.
6. **Digital and Smart Tourism** - Government initiatives like e-Darshan, virtual tours, and mobile apps are modernizing pilgrimage experiences. Integration of AI, AR/VR in temples like Somnath and Kashi improves user experience and efficiency. (Ministry of Tourism, 2024)

OBJECTIVES OF THE STUDY

- To understand the concept of religious tourism and the scenario in Maharashtra
- To study the importance of religious tourism in the mission of Viksit Bharat (Developed India)
- To analyse the existing HR practises followed in religious tourism in Maharashtra
- To assess how religious tourism can contribute to the goals of the Viksit Bharat Mission 2047, with a focus on sustainable development, employment generation, and inclusive growth.

RESEARCH DESIGN AND METHODOLOGY

Research is Exploratory and has been conducted based on Primary and Secondary sources of data. The data has been obtained from books, articles, reports and websites. For the collection of primary data, a structured questionnaire was designed to study HR practices followed in various religious places in Maharashtra. Data has been collected from 60 religious trusts. Convenience sampling method has been used for collection of data. Data was collected through Personal interviews with trustees, office bearers, priests (pujaris) at the religious destinations who are involved in the management of the trust. Collected data has been analyzed with SPSS software.

ANALYSIS AND INTERPRETATIONS

From the data collected, analysis about the HR practices followed is made.

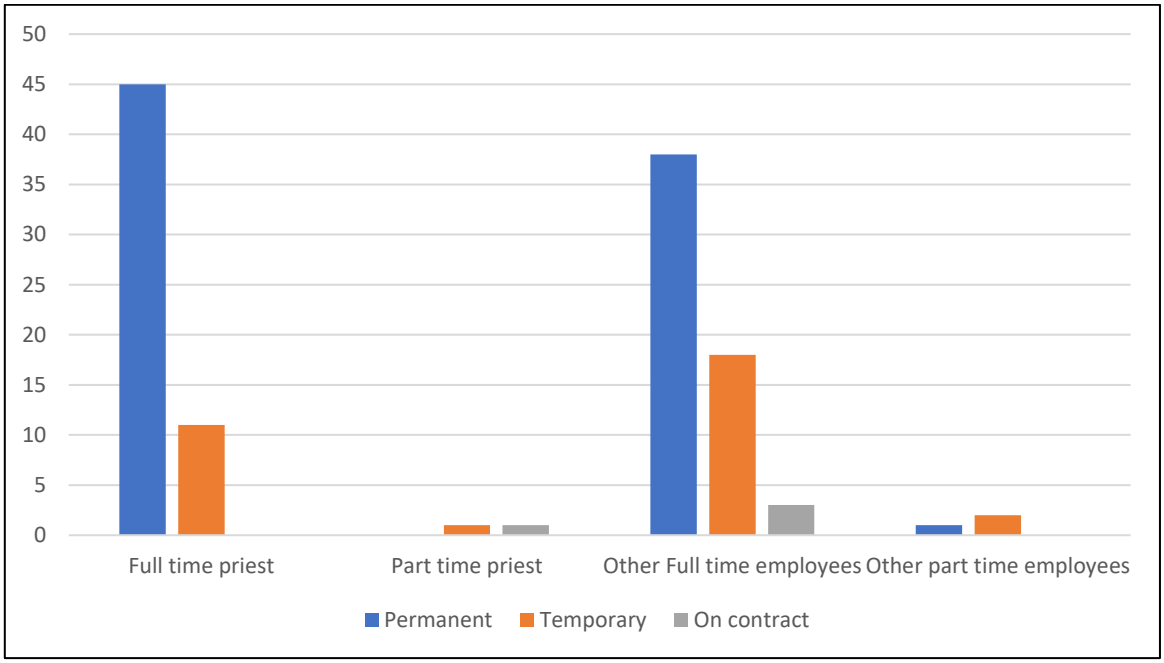
(a) People working with Religious Trusts

Table 1: Descriptive Statistics for people working with Religious Trusts

Job status	Permanent		Temporary		On contract	
	Count	%	Count	%	Count	%
Full time priest	45	80.4%	11	19.7%	0	0.0%
Part time priest	0	0.0%	1	50.0%	1	50.0%
Other Full-time employees	38	64.4%	18	30.5%	3	5.1%
Other part time employees	1	33.3%	2	66.7%	0	0.0%

Source: Primary data

Figure 1: Descriptive Statistics for people working with Religious Trusts



Source: Primary data

Interpretation:

From the Table 1 and Figure 1 it can be observed that

(i) Out of 60 religious trusts, 45 trusts i.e. 80.4% trusts have full time and permanent priests and only 11 i.e. 19.7% trusts have full time priests but their services are temporary. Hardly any trust has part time priests in service.

(ii) Apart from the priests employees are needed to handle administrative tasks, maintain cleanliness, security etc. 38 trusts have employed full time staff on permanent basis while 18 trusts have employed full time staff on temporary

basis. Just like priests there are hardly any part time employees engaged by trusts.

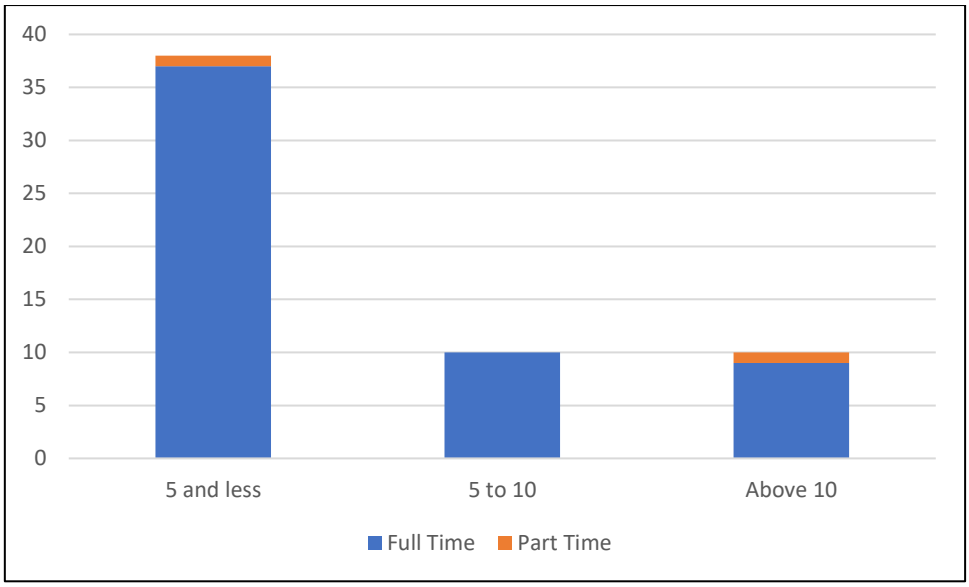
(b) Number of Priests working with Religious Trusts

Table 2: Descriptive Statistics for Number of Priests working with Religious Trusts

Number of Priests	Full Time		Part Time	
	Count	%	Count	%
5 and less	37	66.1%	1	50%
5 to 10	10	17.9%	0	0%
Above 10	9	16.1%	1	50%

Source: Primary data

Figure 2: Descriptive Statistics for Number of Priests working with Religious Trusts



Source: Primary data

Interpretation:

From the Table 2 and Figure 2 it can be observed that 37 trusts have employed less than 5 priests, 10 trusts have employed 5 to 10 priests while 9 trusts have employed more than 10 priests to provide religious services. As mentioned in the previous table and chart there are hardly any part time priests.

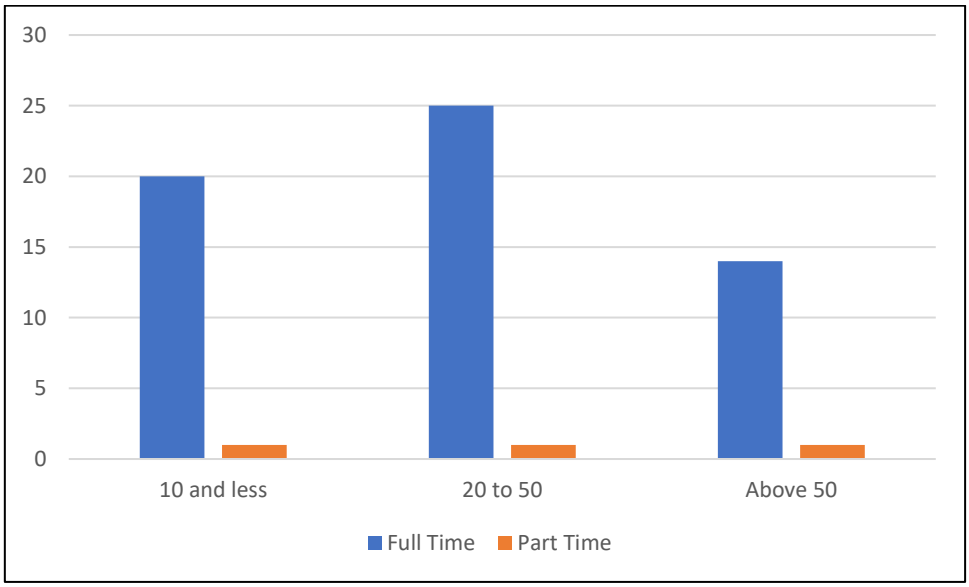
(c) Number of Other Employees working with Religious Trusts

Table 3: Descriptive Statistics for Number of Other Employees working with Religious Trusts

Number of Other Employees	Full Time		Part Time	
	Count	%	Count	%
10 and less	20	33.9%	1	33.3%
20 to 50	25	42.4%	1	33.3%
Above 50	14	23.7%	1	33.3%

Source: Primary data

Figure 3: Descriptive Statistics for Number of Other Employees working with Religious Trusts



Source: Primary data

Interpretation:

From the Table 3 and Figure 3 it can be observed that 25 trusts, which is 42.4%, have 20 to 50 full time employees, 20 trusts which is 33.9% have less than 10 full time employees and only 14 trusts i.e. 23.7% have more than 50 employees.

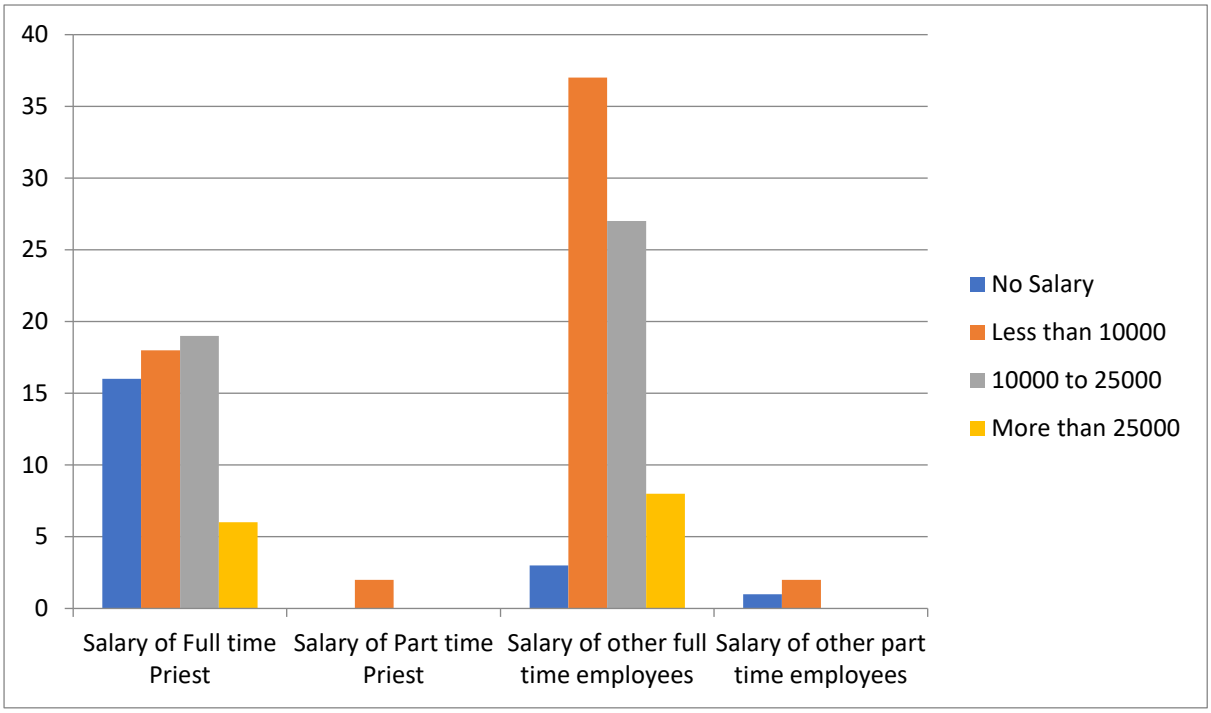
(d) Salary distribution of employees working with religious trusts

Table 4: Descriptive Statistics for Salary distribution

	No Salary	Less than 10000	10000 to 25000	More than 25000
Salary of Full time Priest	16	18	19	6
Salary of Part time Priest	0	2	0	0
Salary of other full time employees	3	37	27	8
Salary of other part time employees	1	2	0	0

Source: Primary data

Figure 4: Descriptive Statistics for Salary distribution



Source: Primary data

Interpretation:

From the Table 4 and Figure 4 it can be observed that

(i) Salaries of priests vary in different trusts though they are full time employed. 16 trusts do not offer any salary to their priests. These priests get their income from money directly given by devotees for performing some pooja.

(ii) 18 trusts provide salary of less than Rs.10000, 19 trusts pay salary in the range of Rs.10000 to Rs.25000 and only 6 trusts pay salary more than Rs.25000 to their priests.

(iii) Similarly, salaries of other full time employees are different in different trusts. In 3 trusts the full time employees do not get any salary, in 37 trusts they get salary in the range of

Rs.10000 to Rs.25000 while only in 8 trusts they get salary of more than Rs.25000

Key HR Challenges in Religious Tourism in Maharashtra

1) **Seasonality and increase in demand** — Religious festivals, pilgrim seasons create huge increase in the tourists that may create issues of crowd management and temporary staffing.
2) **Volunteer vs paid staff balance** — Many trusts rely on volunteers during peak times who may not able to handle the crowd as well as other operational issues.
3) **Skill gaps** — The staff appointed by the trust may lack hospitality skills, language skills, hygiene, safety and so on.
4) **Retention & motivation** — Due to low pay, high workload during peaks, low benefits it is difficult to retain the employees.
5) **Cultural sensitivity** — Staff need to understand religious norms, pilgrims' expectations.
6) **Infrastructure & facilities** — HR cannot deliver well if physical infrastructure like accommodation, toilets, water, hygiene is poor.

HR and Sustainability in Religious Tourism

1) Waste management (solid & liquid) during large pilgrimages; requires trained manpower and systems.
2) HR staff need training in standards of hygiene, crowd flow, safety protocols.
3) Local workforce can be used to ensure community inclusion and economic benefits.
4) It is important that staff, guides at the religious places respect religious/traditional customs to ensure cultural preservation.
5) HR must schedule, monitor, and enforce practices like minimizing plastic waste, use of sustainable energy sources like solar and managing water usage. (SALVE & BALKRISHNA, 2025)

Relation with Viksit Bharat Mission

1) Expanding tourism destinations including spiritual tourism is part of boosting the sector for both domestic and inbound tourists. HR scaling is needed.
2) PM Viksit Bharat Rozgar Yojana will help formalize jobs, incentivize hiring which may help in getting more stable employment in religious tourism.
3) Infrastructure development under various schemes means better facilities

4) Sustainable development is a pillar so HR practices must incorporate environmental sustainability and social responsibility.
5) Skill development / capacity building is emphasized across government policy and is the focus of Viksit Bharat. Religious tourism sites would benefit by having trained hospitality guides, service staff etc.

CONCLUSION

Religious tourism in India, and specifically in Maharashtra, plays a vital role in the socio-economic and cultural landscape of the country. It has not only contributed to preserving India's cultural heritage but also become a major driver of domestic tourism. In the context of the Viksit Bharat Mission, which envisions India as a developed, inclusive, and self-reliant nation by 2047, religious tourism emerges as a powerful instrument to achieve multiple national goals — including economic development, cultural preservation, social harmony, and sustainability. The data collected from religious trusts in Maharashtra highlights a diverse workforce engaged in maintaining these sacred spaces, though challenges remain in areas like HR practices, employee compensation, training, and retention.

To truly harness the potential of religious tourism, there is a need for structured and strategic human resource management. Government schemes such as PRASHAD, Swadesh Darshan, and PM Viksit Bharat Rozgar Yojana provide critical support in terms of infrastructure and employment generation, but their success depends on effective on-ground implementation and workforce development. Training staff in hospitality, hygiene, safety, and cultural sensitivity will enhance the pilgrim experience and ensure the sustainable growth of these destinations. Moreover, religious tourism can foster rural development and community participation, thereby aligning perfectly with the inclusive development model promoted by Viksit Bharat. By integrating modern practices with traditional values, India can position religious tourism as not just a spiritual journey, but a cornerstone of national progress and identity.

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Leveraging Artificial Intelligence for Smart Investment Decisions

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Abstract:

Artificial Intelligence (AI) is increasingly becoming a powerful tool in transforming traditional investment strategies. This study explores the integration of AI in financial decision-making and examines its impact on the quality, accuracy, and satisfaction of investors in managing their portfolios. The primary objective is to understand investors' perceptions of AI in the modern financial era by collecting primary data through structured questionnaires based on five key variables influencing investment decisions today. The study provides valuable insights into the role of AI in investment decisions and its effectiveness in projections. Findings indicate that AI tools are highly useful in various aspects of financial investment decisions and in effective portfolio management. The study also suggests that investors should receive proper knowledge and training to make informed decisions, and that AI tools should maintain transparency to ensure logical understanding. Overall, the research concludes that AI has a significant impact on investment decision-making in the modern financial era.

Key words: Artificial intelligence, Smart Investment decisions, portfolio management, modern financial era.

Introduction:

The rapid advancement of technology has revolutionized nearly every sector of the global economy, and the financial sector is no exception. In the modern financial era characterized by digitalization, algorithmic trading, and big data. AI is transforming how investments are researched, evaluated, and executed. The traditional investment landscape, once dominated by manual analysis and human intuition, is steadily being replaced or augmented by intelligent systems capable of processing

vast volumes of data and making data-driven recommendations. This study aims to explore how AI is being harnessed to facilitate smarter, faster, and more reliable investment decisions.

In finance AI technologies include machine learning (ML), natural language processing (NLP), predictive analytics, and robotic process automation (RPA). These tools allow investors to analyse market trends, predict stock movements, automate portfolio allocation, and assess risk with high precision. The study aims to identify critical factors such as user trust, ease of use, predictive accuracy, and transparency that influence the adoption of AI in investment. Through a combination of literature review, case studies, and response from targeted audience. This research will contribute to the understanding of AI's current and potential impact on the future of investment decision-making.

Challenges and risks associated with AI based investment decision:

- **Data quality and availability**: inaccurate, incomplete, and outdated data can lead to wrong investment prediction.
- **Cyber security threats:** AI investments are possible to hacking; data breaches and may manipulation of inputs.
- **Over reliance on automation:** over dependence on AI can reduce human oversight and also ignore the emotional intelligence in investments.
- **High implementation costs**: developing, training and maintain an AI system requires significant financial and technical resources.
- When market volatility is high AI may struggle to predict the accurate outcomes.

AI applications used in Investment decision making:

Tool	AI features	Use case
Trendlyne	Predictive analytics and scoring model	Screening high potential stocks based on AI scoring
Zerodha streak	AI powered strategy back testing	Tests risk level before execution
Trendlyne	Machine learning price	Predicts future stock price

	prediction	trends
Smallcase	AI-curated thematic baskets	Automated portfolio creation and rebalancing
Zerodha coin + AI scripts	AI based portfolio performance analysis	Mutual funds and sock portfolio optimization

Literature Reviews:

1. **Bhunia, A. (2025),** This study uses AI techniques (e.g., LSTM and hybrid models) on data from Indian stock markets (BSE and sentiment data) and finds that AI-based models significantly outperform traditional forecasting for stock price prediction.

2. **Singh, T. Sudha, Soumya Shri, Darpan Rathi & Nishita Shah. (2025),** The authors discuss how AI (ML, NLP, big data analytics) is reshaping portfolio construction, risk mitigation, and decision-making for both institutional and retail investors in the Indian context.

3. **Suresh, R., & Vignesh, A. (2024),** This paper analyses how AI/ML is transforming multiple aspects of Indian finance: stock trading, risk management, fraud detection, and customer assistance reporting significant improvements in trading efficiency, risk assessment and fraud reduction.

4. **Komal Kanojia (2024)**, This study focused on the multifaceted impact of AI technologies, including machine learning, natural language processing (NLP), and deep learning, on investment strategies and methodologies. And also, AI-driven tools in enhance data analysis, risk management, and market forecasting, empowering investors with more accurate insights while mitigating behavioral biases. This paper also concentrates on the evolution of AI in finance and its transformative effects on traditional decision-making processes, and emerging trends that signal the future of AI adoption in financial markets.

5. **Priyanka Khanna (2021),** This study examines the impact of AI in investment decision-making in the financial sector. Through analysing

the key applications of AI in various sector of finance, assessing its benefits and limitations, and examining case studies and empirical evidence, through understand the extent to which AI has influenced investment strategies, risk management, and overall financial performance. This paper was also discussed the potential ethical considerations and future prospects for AI-driven investment decision-making in the financial investment

6. **Kartik Rathour (2025),** This paper represents the analysis of survey responses of industry experts to evaluate the level of AI adoption, and its perceived advantages, and the most significant challenges, such as problems with transparency, data quality, and regulatory restrictions. And the out of this study was AI has the potential to make decision making faster, customize investment portfolios, and force the industry to change greatly and complement the importance of human control, which is needed to manage ethical and operational nuances. It is recommended that to get the most out of AI in a responsible way, it would be necessary to create transparent AI models, better data governance, and collaborative regulatory frameworks. As per this study AI seems effectively in decision making process and it have more efficiency in time management.

7. **Dr. Rachana Saxena (2024)**, This study mainly focused on the perspective of the teaching department it also bounded by the geographical locations of Bangalore hear she consider the efficiency and effectiveness of AI in Deep learning Technology and Data based AI and the insights of Ai in decision making in business perception and also it replicates the motivation, merits and demerits of using AI over the traditional methods in investment decision-making with special reference to the teachers of various colleges in Bengaluru.

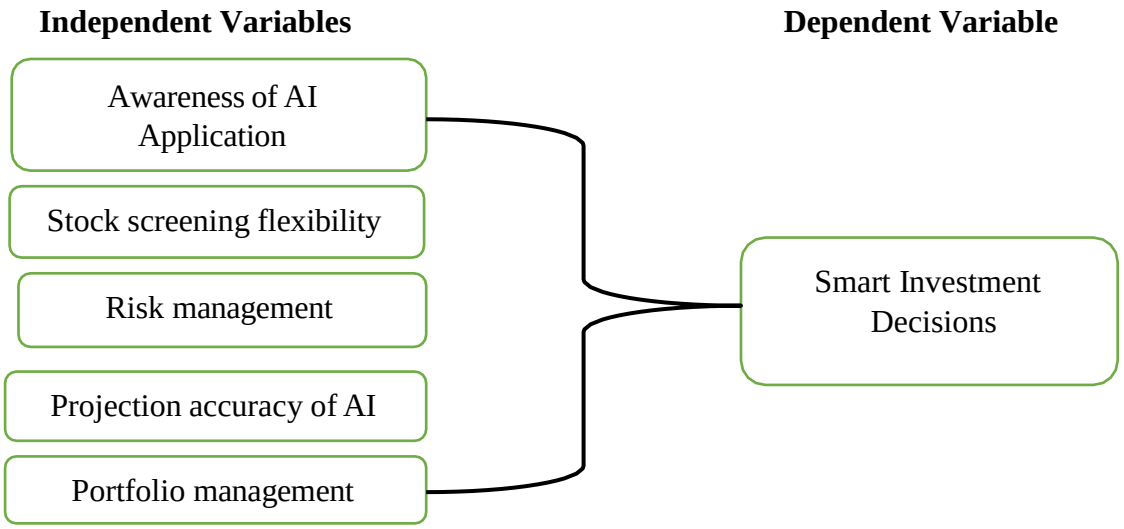
8. **Madhusudan Narayan (2024),** This Study explores that transformative potential of artificial intelligence (AI) in the realm of decentralized finance (DeFi), focusing on its application in fraud detection and prevention. Through

an in- depth examination of AI-driven methodologies and techniques, particularly machine learning models, natural language processing (NLP), and graph analytics, this study explores how AI is reshaping the landscape of fraud detection within decentralized financial ecosystems. Using a conceptual framework, this study investigates the current state-of- the- art techniques employed in AI- driven fraud detection and prevention in DeFi. It examines the methodologies and applications driving the adoption of AI, elucidating its efficacy in identifying fraudulent activities and enhancing the security of DeFi platforms.

Research Gap:

All the previous studies on AI were conducted in various sectors and in various geographical regions on investments activities, like the fraud detection and fraud preventions and also, they focused on the demographics of a population such as teachers and they also concentrate on particular segments like portfolio management and so on. This study majorly focused on analysing the perception of modern investors on the effectiveness and efficiency of AI in modern financial era among the various segments such as risk management, projection accuracy of AI in investment.

Factors identified for the study:



Statement of the problem:

In today's expanding financial landscape, analysing, and evaluating stocks has become increasingly challenging due to

various constraints. Additionally, the rise of self-proclaimed financial consultants who demand a high percentage of commission from investors, yet often provide misleading or inaccurate advice, has led to poor investment decisions. This has discouraged many investors from actively participating in financial markets. On the other hand, traditional stock analysis methods require significant time and effort, which does not align with the fast-paced lifestyle of today's generation where people may have money, but lack of time. These factors have inspired this research, which aims to explore the role of Artificial Intelligence (AI) in addressing these challenges. The study is an attempt to harness AI for making smart investment decisions in the modern financial era.

Objectives:

1. To study the concept and applications of AI in financial investment
2. To identify challenges and risks associated with AI based investment decision
3. To analyse the effectiveness of AI tools in portfolio management
4. To examine the perception and trust of investors on AI based decision making

Need for the study:

In today's fast-moving financial world, traditional investment methods are often time- consuming and less efficient. With the rise of Artificial Intelligence, investors now have access to tools that offer faster, data-driven, and more accurate decision-making. However, there is limited understanding of how investors perceive and adopt these AI tools. This study is needed to assess respondents' perceptions of AI in investment decisions, focusing on awareness, usability, trust, and risk. It aims to explore the effectiveness of AI compared to traditional methods and provide insights based on user experiences. The findings will help improve AI adoption and guide new investors.

Limitations of the Study:

1. The study is based on a limited number of respondents.
2. Data collection is restricted to specific regions or markets.
3. The research was conducted within a limited timeframe.
4. Respondent perceptions may introduce bias in the results.
5. Rapid changes in AI and financial markets may affect relevance.
6. The study focuses on perceptions rather than actual investment

performance.

Scope of the study:

The present study is confined to understanding the role of Artificial Intelligence in facilitating smart investment decisions in modern financial era. The research scope is limited to individual investors operating in the Bengaluru region. The study focuses on examining how AI driven tools and techniques influence investment decision making, portfolio management and risk assessment.

Research Methodology:

- Research Design: Descriptive Research
- Sample size: 100 Participants
- Sampling unit: Investors
- Sampling method: Non probability sampling - convenience sampling
- Type of data
  - Primary data: Questionnaires
  - Secondary data: Research papers, Journals
- Statistical tools: ANOVA

Data Analysis and Interpretation:

Descriptive Statistics Table:

Particulars	Count	Sum	Sample Variance	Mean	Standard Deviation
Cyber security awareness & literacy	5	14	1.2	2.8	1.095
Accessibility to cyber security infrastructure	5	36	6.2	7.2	2.49
Effectiveness of cyber threat detection & protection	5	106	12.2	21.2	3.49
AI-driven security tools	5	254	9.7	50.8	3.11

Regulatory compliance in cyber security	5	90	0.5	18	0.71

Interpretation: The descriptive statistics indicate that most respondents tend to agree with the statement, as reflected by the highest mean (50.8) and a relatively concentrated distribution. Few respondents strongly disagreed, with a low mean (2.8) and minimal variability. Neutral responses show the widest spread, suggesting varied opinions in the middle category, while strongly agree responses are consistent and peaked, indicating agreement among a smaller group. The slight skewness in some categories and variations in range and standard deviation reflect differences in how strongly respondents felt about each option, but the overall tendency leans clearly toward agreement.

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Hypothesis:

Null Hypothesis (H0):

The key identified factors of such as; Awareness of AI, Stock Screening, Risk Management, Accuracy of AI Projection, and Portfolio Management have no significant effect on investment decisions

Alternative Hypothesis (H1):

The key identified factors of such as; Awareness of AI, Stock Screening, Risk Management, Accuracy of AI Projection, and Portfolio Management have significant effect on investment decisions.

: Parameters (Five Likert scale)	Factors identified					Total
	Awareness of AI	Stock screening	Risk management	Accuracy of AI projection	Portfolio Management	
Strongly disagree	2	2	4	4	2	14
Disagree	5	8	7	11	5	36
Neutral	23	19	17	21	26	106
Agree	52	53	54	47	48	254
Strongly Agree	18	18	18	17	19	90
Total	100	100	100	1001	100	

Anova: Single Factor

Groups	Count	Sum	Average	Variance
Strongly disagree	5	14	2.8	1.2
Disagree	5	36	7.2	6.2
Neutral	5	106	21.2	12.2
Agree	5	254	50.8	9.7
Strongly Agree	5	90	18	0.5

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	7068.8	4	1767.2	296.5101	1.7E-17	2.866081
Within Groups	119.2	20	5.96			
Total	7188	24				

Interpretation:

Since P value is less than 0.05 and F value is greater than the F critical value, hence the null hypothesis is rejected and it is proved that identified factors of such as; Awareness of AI, Stock Screening, Risk Management, Accuracy of AI Projection, and Portfolio Management have significant effect on investment decisions.

Findings:

1. A majority (70%) agrees or strongly
5. 67% of participants believe AI applications assist in creating an optimum investment portfolio.
6. The findings revealed that AI has significantly played a vital role in an investment decision.

agrees that AI applications for investment are easy to navigate.

2. Around 71% of respondents believe AI tools effectively filter stocks based on investment preferences.
3. About 72% feel AI helps them better assess investment risks.
4. Nearly two-thirds (64%) agree or strongly agree that AI-generated market predictions are generally accurate.

Suggestions:

- Provide some proper information regarding to the risk Associated with AI tool
- Evaluate the inaccurate projections regarding to the investment to

avoid misguiding investors

- Offer some virtual trading apps with AI tools to make better understanding to users before their real time investment
- Reduce the cost of AI application and easy the navigation

Conclusion

The study was conducted to Identify and explores the potential of AI in enabling smart investment decision in the modern financial era, though, focus on investors in the Bengaluru region. The study concluded that the majority of the investors are aware of AI tools in investment. And some few are little bit aware of it. The key objectives of the study are to know the various risk and challenges associated with AI based decision making and also perception of investors towards the investment decision using AI technology. The study found that most of the investors agree that AI based tools are easy to use, help full in selection of appropriate stocks, risk management, portfolio management and also, they trust on accuracy of AI investment. Hear we use Anova single factor as a statistical tool to prove our hypothesis. It has proved that AI has significant impact on the investment decision in modern financial era.

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The Emergence of Phygital Natives a new consumer segment for Industry 6.0

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Abstract:

Marketing strategies have evolved to become more sustainable, digital, and social to cater to the increasing influence of millennials. However, it does not stop there, as marketers are expanding their efforts to engage with even younger generations: Generation Z and Generation Alpha. Consumers are seeking these types of experiences similar as being in a video game where artificial intelligence blends with role playing where the consumer is the center of the experience. These new marketplaces are being developed in high traffic cities where young consumers seek to experience brands in new ways. Digital native brands as well as traditional ones have been implementing this alternative mode of entry and being a new phenomenon, it has not taken the attention of scholars. Interest in the application of phygital marketing to retail commerce has increased in recent years. Implicit in this excitement is the notion that physical experiences provide unique value above and beyond what can be offered via digital means, and therefore that combining the two can galvanize sales. However, the specific sources of this marketing potential remain undertheorized and the factors determining the appropriateness of such implementations remain unclear.

Research Objective: The paper equips both academics and practitioners with a better and more scientific understanding of the practical dimensions of phygital commerce and lays a foundation for future enquiry.

Keywords: Industry 6.0, Phygital retail, Entry modes.

Introduction

In the last decade, marketers have favored Generation Y, or the millennials, as a focus audience due to their sheer size and high purchasing power. Consequently, marketers have adjusted their strategies to adapt to Generation Y's key characteristics, such as a strong focus on sustainability and tech savviness. Modern marketers have created more campaigns highlighting ecofriendly products or socially responsible operations. For example, fashion brands such as Patagonia and Everlane have tapped into the millennial mindset by focusing on recycled and sustainably produced materials and becoming the antithesis of the fast fashion industry. Marketers have also leveraged digital marketing tactics such as social media and search engine marketing to reach Generation Y. Even luxury fashion groups such as LVMH and Kering, traditionally known for investing heavily in offline experiences, have shifted half of their marketing budget to digital media. This shift toward digital marketing has allowed these brands to reach a wider audience of millennials. Technology has changed dramatically how new business are born and consumers access goods and services worldwide (Fiestas and Tuzovic, 2021). Particularly, these changes have been rapidly increasing in the last twenty years as infrastructure of communications has been improving such as the internet speed and data capacity, the advent of smart devices, and the expansion of them on worldwide. As with innovation, early adopters have been initially multinationals and firms with large resources to implement these advances. Technological advances have opened new avenues for small and medium sized enterprises, and entrepreneurs to expand globally (Dabic´ et al., 2020; Coppola, 2022). Benefits have been observed in the areas of inventory control within the organization, a more efficient sourcing process as well in the delivery process, internally and toward customers. Recently, Big box retailers have started using their stores as warehouses for online sales and for customer pick up. It has become more customary to see omnichannel integration from company's websites, mobile phone applications and expand to third party digital retail marketplaces. In the last decade, traditional and new digital born companies have used retail marketplace platforms such as Amazon, Alibaba and Baozun to sell their products domestically and internationally (He et al., 2021; Qi et al. 2020). As consumers feel more comfortable purchasing online and using mobile apps, companies that are not present on these channels miss part of the segment consumption and losing market share. On the other hand, there are digitally born

companies that only sell on social media such as Instagram, Facebook and TikTok as well as the other known digital marketplaces and do not have a physical presence. By only using these digital marketplaces, firms might incur in poor customer experience as consumers are more sophisticated and expect multichannel service quality (Patten et al., 2020). When firms limit themselves to distribute their goods only through digital platforms, they increase their operating risk over marketplace disruption (Kucheriavyi, 2022) in host platforms. Disruption might come by intangible threats such as hacking, ransomware, and others that affect the cloud hosting and technological interconnections. These threats require a robust cyberthreat protocols, reliable third-party partners, or internal departments to address these issues. In addition, other unexpected events (Rosado-Serrano and Navarro-García, 2022a) such as pandemics and others that are weather created, can hinder their operations and on some occasions, bring them to bankruptcy. Recent tendencies in buying behavior indicate consumers favor having new experiences that are not related to the traditional store format. Now, consumers use a hybrid product evaluation process between online and offline (Fiestas and Tuzovic, 2021; Singh and Jang, 2020) as they are interested in touching, feeling, and trying out products. Similarly, as part of their evaluation phase, consumers do their purchasing across multichannel (Patten et al., 2020). Native digital companies as well as traditional ones look to engage with these consumers that seek sensory enhanced technology experiences that are unique and exclusive, while maintaining the convenience of availability of products (Jindal et al., 2021; Rosado- Serrano and Navarro-García, 2022b). The physical and digital interaction or «phygital» has gained acceptance by young and technology savvy consumers (Rosado-Serrano and Navarro-García, 2022b). This creates an alternative mode of entry for digital firms to transition to the physical world; in addition, traditional firms may embrace this new phygital marketplace to engage with new and existing consumers. Based on this new alternative mode of entry where online and offline interaction occurs between consumers and digital brands, this paper aims to explore this new phenomenon as it affects how the retail landscape is being transformed, and in turn traditional and digital store formats.

Literature review Industry 6.0

Industry is defined as the production of goods and services through the transformation of raw materials and resources into valuable products. It involves the creation of finished products or services through various stages of production that may include manufacturing, processing, assembly, packaging, and distribution. Industries have played a significant role in the economic growth and development of nations throughout history. They have contributed to the creation of employment opportunities, the development of new technologies, and the improvement of living standards. Over the years, the industrial sector has gone through numerous changes, and each of these changes has been termed as an "Industry Revolution."

Industry 1.0: The Birth of the Industrial Revolution

Industry 1.0, also known as the first industrial revolution, began during the late 18th century and lasted until the mid-19th century. It was characterized by the widespread use of mechanized production, the utilization of energy sources such as coal and steam-power, and the emergence of the first factories. This revolution allowed for mass production to become possible and saw the emergence of the first industrial giants such as the cotton mills and ironworks.

Industry 2.0: The Era of Mass Production

Industry 2.0 was marked by the introduction of electricity and the invention of new technologies such as the assembly line. This revolution led to increased productivity, efficiency, and quality in the production of goods, as well as the emergence of new industries such as the automobile industry.

Industry 3.0: The Rise of Automation

Industry 3.0, also known as the digital revolution, saw the use of electronic technologies to create computer-based systems, robotic production lines, and automated factories. This revolution allowed for the emergence of the internet, as well as the development of new technologies such as 3D printing, big data, and cloud computing.

Industry 4.0: Automation and Digitization

Industry 4.0, also known as the fourth industrial revolution, began in the early 21st century and is characterized using automation and data exchange. This revolution has allowed for the development of the internet of things (IoT), artificial intelligence, and machine learning. It has also enabled the use of 3D printing, big data, and cloud computing.

The growth of Industry 4.0 is driven by several factors, including the need to increase productivity and efficiency, the emergence of new technologies such as artificial intelligence and machine learning, and the increasing use of the internet of things (IoT). The use of automation and data exchange allows for faster and more accurate data processing, as well as increased efficiency in the production of goods. Additionally, the development of new technologies such as artificial intelligence and machine learning allow for more efficient decision-making and problem-solving capabilities. Finally, the use of the internet of things (IoT) allows for improved communication and data-sharing between connected devices.

The Evolution of Industry 5.0: Humans and Machines Working Together

Industry 5.0, also known as the Human-Tech partnership, aims to bring together the benefits of Industry 4.0 with the human touch. It emphasizes the importance of human creativity, innovation, and problem-solving skills, while also utilizing advanced technologies such as AI, robotics, and IoT. Industry 5.0 aims to create a work environment where machines and humans work in collaboration, with machines performing repetitive and dangerous tasks while humans focus on more complex and creative work. This approach is expected to lead to increased efficiency, productivity, and job satisfaction, while also promoting social responsibility and sustainability.

The need for Industry 5.0 is driven by the need to remain competitive in the global market, as well as the increasing demand for increased efficiency, productivity and quality. Additionally, the use of advanced technologies such as cognitive computing, artificial intelligence and machine learning allow for improved decision-making and problem-solving capabilities, as well as the potential for new business models.

Unique characteristics of Industry 5.0:

Collaboration: Industry 5.0 emphasizes the importance of collaboration between humans and machines. This means that humans and machines will work together to achieve common goals, with each one complementing the other's strengths and weaknesses.

Customization: Industry 5.0 is characterized by the customization of products and services. This means that products will be designed and produced based on the specific needs and requirements of individual customers.

Sustainability: Industry 5.0 places a strong emphasis on sustainability. This means that

manufacturing processes will be designed to reduce waste and minimize the impact on the environment.

Decentralization: Industry 5.0 emphasizes decentralization, with a focus on distributed production and manufacturing. This means that production will be closer to the point of consumption, reducing the need for transportation and logistics.

Flexibility: Industry 5.0 emphasizes flexibility, with the ability to quickly adapt to changing market conditions and customer needs. This means that manufacturing processes will be designed to be easily reconfigured and adapted to meet changing demands.

Industry 5.0 is a revolutionary advancement in the industrial sector, with the potential to drastically improve productivity, efficiency, and quality across various industries. This revolution is characterized by using advanced technologies such as artificial intelligence, machine learning, and the internet of things (IoT). The prospects of Industry 5.0 are promising, as the use of advanced technologies and automation will continue to improve productivity and efficiency across various industries. Additionally, the development of new technologies such as blockchain, quantum computing, and advanced robotics will allow for the potential for new business models and the development of new products. Overall, Industry 5.0 is focused on creating a more sustainable, collaborative, and customer-centric manufacturing environment that leverages the strengths of both humans and machines.

Industry 6.0: Advancements and Challenges

Industry 6.0(Future Concept), also known as the sixth industrial revolution, is characterized by using advanced technologies such as quantum computing, and nanotechnology over the pre-built Industry 5.0 architecture. These technologies will enable more efficient and effective solutions to solve complex problems, as well as the potential for new business models.

The use of Industry 6.0 technologies will also provide the potential for advanced robotics, and increased safety and security in production and manufacturing processes. Additionally, the use of blockchain technology will enable secure and reliable data-sharing and communication between connected devices, as well as the potential for new economic models. Ultimately, the use of Industry 6.0 will continue to revolutionize the way we produce, manage, and consume goods, services, and information but as with any technological advancement, Industry 6.0 may also have

some potential drawbacks or negative impacts.

Addressing the Drawbacks of Industry 6.0: Strategies and Solutions

The advent of Industry 6.0 presents a multitude of challenges that require substantial investment in the development of technological, social, and economic infrastructures to ensure their smooth integration into society. The development of new technologies and automation is likely to have a profound impact on employment, with many jobs being rendered obsolete or transformed. This may exacerbate existing inequalities in society and result in job displacement for many people, particularly those with lower levels of education or training. Additionally, the widespread adoption of Industry 6.0 technologies may also result in increased environmental degradation, resource depletion, and pollution, which could have serious consequences for future generations. To address these challenges, policymakers must take a proactive approach to ensure that Industry 6.0 is implemented in a socially and environmentally responsible manner. This may involve the implementation of new regulations and policies aimed at mitigating the negative impacts of automation and ensuring that the benefits of technological progress are shared equitably across society.

Potential directions for Industry 6.0 could involve advancements in areas such as:

1. *Biotechnology Integration:* Further integration of biotechnology into industrial processes, including bioengineering, biomanufacturing, and bioinformatics.

2. *Sustainable and Circular Economy Practices*: Greater emphasis on sustainable manufacturing practices, resource efficiency, and circular economy models to minimize waste and environmental impact.

3. *Quantum Computing and Quantum Technologies:* Utilization of quantum computing and other quantum technologies to solve complex optimization problems, enhance data security, and revolutionize computation capabilities.

4. *Advanced Robotics and Autonomous Systems:* Development of more sophisticated robotics and autonomous systems capable of handling complex tasks in diverse industrial settings.

5. *Augmented Reality (AR) and Virtual Reality (VR):* Expanded use of AR and VR technologies for training, maintenance, design, and collaboration in industrial settings.

6. *Advanced Materials and Nanotechnology:* Continued development of advanced materials and nanotechnology for applications in manufacturing, energy, healthcare, and other industries.
7. *Decentralized Manufacturing and 3D Printing:* Increased adoption of decentralized manufacturing models enabled by advancements in additive manufacturing (3D printing) and distributed production networks.

8. *Cyber-Physical Systems and Digital Twins:* Integration of cyber-physical systems and the widespread adoption of digital twin technologies for real-time monitoring, optimization, and predictive maintenance.

In summary, Industry 6.0 is a futuristic industry that transcends previous revolutions, emphasizing sustainability, intelligence, and holistic integration. Its impact will be profound, shaping the way we work, interact, and live in the coming decades.

Alternative modes of entry

Traditional entry mode literature focuses on foreign market entry from the perspective of multinational enterprises. Scholars have anchored their theoretical analysis based on transaction cost economics, resource-based view, institutional theory, and Dunning Eclectic Framework (OLI) (Lindsay *et al.*, 2017). Others had explored the internationalization decision in franchising for family business (Rosado-Serrano and Navarro-García, 2019; Rosado -Serrano, 2017) small and medium enterprises and multinationals and found firms decide to use non-equity and lower investment modes (Rosado-Serrano *et al.*, 2018; Rosado-Serrano and Paul, 2018) such as store in store (Rosado-Serrano, 2016; Rosado-Serrano and Navarro-García, 2022a, 2023), pop-up stores (Rosado-Serrano, 2016, 2017), food trucks and steel containers (Rosado-Serrano and Navarro-García, 2022a). Rosado-Serrano and Navarro-García (2018) indicate that strategic partnership theory could be used as an underpin to explore alternative modes of entry. Depending on which lens are used to explore the internationalization phenomena, there is no consensus on a particular theory to explain entry modes, and most specifically, alternative entry modes such as store in store, pop-up stores, and other temporary arrangements. The strategy of store in store and temporary/pop-up stores is not new in retail. Companies like Walmart, Macy's, El Corte Inglés, to name a few, have been hosting traditional brands and franchises due to the opportunity to have access to a large audience with a smaller footprint (Rosado-Serrano, 2016, 2017; Rosado-

Serrano and Navarro-García, 2022a, 2023). Alliances in the retail sector when space is shared, has been proven to increase sales for both retailers such as the store in store of Subway franchises inside Walmart (Kumar *et al.*, 2017) and their value (Pasirayi, 2020). In occasions, the decision is based on cost reduction, in others because is it requires lower resources and permits to enter foreign markets with a recognized and experienced host location. By using a preferred entry mode such as store in store firms reduce their complexity and facilitate international expansion (Swoboda *et al.*, 2015). Temporary stores are designed to engage consumers in a different form that other entry mode strategies (Rosado-Serrano and Navarro-García, 2022a, 2023). They provide memorable experiences (Taylor *et al.*, 2018) that resemble if consumers are seeing a theatrical play (Pomodoro, 2013) and creating their own new stories engaging with all their senses (Overdiek, 2018). These temporary or itinerant stores can be part of a special event or a specific venue or destination (Overdiek, 2018). Pop-up stores can provoke an urgency to purchase and react as many of the products presented are unique, exclusive and might not be available later to purchase (Rosado-Serrano and Navarro-García, 2022a). The products offered can be trials, special productions, or a novelty that won't be available in the future (Niehm *et al.*, 2006; Alexander *et al.*, 2018). Adventurous consumers may experience instant gratification by engaging in these temporary stores. For companies, it can be an effective international retail strategy because it reduces risk while it provides local market knowledge (Alexander *et al.*, 2018) in high cost and high traffic locations (Overdiek, 2018).

Phygital retail

The concept of phygital retail has been an evolution of the retail experience mediated using technology, changes in consumer preferences, and a younger audience that seek adventure through the discovery process of new goods and services. Phygital retail is a new take on experiential retail as it extends the boundaries of the physical store retail. It can be said the physical store, including department stores and other formats are evolving their functionality in the retail landscape. People are still consuming goods although have shifted the channel they use. A study by Placer.ai compared department store visits in January 2020 and 2022 and found they have dropped 25 % in comparison with indoor malls and general apparel stores with a drop of 9 % and 12 % respectively (Rethink Retail, 2022). By the end of 2021, total retail sales in the US reached 6.6 trillion (Sabanoglu, 2022) and E-commerce and mobile shopping represented 19.6 % of

retail sales worldwide and it is expected to be 25 % of global retail sales (Coppola, 2022). Retail sales are undergoing an adaptation phase where mobile shopping is gaining participation, still, digital retail development is bounded by the improvement of online access. Therefore, physical retail continues to be an important element in the channel structure. As some department stores have closed and others are rightsizing (Rethink Retail, 2022), many have been using strategies such as pop-up shops and store in store to maintain market share domestically and expand internationally (Rosado- Serrano and Navarro-García, 2022a, 2022b, 2023; Rosado-Serrano 2016, 2017). Similarly, department stores and new marketplaces formats are trying new and exciting designs that are centered toward experiential retail experience (Rethink Retail, 2022). New marketplaces are being designed where architectural firms are brought in to combine brands with cured spaces, corners, or shop in shops (Wilson, 2019; Minsait, 2022; Retail Digital, 2022) that integrate digital and physical worlds to attract audiences that seek the phygital experience. These new marketplaces are being developed in vibrant cities with high urban traffic such as Madrid and New York City where traditional shopping malls layout does not work. Consumers engagement with brands and their products involve different experiences and responses that may be affective, sensorial, and cognitive (Verhoef *et al.*, 2009). Some consumers try to obtain memorable (Taylor *et al.*, 2018), hedonic and theatrical experiences (Rosado-Serrano and Navarro-García, 2022a; Pomodoro, 2013). Novelty and exclusivity might be what consumers might desire experiencing (Rosado-Serrano and Navarro-García, 2022a) and pursue opportunities to grasp that unique and hard to find product. In occasions, temporary locations provide a unique find and with the use of social media and smart devices, consumers embark in the quest to create these stories and seek locations to do so. Now with smart devices, brand interaction extends between the virtual and physical worlds and consumers expect a seamless personalized interaction across both channels (Lemon and Verhoef, 2016). Virtual reality (VR) and other augmented reality (AR) experiences such as Metaverse, are being rapidly adopted and becoming part of the adventure of seeking new experiences and unique products. Retailers that integrate AR in their mobile app have experienced higher sales for more expensive products and for brands that are less popular (Tan *et al.*, 2022). Traditional brands like NIKE and digital brands such as HIMS (Clark, 2018) can now create a compelling storytelling and customer journey experience as they are physically

connecting in the phygital marketplace. Phygital retail appeals for young consumers that strive for an experience and can be a new avenue for traditional brands to reach out to this market segment.

Phygital is the future for brands to interact with consumers

Forty-six per cent of the consumers in India worried that life would not be the same as it was before the pandemic. The pandemic, economic fluctuations, and local and global events in 2020-21 caused consumers to form new behaviours, attitudes and values. A report by Mintel Global Consumer Research recognised consumer shifts and shared predictions on how brands could prepare for upcoming evolutions in consumer behaviour. Sixty-three per cent of shoppers found grocery shopping at neighborhood stores 'fun'. Blending the best of physical and online spaces would be a key in creating spaces for brands to interact with consumers going forward. As per the report, food panic buying and homes becoming offices impacted consumer behaviour in a multitude of ways, including food becoming more than a source of sustenance, but also a source of reassurance. Three key trends that offered great potential for food, drink and foodservice brands were: In Control, Enjoyment Everywhere and Flexible Spaces. Eighty-four per cent of the consumers said that they were eating healthy all or most of the time. As per the report, in 2022, people would want to see trustworthiness and measurable progress on health, environmental and ethical commitments. It was stated that the shoppers would also consider how their purchases contributed to protecting their health and or the health of the planet and everything on it. The report highlighted that companies would be expected to provide updates on progress or admit to missed targets related to long-term or transitional policies. Even more trust would be won by providing verified information, such as claims certified by third-party organisations. Forty-three per cent chocolate consumers ate chocolates to treat themselves, improve mood and reduce stress. Eighty-six per cent consumers agree that brands should show their impact on the environment on food or drink labels (e.g. carbon footprint, Eco-Score). Heng Hong Tan, Mintel food and drink analyst, APAC, said, "Consumers want more control over their wellbeing with eight in 10 Indians saying they are eating healthily all or most of the time. Food and drink brands have the complex task of conveying clear and reliable guidance so that a product will meet consumers' health priorities. They can empower consumers to make the right health choice by giving clear on pack detail linked to dietary requirements."

"Consumers will expect more transparency about a brand's climate-friendly and ethical commitments. Brands can win trust with third-party verification or measurements via rating systems which, in turn, can also help consumers make informed choices," Tan said. As per the report, 'Enjoyment Everywhere' explored the notion that consumers wanted to break out of their confines and will have a newfound appreciation for occasions. This is when happiness, fun or playfulness could be found in everyday items and activities after enduring long periods of lockdowns. The report also highlighted that food and drink brands were well-positioned to offer experiences that cannot be replicated online.

Tan said, "Consumers will be open to food, drink and foodservice that engages more of the senses to trigger emotional connections. Food and drink that captivate the senses can appeal to the unexpected and the intriguing. At the same time, the metaverse offers a new arena for brands to engage with consumers." In India, 88 per cent of the consumers say that they have played games on a tablet, laptop or desktop. Brands can join the gaming trend and 'game-ify' everyday activities like cooking in the digital realm where consumers can connect or bond with another. 'Flexible Spaces' explored how consumers were forced to rethink their work and play spaces due to changing consumer lifestyles. It was also stated that the home would continue to be a sanctuary for many people in the next 12 months. Meanwhile, restaurants, retailers and branded pop-up shops would be venues where deeper connections between consumers and brands would be fostered. The report highlighted that legacy food, drink and food service could open new concepts like popup shops or online environments where they could connect with a more diverseand nuanced consumer base.

Tan concluded, "We will see retailers redefining their approaches to space and selling to accommodate a more diverse consumer base, facilitate deeper consumer-to-brand connections and unite those that share common passions in both physical and online environments. As technology becomes more advanced, these blended worlds will coexist more seamlessly."

Phygital Natives Getting Older Younger

The sophistication of the younger cohorts can be attributed to their accelerated maturity. The phenomenon of kids getting older younger (KGOY) is increasingly apparent as younger generations adopt behaviors and preferences usually associated with older age groups. This includes teenagers dressing up, wearing makeup, engaging in mature conversations,

and entering romantic relationships earlier than previous generations. Furthermore, children start using technology products, such as smartphones and tablets, and consuming mature content across media platforms at a younger age. But the faster maturity goes beyond emulating the looks and purchases of older generations. People typically go through four life stages: fundamental, forefront, fostering, and final—each takes approximately 20 years: The fundamental stage focuses on learning and identity formation through education and social relationships. The forefront stage involves transitioning from learning to work, taking risks, and exploring life while building a career and engaging in romantic relationships. The fostering stage is characterized by settling down, building a family, nurturing others, and contributing to society. Lastly, the final stage revolves around adapting to old age, managing health and relationships, enjoying meaningful activities, and imparting wisdom to younger generations. Generation Z and Generation Alpha experience accelerated life stages, adopting mature mindsets at younger ages. They demonstrate a greater willingness to take risks and learn through hands-on experiences, effectively going through the fundamental and forefront steps simultaneously in their development. Usually appearing during the fostering stage, the desire to contribute to society and achieve work-life balance is already present in many Generation Z in their mid-20s. This KGOY trend stems from multiple factors. Firstly, younger generations have easier access to information through the Internet and its digital content. Moreover, brands targeting younger audiences in areas such as fashion, food and beverages, consumer electronics, and beauty are introducing them to these product categories at an earlier age. Parenting style also has a significant impact on their behavior. For instance, parents from Generation X and Generation Y often encourage their children—belonging to Generation Z and Generation Alpha—to take on more adult responsibilities at home. All these factors lead to younger generations' faster mental and emotional growth.

Pragmatic Attitude and Decision Making

Generation Z grew up during the Great Recession (2007–2009) and witnessed their parents and older siblings' financial struggles. It leads to heightened financial awareness compared to Generation Y. Thus, they are interested in learning about personal finance, saving money, and investing for the future. This caution is also evident in the workplace. Generation Z workforce is more realistic compared to their idealistic Generation Y counterparts. They tend to prioritize job security over

pursuing their dream job or high salaries, particularly considering the looming recession and widespread layoffs. As reported by Glassdoor, younger workers are increasingly drawn to larger, well-established companies, in contrast to millennials, who are often attracted to trendy start-ups. Generation Z is also more adept at making informed decisions and evaluating products and services from online and offline sources. As a result, they are sensible and understand value well—focusing on price and quality rather than solely relying on brand names. In terms of value, they put more weight on functional benefits than emotional appeal. Unlike Generation Y, which tends to spend more on materialistic products, Generation Z and Generation Alpha spend more on experiences such as traveling, gaming, wellness activities, live events and concerts, and community engagements. Rather than valuing possessions, these younger generations are more inclined to invest in themselves, placing greater importance on personal growth gained from experiences. This preference aligns well with the sharing economy, allowing them to access goods and services without the need for ownership through the likes of Uber and Airbnb. This value orientation also poses significant challenges for established and heritage brands relying on reputation and history to attract customers. The younger generations are less likely to be swayed by brand recognition and are more likely to seek novelty and new experiences that meet their specific needs. As a result, brands need to innovate customer experience to remain relevant.

Result & Findings

As an emerging phenomenon in practice and theory, there is a need to comprehend how phygital retail is positioned in the omnichannel literature as well as its effects on strategy formulation and results. Based on this we make the following research proposition:

Proposition 1: Phygital retail provides higher returns to digital native brands than to traditional brick and mortar brands.

Technology has also been changing store fixtures, their configurations and interactivity with consumers. From the perspective of store design and construction, with the integration of theatrical experience seeking, phygital marketplaces have been designed in conjunction with architectural firms and technology providers. The design of new retail stores that consider providing a phygital experience must consider the combination of third-party partners that have the capabilities in this niche industries.

Based on this, we provide the following proposition.

Proposition 2: Stores that are designed with high technology and creative architecture provide higher returns to traditional brands than to digital native brands.

Following the creative design approach, traditional companies may decide to use an inhouse creative department to have full control of all the intellectual property and minimize the risk of using an outside partner. Scholars may be interested to explore the use of architectural partners and if there is a difference for inhouse development of the design phase. Based on this we provide the following proposition.

Proposition 3: Companies may decide to outsource store design with architectural approach to outside companies if they can estimate cost/benefits over inhouse design.

Many companies have expanded internationally by using a franchising strategy. Some decide to use master franchisors or reputable local partners to develop foreign markets. The application of a phygital marketplace may be an alternative for brands that do not want to pursue a franchising strategy and want a lower risk entry mode in a phygital marketplace. Marketplaces provide the opportunity of exclusive product launches, low quantity, can provide access to young consumers and brand positioning. Based on this we provide the following proposition.

Proposition 4: Companies that want to go international with a low-risk entry mode may decide to do a store in store in a phygital marketplace.

Depending on the industry and ownership of companies there might be a difference on how these firms raise capital and the effect on the deployment and efficiency of the projects. Companies that are privately owned, family owned, publicly listed, or owned by a hedge fund, have different return expectations and tolerance to risk. Based on this, we propose the following proposition.

Proposition 5: Private controlled firms have more a possibility of implementing a phygital channel than publicly listed firms.

Native born companies start in an online platform and may transition to a phygital marketplace. These firms might experience higher growth while being fully online and when they transition to a phygital marketplace, hey experience lower returns. Based on this we propose the following:

Proposition 6: Native born brands experience higher growth when they operate only online than when in a phygital marketplace.

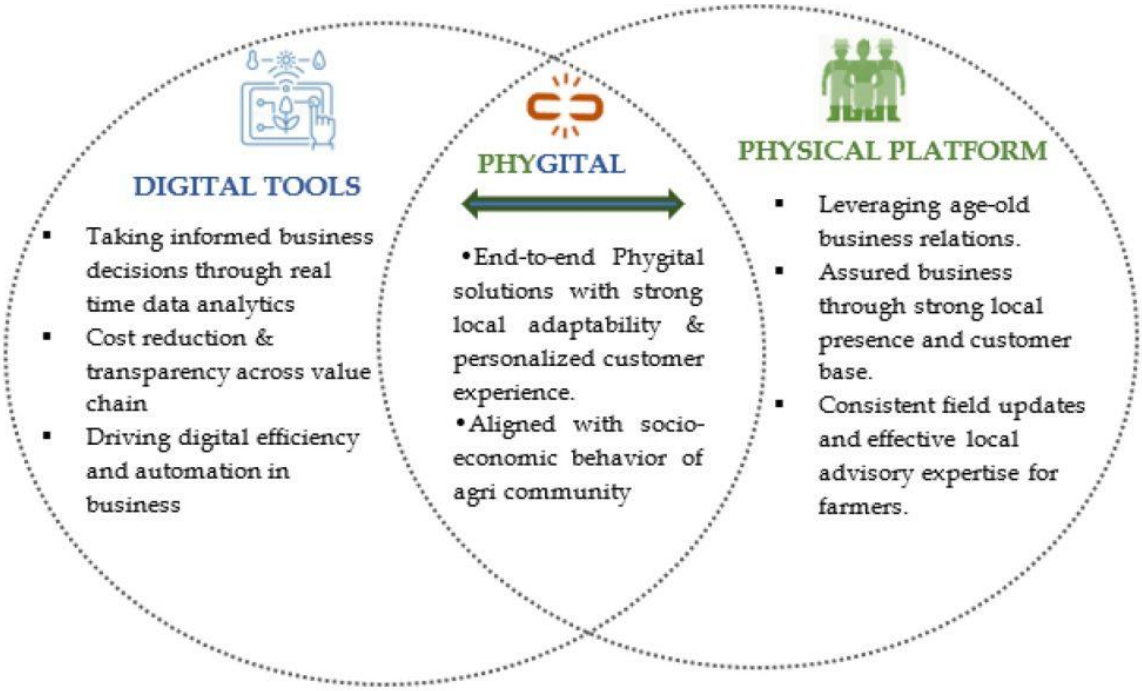

Figure 1: Strategic components of phygital platforms and its co-benefits

Conclusion

Today, marketers increasingly focus on Generation Z and Generation Alpha, true *digital natives* who grew up with the mainstream Internet. Generation Z, born between the mid-1990s to early 2010s, was born into the digital age and is highly adaptable to new technologies. Generation Alpha, the following cohort born after 2010, is expected to be even more digitally savvy due to growing up with millennial parents who are also tech-savvy. Together, they account for more than four billion people globally, making them a key market for brands. Although they share some similarities with Generation Y in digital savviness, some differences set Generation Z and Generation Alpha apart. Generation Y, experiencing the Internet later in life, often views it as a mere tool. In contrast, Generation Z and Generation Alpha, who have grown up with the Internet as a constant presence, consider it an integral part of their daily experience. They are connected continuously through multiple screens, even in social situations. As a result, these younger cohorts have a higher level of immersion in digital environments.

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An Analysis of Artificial Intelligence Analytics' Effect on Improving Digital Marketing

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Abstract

Digital marketing has been transformed by artificial intelligence (AI) into providing innovative analytics technology capable of providing a deeper conversation with consumers, an effective strategy, and practical results. This paper aims to write about the revolution brought about by AI analytics in most aspects of digital marketing, including the development of customized content, consumer behavior prediction, advertising to particular audiences, and general customer experience.

Besides showing the potential way AI can boost sales and reduce expenditures, the piece of the research also offers a preview of some of the challenges and ethical concerns surrounding the integration of AI into the marketing field. Natural language processing (NLP) and sentiment analysis are also listed among the significant tools to learn customer sentiment and enhance content engagement. In its effort to explore how digital marketers have utilized artificial intelligence (AI), data analytics (DA), and machine learning (ML) solutions, this study provides a comprehensive literature review to gain insight into the digital marketing approaches. Practically, it raises the questions and concerns of AI analytics usage in companies.

The general objective of the intended research is to illuminate the use of artificial intelligence analytics to develop and enhance the advanced marketing campaigns of a company internet.

Keywords

Sentiment analysis, natural language processing (NLP), internet marketing, machine learning, customer behavior, and artificial intelligence analytics.

Introduction

The effects of AI in improving digital marketing by developing smart analytics can be defined as a breakthrough. The artificial intelligence analytics can give the marketer the opportunity to learn about consumer behaviour, preferences, and market trends in a manner never seen before and develop extremely targeted and personalised campaigns.

The launch of Artificial Intelligence (AI) and the marketing strategy has introduced a revolution in the manner in which business is carried out with the consumers in the modern era of digital transformation. One of such is, the most obvious, analytics that is driven by AI, and it is transforming the digital marketing practice. This article is aimed at getting into details on how AI-driven intelligence is transforming the game with regard to internet marketing. To reveal numerous pros and cons of this active union, the study examines the past, the current, and the future of artificial intelligence (AI) in digital marketing enhancement.

In the occasion to illuminate the potential paradigm change that AI intelligence analytics will allow to introduce in broadening the scope of the contemporary digital marketing procedures, this research paper follows an interdisciplinary path that will utilize the marketing, AI, and consumer behavior fields.

AI-based analytics further mechanize the marketing tactics by performing such routine tasks as lead scoring, content optimization, and segmentation. Machine learning models enable a business to have a clue of how its customers will act in future, what would be the best pricing strategies as well as the best route through which they can reach their target market.

With the assistance of complex algorithms, AI processes a great deal of information in real-time and recognizes patterns and forecasts the future trends with a high degree of accuracy. It enables the marketer to make decisions based on the data, targeted ad based on the data, and provide the personal content to the individual consumer and, thus, greatly enhances the engagement and conversion rates.

The introduction of AI intelligence and analytics in digital marketing, in any case, does not only enhance the efficiency of the processes; it alters the way the brands interact with their

audiences, building more significant interactions between them and starting to make them more moving and more personal.

Intelligent machines (AI) The concept and development of computer systems with the capacity to carry out activities that would normally need human intellect is known as artificial intelligence. The capacity to detect languages, make difficult decisions in regard to challenging circumstances, and recognize voices and images are a few examples. Press, Oxford University, 2019).

Machine learning (ML) is the process by which a computer may learn from unprocessed data instead of human input. That means that machines may use their detectors to scan information, identify patterns, and extract useful information. Gifford, Buller, and Mills (2018) Google, Bing, and other search engines make indexing and categorizing websites easier through search engine optimization, or SEO. This process involves both on-page and off-page tactics. It takes effort to rank well and naturally on a search engine results page. In a 2016 study, Dougson.

Purpose of the Study

This study aims to uncover the impact of AI on digital marketing. It will add to what is already known about the role of AI in digital marketing and its effects on the industry.

Objectives of the Study

1) The goal is to examine the effects of AI on digital advertising.
2) To learn how businesses are enhancing their performance with its help.
3) Determine the significance of chatbots and virtual assistants driven by AI in enhancing engagement and offering personalised customer care.

Scope and Significance of the Study

1) The use of AI analytics to consumer targeting, personalisation, engagement, insight, automation, and efficiency will be the primary focus of this article.
2) The study will go over typical

artificial intelligence methods used in online advertising, such as ML, NLP, and predictive modelling.

3) The most useful and relevant material is found in this study about the connection between digital marketing and artificial intelligence.
4) The article's main points centre on machine learning, digital marketing, artificial intelligence, and big data..
5) The research also aims to provide a valuable input and best practices to those marketers who seek to use AI technologies to their advantage and optimize their performances in the campaigns.
6) The paper has defined in exploring emerging trends in the use of AI in an excellent manner that would prepare both businesses and academics to the changing world of digital marketing.

Literature Review

The study's overarching goal is to educate participants to artificial intelligence (AI), namely machine learning, deep learning, and digital marketing, by revealing its own inner workings to them. Information collected during the last two decades is a treasure trove of useful information for today's kids. Data initiates the daily operations of companies, even if experts may not have realized the potential that data may have offered enterprises.

AI has turned into a disruptive factor in the development of many industries, and digital marketing could not be an exception. The existing literature analysis covers the immense significance of AI regarding increasing digital marketing strategy, where a number of substantial concerns exist, such as customization, predictive analytics, automation, and customer experience.

Artificial Intelligence

As well, predictive analytics are used by artificial intelligence in order to predict the future trends and consumer behavior. The machine learning algorithms allow the marketer to make judgements grounded on facts using historic data. New leads, improved targeting methods, and campaign optimization are some of the ways, through which predictive analytics can make marketing more efficient.

A form of AI-enhanced marketing is called dynamic content optimization, which continuously changes the language of the websites, e-mails and advertisements in response to user activity. Artificial intelligence will be used to examine the user behavior and deliver more information that is tailored to the preferences of the user to be more relevant and able to engage the user. A further more personalized and productive user experience can be realized through the optimization of dynamic content.

Artificial intelligence has numerous aspects, and it significantly affects digital marketing. More precise, efficient, and engaging campaigns can be developed with the help of AI and, thus, will result in the improved performance in the dynamic digital landscape. AI provides personalized experience, predictive analytics, automation, dynamically optimized content and so on.

Mostly, the level of customization of internet marketing campaigns can be attributed to the effect of AI. Li and Karahanna (2015) state that marketers can leverage the capabilities of AI to process enormous volumes of data by providing suggestions and content to specific users based on their behaviors and likes. This type of customization can be used to increase user engagement, conversion rate, and loyalty of the client. Besides raising productivity, this leaves marketers at liberty to deal with other issues related to campaign strategy.

Artificial intelligence (AI) can significantly enhance many processes and services across the globe. Wichert (2020) also describes the application of AI in machine learning and quantum computing.Rapidly resolving difficult situations is facilitated by it (Wichert, 2020). There will be no way for humans to keep up with the exponential growth in data volumes and varieties (Wichert, 2020). In order for quantum information systems to advance, Wichert said that machine learning inside AI would be necessary (Wichert, 2020). Even without a broad solution of quantum computing, these advantages will be acquired at this point (Wichert, 2020). According to Pujol et al. (2014), Dexterity by Robot Hand is one initiative that utilizes robot hands to address practical issues. They practice effectively transitioning from one scenario to another in a series of ten simulated situations (Pujol et al., 2014).

According to Pujol et al. (2014), this method may be used to aid in the development of dexterity. Generated Adversarial Networks (GANs) are one of the AI advancements, according to Reig-Bolao (2013). GANs can be used to solve many significant ethical problems (Reig-Bolao et al., 2013). Computational designs are applied in the development of neural networks to form a virtual environment (Reig-Bolao et al., 2013). The network constructed, in turn, can be related to a discriminator system to transform a vector into a sound or image matrix. It is described as a discriminator network in order to distinguish between authentic and counterfeit materials (Reid-Bolao et al., 2013). Besides that, GANs can replicate real life content in the context of game theory (Reig-Bolao et al., 2013). With this concept, it is easy to generate fraudulent advertisements and news items (Reig-Bolao et al., 2013). Reig-Bolao et al. (2013) discovered that rather, it could be applied to create an illusionary film that paralyzes the individuality of a person. Tanveer (2021) states that the automation of marketing can be achieved through artificial intelligence (AI).Computers are now more capable of detecting the behavior of users and identifying the one with the highest probability of becoming a customer due to to AI-based deep learning (Tanveer et al., 2021).

The ability to personalize items is another benefit (Tanveer et al., 2021). Customer demographics, geographic region, and past purchases are just a few of the factors that go into this process (Tanveer et al., 2021). Tangveer et al. (2021) note that this process also incorporates tracking and customer information pertaining to the merchandise. Apparently, Under Armour just built Record, a tailored fitness and health monitoring app, with the help of IBM Watson by combining their own customer data with data from third parties (Tanveer et al., 2021). Artificial intelligence enables tailoring the right message to customers, as Hermann (2021) explains in his article. With the use of predictive analytics, businesses may better understand their consumers' tastes and tailor their offerings to meet their demands (Hermann, 2021). Platforms like Amazon and Netflix use this to recommend content and products (Hermann, 2021). To lead consumers to a particular product or service, marketers may rely on a powerful collection of data points (Hermann, 2021). Artificial intelligence may make

people's lives easier by facilitating problem-solving (Hermann, 2021). Another perk is that it will save costs by eliminating human intermediaries for 85% of customer touches (Hermann, 2021).

The dynamic pricing approach, which adjusts prices in response to changes in supply and demand and consumer preferences, also makes use of AI. To maximize the amount of online incomes of the firms, the AI algorithms can analyze the prices of competing companies, their demand, and other factors (Rabinovich et al., 2015).

The extensive use of artificial intelligence (AI) in digital marketing has presented novel opportunities and methods to improve the performance of firms. To have a better idea of how these organizations use AI to engage customers, to make digital marketing more efficient and thus corporate performance better, we will examine how they enhance customer engagement, marketing efficiency and overall performance of the companies.

The companies apply AI algorithms to process big data and enable companies to conduct sophisticated customer segmentation. Marketing content, recommendation, and experiences can be personal where companies know the preferences and behaviours of individuals. This one-on-one service will enhance customer engagement, satisfaction, and love, which ultimately will be transferred to business performance. The real-time functionality that is provided by the aspect of AI-based chatbots integration allows customers to communicate instantly. The companies install chatbots on the websites and social media, and it provides immediate responses to the queries of the customers. This enhances customer service, flow of information and results in customer satisfaction that has a favorable impact in the overall performance of the firm. Companies apply AI algorithms to embrace the dynamic pricing technique. The businesses can make on-the-fly adjustments on prices through pricing analysis of market, pricing of competitors and customer behaviour. This is the dynamic model that maximizes revenues to add to the improvement of the financial performance. The results of complex data can be used by companies to make informed decisions about the development of products, the marketing approach, and customer experience.

Strategic planning made on correct and timely data enhances success of the company in general. Any company that has serious intentions of succeeding in the current digital economy should emphasize on the application of AI technology.

Discuss the potential application of chatbots and virtual assistants by AI to offer personalized client support. Test the capabilities of these technologies to identify and meet the special needs of consumers by testing the algorithms and processes that support it. Besides, it examines the performance of chatbots and AI-driven virtual assistants in the context of certain broad metrics that can be used to measure consumer engagement. Evaluate the impact of these technologies by looking at how they improve user engagement, happiness, and connections with customers. It identifies potential problems and areas in need of improvement associated with implementing AI-powered solutions into customer service, and it details such problems and constraints.

An additional goal of the research paper is to provide a comprehensive analysis of the ways in which AI-powered virtual assistants and chatbots could enhance interaction and personalised customer care. Through the analysis of the existing environment, considering real-life applications, overcoming obstacles, and exploring ethical considerations, the study aims to provide useful insights as well as suggestions to companies that will have to manage the changing environment of AI-enhanced customer interactions.

Research Methodology

The influence of artificial intelligence (AI) on digital marketing will be the subject of this study, which will use a descriptive research strategy to examine and synthesise secondary data. In order to gather the necessary information, we will conduct a comprehensive review of scholarly publications, books, reports from the industry, and reputable internet sources. Following this technique will show you how to use secondary data in a methodical manner to study how AI improves digital marketing. In order to bridge the gaps in our present knowledge of AI-driven digital marketing, the present study will gather data using various resources such as scholarly articles, reports on the topic by the different industries, and other internet sources.

Findings

1) First, as indicated by the research, AI-based chatbots can enhance user experience and interactivity through instant answers to the questions of clients.
2) According to the report, AI liberates marketers to concentrate on the strategic jobs through the automation of the routine and time-consuming ones.
3) Third, the research determined that real-time monitoring and analysis of campaigns could easily be used to fine-tune and improve the results of a campaign.
4) Research has indicated that activities such as content creation, posting on social media as well as email marketing can be automated in order to enhance productivity and reduce operation costs.
5) According to the report, personalized recommendations relying on machine learning can enhance consumer interaction and boost the level of conversion.
6) The report has also revealed that AA assist in optimization of the content by analyzing data according to the performance and proposing ways of making material more appealing.
7) The article demonstrates that AI is transforming digital marketing in numerous aspects, providing it with an opportunity to turn out to be more efficient, personalized, and successful in reaching and engaging target audiences in general.

Company Analysis:

Sephora, a world-renowned beauty supply store

Function	AI Tool/Application	Profit Impact
Personalized Shopper:	Chatbots powered by conversational AI, such as Sephora Assistant, may do things like arrange appointments, answer questions, and suggest	Case studies show that it may increase conversion rates by 15% by providing helpful guidance and assistance.

	products.	
Content and Visual Merchandising:	Using information about past purchases and web surfing habits, image recognition and recommendation algorithms tailor product recommendations to each individual user.	Increases click-through rates and boosts sales of recommended items by up to 20%.
Dynamic Ad Targeting:	Social media and other channels may now get tailored adverts enabled by AI-based audience segmentation and advertising platforms.	Improves return on ad spend (ROAS) (by up to 50% in Sephora's case) via targeted ad optimization and increased CTR.
Inventory Management and Demand Forecasting:	Algorithms trained on historical sales data may now foretell consumer needs, allowing for more precise stock optimization.	Reduces unnecessary storage costs by up to 10% and lessens the likelihood of stock-outs and lost sales.
Customer Service and Retention:	Smart AI chatbots provide round-the-clock service and answer common questions, allowing human agents to focus on more complicated problems.	Improves customer satisfaction and decreases wait times, leading to an increase in client retention rates of up to 5%.

Analysis of AI Enhancement in Digital Marketing of Various Companies

Company	**AI Application**	**Digital Marketing Enhancement**	**Results**
Netflix	Recommendation algorithms	Personalized movie and TV show recommendations	Increased user engagement

			and subscriptions
Spotify	AI-driven music libraries	Music suggestions tailored to your tastes and listening patterns	A more satisfying experience for users and lower attrition
Coca-Cola	Societal media analytics in real-time	Analysis of public opinion and hyper-specific advertising	Gains in both brand recognition and return on investment (ROI) via marketing
Sephora	Trying on clothes virtually	Testing products using an augmented reality experience	Online sales have increased while product returns have decreased.

Conclusion

With the introduction of the Artificial Intelligence (AI) in the sphere of the digital marketing industry, the sphere has turned into a ground-breaking one, altering the surroundings and shifting the traditional functioning. Artificial intelligence (AI) is improving digital marketing in a number of ways. This involves making decisions that are better, creating a more personal customer experience and enhancing efficiency in general. The findings noted in this research paper clearly show the drastic influence of AI in the significant fields of digital marketing. With the help of AI, the sphere of digital marketing can be reformed and streamline several operations, as well as assist a marketer to achieve a superior insight into customer preferences and meet them. The digital marketers are conscious of the potential of AI in achieving their goals as they strive to upscale their activities and reach their customers in the most efficient manners. One of the basics of AI impact can be considered the existence of AI in targeting and personalization. The marketers can now deliver contents and promotions in the most personalized way that captures the consumers in the highest level, thanks to the advanced algorithms. Not only it aids in establishing a more successful relationship with customers, it also raises the conversion rates and customer loyalty.

Chatbots and virtual assistants have revolutionized the online space of communicating with customers. AI chat bots are real time responsive and are able

to ensure twenty-four-hour customer care and enhance user experience. Furthermore, the automation of the process of fulfilling the monotonous tasks, such as emailing and posting on social media is time saving, and at the same time, marketers can focus on the strategic processes.

The optimization of dynamic pricing, content, and optimization, and the augmented reality (AR) and virtual reality (VR) experiences to enhance the marketing strategies, prove the multidimensionality of the marketing strategies. Besides the fact that these technologies offer audiences immersive experiences, they will also offer a measurable ROI through enhanced analytics and real-time performance monitoring. Relevant in the contemporary digital age and pertinent to data security and privacy, AI is also useful in this respective. The developed algorithms of threat-detection support the principles of cybersecurity, and privacy options provide the responsible use of the information about the customers and build the trust between the companies and their customers.

Overall, it must be stated that AI influence on the improvement of digital marketing is complex and extensive. The future of AI usage in marketing is that the technology is dynamic in that the marketers will be on the frontline, changing their strategy and use on AI tools to keep up with the new digitalized environment. The opportunities posed by artificial intelligence (AI) should be exploited by businesses that want to succeed in the long term and develop significant relations with their target consumers in the rapidly changing environment of digital marketing.

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Navigating the Intersection of AI-Driven Workforce Restructuring and ESG Commitments: A Conceptual Framework

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Abstract

Workflows, skills, and labour components are all being transformed by artificial intelligence (AI), which is causing turmoil in modern organisations. Organisations are facing a critical problem with workforce reorganisation as a result of corporations integrating AI into their strategic and operational activities. Also, more and more people are looking to the Environmental, Social, and Governance (ESG) commitments as a way to make decisions that are ethical, accountable, and sustainable. This article investigates the link between AI-powered automation and workforce reorganisation, focusing on the question of whether ESG commitment might mitigate the reorganizational impacts. The existing literature suggests that, in addition to improving efficiency, AI adoption causes disruption due to the fact that it tends to polarise skills and reshape job definitions (Acemoglu et al., 2022). However, human-centric restructuring approaches, such as openness, equity, and building a long-term workforce, are more acceptable to organisations with strong ESG orientations (Wang et al., 2022). This paper will present a conceptual framework describing the relationship between ESG commitments and organisational reaction to the AI-driven change by combining the technological and sustainability approaches. Findings serve the contribution to theory by filling the gap between digital transformation and corporate sustainability literature, and present useful information on the application of responsible automation policies. The paper highlights the importance of organisations to keep a balance between technological advancement and ethics to achieve future-ready and socially sustainable workforce systems

Keywords - *AI-Driven Automation, Workforce Restructuring, ESG Commitments, Responsible Innovation, Digital Transformation*

Introduction

The rapid advancement of artificial intelligence (AI) has triggered an unparalleled shift in the functioning, competition, and human capital management of enterprises. With the growth of AI technologies, including machine learning, predictive analytics, and intelligent automation, becoming part of daily work processes, companies begin to encounter growing pressure to reorganize their labor forces, to fit the new digital needs (Brynjolfsson and McAfee, 2014). As it turns out, recent data indicate that AI-driven automation affects the composition and organization of labor, transforming labor roles, the division of labor, and competencies (Acemoglu et al., 2022). Although the phenomenon of automation has been traditionally linked with job replacement, modern studies indicate that AI produces a more sophisticated outcome, namely, causing both task augmentation and job enrichment and triggering the development of new skills (Raisch and Krakowski, 2021).

In line with this technological development, Environmental, Social and Governance (ESG) commitments have become the guidelines of decision-making regarding sustainability. Companies are increasingly using the ESG models to guarantee accountable operation, moral disclosure, and consumer-oriented leadership (Serafeim, 2021). Research shows that companies that practice ESG well consider technological shifts more carefully and place more emphasis on the welfare of the employees, equitable reorganization, and employee development as a long-term ability (Wang et al., 2022). Within the context of digital transformation and ESG, the cross-point of AI is becoming more topical as the digital transformation gains more momentum, and it is necessary to know how organizations will be able to adopt responsible restructuring policies.

Although the area of AI and ESG has advanced considerably, there is scanty literature on how ESG pledges influence the effects of AI-based automation on the restructuring of workforce. The proposed research aims to fill this gap by exploring the interaction of AI, workforce change, and sustainability promises and providing a solution to how companies should strike the right balance between technological effectiveness and ethical and socially responsible behaviors.

Review of literature

Artificial intelligence (AI) has become a formidable technological power that has affected the organization, workflow procedures, and human resource approaches. According to recent research,

AI-based automation substantially changes the nature of jobs through work reallocation between people and intelligent machines, resulting in job displacement and job enrichment (Acemoglu et al., 2022). Companies are more and more using machine learning, automated robotic processes, and predictive analytics to streamline the efficiency of operations and are leading to significant workforce restructuring efforts. It has shown that the easiest and least-skilled tasks are the most susceptible to automation, whereas high-skilled analytical jobs are growing, pushing a division in the labor markets (Zheng and Zheng, 2021).

The importance of leadership and organisational culture in determining the implementation of AI in firms is also a current issue in recent literature. Augmentation-oriented leaders focus on the use of AI as an addition to human abilities instead of alternative, which usually leads to more beneficial workforce results (Raisch and Krakowski, 2021). Equally, more adaptive reactions to technological disruption may be enabled through learning-based organisational cultures through the encouragement of reskilling, experimentation, and digital literacy among workers (Huang et al., 2020). These results highlight the importance of the fact that technology in itself does not determine the results; managerial styles and organisational preparedness are a great influence on the dynamics of restructuring.

In line with these technological changes, Environmental, Social, and Governance (ESG) commitments have increasingly been of importance as policy directives of responsible corporate conduct. Companies that have high scores in ESG are depicted to be more humanistic towards technological change and put more focus on the well-being of their employees, transparency, and fairly made decisions on restructuring (Wang et al., 2022). The Social (S) pillar, specifically, has an impact on the nature of organisational workforce transition, where high-ESG companies allocate a larger sum towards redeployment, reskilling, and equitable job redesign (Serafeim, 2021). Accountability in the application of AI is also done through governance (G) mechanisms, especially in eliminating algorithm bias, maintaining fairness, and a clear decision-making process (Babic et al., 2022).

AI and ESG relationship examination by researchers found that organisations prioritising ESG are more inclined to view technological adoption as a means of achieving long-term sustainability (Fernando et al., 2023). Stakeholder perception of technological change is

influenced by the degree of commitment to ESG by the organisation. Some stakeholders may be more or less motivated to learn new skills depending on their trust in the process and their job satisfaction (Zhang and Li, 2023). As evidenced by the growing body of knowledge, an organisation's adherence to ESG principles can act as a buffer that reduces the negative effects of AI-driven restructuring.

Automation has moved from simple manual labour to creative and analytical jobs as a result of the recent surge in Gen AI. Current workforce restructuring motivated by AI involves redesigning jobs that were once thought to be 'automation-proof', including making content and combining complex data. This shift makes the moderating role of ESG even more vital, as the "Social" and "Governance" pillars must now protect the intellectual well-being and psychological security of a much broader segment of the global workforce.

Irrespective of these observations, the literature is still disjointed in elaborating on how ESG commitments moderate the association between automation powered by AI and workforce restructuring systematically. Although single studies recognize the ethical and societal effects of AI, a small number of empirical studies combine ESG models with AI-workforce models. This indicates a pressing necessity for studies in the field of the analysis of the influence of sustainability-oriented values on organisational strategies towards technological change and labour restructuring.

Research Gap

Despite the fact that current studies recognise the increasing role of AI-driven automation in the context of workforce restructuring, there is a lack of empirical research exploring how ESG commitments systematically moderate the connection between the two. ESG performance and AI adoption have been analysed as independent variables in earlier research, leading to an unconnected understanding of how sustainability principles influence the relationship between technological change and human capital outcomes. This study intends to reveal how organisational values change the course of restructuring, transforming it from an efficiency-driven process to one characterised by ethical responsibility and long-term resilience by theorising ESG as a moderating force.

Conceptual Framework

The study's conceptual framework places AI-driven automation as the major force that will impact workforce re-organisation, such as re-designing of jobs, transforming skills, and re-balancing labour. Workforce

restructuring is the dependent variable that is determined by the level and characteristics of AI implementation. The ESG commitments, especially the Social and Governance ones, are conceptualised as moderating factors that precondition the strength, fairness, and employee-focusedness of the restructuring decisions. The model assumes that in high ESG performing organisations, responsible, transparent, and human-based restructuring yields will be greater. This model combines technological, organisational, and ethical aspects to describe the difference in the restructuring responses of firms.

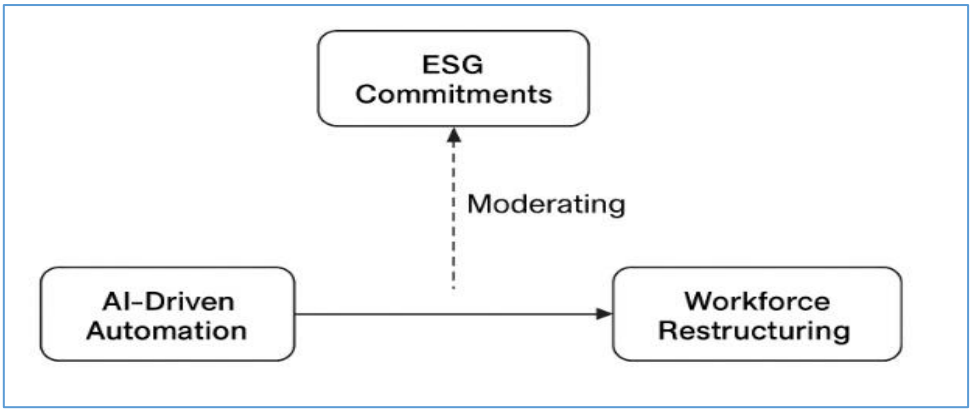

Figure 1: Conceptual framework for the study

Research methods

Qualitative research design is used in this study to examine how the moderating factor of ESG commitments contributes to the relationship between AI-driven automation and workforce restructuring. Through qualitative methodology, profound insight into the perceptions of managers, organisational processes, and situational influences on restructuring can be acquired (Creswell and Poth, 2018). The purposive sampling method was used to identify the respondents who have appropriate experience with AI or ESG programs. 25 semi-structured interviews with managers, HR specialists and digital transformation leaders from sectors heavily impacted by AI, specifically Fintech, telecommunication and IT services, were conducted to gather primary data for the study. These service-based and tech-driven businesses are at the frontline of how automation is impacting jobs. By focusing on these sectors, interviews explored AI adoption patterns, restructuring strategies, ESG practices, and employee transition methods.

In order to find patterns and links within qualitative data, the interviews were

transcribed and subjected to thematic analysis in accordance with Braun and Clarke's (2021) standards. To establish analytical rigor, the coding was completed in multiple cycles, and peer debriefing enhanced dependability. Secondary data, such as sustainability reports, ESG disclosures, and papers pertaining to digital transformation, were used in the triangulation process. A thorough, contextualized knowledge of how ESG commitments affect an organisation's response to workforce reorganisation through AI is made possible by the research's theoretically grounded methodology.

Results and Discussion

Automation in organisational contexts powered by AI

The idea that AI-based automation is changing contemporary work structures is supported by recent studies. AI technologies are gradually replacing routine physical and cognitive tasks, which has a substantial impact on how businesses organise their workforce and allocate human resources.

Current research supports the notion that AI-based automation is transforming modern workforce models. Routine manual and cognitive tasks are increasingly being replaced by AI systems, resulting in significant changes in how organisations structure jobs and allocate human resources. This is in line with previous studies that have found AI to affect more predictable and routine jobs and supplement high-skilled, analytical, and technology-intensive jobs (Autor, 2015; Frey and Osborne, 2017). The research paper notes that organisations that embrace the use of AI are witnessing changes in the composition of tasks, workflow integration, and decision-making architecture, which is a positive confirmation that AI is not a technological upgrade, but a structural force that affects the work of organisations.

It is also found that AI-driven restructuring is not only limited to job displacement but also job redesign and skill transformation. Administrative and clerical workers as well as those in rule-based roles experience increased exposure to automation, with other roles that demand complex reasoning, creativity, and emotional intelligence evolving as opposed to being removed. This confirms the fact highlighted by Brynjolfsson and McAfee (2014) that AI has an asymmetrical influence on employment, which results in job erosion and job enhancement based on the type of work. Artificial Intelligence-led change therefore seems to alter the underlying paradigm of labor and technology and

compel organizations to adopt digital-centric forms of operation.

The Workforce Restructuring Strategic Drivers and Cultural Drivers

Leadership Orientation and Strategic Intent

The findings reveal that the outcomes of restructuring are considerably different based on the intentions or motives of managers adopting AI. When AI is viewed by the leader as an instrument primarily aimed at cost reduction, then leaders strive to adopt Labouré-substitution strategies. On the other hand, those leaders who perceive AI as innovation and capability-building incorporate it as an augmentation tool whereby they use it to improve employee productivity but not to substitute employees. This difference is consistent with the automation-augmentation paradox described by Raisch and Krakowski (2021), which implies that the organisational strategy is an intermediary between the effect of AI on workforce change.

The long-term perspective of AI implementation is applied by the managers of the high-performing companies, who focus on job enrichment and digital literacy, as well as the establishment of hybrid human-machine positions. It is a method that is echoed by the results of Bessen (2019), who found that reskilling and demand growth are important factors that influence the employment impacts of intelligent technologies. Therefore, strategic intent can be considered a key variable that can affect the outcome of AI, namely, structural displacement or structural renewal.

Organisational Culture as a Facilitator or Hindrance

The paper focuses on the issue of culture that contributes to the dynamics of restructuring. Companies that have learning oriented, flexible and innovation-oriented cultures exhibit easier transition phases when integrating AI. These companies take an active approach to employee development, share knowledge, and provide psychological preparedness to a changing state. In contrast, organisations that have a very strict or hierarchical culture have resistance, uncertainty and slower adjustment to technological restructuring. This agrees with the claim by Davenport and Ronanki (2018) that the effectiveness of AI projects will not be tied to technical complexity alone; it also requires organisational preparedness and cultural congruence. Culture, therefore, predetermines the rapidity, quality, and ethicality of restructuring decisions adopted by companies.

ESG promises as a moderating Framework

ESG in the Formation of Restructuring Patterns

One of the key contributions of the research is the validation of the fact that the ESG commitments play a critical role in the manner in which AI-driven automation will be converted into workforce restructuring. Companies that have high ESGs are more likely to make decisions to restructure their organisation in a manner that is both efficient and responsible. ESG serves as a guiding principle and promotes organizations to take into account moral, social, and governance implications of automation (Serafeim, 2020). This moderating factor positions ESG as a reporting tool and a realistic framework through which organisations assess the human impacts of technological change.

Environmental Pillar (E): Green skills restructuring

While the Environmental (E) pillar does not exert a direct pressure on labour counts, it serves as a critical catalyst for "green-skill" restructuring. Organisations with strong environmental commitments often utilise AI not just for automation, but for eco-efficiency and carbon footprint reduction, which necessitates a restructuring of the workforce toward new, high-skilled "green" roles. In these firms, the ethical mindset fostered by environmental stewardship creates a "spillover effect," where the commitment to preserving natural capital translates into a commitment to preserving and developing human capital during AI transitions. Thus, the "E" in ESG ensures that restructuring is viewed through a lens of long-term organisational health rather than short-term cost-cutting

Social Pillar (S): Fairness and Employee Welfare

The social dimension is the most important moderator. Businesses that spend heavily in the welfare of their employees are less active in labour substitution and are more focused on the professional growth of their employees. Additionally, they view automation from a humanistic perspective, even favouring upskilling and redeployment initiatives over redundancy. These findings are consistent with a study that shows how socially conscious businesses prioritize long-term human capital retention and view staff members as long-term strategic assets over resource expenditure (Flammer, 2021). As a result, High-S companies deliberately rebuild their workforce paradigms using fair procedures, transparent communication, and equitable transition methods.

Governance (G): Ensuring Accountable and Transparent AI Use

In order to minimize adverse restructuring results, the governance dimension is essential. When using AI, companies with strong governance systems place a high priority on accountability and transparency. The use of decision-making algorithms in HR procedures, including workforce planning, performance management, and job redesign, is influenced by these governance mechanisms. Kim and Park (2021) state that research demonstrates that robust governance structures promote justice in the restructuring decision-making process, lessen bias in algorithms, and guarantee ethical control during delicate transitions. Governance has a significant impact on how AI is used and how restructuring affects workers at different organisational levels.

Perceptions of Change with AI and Employee Experience

The reason behind this is that trust, Transparency and Perceived Procedural Fairness are measured by the trustworthiness of the project staff, the accountability of the project's findings, and the acceptance of the procedures by the participants.<|human|>The rationale behind this is that Trust, Transparency and Perceived Procedural Fairness are gauged by the credibility of the project staffing, the responsibility of the project results and the acquiescence of the procedures by the participants.

In high-ESG organisations, employees always note an increase in positive perceptions of AI-driven restructuring. The level of transparency, the clarity of the communication, and the fairness of the processes lead to trust in the decisions made by an organisation and minimizes the anxieties about automation. This is in line with the general literature on perceptions of fairness and justice determining employee acceptance of technological change (Kim and Park, 2021).

The paper reveals that in case such decisions of restructuring are shared in an open manner, described by the aim, timeline, and resultant prospects, the employees are found to be more willing to re-skill and change. On the other hand, fear, resistance, and decreased organizational commitment advanced in opaque decision-making of low-ESG firms.

Psychological Security and Preparedness to Reskilling

The stories of employees indicate that ESG-based restructuring fosters psychological safety, which minimizes the threat of layoffs and motivates employees to learn on their own. Employees also believe that organizations consider them important

when they spend on reskilling, large-scale communication and career transitioning. These optimistic psychological reactions are in line with evidence that trust and perceived support increase employee willingness to use new technologies (ILO, 2021). Therefore, ESG commitments not only shape restructuring practices but also significantly influence employee responses and long-term adaptation.

A Striking Balance between AI-based Restructuring and Responsibility

The Twofold Strains of Productivity and Social Responsibility

The results are illustrative of a conflict between the efficiency-oriented rationality of automation and ethical considerations contained in the ESG promises. Restructuring based on AI is inherently associated with the saving of costs, optimisation of the workflow, and decreased reliance on human resources. Nevertheless, the ESG requirements are that organisations should focus on fairness, inclusivity, and the human-centeredness of decisions.

Similar to WEF (2020), the research proves that this tension is driving firms into a thin line between being competitive and socially responsible. High-ESG organisations would like to overcome this tension through hybrid restructuring modes where efficiency is combined with employee development and roles aimed at the future skill needs.

AI as a Structural Change Agent but not an Eliminator of Jobs

One of the possible recurring themes in the findings is that AI is a driver of structural change rather than a workforce reduction mechanism. Organisations with high performance use AI to design redesigned roles, new digital roles, and cross-functional hybrid roles. This fact confirms the claims of Acemoglu and Restrepo (2020) that automation and job creation coexist and depend on the organisation to respond strategically to technological opportunities. This work therefore, adds to the perspective that restructuring is complex and involves not only contraction but also re-definition of the workforce roles.

Testable prepositions

The rapid growth of artificial intelligence has changed the way businesses function in a big way. This has led to a lot of focus on how it affects reorganizing the workforce and developing employees. The nature of work is changing a lot as businesses use AI to boost productivity, simplify tasks, and make decisions more accurately. This change means not only automating some processes but also changing the way jobs are assigned and the abilities needed to do

them. At the same time, ESG requirements have become an important set of rules for using technology in a responsible and moral way. To make long-term plans for an organization that combine technical progress with social responsibility, it is important to understand how ESG commitments affect, protect, or lessen the effects of AI-driven workforce restructuring.

Based on the thematic analysis of the qualitative data and the integration of existing literature, the following testable propositions are offered as a theory-building outcome of this study. These propositions serve to synthesize the observed moderating effects of ESG on AI-driven change and provide a framework for future quantitative validation.

Table 1 – Testable propositions for the study

Proposition No.	Testable Proposition	Justification (with APA Citation)
P1	*AI-driven automation is positively associated with the degree of workforce restructuring within organizations.*	AI transforms tasks, job roles, and labor allocation, leading to structural changes (Autor, 2015; Frey & Osborne, 2017).
P2	*The relationship between AI adoption and workforce restructuring is stronger in organisations pursuing cost-reduction strategies compared to augmentation-oriented strategies.*	Strategic intent mediates automation outcomes, influencing whether AI substitutes or augments labour (Raisch & Krakowski, 2021).
P3	*Learning-oriented organisational cultures weaken the negative employment effects of AI-driven automation.*	Adaptive, development-focused cultures promote reskilling and smoother transitions during automation (Davenport & Ronanki, 2018).
P4	*ESG commitments moderate the relationship between AI-driven automation and workforce restructuring such that higher ESG commitment yields less disruptive outcomes.*	ESG acts as an ethical lens, shaping responsible technology adoption (Serafeim, 2020).

P5	*The Social component of ESG reduces the likelihood of job displacement resulting from AI-driven workforce restructuring.*	Socially responsible firms emphasize upskilling, redeployment, and employee well-being (Flammer, 2021).
P6	*Organizations with strong governance practices demonstrate higher fairness and transparency in AI-driven restructuring processes.*	Governance enhances accountability and fairness in algorithmic and structural decisions (Kim & Park, 2021).
P7	*Employees perceive AI-driven changes more positively in organizations with high ESG performance.*	ESG-driven fairness and transparency increase trust and acceptance during technological change (ILO, 2021).
P8	*AI adoption is positively associated with the emergence of new skill requirements, offsetting direct displacement effects.*	AI leads to job redesign and skill transformation rather than pure elimination (Acemoglu & Restrepo, 2020).

The amalgamation of AI-driven automation and workforce reorganization underscores the intricate transformations within contemporary enterprises, where technical efficiency frequently clashes with human and ethical considerations. Incorporating ESG concepts into the digital transformation process is crucial for attaining socially responsible outcomes. Effective ESG practices can bolster trust, promote employee development, and facilitate balanced restructuring, hence optimizing technology innovation and organizational resilience. The future of work must be influenced by both advanced technologies and values-driven governance that emphasizes performance and employee well-being.

Conclusion

This paper examines the complex relationship between AI-driven automation and workforce restructuring, highlighting that technological transformation is not merely an issue of operational efficiency but is also deeply intertwined with organisational values and sustainability commitments. It is indicated that, although AI changes the job functions and skills, the models of ESG-related organization have more responsible approaches to restructuring, emphasizing fairness,

openness, and long-term employee training (Zhang and Li, 2023). The moderating nature of ESG commitments highlights the need to incorporate an ethical element into the process of digital transformation to guarantee human-centred and socially sustainable results.

The research also leaves a number of research opportunities in the future. To begin with, empirical confirmation by bigger quantitative samples has the ability to reinforce knowledge of the moderating impacts of ESG. Second, cross-industry or cross-national comparisons can help to identify the contextual differences in the impact of ESG on the adoption of AI. Third, the future study can include the psychological reactions of employees, including trust, perception of fairness and willingness to be reskilled to examine the micro-level effects of AI and ESG integration. As AI keeps developing, the research of responsible automation frameworks will be necessary to build resilient, equitable, and future-ready working environments.

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A Study on factors influencing purchase of bodybuilding supplements for good health w.r.t Youth in MMR region

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Abstract

The growing awareness of health and fitness, particularly among the youth, has led to a significant increase in the consumption of bodybuilding supplements. This research explores the various factors influencing the purchase of bodybuilding supplements for health enhancement, with a specific focus on the youth demographic. By examining the role of socio-economic status, media influence, peer pressure, product accessibility, and individual health goals, this study aims to provide a comprehensive understanding of the motivations behind supplement consumption. Data was collected through surveys and interviews with young adults actively engaged in fitness routines. The study identifies key drivers such as the perceived effectiveness of supplements, endorsements by fitness influencers, and the growing societal emphasis on physical appearance.

Additionally, it highlights the challenges faced by consumers in terms of product authenticity, affordability, and awareness of potential side effects. The findings underscore the need for a balanced approach, promoting informed decision-making while encouraging the adoption of

sustainable and safe health practices. This research contributes to the broader conversation on health sustainability by linking consumer behavior in the fitness industry to the evolving trends in health practices, policies, and education aimed at building a sustainable nation. The study also proposes recommendations for policy-makers and fitness industries to address the emerging challenges and ensure youth well-being while promoting health sustainability.

Keywords: Bodybuilding supplements, youth health, consumer behavior, fitness industry, sustainability, health practices.

Introduction:

A healthy body is a state of complete physical well-being, free from illness or injury. It involves the optimal functioning of all bodily systems, including the cardiovascular, respiratory, digestive, nervous, and immune systems. There are various aspects of a healthy body like: Physical Fitness, Balanced Diet, Adequate Rest, Hydration, Stress Management, Regular Health Check-ups. One of the important aspects i.e. A Balanced Diet plays a very vital role for good health. The youth population in India got attracted towards bodybuilding and its related products particularly in the Mumbai Metropolitan Region(MMR). It resulted in a shift of youth to build the body with the help of supplements.

The Government of India is also taking various initiatives for good health and wellbeing under the umbrella of Sustainable Development Goals(SDG) i.e. targeting 2030. The value of India's nutritional supplements is USD 11.85 billion in 2023 and expected to reach USD 28.70 billion by 2032 at a CAGR 10.70%. There are various bodybuilding supplements containing products like; protein powders, pre-workout supplements, post-workout supplements, Multivitamins that help to achieve specific fitness goals. By using bodybuilding supplements responsibly and in conjunction with a healthy lifestyle, individuals can contribute to their overall health and well-being, aligning with the goals of Sustainable Development Goal-3 (Good Health and well-being).

Current market status of bodybuilding supplements in India:

The Indian bodybuilding supplements market is prospering due to increasing awareness about health and various socio-

economics factors. Following are the key drivers for the same

Fitness and bodybuilding culture: Due to the effective marketing strategies and social media influence on youth, it promotes fitness and bodybuilding culture in urban areas ,which ultimately leads to high demand for supplements. Platforms like instagram, youtube and celebrity endowment in advertisement inspiring youth to consume supplements for better body and achieve individual health goals.

Ease of access and availability: Availability of all types of supplements products on online platforms like Amazon, Flipkart and due to emerging level of competition consumers are getting all of these products at affordable and competitive prices.

Health Awareness and benefits of Protein: Growing concern about better health and better results of protein attract more youth for such bodybuilding supplements. Use of such supplements helps in faster recovery of muscles and endorsements in the body.

Increased disposable income: Due to increasing the disposable income of individuals now they are able to spend more on health supplementaries.

Celebrity endowments: Sports, bollywood, athletes personalities plays a very vital role in decision making of individuals for health and fitness goals.

Top brands in bodybuilding supplements segment:

MuscleBlaze(MB) is a prominent Indian sports nutrition brand, renowned for its commitment to providing high-quality, affordable, and effective bodybuilding supplements. Founded in 2012, the brand has swiftly gained popularity among fitness enthusiasts and athletes across India.

Optimum Nutrition (ON) is a globally recognized leader in the sports nutrition industry, renowned for its high-quality and effective bodybuilding supplements. Founded in 1986, ON has consistently set the standard for excellence, providing athletes and fitness enthusiasts with cutting-edge products

MuscleTech is a renowned name in the sports nutrition industry, celebrated for its commitment to scientific innovation and cutting-edge formulations. Their products are designed to help athletes and fitness enthusiasts achieve their peak performance and physique goals.

IsoPure is a popular brand of whey protein isolate, known for its high protein content and low carbohydrate and fat levels. It's a preferred choice for many bodybuilders and fitness enthusiasts due to its purity and effectiveness.

GNC (General Nutrition Centers) is a well-known brand in the health and fitness industry, offering a wide range of bodybuilding supplements. They have been a trusted source for athletes and fitness enthusiasts for decades.

Challenges and Issues faced by bodybuilding supplements Companies in India:

Authenticity and adulteration issues: India's supplements market is floated with numbers of brands and that leads to identification of authentic and unadulterated products
From the market.

Lack of knowledge and awareness: Because of more availability of knowledge and awareness about youth and due to that people consume such products which harm their body and do not give expected results to individuals.

Market Fragmentation

The sports nutrition segment is highly fragmented, with small-scale producers often unable to adhere to quality standards, which impacts the industry's overall image.

Lack of logistic facilities: Due to lack of infrastructure support and availability of retailers
It becomes very difficult to give products to the ultimate consumer at the right time . Although online platforms solve this issue to much extent, still it is difficult to reach rural areas.

Research Methodology:

The data collected from primary and secondary sources. Primary data collected from Structured Questionnaire method and Snowball Sampling method. Sample size is 121 respondents. Secondary data collected from the 'Literature Review'.

Problem Statement: There is a need to study the factors influencing and challenges faced
by youth in purchase of bodybuilding supplements for good health.

Objectives of the study:

1.To study the awareness level among youth w.r.t. bodybuilding supplements.

2. To analyze the various influencing factors faced by youth in the purchase of bodybuilding supplements for good health.

3. To study the challenges faced by youth in purchase of bodybuilding supplements for good health.

4. To study the role of Sustainable Development Goals-3 and government in the bodybuilding supplement segment.

Literature Review:

As per the study conducted by Alexa Rukstela, Title: 'Bodybuilding Coaching Strategies Meet Evidence-Based Recommendations: A Qualitative Approach'.

Bodybuilding is a sport where coaches commonly recommend a variety of nutrition and exercise protocols, supplements, and, sometimes, performance-enhancing drugs (PEDs). The present study sought to gain an understanding of the common decisions and rationales employed by bodybuilding coaches. Focusing on coaches of the more muscular divisions in the National Physique Committee/IFBB Professional League federations (men's classic physique, men's bodybuilding, women's physique, women's bodybuilding) for both natural and enhanced athletes, coaches were recruited via word of mouth and social media, and 33 responded to an anonymous online survey. Survey responses indicated that participant coaches recommend three-to-seven meals per day and no less than 2 g/kg/day of protein regardless of sex, division, or PED usage. During contest preparation, participant coaches alter a natural competitor's protein intake by −25% to +10% and an enhanced competitor's protein intake by 0% to +25%. Regarding cardiovascular exercise protocols, approximately two-thirds of participant coaches recommend fasted cardiovascular exercise, with the common rationale of combining the exercise with thermogenic supplements while considering the athlete's preference. Low- and moderate-intensity steady state were the most commonly recommended types of cardiovascular exercise among participant coaches; high-intensity interval training was the least popular.

As per the study conducted by Li, Jiuzhang; Davies, Timothy B.; Hackett, Daniel A. Title: 'Self-Reported Training and Supplementation Practices Between Performance-Enhancing Drug-User

Bodybuilders Compared with Natural Bodybuilders'

Self-reported training and supplementation practices between performance-enhancing drug-user bodybuilders compared with natural bodybuilders. *J Strength Cond Res* 37(5): 1079–1088, 2023—This study aimed to examine whether the training and supplementation practices differ between performance-enhancing drug (PED)-using bodybuilders (BB) and natural BB. One hundred eighty-seven competitive male bodybuilders with a median age of 27.0 years completed an online survey. Of this sample, 40 respondents reported using PED (PED-user) and 147 respondents reported to be natural. Compared with natural BB, PED-user BB reported greater off-season body weight ($p < 0.001$) and weight loss before a competition ($p < 0.001$). In the off-season, PED-user BB performed a greater number of exercises per muscle group ($p < 0.001$), number of repetition maximum (RM) per set ($p < 0.01$), and less recovery between the sets ($p < 0.01$). During the precompetition phase, the natural BB increased their number of RM; however, the PED-user BB still reported using a greater number of RM per set ($p = 0.02$), exercises per muscle group ($p < 0.001$), and less recovery time between the sets ($p < 0.01$). Both the PED-user BB and natural BB reported greater aerobic exercise frequency ($p < 0.001$) and session duration ($p < 0.001$), although PED-user BB performed a greater number of aerobic exercise sessions ($p = 0.04$) and at a higher intensity ($p < 0.01$). Findings suggest that PED-user BB perform more metabolically demanding resistance training sessions, more strenuous aerobic training during the precompetition phase, and may have different supplementation preferences compared with natural BB.

As per the study conducted by Pablo Jiménez-Martínez. Title: 'Dietary supplementation habits in international natural bodybuilders during pre-competition'

Bodybuilding is characterized by high-rates of sport supplementation. This is the first study to compare the supplementation patterns of winners (WB) and non-winners (NWB) among international natural bodybuilders during contest preparation. Fifty-six natural bodybuilders (5 women) (age = 28.85 ± 8.03 years; final body mass = 71.50 ± 10.28 kg), 19 WB (athletes who had achieved victory in an official natural bodybuilding championship at least once) and 37 NWB (athletes who never achieved victory), from 18 countries (55.36% from Spain) responded to this cross-sectional online survey related to their nutritional habits, strategies and supplementation

practices. WB were significantly older (p = 0.024), completed more competitive seasons (p = 0.027) and participated in more competitions in the last contest year (p = 0.011). Athletes' supplementation patterns were influenced by different sources of information. However, these natural bodybuilders mainly purchased their supplements through the internet without guidance from a coach or dietitian.

As per the study conducted by Yasaman Bajool, Mohammad Hemmatinafar. Title: 'Evaluation of nutritional knowledge and consequences of consuming dietary supplements among expert bodybuilders.

Background: of specific education programs from unreliable sources causes low nutrition knowledge and the use of many dietary supplements (DS) in bodybuilders. This study investigated the nutritional knowledge and prevalence of DS among Iranian bodybuilders.

Method: This cross-sectional research involved a sample of 648 bodybuilding clubs in Iran and a researcher who distributed questionnaires among clubs in different regions and analyzed categorical variables, DS, nutritional knowledge, and sports nutrition data from 160 bodybuilders aged 18 and above in Iran with the results of a quantitative questionnaire.

Results: There was a significant relationship between DS use and gender (p=0.000, r= 0.330), bodybuilding history (p=0.045; r=0.158), participation in nutrition courses (p=0.161, r=0.111), and exercise sessions per week (p=0.050, r=0.156). Whey protein (45.62%) and BCAA (33.75%), vitamin D (50%), Vitamin C (56.25%), caffeine (34.37%), and generally vitamin C (56.25%) were the most common DS used. The most information sources for bodybuilders regarding DS were trainers (35.62%) and nutritionists (34.37%), and regarding nutrition, registered dietitians/nutritionists (58.1%) and trainers (51.87%). This study concluded that the most common information sources for bodybuilders were coaches and nutritionists and found poor nutrition knowledge among bodybuilders. The most common DS used by bodybuilders were vitamins C, D and Whey protein. Also, gender, bodybuilding history, and the number of weekly exercise sessions had a significant relationship with the prevalence of DS.

As per the study conducted by Jade, Amit S. Title: 'Influence of Diet and Weight Training on HDL and LDL Levels of Endomorph Bodybuilders'.

Bodybuilding is that form of physical activity that re-builds an individual's body in way far better than its original form, as each and every part of the body is trained differently with required specifications so that a desired muscle development is achieved. That is why bodybuilding is called as one such sport that defines one's body. It refers to a series of dedicated activities that result in body transformation. This not only means the outlook of the body at the outer level but the inner composition of the body also changes i.e. change in muscle fibres, muscle tissue, levels of lipoproteins, etc at a major level. All these changes when take place in a natural manner with extreme hard work and dedication, it makes wonders but when it is stimulated in an artificial manner for quick results it can turn to be harmful. The major effect of the weight training schedule and diets that are followed in the off season and competition season falls on the HDL and LDL levels of the body. This so happens because the fat in the diet is completely controlled in the competition season and then consumed in significant quantities in the off season. The same applies to weight training schedule which is rigorous in the competition season and a little lenient in the off season. These changes in the diet and weight training pattern bring about drastic variations in the HDL and LDL levels in the blood.

Data Collection: Tools used for data collection:

Questionnaire:

The researcher has undertaken primary research and used a Structured Questionnaire to collect data through Google forms. The Questionnaire contains Close ended questions with multiple choice options to obtain data.

Sampling:

For the purpose of this research Convenience or Random sampling method is used. Data is collected from 121 respondents.

Limitations of study:

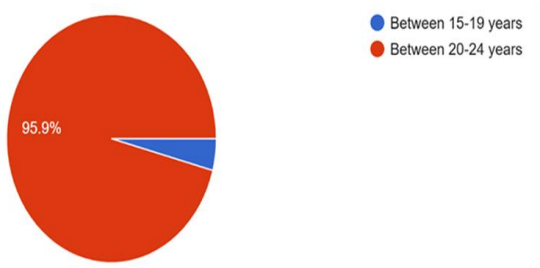
1.The sample size is small.

2.The analysis is based on the perception and opinion of a limited number of respondents.

Data Analysis: The analysis and interpretation of the primary data , collected through primary

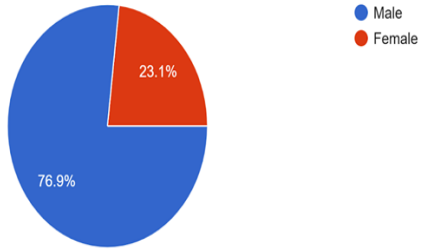
questionnaire, reveals the following:

1.Age:



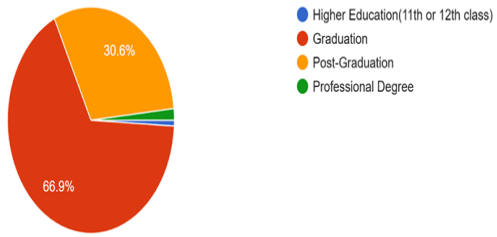
This chart reveals that the maximum of respondents i.e. 95.90% are in the age group between 20-24 years and 4.10% between the age group of 15-19 years.

2.Gender:



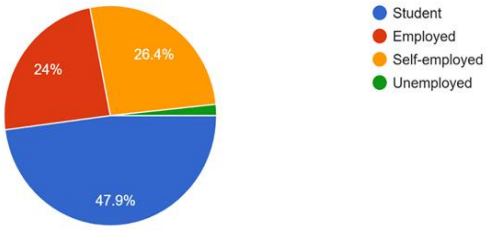
This chart reveals that 76.90% of the respondents are male and 23.10% are female.

3. Education:



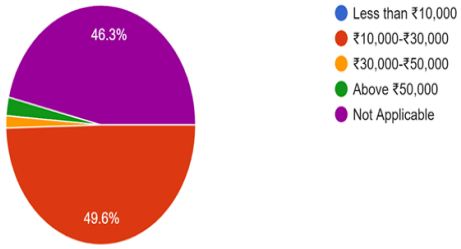
This chart reveals that maximum respondents are Graduate level i.e. 66.90%, 30.60% Post-Graduation, 13% HSC, 1.7% are holding Professional Degree and 0.80% Higher Education.

4. Employment Status:



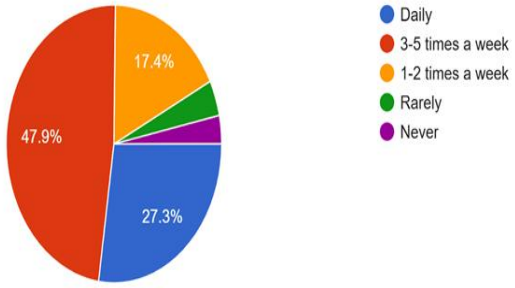
This chart reveals that 49.90% of respondents are Students, 26.40% are Self-Employed, 24% are Employed and 1.70% are Unemployed.

5. Monthly Income (if applicable):



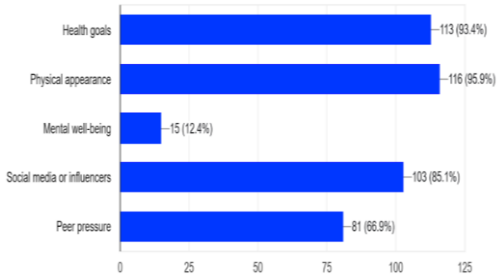
This chart reveals that 49.60% of respondents have a monthly salary between RS.10, 000 to 30,000, 46.30% respondents between not earning, 2.50% above RS. 50,000 and 30,000 to 50,000 1.70%.

6. How often do you engage in fitness and wellness activities?



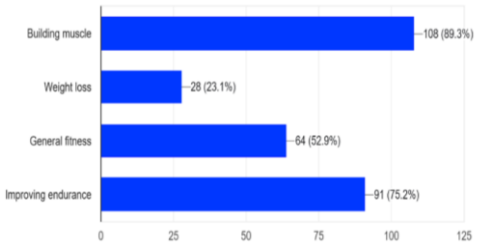
This chart reveals that 47.90% of respondents i.e. youth go for fitness activity 3 to 5 times in a week, 27.30% on daily basis, 17.40% 1 or 2 times in a week, 4.10% rarely and 3.30% never go for the same.

7. What motivates you to maintain your health and wellness routine?



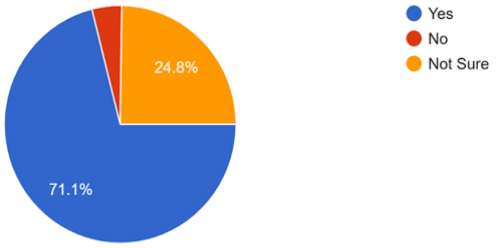
The above data reveals that physical appearance (i.e. 95.90%)is the prime motivator to maintain health and wellness routine by youth, followed by health goals(93.40%), social media influence(85.10%), peer pressure(66.90%) and very less amount by mental well-being.

8. What are your primary fitness and wellness goals:



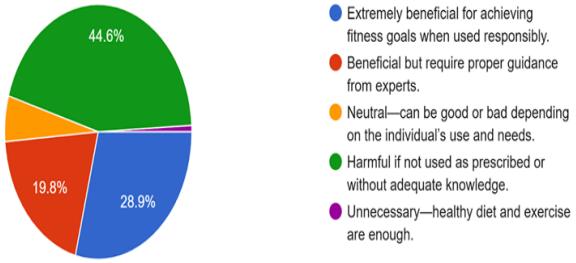
According to the above chart 89.30% people's primary goals of fitness and wellness is building muscle, 75.20% people are improving endurance, 52.90% general fitness and 23.10% weight loss.

9. Do you believe bodybuilding supplements can improve your overall health and wellness?



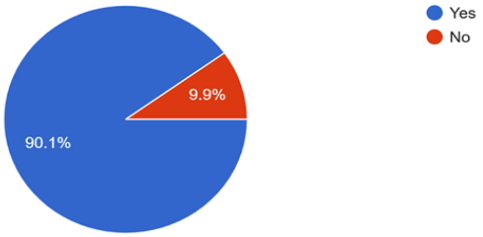
The above chart reveals that 71.10% of respondents believe that bodybuilding supplements will help them to build overall health and wellness, 24.80% are not sure and 4.10% responded no.

10. What is your perception about bodybuilding supplements for good health:



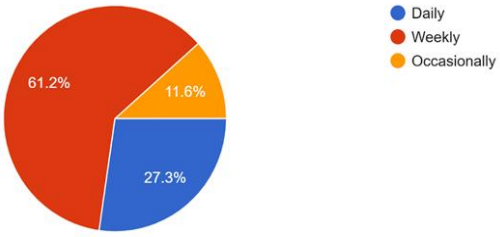
The above chart reveals that 44.60% of respondents are agree that bodybuilding supplements are harmful if not used as prescriptions and adequate knowledge, 28.90% of respondents says supplements are extremely if used responsibly, 19.80% responded says that its is beneficial but require proper guidance and proper recommendation from expert and 0.80% of population believes that there is no need of supplements only healthy diet and exercise is enough.

11. Have you ever purchased bodybuilding supplements?



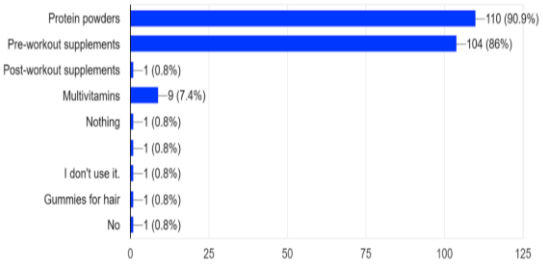
The above chart reveals that 90.10% of respondents purchased bodybuilding supplements to achieve their health goal and 9.90% of respondents never purchased.

12. If yes, how often do you consume bodybuilding supplements?



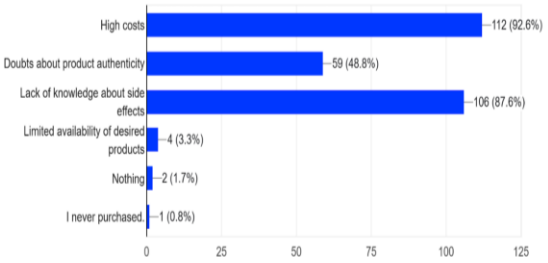
The above chart reveals that 61.20% of the population consume bodybuilding supplements on a weekly basis, 27.30 on daily basis and 11.60% occasionally.

13. What type of supplements do you use?



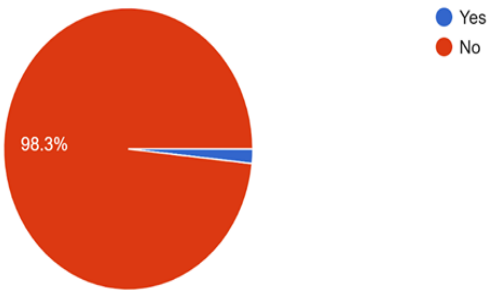
The above chart reveals that most of the youth use protein powders i.e. 90.90% , 86% Pre-workout supplements, 7.40% Multivitamins and 0.80% Post-workout supplements.

14. What challenges do you face while purchasing supplements?



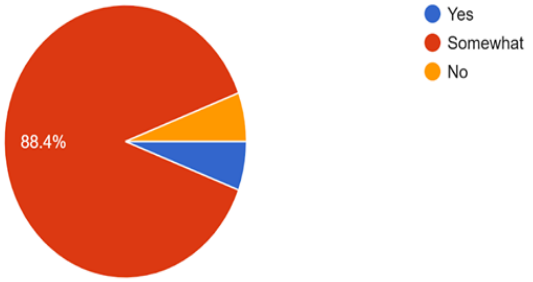
The above chart reveals that the primary high cost of supplements is the main challenge faced by 92.60% of youth, 87.60% face lack of knowledge as a challenge , 48.80% of youth doubt about the authenticity of products and 3.30% of youth face limited availability of product as a challenge.

15. Have you ever experienced any side effects from supplements?



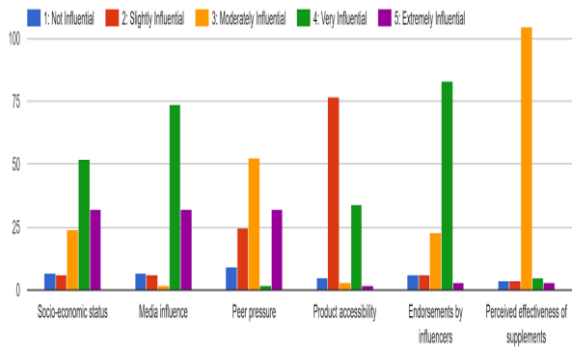
As per the responses 98.30% of youth experienced any side effects from supplements and 1.70% of youth never faced any side effect problem from supplements.

16. Do you feel informed about the benefits and risks of supplements?



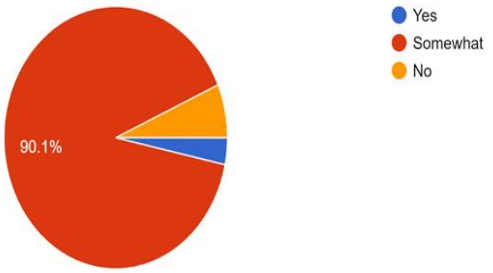
The above chart reveals that 88.40% of youth feel they require more information about the supplement products and 6% of youth feel they are not getting all the related information regarding the supplement and 5.60% of youth are getting all information.

17. How influential are the following factors in your decision to purchase supplements? (Rate on a scale of 1-5)



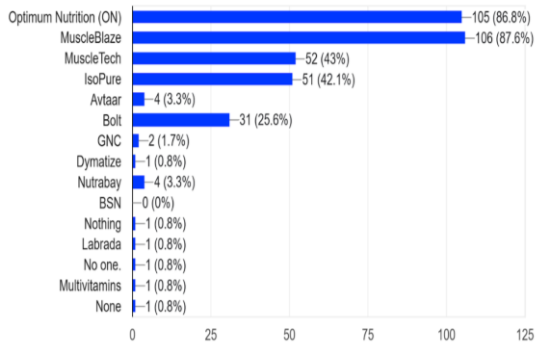
The above chart reveals that most youth feel that socio-economic status, media influence and peer pressure are the extremely influential factors in the decision making of youth in supplements purchase, followed by Endorsements by influencers and Perceived effectiveness of supplements.

18. Do you believe there is sufficient awareness about safe supplement consumption practices?



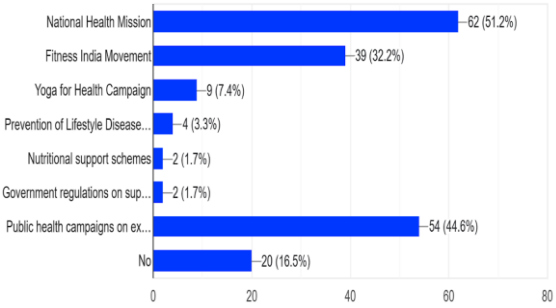
The above chart reveals that 90.10% of youth believe that there is sufficient awareness about safe supplement consumption practices, a bit of youth i.e. 6.60% believes that there is sufficient awareness and 3.30% youth believes that there is sufficient awareness.

19. Which bodybuilding supplements do you prefer?



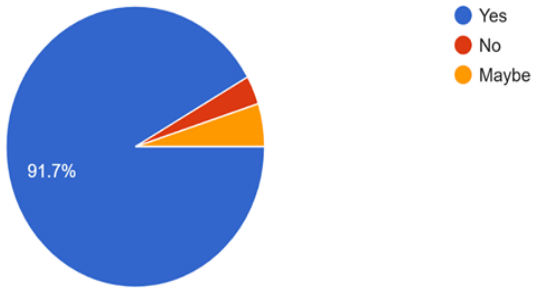
The above chart reveals that 87.60% of youth preferring MuscleBlaze(MB) company , 86.80% Optimum Nutrition (ON) , MuscleTech by 43%, IsoPure by 42.10%, Bolt by 25.60 and followed by other brands.

20. Which of the following government policies or programs have you heard of in relation to youth health and wellness? (Select all that apply)



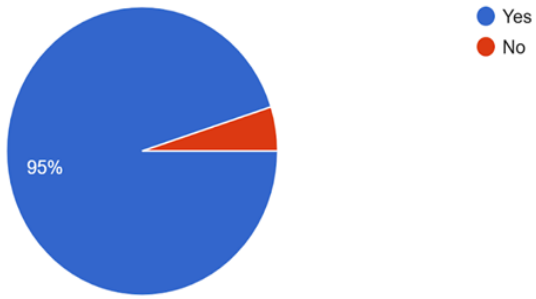
The above chart reveals that 51.20% youth are aware about the 'National Health Mission' policy of government, Public health campaigns on exercise and fitness by 44.60%, Fitness India Movement by 32.20%, 16.50% youth are not aware about any health policy or program.

21. Do you believe that the government should regulate bodybuilding supplements to ensure safety and wellness?



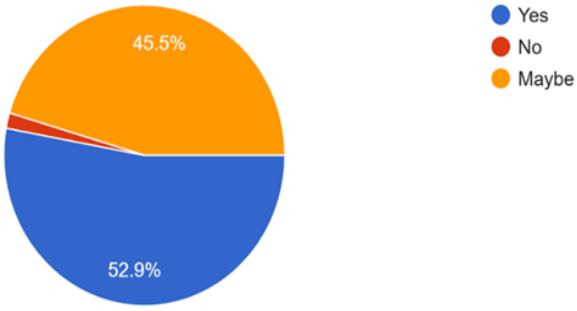
The above chart reveals that most of the youth i.e. 91.70% believe that the government should regulate bodybuilding supplements to ensure safety.

22. Would you prefer purchasing bodybuilding supplements that are certified by government-approved health organizations or regulators?



The above chart reveals that 95% of youth will prefer purchasing bodybuilding supplements that are certified by government-approved health organizations or regulators.

23. Do you think government intervention in regulating supplements can help reduce misleading advertising or unverified health claims?



The above chart reveals that 52.90% of youth think that government intervention in regulating supplements can help reduce misleading advertising or unverified health claims.

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Conclusion:

Majority of youth believe that bodybuilding supplements can improve their overall health and wellness. The findings reveal that building muscles and social media influence are the prime factors to take supplements along with diet. High cost of supplements and lack of information about products and its side effects become a challenge to youth. MuscleBlaze(MB) is the most preferred brand for supplements followed by Optimum Nutrition (ON). Most of the youth are looking for government intervention in this product segment so that they will add supplements in their diet without any hesitation and will be able to achieve their individual health and wellness goals.

Recommendations:

- Educational campaigns are needed to improve knowledge about responsible supplement use and potential side effects.
- Regulatory bodies should implement stricter measures to ensure product authenticity and safety.
- Fitness influencers and media platforms should promote evidence-based practices and discourage unrealistic expectations.
- Government initiatives can focus on promoting healthy eating habits and affordable fitness options alongside safe supplement use.

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Ambition at Work, attachment at Home: Investigating the work life balance of Career Oriented Women

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ABSTRACT

In today's evolving professional landscape, career-oriented women are having to balance the demands of ambition at workplace and attachment at home. The study focuses on how career-related activities impact their personal and family lives; the current research helps to investigate the work-life balance of career driven women living in Bengaluru urban region. The study looks into the key challenges these women face in balancing personal duties and professional responsibilities. A Structured questionnaire will be used to collect primary data 70 working women across various sectors including It, education, healthcare, and finance, using stratified random sampling. This study seeks to test hypothesis Chi-square and Anova Identified key factors influence work-life balance of career-oriented women. It also aims to identify and investigate the factors that affect work-life balance, including career ambition, working hours, organisation support, family structure, role conflict, family support and also stress level. The findings are expected to contribute to policymaker and managers create a equal and balanced work environment for women.

Keywords: work-life balance, career ambition, family responsibilities, career-oriented women, role conflict.

INTRODUCTION

Work-life balance means being able to manage both professional life as well as personal life, such as family, children, and self-care in that way woman keeps both aspects by satisfaction and healthy. Most of the women are very serious about their career life, this balance can be difficult to face. Long working hours, deadlines, work stress and traveling can be little time consuming and it will affect their energy for family and personal needs.

In present days, more women are independent by taking incitive like leadership responsibilities in their fields. They are ambitious, dedicated, and want to exceed in competitive workplaces. At the same time, many women have more responsibilities as mother, daughter, wife and caretaker. Balancing these both important aspects of work life and as well as home can be very challenging and also stressful for women.

Women who are focused on their careers are most of the time experience pressure to perform well at work while also being available and helpful at home. Such pressures can cause stress, inadequate schedules, and emotional exhaustion. Whereas some companies are started to offering supports like flexible working hour and parental leave, many women continue to struggle to balance both work and family responsibilities equally.

This study helps to look into how women are dedicated to their careers and manage with responsibilities of home life. It tries to understand the challenges women face, what strategies and techniques they adopt, and how much support they receive from there family, employers and society. The goal is to provide insight into there daily life experience and the need for improved support systems for better working condition and home responsibilities. As a woman they will be having many goals to be achieved like, be in good position in their career life and as well as managing all the responsibilities at home.

By studying these issues, by investigating about workplace equality, and emotional well-being. It also aims to help employers, lawmaker, and families better understand how to help women focuses on healthy and fulfilling balance between both professional ambition and personal attachment in their life.

REVIEW OF LITERATURE

- **Ruksar Ali, Sujood, Ariba Naz, Mohd Azhar (2024)** focused on how women balance work-life plays a significant role in shaping women career by motivation aspect, satisfaction and progression. It also highlights how it impacts on their personal life. However, this research explores this relationship in the Indian context, especially among urban career-oriented women handling this both lives equally.
- **Pareek, R. (2024)** explored on work-life balance shows how it has grown from a basic employee welfare issue to a strategic HR concern, especially in light of shifting workforce demographics and technology advancements. According to studies, WLBPs are more common in areas like IT and services,

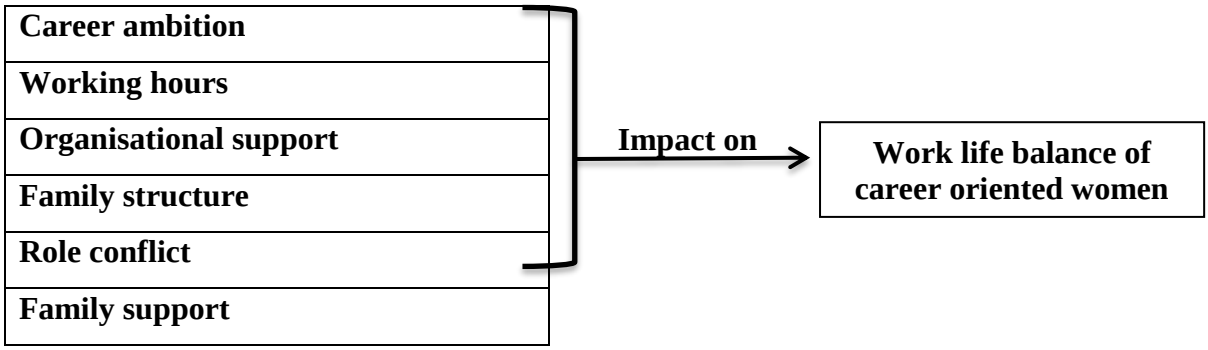
but their application in Indian industries is still unequal. To increase the efficacy of such programs, research also highlights the necessity of corporate commitment and contextual flexibility.

- **Vidani, J., Sharma, S., & Chauhan, S. (2024)** focused on how people balance work and family responsibilities are highlighted in the literature on work-life balance. Research identifies important determinants, particularly for women, such as workload, job satisfaction, emotional intelligence, and demographics. Research also highlights the increased difficulties women encountered during the COVID-19 epidemic, suggesting more organizational assistance to improve equity and work-life balance.
- **Khan, F., & Singh, D. B. (2024)** focused on how married women attending private academic institutions, particularly in the NCR, work-life balance, stress, and job performance are significantly related. Research employing regression and correlation analysis shows that work-life imbalance and increased stress have negative impacts on job performance. Indian women have additional obstacles due to cultural norms, but data shows that they are strong and have made progress in a variety of professional fields.

RESEARCH GAP

Upon reviewing existing literature, while numerous studies have highlighted on work-life balance many focuses or organizational structure and external factors, with little consideration for the emotional and personal experiences of women. The particular difficulties career-focused women face in achieving a balance between attachment and ambition. The study aims to explore the actual experiences of women balancing ambition in work with managing connection at home.

FACTORS IDENTIFIED FOR THE STUDY



RESEACH DESIGN

STATEMENT OF THE PROBLEM

Ambition at Work, attachment at Home: Investigating the work life balance of Career Oriented Women.

As more women enter the workforce, particularly in cities like Bengaluru, Many career oriented women are facing pressure to balance between their personal and family duties with their professional goals. Their work-life balance is frequently interrupted by

challenges like long working hours, rigid policies, cultural norms and lack of support systems, even through they are ambitious and dedicated at work. Because of stress it impacts on productivity and personal dissatisfaction might result from this imbalance. Therefore, in order to provide effective support strategies, it is important to look into career demands affect women's work-life balance and identify the major factors that influence this balance.

NEED FOR THE STUDY

The study is required to investigate how career will affect the work-life balance of women. Many women face challenges in managing both personal life and work-life. The findings will help in creating strong support system at home and as well as at workplace.

OBJECTIVES OF THE STUDY:

- To study the concept of work life balance among career-oriented women.
- To identify key factors that affect work-life balance among career-oriented women.
- To analyse how these important key factors affect working women's work life balance.
- To analyse the impact of work life balance of women on there career growth and advancement.

SCOPE OF THE STUDY

The current study explores how career affect both work-life and personal life of a working women in Bengaluru urban. It focuses on factors like working hours, family duties and company workplace support will affect their daily lives. This study aims to find out challenges and suggest to improve balance for professional women.

RESEARCH METHODOLOGY

TYPE OF RESEARCH: Descriptive Research

SAMPLING TYPE: Non-Probability Sampling - Convenience sampling

SAMPLE FRAME: Sample frame is considered with in few areas of Bengaluru Urban.

TARGET RESPONDENTS: Working women in Bengaluru urban

SAMPLE SIZE: 70 respondents

STATISTICAL TOOL: CHI-SQUARE TEST, ANOVA

DATA COLLECTION METHOD– Primary data and secondary is used for the study.

- Primary data is collected from the structured questionnaire from the target respondents.
- Secondary data is collected from various research papers, articles.

LIMITATIONS OF THE STUDY

- This study area is limited only to the Bengaluru Urban.
- Limited sample size.
- Study is focused only on working women.
- Analysis is based on the respondents' responses.

DATA ANALYSIS AND INTERPRETATION:

Table 1: Demographic profile of respondents

DETAILS	RESPONSES	PERCENTAGE
AGE	18-24	10%
	25-34	22.9%
	34-44	50%
	45-54	17.1%
	55 and above	-
Education	Below 10^{th}	2.9%
	10^{th}-12^{th}	21.4%
	Graduate	40%
	Post Graduate	28.6%
	Other	7.1%
Industry of work	Education	10%
	IT	24.3%
	Business	32.9%
	Government Administration	17.1%
	Private Administration	15.7%
Employment Status	Full time	90%
	Part time	10%
Year of experience	0-2 years	11.4%
	3-5 years	54.3%
	6-10 years	28.6%
	11-15 years	4.3%
	16 and above	1.4%

Table 2: Respondents opinion on identified factors

Career ambition	Achieving career has a significant impact on sense of self- worth.	Not at all	2	2.9%
		Rarely	9	12.9%
		Sometimes	26	37.1%
		Often	26	37.1%
		Always	7	10%

Working hour	Unpredictable working hours hinder personal planning	Strongly disagree	2	2.86%
		Disagree	16	22.86%
		Neutral	26	37.14%
		Agree	24	34.29%
		Strongly agree	2	2.86%
Organizational support	Organization supports mental health through wellness programs.	Strongly disagree	2	2.86%
		Disagree	12	17.14%
		Neutral	23	32.86%
		Agree	29	41.43%
		Strongly agree	4	5.71%
Family structure	Family structure affects ability to balance work and personal life.	Strongly disagree	3	4.29%
		Disagree	12	17.14%
		Neutral	24	34.29%
		Agree	25	35.71%
		Strongly agree	6	8.57%
Role conflict	Family plays a significant role in influencing career success.	Strongly disagree	4	5.71%
		Disagree	9	12.86%
		Neutral	28	40.00%
		Agree	22	31.43%
		Strongly agree	7	10.00%
Family support	Work-life balance impacts career growth and advancement.	Strongly disagree	6	8.57%
		Disagree	12	17.14%
		Neutral	19	27.14%
		Agree	29	41.43%
		Strongly agree	4	5.71%

HYPOTHESIS TEST:

CHI SQUARE TEST

Chi Square Test on Respondents opinion on: Work-life balance directly affects career growth and advancement.

- **H_0 (Null Hypothesis):** Work–life balance has *no significant influence* on women's career growth and advancement.
- **H_1 (Alternative Hypothesis):** Work–life balance has a *significant influence* on women's career growth and advancement.

Parameters	O	E (70/5)	O-E	$(O-E)^2$	$(O-E)^2/E$
Strongly Agree	7	14	-7	49	3.5
Agree	22	14	8	64	4.57
Neutral	28	14	14	196	14
Disagree	9	14	-5	25	1.79
Strongly Disagree	4	14	-10	100	7.14
Total	70	70			**31.00**

Degree of freedom = n-1=5-1=4, Level of significance= 0.05

Table value= 9.48; Value of 4 @ 0.05, Calculated value $\sum (O-E)^2/ E = 31.00$

Interpretation

From the above chi-square test, the calculated value is 31.00 and the table value is 9.48. It is suggested that if the calculated value is greater than the table value; H_0 (Null Hypothesis) is rejected and H_1 (Alternative Hypothesis) is accepted.

Therefore, in this research, H_1 is accepted and H_0 is rejected and hence work-life balance impact on women's career growth and advancement.

Null Hypothesis (H_0): The identified key factors—Career Ambition, Working Hours, Organizational Support, Family Structure, Role Conflict, and Family Support—**do not have a significant influence** on the work-life balance of career-oriented women.

Alternative Hypothesis (H_1): The identified key factors—Career Ambition, Working Hours, Organizational Support, Family Structure, Role Conflict, and Family Support—**have a significant influence** on the work-life balance of career-oriented women.

ONE WAY ANOVA

Score \ Factors	Career ambition	Working hour	Organization support	Family structure	Role conflict	Family support
Strongly disagree (5)	2	2	2	3	4	6
Disagree (4)	9	16	12	12	9	12
Neutral (3)	26	26	23	24	28	19

Agree (2)	26	24	29	25	22	29
Strongly agree (1)	7	2	4	6	7	4

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Strongly disagree (5)	6	19	3.166666667	2.56666667
Disagree (4)	6	70	11.66666667	6.66666667
Neutral (3)	6	146	24.33333333	9.86666667
Agree (2)	6	155	25.83333333	7.76666667
Strongly agree (1)	6	30	5	4

ANOVA						
Source of Variation	***SS***	***df***	***MS***	***F***	***P-value***	***F crit***
Between Groups	2703.667	4	675.9166667	109.489741	0.000	2.75871
Within Groups	154.3333	25	6.173333333			
Total	2858	29				

Interpretation:

Since F (Calculated value=109.490) is greater than F critical value (Table value=2.75871), and p-value is less than 0.05, hence H1 is accepted and it is proved that the identified key factors—Career Ambition, Working Hours, Organizational Support, Family Structure, Role Conflict, and Family Support—have a significant influence on the work-life balance of career-oriented women.

FINDINGS:

- A considerable proportion of respondents (74.2%) reported that achieving their work goals either frequently or occasionally contributes positively to their sense of self-worth.
- Irregular work schedules were identified as a concern, with 37.2% of women agreeing that it affects their ability to plan personally, while an equal percentage expressed a neutral stance.
- Nearly half of the respondents (46.8%) agreed that the wellness initiatives offered by their organizations play a positive role in enhancing mental well-being.

- About 44.3% of respondents indicated that their family structure influences how effectively they can balance personal and professional responsibilities.
- While 41.4% felt that family-related factors influence their work performance, around 40% neither agreed nor disagreed, indicating uncertainty or mixed experiences.
- A significant portion (47.1%) agreed that their career advancement and growth are directly shaped by how well they manage their work-life balance.

SUGGESTIONS:

- Organizations should offer flexible work arrangements—such as remote working options and adjustable schedules—to support women in managing work and family responsibilities.
- Policies that cater specifically to women with caregiving duties, including special leave provisions or dedicated time-off benefits, should be implemented to reduce stress and enhance productivity.
- Skill development initiatives, leadership programs, and mentorship opportunities should be strengthened to help women progress in their careers without compromising personal commitments.
- Workplaces must promote a culture that values balance, where managers acknowledge employees' personal needs and avoid imposing unnecessary long working hours.
- Mental health support—such as counseling services, wellness programs, and stress-management workshops—should be made easily accessible to help women cope with the dual demands of home and work.

CONCLUSION

The study highlights the ongoing struggle that career-oriented women in Bengaluru urban face in balancing their professional aspirations with personal and emotional responsibilities. The findings indicate that key factors—including career ambition, working hours, organizational support, family structure, role conflict, and family support—play a significant role in determining how effectively women manage their work and personal lives. Although many respondents expressed strong career ambitions, their responses regarding overall balance reflected ambiguity, signalling persistent challenges in harmonizing both domains.

While organizations have begun introducing supportive measures such as wellness programs and flexible work options, their effectiveness appears uneven. Many women still encounter irregular work hours, extended workloads, and limited assistance in managing caregiving responsibilities. Traditional gender expectations and rigid workplace norms continue to restrict the attainment of genuine

work-life balance, despite emotional support from families.

Overall, the study underscores the need for deeper organizational commitment and more inclusive workplace policies that truly address the unique challenges faced by women professionals. Cultivating a supportive culture, combined with family and societal encouragement, is essential in enabling women to advance in their careers without compromising their personal well-being. Only through the collective efforts of workplaces, families, and communities can sustainable and meaningful work-life balance be achieved.

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EMBRACING AUTOMATION IN PERFORMANCE REVIEWS: KEY DRIVERS, CHALLENGES AND IMPACTS ON AGILE IT TEAMS

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Abstract

The increasing emergence of automation and digital technologies has changed performance management systems in industries, especially in Agile IT settings where real-time feedback, continuous improvement, and data-intensive decision-making are vital. There are automated tools, such as AI-based analytics, or round-the-clock monitoring dashboard, which promise to be even more objective, transparent, and efficient in performance evaluation. Nevertheless, their adoption is still dependent on the complex interaction of the technological preparedness, the support of the leaders, the agile maturity, the perceptions of the employees, as well as the organizational culture. This theoretical paper is a synthesis of the present-day literature with the aim of formulating a well-organized group of propositions that describe the drivers, barriers, mediating mechanisms, moderating factors, and outcomes linked to the adoption of automation tools in performance management. Based on the technology acceptance theories, algorithmic management, electronic monitoring, and agile work design, the framework shows not only the potential advantages, including better visibility, fairness, and team flexibility but also the dangers, such as the issue of surveillance, loss of autonomy, and stress. The synthesis adds to a comprehensive explanation of the socio-technical dynamics that influence automated performance management within the Agile IT teams. The article concludes by giving empirical recommendations on how subsequent studies should focus and practical implications to practitioners, in the face of digital transformation of talent and performance systems.

Keywords – Automation, Performance Management; Agile IT Teams; Algorithmic Management; Digital Transformation; Psychological Safety; Perceived Fairness

1 Introduction

The era of digital transformation has brought significant changes in the manner in which organizations consider employees, track, and fine-tune their performance. The problem with traditional annual or semi-annual performance review systems is growing increasingly irrelevant in the dynamic and technology-focused environments, specifically in Agile IT teams with their iterative work processes, sprints, and constant collaboration. In response, these organizations are moving to automated performance management systems, including AI-assisted analytics systems, real-time dashboards, and continuous feedback systems, to adjust performance practices to the speed and complexity of more IT work (Cosa & Torelli, 2024). These technologies have the potential to be more objective, with their real-time visibility, and performance metrics indicators, less prone to human bias, and more likely to support evidence-based decision-making (Venkatesh et al., 2012).

Nonetheless, adoption is disproportionate and disputed regardless of these benefits. One of the most discussed issues is that more intense surveillance, data privacy, and loss of human discretion in assessing subtle elements of performance, such as creativity, teamwork, and performance (Khan et al., 2023). Studies of algorithmic management also emphasize that automation can be used to simplify operations; however, it can also unintentionally increase monitoring and decrease autonomy, in addition to increasing stress (Parker and Grote, 2020). In the case of Agile teams, where the effectiveness of a team is built on the principle of psychological safety, autonomy, and trust, the role of automated monitoring is especially relevant (Edmondson and Lei, 2014).

With such opposing dynamics, it is necessary to learn about the socio-technical circumstances that facilitate or constrain adoption. The current literature provides partial information on various areas, including digital transformation, electronic monitoring, and AI-based appraisal systems, but unified models that fit the environment of Agile IT are scarce. This theoretical paper addresses this knowledge gap by synthesizing the current literature to come up with a holistic model of drivers, barriers, mediating mechanisms, moderating influences, and performance outcomes of automation adoption in Agile performance management. The ensuing propositions contribute to the theoretical knowledge as well as providing a practical direction to organizations that may be struggling with the dynamics of automated performance systems.

2 Review of literature

According to the recent literature, performance management (PM) is so fast changing with digital transformation, especially in the agile environment with the focus on technologies. The scientific evidence gathered after 2020 indicates that the collection, analysis, and utilization of performance data by organizations is being redesigned to involve automation and AI-driven systems. The authors of the article conducted by Cosa and Torelli (2024) discovered that digital transformation contributes to the flexibility and responsiveness of PM systems through real-time metrics, multidimensional dashboard, and integrated data flow. Subsequent analysis of digital PM indicators tell us that the vast number of digital metrics are centered around performance at an organizational level, although team-level agility is becoming a factor that is driving competitiveness in the IT industries (Loi et al., 2022).

Digital enterprises are moving towards automated goal alignment, performance tracking and ongoing feedback systems at the organizational practice level. Itza and George (2023) noted that these systems allow more regular and timely assessments and the models of hybrid and distance employment. Nevertheless, they also pointed to the issues of data quality, information overload, and lack of analytical abilities among line managers who were to interpret automated insights. On the same note, Sharma and Singh (2021) also realized that automation enhances the levels of transparency but is likely to add an administrative overhead when the workflows are not redesigned to support new technologies.

There is a parallel body of literature on AI-based performance appraisal systems. Agarwal (2025) believed that the objectivity and fairness of AI are possible due to the elimination of human biases, which can only happen when the algorithms are transparent and their fairness is audited on a regular basis. This ambivalent view is proven by empirical studies. Investigating AI-based appraisal systems within the Indian IT industry, Gupta and Tembhurnekar (2024) discovered that AI-based appraisal systems were perceived to be more unbiased and objective, yet, issues concerning empathy, prejudice, and lessened human rapport in the evaluation procedure remained. These results indicate the greater conflict between technological effectiveness and interpersonal elements of HRM.

There is also literature on automated management which sheds important light on automated PM tools. Parker and Grote

(2020) established the fact that digital technologies can augment job resources (e.g., timely feedback and enhancing coordination) and amplify job demands (e.g., heightened monitoring and demands to be constantly connected). This duality is repeated by Khan et al. (2023), who discovered that the perception of being surveilled by an algorithmic monitoring adversely impacts psychological safety, particularly in a high-autonomy context, such as agile teams. The same is observed in the case of service industries: algorithmic HR systems can increase the efficiency but also cause work-life tensions in the case of low autonomy (Turčinović et al., 2025).

There is an additional sophistication to electronic performance monitoring (EPM) literature. Zhao (2025) proved that the innovation could be triggered when the monitoring is framed as developmental and integrated into the supportive leader-member relations. But, inappropriately structured or penal monitoring stresses more and trust is lessened. Such dynamics are particularly essential in agile IT teams based on autonomy, experimentation, and rapid feedback mechanism. Also, the digital leadership literature has shown that automated PM tools adoption is more effective in cases where leaders exemplary digital competence and encourage a participatory culture (Ibrahim and Daniel, 2021).

Altogether, the recent literature is convergent and significant, with the main themes being that automation and AI enhance accuracy, timeliness, and fairness of performance evaluation, results highly rely on how employees see transparency, purpose, and ethical use, and digital monitoring can destroy autonomy or innovativeness when viewed as surveillance instead of developmental. However, the knowledge about industry-specific topics that agile IT teams can utilize is still scarce, and more context-based studies are required.

2.1 Research Gap

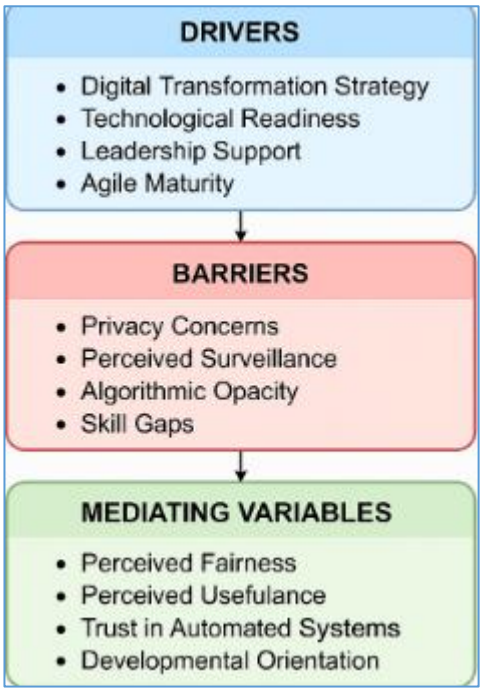
Although studies of performance management that involves digital and AI application are on the increase, there are still major gaps. Majority of the research looks at organizational level PM systems instead of team level dynamics, so agile IT teams whose performance is based on sprint cycles, cross-functional coordination, and rapid experimentation remain understudied. Another issue that exists in the contemporary literature is the separation of drivers, barriers, and outcomes of automation, but without applying them in a sensible model. Furthermore, there is a dearth of empirical studies related to

defining how the norms of culture, psychological safety, and trust towards employees can determine the levels of acceptance of the use of automated PM tools within emerging economies like India. These gaps explain the need to have a comprehensive conceptual framework that puts emphasis on agile IT contexts.

2.2 Conceptual Framework

The suggested conceptual framework makes performance management automation adoption a socio-technological process, which depends on technological, organizational, and human factors. The major motivators are digital transformation strategy, technological readiness, leadership support, and agile maturity. The obstacles are privacy issues, perceived surveillance, algorithmic obscurity, and skill disparities. The mediating variables include perceived fairness, usefulness, trust and developmental orientation of the tools. The results are better visibility in real-time, increased alignment and flexibility of the teams, and possible risks, such as stress or lack of autonomy. The moderators, especially the agile culture and the psychological safety, contribute to the enhancement or deterioration of the performance and employee experience in the case of automation.

Figure 1 – Conceptual framework



3 Research Methods

The paper will use the conceptual research design, which is based on integrative literature review approach, to synthesize and organize the existing information about automation in performance management. The conceptual papers will be appropriate mostly when a field is new, disjointed, or fast-changing in technology, as is the case with AI-powered and automated performance systems in Agile environments. The article is conducted in line with the provisions of narrative and integrative review and details the systematic review of peer-reviewed articles, theoretical papers, and empirical studies published mostly since 2020, which makes the article relevant.

Some of the main databases that have been accessed are Scopus, Web of Science, ScienceDirect, and Google scholar. Relevant literature was identified by searching using such search terms as automation, algorithmic management, electronic performance monitoring, Agile teams, AI in HR, and digital performance management. The inclusion criteria used to screen studies included conceptual congruence, methodological rigor and applicability to Agile IT situations.

Synthesis process entailed clustering the findings into thematic categories, namely, drivers, barriers, mediators, moderators, and outcomes, upon which the table of propositions is based. This methodological system allows working out a conceptual scheme involving a comprehensive and theoretically motivated design, which provides the premises to conduct empirical research in the future based on qualitative, quantitative, or mixed methods studies.

4 Results and discussion

4.1 Drivers to Adopt Automation in Performance Management.

4.1.1 The maturity of the tools used and their capability to assist in technological issues

The maturing performance-management technologies are one of the most dominant forces in Agile IT team automation adoption across conceptual and empirical literature. Workflow-tracking systems, AI-assisted evaluation systems, and continuous performance dashboards are automation tools that provide real-time data on productivity, efficiency of sprints, and locating bottlenecks (Davenport and Ronanki, 2018). Since Agile methods are based on iterative processes, stand-ups, and continuous feedback loops, the ability of automated systems to monitor multi-source data with accuracy is one of the factors that contribute greatly to the quality of decisions. Subjective bias is also minimized with the integration of analytics-driven dashboards that allow managers to use objective signals instead of subjective ones, including cycle time, frequency of pull-request, proportions of defects, and consistency of velocity (Serrador & Pinto, 2015).

Also impacting the perceived usefulness, which is a fundamental determinant of technology acceptance, is technological capability. Agile teams view automation as a process that improves role definitions and aligns performance expectations with sprint objectives when tools are proven to have faster reporting, predictive analytics and simpler feedback mechanisms (Venkatesh et al., 2012). Therefore, the maturity of the tool enhances uptake by boosting

confidence and assumed worth of automated assessment procedures.

4.1.2 Organization Requirement of Rapidity, Openness, and Consistency

The other key motivation is the strategic need to be fast and transparent in the IT operations. Agile settings are marked with the shortness of the development cycles, cross-functional teamwork, and the dynamic changes in the priorities of the tasks. The conventional performance appraisal systems (which are usually annual or semi-annual) are unable to keep to the Agile workflow (Rigby et al., 2016). With automation, documentation can be performed continuously and performance data can be disseminated at a very high rate, which limit the time lapse between the completion of a task and the time taken to review performance.

Shared dashboards, group work using kanban tools and automated sprint review help enhance transparency by showing individual and team contribution. This helps to facilitate psychological safety and minimize ambiguity and norms of responsibility (Edmondson and Lei, 2014). In addition, automated tracking guarantees uniformity in teams leading to less managerial subjectivity and enhancing perceptions of fairness another factor that leads to acceptance.

4.1.3 Attitudes and Changing Employee Psychologies

The current IT experts are becoming more demanding of performance-management experiences, which are technologically advanced. The younger generation of employees, especially those who are digital native developers, seek constant and data-driven feedback and not the hierarchical feedback systems (Schawbel, 2018). Automation responds to these expectations by providing individualized insights, developmental alerts and performance trajectories to enable employees to monitor their own progress.

With autonomy and self-direction being central culture values of Agile teams, the automation tools can equip the employees with usable data to fix themselves, which improves the ownership of individual improvement plans. This change in self-managed performance development is a pivotal force in the environment where the innovation cycles are short and where individual responsiveness is the key.

4.2 Barriers to Automation Adoption of Performance management

4.2.1 Resistance to Change and Job Displacement Fear

In spite of good technological and strategic impetus, psychological resistance is also one of the most often mentioned barriers. Employees and managers are usually apprehensive that automation tools will take away human judgement or lose managerial roles (Frey and Osborne, 2017). Automated evaluations can be viewed as inflexible or as surveillance tools in Agile IT environments where flexibility and interpersonal communication are treasured by the teams.

Autonomy is also perceived as a threat to resistance. Other developers are concerned with this constant surveillance, and believe that information-based evaluations can ignore the context, including experimentation time, invisible work, or collaboration (Madsen and Desouza, 2019). Such fears decrease the readiness to implement new systems and can undermine a low level of tool use despite the technical implementation of systems.

4.2.2 Data privacy and Ethical issues

Performance management automation usually necessitates a lot of data gathering such as keystrokes, commit logs, communication, and productivity. The privacy and limits of what is considered as a legitimate monitoring and intrusive surveillance can be a concern regarding such granular tracking (Bhave et al., 2020). The high trust-based Agile IT teams might find too much surveillance to be against the norms of collaboration.

The use of algorithms in classifying employee performance or prediction also presents ethical issues. Absence of transparency regarding algorithmic decision-making, especially AI-based systems, builds up the concern about fairness and possible bias (O'Neil, 2016). When the staff members believe that robot-based scoring systems are erroneous or unjust, the staff involvement and mental security can reduce.

4.2.3 Skills Lapse and Acculturation Problems

The second impediment to note is the digital illiteracy of the managers to be expected to process automated data. Although developers can easily get used to automation, there are leaders who cannot convert analytic outputs into actionable feedback (Jarrahi, 2018). Such an ability difference results in the underuse or misuse of automated insights.

Equally, lack of sufficient training and bad tool onboarding would not encourage

adoption. When automation systems are seen as being too complicated or costly in mastering, the teams will resort to informal and conventional means of evaluation. Complexity is a hindrance to adoption in an Agile environment that is already time-pressured.

4.2.4 Tools fragmentation in Agile Environments

IT teams working in an Agile setting commonly use a wide variety of platforms Jira, GitHub, Slack, Jenkins, Trello, etc. Lack of smooth interaction between these tools results in the inability to have seamless data sets and duplicated metrics, lowering the perceived value of performance-automation systems (Kuusinen et al., 2017). In the absence of built-in dashboards, managers might have to manually consolidate information, which cancels the benefits of automation and will reduce adoption. Therefore, automation is bound to be successful as the interoperability and single platforms that can bring the multi-tool data to a coherent performance narrative.

4.3 Agile IT Team Automation Adoption Results

4.3.1 Visible performance and Data-driven decision making

Among the most important results of successfully adopting automation tools, there is an enhancement of visibility of real-time team and individual performance. Agile performance measurements, such as velocity, cycle time, throughput and code quality measurements are automatically recorded and transformed to visual stimulations. Such insights minimize speculation, allowing the implementation of evidence-based decisions related to the determination of workload, planning of sprints, and performance interventions (Kalenda et al., 2018).

The managers have the advantage of seeing the performance trends and the alerts about anomalies in real-time. This favors preemptive coaching over corrective assessment. Automation also has the benefit of decreasing the workload of the administration so the leaders can focus on the talent development instead of data assembly.

4.3.2 Enhanced Group nimbleness and Rapid output

Automation is very compatible with Agile speed of iteration, transparency and constant improvement. In the event when the available performance data appears immediately, the perspectives become more profound and organized, and the teams can easily spot systemic inefficiencies. There is also the reduction of the feedback cycle associated with automated tracking to

support the shortening of the sprint period and reduction of defects (Rigby et al., 2016).

Automated performance tools enable teams to experiment more and deploy DevOps practices and align development and operations workflows. In addition, continuous learning with automated insights can identify bottlenecks which need training of skills, or redesign of processes.

4.3.3 Enhanced Fairness Impression and Minimized Bias

Automation also eliminates subjectivity level of bias because it offers objective and uniform performance indicators. It is revealed in the literature that workers view the use of data-driven appraisals as a more transparent and fair evaluation than manager-based subjective appraisals (Li et al., 2021). The morale, engagement, and knowledge sharing behaviour are largely affected by the perceptions of fairness in the Agile teams where peer collaboration is the main focus.

The tools supported by AI can assist in standardizing the scoring models and eliminate the inconsistencies between units. Fairness however can only be obtained when data quality is high and that algorithms can be explained otherwise; automated systems can reinstate rather than decrease existing biases.

4.3.4 Development of employees and constant self-observation

The automation systems also provide individual development paths, identifying the areas of deficiency and creating personalized learning opportunities. Self-service dashboards enable employees to monitor their own metrics, compare against the performance with the sprint targets and also spot areas of improvement. This facilitates self-directed learning the most important skill of Agile employees who should quickly adjust to the latest technologies (Rosen, 2020).

The employees are also more engaging in getting feedback and the culture of developmental dialogue instead of compliance-based appraisal cycle is formed. In this way, the developmental intent of performance management is enhanced through automation.

4.3.5 Risk: Over-Monitoring, Stress, and A decrease in Autonomy

Although automation has a number of positive effects, the literature also warns about the adverse effects. Constant monitoring can also foster the attitude of micromanagement, particularly when productivity indicators take precedence when compared to innovative or

collaborative efforts (Ball, 2021). That can impose stress, diminish autonomy and discredit intrinsic motivation- important in Agile performance.

Algorithms scoring can also fail to represent the qualitative work, including mentoring, problem-solving, and innovation, which could distort performance stories. Thus, the automation should not substitute the human judgement, but should be its complement.

4.4 Integrative Discussion

The shift to automation tools in the performance management process has become a rather urgent sphere of investigation as companies move through the digital transformation progress rapidly. Agile IT teams specifically are in high-speed settings that require real-time data, ongoing feedback, and changing performance evaluation systems. In such cases, the possibility of increasing visibility, objectivity, and alignment of performance can be provided by automated performance management systems, which include AI-driven analytics, continuous monitoring systems, and digital dashboard. Nevertheless, the effective implementation of these systems does not purely rely on the technological ability, it is also influenced by human perceptions, cultural situations, and organizational preparedness. Based on modern literature around the idea of digital transformation, algorithmic management, electronic monitoring, and agile work design, the propositions presented in this table combine drivers, barriers, mediators, moderators, and effects of automation use. All the propositions are based on theoretically sound relationship based on previous empirical or conceptual research, and most importantly, there are also gaps in which the literature of agile IT environments is not extensive. The compilation of these aspects gives the table a systematic ground on which a holistic model can be developed to embrace the socio-technicalization of adopting automated performance management systems. This framework is considered to be a foundation of the future empirical research and is part of the continued discussion of how automation is transforming work, performance and human and technology interaction.

Table 4.1 – Testable prepositions

Theme	Proposition	Supporting Citation (APA)
Drivers of Adoption	**P1:** Higher levels of technological readiness will be positively associated with the adoption of automation tools in performance management among agile IT teams.	Venkatesh et al. (2012)
	P2: Strong digital transformation orientation will increase the likelihood of adopting automated performance management tools.	Cosa & Torelli (2024)
	P3: Leadership support for digital technologies will positively influence acceptance of automated performance management tools.	Ibrahim & Daniel (2021)
	P4: Agile maturity will positively moderate the relationship between automation adoption and team outcomes.	Rigby et al. (2016)
Barriers to Adoption	**P5:** Perceived surveillance concerns will negatively influence willingness to adopt automated performance management tools.	Khan et al. (2023)
	P6: Low algorithmic transparency will negatively affect employee trust in automated systems.	O'Neil (2016)
	P7: Managerial skill gaps in analytics will negatively impact effective use of automated performance systems.	Jarrahi (2018)
	P8: Fear that automation will replace human judgement will negatively predict adoption intentions.	Frey & Osborne (2017)
Mediating Mechanisms	**P9:** Perceived fairness will mediate the relationship between algorithmic transparency and acceptance of automation tools.	Li et al. (2021)
	P10: Perceived usefulness will mediate the relationship between technological readiness and adoption.	Venkatesh et al. (2012)

	P11: Trust in automated systems will mediate the relationship between privacy concerns and acceptance.	Bhave et al. (2020)
	P12: Developmental framing of automated monitoring will mediate its effect on employee innovative behavior.	Zhao (2025)

Altogether, the suggested propositions highlight that the implementation of the automation tools in the performance management is a complex process that depends on the technological, organizational, and psychological factors. Although the core enabling factors include technological readiness, support by leadership and agile maturity, privacy and algorithmic transparency as well as the loss of human judgment pose a serious obstacle and need to be mitigated by designing a well-thought approach and delivery of the project. The centrality of the influence of cognition among employees in the determination of tool acceptance and the centrality of the influence of contextual fit in the determination of tool acceptance both highlight the central influence of the mediating factors which include perceived fairness, trust, and perceived usefulness and the moderators which include psychological safety and agile culture. The anticipated changes, such as the improvement of visibility and sprint efficiency to the possible stress and decrease in individual autonomy, demonstrate that automation is not necessarily either good or bad, but its effect will be determined by how they are framed, managed, and embedded in the current practice of the teams. This overall list of propositions is a research agenda of empirical studies that can be conducted in the future to better comprehend the subtle interaction between automation and human behaviour in the agile IT setting. Finally, the model contributes to the theoretical knowledge, as well as provides a practical recommendation to the organizations willing to take advantage of automation in a responsible way and retain agility, collaboration and employee well-being.

Conceptual synthesis points to the idea that automation in performance management has considerable opportunities in enhancing agility, transparency, and quality of decisions in the IT teams. The most powerful drivers, namely, the technological preparedness, the organizational requirement of fastness, and the

developmental employee anticipations, are quite consistent with the Agile principles. Nevertheless, the obstacles associated with ethics, resistance, lack of skills, and tool fragmentation present significant challenges that affect the degree of automation with regard to the achievement of desired results.

Organizational preparedness, leadership and cultural compatibility are some of the key factors that determine successful adoption. Ethical protection, proper communication, and training should be implemented to accept automation systems. An agile organization is to use a hybrid system where automated insights supplement human judgement without losing autonomy and any contextual knowledge.

Moreover, automation is most successful when applied through platforms so that it guarantees coordinated and significant performance narratives. The results would be improved sprint velocity, fairness, visibility and employee development when properly done. Poor automation may enhance surveillance anxiety, stress, and disconnection.

In such a way, the given conceptual model focuses on the balanced integration, which implies that automation tools are to be placed as the facilitators of Agile performance but not as the surveillance systems or replacements of managerial communication. Possible future empirical studies can prove or disprove this framework by analysing variability in cross-team, leadership preparedness, and psychological effects of automated evaluation.

5 Conclusion

Increased dependence on automation tools in performance management offers both opportunities and challenges that have never been encountered before to Agile IT teams. Though technological preparedness, leader endorsement, and agile culture may assist adoption, privacy issues, opaque algorithms, and less human judgement may act as obstacles that organizations have to manoeuvre around. The mediating variables of perceived fairness, trust and usefulness also highlight the fact that effective adoption requires not only the technology itself but the ways in which the employees perceive and experience the automated systems. Finally, automation will improve the visibility, equity, and flexibility of teams, but can also raise the stress level or minimize autonomy under the influence of agile principles.

The current work of conceptual paper is the contribution to the growing body of

research by incorporating various aspects of literature into a single framework of propositions that are specific to Agile IT environments. Nevertheless, there still are major research challenges that can be followed. The proposed relationships should be tested by empirical studies, especially in the context of Indian IT and other emerging economies. A longitudinal study would examine the development in perceptions with automation integrated into the team processes. Qualitative research can help understand how employees experience algorithmic surveillance, whereas quantitative methods like structural equation modeling can confirm the routes in the conceptual framework. Further development of research in the cultural and organization context will bring in deeper insights into automated performance management.

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Rural Consumers Attitudes Towards Online Shopping with Special Reference to Dakshina Kannada District: A Study

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Abstract:

The rapid growth of e-commerce in India has significantly transformed consumer shopping behaviour, and rural areas are gradually embracing online purchasing due to improved internet connectivity and widespread smartphone usage. This study examines the perceptions of rural consumers in Dakshina Kannada District towards online shopping. Primary data were collected from 60 respondents using a structured questionnaire, supported by secondary data obtained from relevant academic sources. The findings reveal that factors such as convenience, time efficiency, and wider product availability strongly motivate rural consumers to shop online. Despite these advantages, challenges such as lack of trust, delivery delays, and mismatch between expected and received products continue to discourage frequent online purchases. The study adds to existing literature by indicating that while interest in online shopping among rural consumers is increasing, issues related to digital literacy and perceived risk still play a crucial role in shaping their purchase decisions. The study suggests that e-retailers and policymakers should implement awareness programmes, strengthen trust-building measures, and improve logistical infrastructure to enhance online shopping adoption in rural areas.

Keywords: Rural consumers, online purchasing behaviour, e-commerce adoption, consumer behaviour, Dakshina Kannada District, digital inclusion.

Introduction

The rapid growth of online shopping has significantly transformed the retail sector in India, largely due to improvements in digital infrastructure and changing consumer preferences. While online shopping gained quick acceptance among urban consumers, its adoption in rural areas has been relatively gradual. This uneven growth can be attributed to various socio-economic, cultural, and infrastructural factors that influence rural consumers' purchasing behaviour. Advancements in information and communication technology have altered the manner in which goods and services are bought and sold, extending the reach of digital commerce beyond urban centers to rural regions.

In India, the expansion of internet connectivity, increasing penetration of smartphones, and the availability of user-friendly e-commerce platforms have created new opportunities for rural consumers to engage in online shopping. However, rural consumers continue to exhibit distinct attitudes towards online purchasing due to factors such as income levels, educational background, trust in online transactions, delivery facilities, and digital awareness. These factors play a crucial role in shaping their preference for either traditional or online modes of shopping. Therefore, an understanding of rural consumers' attitudes is essential for assessing the effectiveness of e-commerce initiatives and for formulating strategies that address rural market requirements.

Dakshina Kannada District provides an appropriate setting for examining rural consumers' attitudes towards online shopping. The district is known for its strong banking network, socio-economic diversity, and comparatively higher levels of literacy and digital awareness. Despite these favourable conditions, noticeable variations exist among rural consumers in terms of awareness, accessibility, trust, and motivation to adopt online shopping. These differences underline the need for a systematic study to understand the factors influencing online shopping behaviour in rural areas of the district.

The present study entitled "Rural Consumers' Attitudes Towards Online Shopping with Special Reference to Dakshina Kannada District" aims to analyse the attitudes and perceptions of rural consumers in the district. Administratively, Dakshina Kannada is divided into two subdivisions, namely Mangalore and Puttur, and comprises taluks such as Puttur, Bantwal, Belthangady, Sullia, and others. The district represents a diverse rural population with varying levels of education, occupation,

income, and exposure to digital technology, making it suitable for the study.

The study adopts both quantitative and qualitative research methods. Primary data were collected through structured questionnaires and personal interviews from selected rural consumers in Dakshina Kannada District. The research focuses on key aspects such as awareness and familiarity with online shopping, preference for traditional shopping methods, perceived convenience and availability of products, trust and security concerns, price and cost considerations, infrastructural challenges, and the influence of family and social networks. The study seeks to identify the factors influencing rural consumers' attitudes, purchase behaviour, and satisfaction levels with regard to online shopping.

Objectives of the Study

To examine the attitudes of rural consumers towards online shopping in Dakshina Kannada District.

1. To identify the major problems and difficulties experienced by rural consumers while making online purchases.
2. To analyse the relationship between selected demographic factors and the online shopping behaviour of rural consumers.
3. To study the level of awareness and the pattern of usage of various online shopping platforms among rural consumers.
4. To identify the key factors that motivate rural consumers to adopt online shopping.
5. To offer suitable suggestions for enhancing the adoption of online shopping among rural consumers.
6. To examine the correlation between demographic characteristics and the attitudes of rural consumers towards online shopping.

Literature Review

Advancements in digital technology, expanding internet access, and noticeable shifts in consumer lifestyles have significantly transformed the way buying and selling activities are conducted. Online shopping, which involves purchasing products and services through digital platforms, provides advantages such as ease of purchase, access to a wide range of products, and cost efficiency (Kotler & Keller, 2016). In India, initiatives like Digital India have strengthened digital infrastructure in rural areas, thereby facilitating the gradual integration of e-commerce into rural markets.

Consumer attitude plays a decisive role in shaping online purchasing behaviour. The Technology Acceptance Model (TAM), introduced by Davis (1989), explains user adoption of technology through perceived usefulness and perceived ease of use. Empirical studies applying TAM in the context of online shopping suggest that consumers are more inclined to adopt digital purchasing methods when these platforms are viewed as both beneficial and simple to use (Gefen et al., 2003).

When compared to urban consumers, rural consumers demonstrate distinct patterns of online shopping behaviour, influenced by factors such as income levels, educational background, exposure to technology, and availability of infrastructure. According to Kumar and Kashyap (2018), rural consumers often exhibit hesitation towards online shopping due to limited digital skills and concerns related to the safety of online payments. Nonetheless, increased penetration of smartphones and affordable internet services has gradually reduced these barriers and encouraged rural consumers to explore online marketplaces.

A growing body of literature indicates rising acceptance of online shopping among rural populations. Singh and Srivastava (2020) reported that rural consumers are increasingly purchasing items such as apparel, electronic goods, and household products through e-commerce platforms, motivated by competitive pricing and attractive promotional schemes. Despite this positive trend, challenges such as delayed deliveries, inconsistencies between product descriptions and actual products, and lack of trust in sellers continue to restrict wider adoption of online shopping in rural areas.

Trust and perceived risk are widely acknowledged as crucial determinants of online shopping behaviour. Gefen et al. (2003) emphasized that trust is particularly important in encouraging online transactions among first-time users. In support of this finding, Reddy and Ramesh (2019) observed that greater awareness and familiarity with e-commerce platforms significantly improve rural consumers' confidence, attitudes, and willingness to make online purchases.

Price sensitivity and convenience further influence rural consumers' attitudes towards online shopping. Mehta and Sharma (2021) found that discounts, cashback offers, and flexible payment options serve as strong incentives for rural buyers. Similarly, Choudhury (2020) highlighted that online shopping offers added convenience to rural consumers who often have limited access to organized retail outlets, thereby enhancing the appeal of e-commerce.

Socio-demographic variables such as age, education, income, and occupation also affect online shopping behaviour. Patil and Deshmukh (2019) revealed that younger and more educated rural consumers generally display more favourable attitudes towards online shopping than their older counterparts. Additionally, Narayanan and Rao (2021) noted that cash-on-delivery remains the most commonly preferred payment method among rural consumers, largely due to ongoing concerns about the security of digital transactions.

Studies focusing on rural e-commerce in India point towards considerable growth opportunities. KPMG (2022) reported that a substantial proportion of new internet users in the country now come from rural regions. Areas such as Dakshina Kannada, characterized by higher literacy levels and improving digital connectivity, offer promising conditions for the expansion of online shopping. However, the limited availability of region-specific empirical research highlights the need for focused studies to better understand rural consumers' attitudes and online purchasing behaviour.

Research Methodology:

The study is based on a descriptive research design, which was considered appropriate to understand the attitudes and behaviour of rural consumers towards online shopping. Both primary and secondary sources of data were used for the purpose of the study. Primary data were collected directly from respondents through a structured questionnaire, which was circulated using Google Forms to ensure ease of access and response. Secondary data were gathered from various books, academic journals, research articles, and relevant websites to support the study framework.

The sample size for the study consists of 60 rural consumers from Dakshina Kannada District. Respondents were selected using the simple random sampling technique, which provided equal opportunity for all individuals in the population to be included in the study. For analysing the collected data, percentage analysis, chi-square test, and correlation analysis were employed. The results of the analysis are presented in a tabular form to ensure better understanding and interpretation.

Hypotheses:

Based on the objectives of the study, the following hypotheses were formulated:

- H_{01}: There is no significant relationship between age of rural consumers and their attitude towards online shopping.
- H_{02}: There is no significant relationship between gender of rural

consumers and their attitude towards online shopping.

- H_1: There is a significant relationship between demographic variables and attitude towards online shopping.
- H_{02}: There is no significant relationship between educational qualification of rural consumers and their attitude towards online shopping.

Limitations:

- Time and other resources are limited during the study period.
- The study is focused more on Factors influencing of consumer behaviour towards online shopping Problems faced by consumers during online shopping and Post purchase behaviour of consumers towards online shopping.
- The respondent 's opinion may differ due to poor memory power or bias which would not be eliminated.
- Negligence of response due to busy schedule at a work place or other personal reasons.
- The study is limited to only rural people of Dakshina Kannada and it can't be generalized.

Results of the study:

Primary data for the study were collected using a structured questionnaire from rural consumers who use online shopping platforms. Data analysis involves organizing and examining the collected information in a systematic and objective manner, while data interpretation explains the results to understand their meaning. Both steps are important in the research process as they help in drawing valid conclusions. This study analyses and interprets the attitudes of rural consumers towards online shopping based on the responses obtained from the questionnaire.

Table No 1: Age wise Distribution of online shopping

Age	Frequency	Percentage
18-21	40	66.7
22-29	14	23.8
30-39	2	3.16
40-49	2	3.17
50 above	2	3.17
Total	60	100

The age-wise study, 66.7% of respondents are between the ages of 18 and 21. It suggests that younger people are more interested in online shopping than older people, who still prefer to purchase at traditional stores.

Table No 2: Gender Wise Distribution of online shopping:

Gender	Frequency	Percentage
Male	29	47.6
Female	31	52.4
Total	60	100

According to the above statistic, of the 60 respondents in remote regions that use the internet and visit various shopping sites, 54.2 percent are women and 47.6 percent are men. Thus, it is evident that rural women are more devoted to internet buying.

Table No 3: Educational Qualification of Respondents

Educational qualification	Frequency	Percentage
Under Graduate	32	54
Graduate	18	30
Under Post graduate	4	6
Other	6	10
Total	60	100

According to the survey on respondents' educational backgrounds, 54% are undergraduates, 30% are graduates, 10% are postgraduates and 65 are other. It demonstrates that an individual's level of education has a big impact on how they shop online.

Table No 4: Preference for online shopping:

Preference	Frequency	Percentage
Yes	57	95
No	3	5
Total	60	100

According to the above table, 95% of rural consumers like online shopping, while only 5% do not.

Table No 5: Importance of speed of delivery

Preference	Frequency	Percentage
Yes	50	83.3
No	10	16.7
Total	60	100

The above table shows that 83.33 percent of rural consumers need speed delivery and 16.66 percent do not. Delivery speed is a crucial determinant of rural consumer satisfaction.

Table No 6: Chi-Square Test – Age and Attitude Towards Online Shopping

Particulars	Calculated χ^2 Value	Table Value (df=4, α=0.05)	Result
Age Vs Attitude	12.46	9.49	Significant

The above table shows that Chi-square value (12.46) is greater than the table value (9.49), the null hypothesis (H_{01}) is rejected. Hence, age has a significant relationship with attitude towards online shopping.

Table No 7: Chi-Square Test – Gender and Attitude Towards Online Shopping

Particulars	Calculated χ^2 Value	Table Value (df=1, α=0.05)	Result
Gender Vs Attitude	4.21	3.84	Significant

From the above table the calculated value exceeds the table value; therefore, the null hypothesis (H_{02}) is rejected. Gender significantly influences attitude towards online shopping.

Table 8: Chi-Square Test – Education and Attitude Towards Online Shopping

Particulars	Calculated χ^2 Value	Table Value (df=3, α=0.05)	Result
Education Vs Attitude	10.82	7.81	Significant

From the above table since the calculated chi-square value is greater than the table value, the null hypothesis (H_{03}) is rejected. Educational qualification has a significant relationship with attitude towards online shopping.

Correlation Analysis Between Demographic Variables and Attitude

Variables	Co-relation Coefficient (r)	Nature of Relationship
Age and Attitude	-0.62	Moderate Negative
Gender and Attitude	0.34	Low positive
Education and Attitude	0.71	Strong Positive

From the above table, the correlation analysis indicates a strong positive relationship between education and attitude towards online shopping. Age shows a moderate negative correlation, implying younger consumers possess a more favourable attitude. Gender shows a weak positive correlation.

Findings:

- Online shopping is prevalent among the young people in rural areas.
- Online shopping behaviour is positively influenced by the educational qualifications.
- The main reason for online shopping is convenience and time savings.
- The total respondent 47.6% are males and 52.4% are female.
- Delivery speed and website credibility are important issues in online shopping.
- when making purchases online, mobile applications are favoured over web browsers.
- The area covered for study is rural and urban 80.5%are rural consumers and 17.5% are urban consumers.
- In this study most of the consumers are from Puttur and from Bantwala Taluk.

Suggestions:

From consideration of the overall findings appeared from the study, these are some suggestions.

- Spend more time at home by without going outside shopping.
- Online customers ought to have a concurrence with associations and different establishments and give off markdown coupons to the representatives in different associations and foundations as workers are the spine for the web-

based shopping.

- It is recommended to online customers to keep a data framework for creating SMS's and emails to the clients on the offers accessible in the stores.
- It is vital for the B2C E-Commerce sites to keep a client touchy valuing system, to convey client the best incentive for his cash.

Conclusions:

According to the study's findings, rural Dakshina Kannada District consumers have a favorable attitude toward internet purchasing, especially those who are younger and more educated. Online shopping is becoming more and more seen as a practical and effective substitute, even though traditional shopping is still relevant. Rural e-commerce participation will be further increased by addressing delivery limits, trust concerns, and infrastructure challenges. The study adds to the little body of empirical research on rural consumers' online purchasing habits and offers insightful information to policymakers and marketers.

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Modern Procurement Functions and Strategies

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The procurement function has evolved significantly in recent years, transitioning from traditional purchasing practices to a more strategic approach that emphasizes value creation and risk management. Modern procurement focuses on aligning sourcing strategies with overall business objectives, enhancing supplier relationships, and leveraging technology to optimize processes. This shift is driven by the need for organizations to respond quickly to market changes, improve efficiency, and maintain a competitive edge in a rapidly changing global landscape.

One of the key strategies in modern procurement is strategic sourcing. Unlike conventional purchasing, which often emphasizes cost reduction and transactional relationships, strategic sourcing involves a comprehensive analysis of an organization's spending patterns and supplier capabilities. This approach enables businesses to identify opportunities for long-term partnerships, negotiate better contract terms, and develop a deeper understanding of supplier performance. By focusing on strategic sourcing, organizations can achieve not only cost savings but also improved quality, innovation, and service levels from their suppliers.

To support these modern procurement strategies, various tools and technologies have emerged. E-procurement platforms, for instance, streamline the purchasing process by automating requisitions, approvals, and invoice processing. Supplier relationship management (SRM) tools facilitate collaboration and communication between organizations and their suppliers, enabling better alignment of goals and performance metrics. Additionally, data analytics tools play a crucial role in procurement by providing insights into spending patterns, supplier performance, and market trends, allowing procurement professionals to make informed decisions.

Supplier performance measurement tools are critical components of modern procurement. These tools assess suppliers based on various criteria, including quality, delivery performance, cost management, and innovation. By implementing a robust supplier performance measurement system, organizations can identify high-performing

suppliers and areas for improvement. This data-driven approach not only enhances supplier accountability but also fosters continuous improvement and innovation within the supply chain. Regular performance reviews and feedback mechanisms further strengthen supplier relationships and drive mutual growth.

Risk mitigation is another vital aspect of modern procurement. Organizations face numerous risks in their supply chains, including geopolitical instability, supply disruptions, and regulatory changes. Effective risk mitigation processes involve identifying potential risks, assessing their impact, and developing strategies to minimize them. Tools such as risk assessment matrices, scenario planning, and supply chain mapping help procurement professionals visualize and manage risks proactively. By integrating risk management into the procurement process, organizations can ensure business continuity and safeguard their operations against unforeseen challenges.

Ultimately, the value added to the business through modern procurement practices is substantial. By shifting from conventional purchasing to strategic sourcing, organizations can achieve significant cost savings, enhance supplier collaboration, and improve overall supply chain resilience. Furthermore, modern procurement emphasizes sustainability and ethical sourcing, aligning with the growing demand for corporate responsibility. As procurement continues to evolve, its role as a strategic partner in driving business success will only become more pronounced, highlighting the importance of innovative tools and strategies in today's competitive environment.

In conclusion, the procurement function has transformed from traditional purchasing to a strategic, value-driven approach that leverages technology and data analytics. By focusing on strategic sourcing, supplier performance measurement, and risk mitigation, organizations can enhance their procurement capabilities and contribute significantly to their overall business objectives. This evolution not only improves operational efficiency but also fosters long-term supplier relationships that drive innovation and competitiveness in the marketplace.

IMPACT OF DIGITAL PAYMENT SYSTEM AMONG YOUTH WITH SPECIAL REFERENCE BELTHANGADY TALUK OF DAKSHINA KANNADA DISTRICT

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ABSTRACT

Rapid expansion of technology with the widespread internet usage has led to digital transformation especially in financial sector. It enables the stakeholders to creation of value and innovative services to acquire the capabilities to cope up with the changing circumstances. This transition in the banking sector has significantly transformed the financial behavior of youth in India, particularly in semi-urban and rural regions towards digital payment.

The researcher has made this study to examine the usage of digital payments among youth and their behavior in the title 'Impact of digital payment systems among youth with special reference to Belthangady Taluk of Dakshina Kannada District. The primary aim of this study to analyze the awareness about digital payment and methods of digital payment among youth, determine the factors which are influence the youth regarding adoption and assess the benefits and challenges associated with digital transactions. In this study researches has collected required primary data through a structured questionnaire from 118 respondents aged 18–30 years. Secondary data was collected from journals, reports, and online sources. In this study Descriptive Statistical tools were used for analysis and interpretation of data. This study depicts that majority of the youths adopted the mobile wallets, UPI and debit card payments systems as they are very much convenient, speed, and ease of access. Apart from this, there are few issues and challenges were found in the study such as network connectivity, cyber security and fraud. This study mainly highlights the acceptance of cashless transactions system through digital payment by the youth.

Keywords: *Digital payment, e- Payment, Net Banking, E-wallet, Mobile banking*

Introduction

Rapid expansion of technology with the widespread internet usage has led to digital transformation especially in financial sector. It enables the stakeholders to creation of value and innovative services to acquire the capabilities to cope up with the changing circumstances. This transition in the banking sector has significantly transformed the financial behavior of youth in India, particularly in semi-urban and rural regions towards digital payment.

Now a day's Government of India take different initiatives to lift the Indian

economy in tune with the Vikasith Bharath 2040. The major initiatives are Digital India, financial inclusion programs, and make in India. The make in India initiative enhance the smart phones era which accelerated the adoption of digital payment system in the place of cash payment system. Different digital payment methods such as mobile wallets, UPI, debit and credit cards, net banking, Amazon pay, etc are widely accepted by the public especially youth population in India as they very much techno savvy compared to earlier generation. Since the youth are the major population of the country, their usage behavior plays a significant role in shaping the future of digital finance in the country.

Adoptions of digital payment system in semi-urban and rural area are very impactful to replace the long dominated cash based transactions. Digital payment system gave the big boos to Indian financial sector to enhance the financial inclusion by providing easy access of formal financial services and reduce the cash transactions and also increase the transparency. Since, India is adopting advance technology gradually, there are challenges to financial sectors especially in semi-urban and rural area to popularize the digital payment system due to poor network, lack of digital literacy, lack of proper infrastructure and cyber security issues.

In Dakshina Kannada District, Belthangady Taluk is comparatively has huge youth population as it is connected with gat section and pilgrim place Dharmastha and the Ujire is said to be education hub. In Belthangady taluk both traditional and modern payment systems are existed. In order to understand the awareness, usage and perception about digital payment systems among youth this study has conducted by involving the youth aged between 18 to 30 years those who are actively engaged in education, employment and entrepreneurship.

With this view, this study aims to examine the impact of digital payment system among youth in the Belthangady Taluk of Dakshina Kannada District. This study analyze the awareness about digital payment and methods of digital payment among youth, determine the factors which are influence the youth regarding adoption and assess the benefits and challenges associated with digital transactions. The major outcomes of this study may useful to give valuable insights to financial institutions, policy makers, Government and other stakeholders.

Literature Review

With growth of the digital payment systems in India different studies were undertaken by the number of researchers, few important studies which related the topic researcher has analysed the following studies.

In the study titled Digital payment adoption among youths A global Perspective (, introduced the Technology Acceptance Model (TAM), which explains how perceived usefulness and perceived ease of use influence people's acceptance of new technologies, including digital payments. The study suggests that youths adopt digital payments more quickly due to their high exposure to technology. (Davis, F. D. (1989)).

In the present era with the advent of technology, digital payment systems give different offers such as coupons and offers. In particular, the mobile payment (m-payment) system has emerged, enabling users to pay for goods and services using their mobile devices (especially mobile phones) wherever they go. To make people stress free and to make transactions easy new application has been introduced. Digital transactions are traceable, therefore easily taxable, leaving no room for the circulation of black money. The whole country is undergoing the process of modernization in money transactions, with e-payment services gaining unprecedented momentum. (Sweta Mishra and Vidhi Rajora (2018)

Ravi and Prasad tudied the adoption of digital payment systems in India and found that convenience, speed, and ease of use were the primary factors influencing consumer acceptance. Their study highlighted that younger users were more inclined toward digital payments due to higher levels of technological awareness and smartphone usage. However, the authors also identified security concerns and lack of trust as major barriers to adoption among certain user groups. (Ravi and Prasad (2018))

Due to moderation and globalization, it was very important for the people to accept the modern method of payment. The study is based on secondary data and various literatures from past papers and government data. All data collected has been analysed and used to find the impact and adoption of digital payments by the people (Pandey and Rathore (2018).

Digital Payment vs. Traditional Cash Transactions study compares cash payments and digital transactions, finding

that digital payments are more efficient, trackable, and safer but face resistance due to habitual cash usage and security concerns (Ramaswamy, S. (2018).

The study of Singh and Kumar identified how digital payment methods help include more people in the financial system, especially young adults. Their study found that digital payments can bridge gaps where traditional banking falls short. They point out that many young users, particularly in rural or semi-urban areas, gain access to financial services through mobile technology. The paper notes that digital payments reduce the need for physical bank visits. It also discusses the social impact of making financial services more accessible to all. This research underlines the role of digital payments in enhancing financial inclusion (Singh, R., & Kumar, P. (2019).

In the study the role of digital payment systems in promoting financial inclusion in rural India, it is concluded that digital payments reduced dependence on cash and enhanced transparency in financial transactions. However, the authors pointed out that inadequate digital infrastructure and limited digital literacy continued to hinder effective implementation, particularly in remote areas (Sharma and Singh (2020).

Objectives of the study

1. To study the level of awareness of digital payment systems among youth in Belthangady Taluk of Dakshina Kannada District.
2. To examine the usage pattern of various digital payment methods among youth.
3. To identify the factors influencing the adoption of digital payment systems among youth.
4. To study the challenges and problems faced by youth while using digital payment systems.
5. To assess the overall impact of digital payment systems on the financial behavior of youth.

Hypotheses

H_{01}: There is no significant relationship between personal profile of the respondents and frequency of usage on digital payment system.

H_{02}: Level of awareness about the functions of digital payment system is independent of the personal profile of the respondents.

H_{03}: Personal profile of respondents has no significant relationship with their years of

experience with digital payment system.

Scope of the study

The scope of this study is confined to Youths aged between 18 years to 30 years located in Belthangady Taluk of Dakshina Kannada District. The study focuses on students, self-employed, employed and entrepreneurs to study their behavior towards usage of different methods of digital payment. The study was conducted during December 2025.

Research Methodology

This study is a descriptive in nature based on both primary and secondary data. The primary data was collected through well structured questionnaire distributed among 150 youth respondents through google form. Convenience sampling method is adopted to select the respondents. out of 150 respondents, complete and usable response from 118 respondents. Secondary data which was required for the study is collected through journals, books, reports and websites. The primary data which was collected through questionnaire were coded, tabulated and analysed using the SPSS software.

Limitations of the study

1. This study is limited to semi-urban and rural area of Belthangady Taluk of Dakshina Kannada District.
2. The study is based on the data collect form 118 respondents which may or may not be biased.
3. This study confined to youth aged between 18-30 years where the behavior may differ

Data analysis and Interpretation

The primary data collected through structured questionnaire for the study are being analysed and interpreted in this part.

Table 1: Personal profile of the respondents

Sl. No	Variable	Category	Number of respondents	Percentage
1	Gender	Male	87	73.70
		Female	31	26.30
		Total	**118**	**100**
2	Age	Below 20	8	6.80

		20 -25	86	72.90
		25-30	24	20.30
		Total	**118**	**100**
3.	Education	PUC	14	11.90
		Graduate	56	47.50
		Post graduate	42	37.60
		Others	06	5.10
		Total	**118**	**100**
4	Occupation	Government Employee	05	4.20
		Private Employee	24	20.30
		Self Employee	18	15.30
		Student	60	50.90
		Entrepreneurs	11	9.30
		Total	**118**	**100**
5	Marital status	Unmarried	106	89.80
		Married	12	10.20
		Total	**118**	**100**
6	Monthly income	Below Rs. 20,000	68	
		Rs. 20,000 to Rs. 30,000	09	
		Rs. 30,000 to Rs. 40,000	06	
		Rs. 40,000 to Rs. 50,000	14	
		Above Rs. 50,000	21	
		Total	**118**	**100**

Source: Primary data

The above table reveals the personal profile of the respondents. Out of 118 respondents, 73.70% are male and 26.30% are female respondents. This shows the male youth's participation is more compare to female.

Regarding age, 72.90% are of the age group between 20-25 years, 20.30% belongs to the age group of 25-30 years and only 6.80% are from the age group of below 20 years which shows respondents are majorly belongs to students.

In terms of educational qualifications, most respondents were graduates (47.50%) and postgraduates (35.60%) and occupation wise majority were students (50.90%) reflecting a generally well-educated sample.

In this study majority respondents were unmarried (89.80%) and belongs to income group of less than Rs. 20,000 (57.60%). This reveals that as majority of the respondents are students and they are not the earners.

Table 2: Experience of the respondents in digital payment

Options	Number of respondents	Percentage
Less than one year	27	22.90
1-4	67	56.80
4-8	21	17.80
More than 8 years	03	2.50
Total	**118**	**100**

Source: Primary data

The Table 2 demonstrates that most of the respondents (56.80%) have been using the digital payment system from last 1 to 4 years. Only 2.50% of respondents are using digital payment for more than 8 years. This depicts that majority of users having moderate experience and recent adoption.

Table 3: Classification of respondents on the basis of preferred digital payment method

Options	Number of respondents	Percentage
ATM/Debit card	13	11
Credit card	14	11.90
Google pay	49	41.50
Phone pay	18	15.30
Paytm	14	11.90
Amazon	03	2.50
Other	07	5.90
Total	**118**	**100**

Source: Primary data

The above table depicts that, 41.50% respondents are being used Goofle pay, 15.30% Phone pay, 11.90% paytm. This demonstrates that youths are very much familiar with the UPI based mobile apps.

Table 4: Ranking of the following purposes of using digital payment system

Purpose	Mean	Rank
College fee	2.710	5
Grocery bill	2.7338	4
Gas bill	2.6616	6
Mobile recharge	3.3878	1
Money transfer	3.2662	2
Other	2.8517	3

Source: Primary data

The Table 4 highlights the purpose of using of digital payment system frequently. Majority of the respondents use the digital payment system for the purpose of mobile recharge as in it was in Rank 1 whereas using for the purpose of money transfer place a Rank 2 and the purpose of using digital payment system for household purpose such as payment of grocery bill or gas bill are very less as this study consists majority respondents are students. There primary moto is to recharge and money transfer.

Table 5: Factors affecting the reasons for use of digital payment system

S. No	Reasons	1	2	3	4	5	6	7	8	Mean score	Rank
1	Convenience	31	23	4	12	12	16	16	4	56.93	I
2	Time saving	16	16	12	19	16	8	16	15	50.30	III
3	Less Procedure	16	15	12	16	12	19	12	16	49.90	IV
4	Safety	16	12	23	12	8	16	8	23	49.23	V
5	Discounts and Rewards	8	16	8	4	23	20	35	4	46.30	VIII
6	Instant Payment	19	8	16	16	16	19	08	16	50.50	II
7	Easy Accessible	8	12	27	16	12	0	19	24	47.17	VII

8	Utility of Innovation	4	16	16	23	19	20	4	16	48.53	VI

Source: Primary data

This table indicates the primary objective of youth to use the digital payment system. As per the study youths use this payment system because of the convenience**,** with a mean score of 56.93**,** making it the most important factor. Another important factor to use the the digital payment system is less time-consuming mean score of 50.30 and Instant payment (Mean score 50.50).

The above study results suggest that easy accessibility and time saving and also quick and efficient financial transactions are important factors for the youth to use the digital payment system.

It is concluded the from the above table results that, the important factors influencing the youth for using digital payment system are convenience, time saving and instant payment means quick payment, safety and security, rewards are being secondary aspects.

Table 6: Awareness about the functionality of digital payment system

Options	**Number of respondents**	**Percentage**
Fully aware	38	32.20
Partly aware	68	57.60
Not aware	12	10.20
Total	**118**	**100**

Source: Primary data

The above table presents the level of awareness among youth about digital payment majority of the respondents 57.60 are partly aware of digital payment system, 32.20% of respondents are fully aware about this system. This reveals that it is necessary to create the awareness among youth on different methods of digital payment system and their pros and cons.

Table 7: Challenges of digital payment system

S. No	Reasons	1	2	3	4	5	6	7	Mean score	Rank
1	Security	39	8	8	12	16	19	16	4.33	I
2	Poor internet	27	12	12	20	23	8	16	4.27	III
3	Lack of Techno Savvy	8	12	20	19	19	24	16	3.15	VI
4	Cash Method	12	20	27	16	04	16	23	3.97	IV
5	Many Procedure	12	23	12	12	24	19	16	3.87	V
6	Fraud & Hidden charges	12	31	16	20	12	16	13	4.30	II
7	Other	8	12	23	19	16	16	20	3.07	VII

Source: Primary data

The above table demonstrates the challenges faced by the youth while using the digital payment system. The biggest challenge for the respondents while using digital payment is security with mean score of 4.33 placed in Rank 1. This suggests that fear about data breaches, frauds and safety financial transactions. Another important issue for the respondents while using digital payment system is fraud and hidden charges with a mean score of 4.30 placed in Rank 2. This shows respondents concern is to financial loss.

Network issue is another challenge faced by respondents which is in 3rd rank with a mean score of 4.27. Poor internet connectivity leads to the network issue may disrupt the digital payment process and lead to frustration.

Still cash payment systems are preferred by the respondents located in 4th rank with a mean score of 3.97. though there is advent of technology respondents are preferred to cash payment method because of security and safety issue.

It is concluded in the study that security, network issue and fraud and hidden charges are the major challenges for the wider acceptance of digital payment system by the youth.

Testing of Hypothesis

H_{01}: There is no significant relationship between personal profile of the respondents and frequency of usage on digital payment system.

Table 08: Chi-square value of H_{01}

Profile	Chi-square value	df	P value
Gender	45.537	3	0.000
Age	45.312	9	0.000
Education	45.434	9	0.000
Occupation	43.671	12	0.000
Marital status	7.047	3	0.070

Source: Compiled from Primary Data ***Level of significance 5%***

Based on Table 08, the calculated Chi-square values at a 5% significance level are found to be significant, leading us to reject the null hypothesis. This indicates that there is a significant relationship between the personal profile of the respondents and the frequency of usage of digital payment systems.

H_{02}: Level of awareness about the functions of digital payment system is independent of the personal profile of the respondents.

Table 09: Chi-square value of H_{02}

Profile	Chi-square value	df	P value
Gender	5.565	2	0.062
Age	10.968	6	0.089
Education	12.439	6	0.002
Occupation	24.975	8	0.002
Marital status	6.819	2	0.033

Source: Compiled from Primary Data ***Level of significance 5%***

It is crystal clear from the above table that the calculated statistics for gender and age is insignificant at 5% level of significance and significant for educational qualification, occupation and marital status of the respondents. Hence, it is concluded that educational qualification, occupation and marital status of the respondents have significant impact on the level of awareness about the functions of digital payment system.

H_{03}: Personal profile of respondents has no significant relationship with their years of experience with digital payment system.

Table 10: Chi-square value of H_{03}

Profile	Chi-square value	df	P value
Gender	22.550	3	0.000
Age	35.505	9	0.000
Education	42.960	9	0.000
Occupation	42.540	12	0.000
Marital status	15.571	3	0.001

Source: Compiled from Primary Data ***Level of significance 5%***

As shown in Table 10, the computed Chi-square values are significant at the 5% level of significance. Therefore, rejected the null hypothesis and concluded that there is a significant relationship between the personal profile of the respondents and their years of experience with the digital payment system.

Findings of the Study

The analysis and interpretation of the collected data reveal several key insights regarding the usage, awareness, and challenges of digital payment systems among youth in Belthangady Taluk of Dakshina Kannada District. The major findings of the study are summarized as below:

- Majority of the respondents belongs to male respondents (73.70%) compare to female respondents (26.3%).
- The higher participation in the study is the respondents in the age group of 20-25 years (72.90%).
- Most of the respondents were graduates (47.50%) and post graduates (37.60%). Hence, respondents are well educated.
- Students were major contributors of this study as they are 50.90% and private employees are of 20.30%.
- Majority respondents were unmarried (89.80%) which indicates sample largely indicate the young individuals.
- In terms of income group, majority respondents belong to the income group of below Rs. 20,000.

- Majority of the respondents has experience of using digital payment system for last 1 to 4 years.
- A large group of respondents uses google pay digital payment.
- Mobile recharge (mean = 3.39) emerged as the most common use for digital payments, followed by money transfer (mean = 3.27), indicating that everyday transactions such as recharges and transferring funds are the primary drivers for digital payment adoption. College fees and grocery bills were also significant purposes, but gas bills were the least frequent use case.
- The main factors driving digital payment usage were convenience (56.93), followed by time-saving (50.30) and instant payments (50.50). These findings suggest that youth prioritize quick, efficient, and user-friendly systems for their daily transactions. Safety was also considered important but ranked lower compared to convenience and speed. Discounts and rewards were the least influential factors.
- 57.6% of respondents were partly aware of digital payment systems, while 32.2% were fully aware, and 10.2% were not aware at all. This indicates that while a significant portion of the youth population is familiar with digital payment systems, there is still a need for increased awareness to ensure broader understanding and adoption.
- The top challenge faced by respondents was security concerns (mean = 4.33), followed by concerns about fraud and hidden charges (mean = 4.30). Additionally, poor internet connectivity (mean = 4.27) was identified as a significant barrier, particularly in rural areas. Despite these challenges, respondents still prefer digital payments for their convenience, though factors like lack of techno-savviness and complicated procedures (ranked 5th and 6th) also act as deterrents.
- Demographic factors largely influence how frequently youth use digital payment systems.
- Awareness is affected more by education and professional exposure than by gender or age.
- Personal and socio-economic characteristics strongly influence

how long youth have been adopting digital payment methods.

Suggestions

Based on the findings of this study, the following suggestions were made:

- Cash payment is still to be seen everywhere. If Government wants to implement digital payment system or cashless society, it must act on that behalf by encouraging people to use digital modes and giving proper incentives.
- While making payment customer needs to give essential information. There must be a better mechanism for maintaining the privacy of the information provided by the user.
- Advance technology, Speed operating system should be adopted and High Security System should be use to safeguard the privacy of the customers.
- The technology advancement should adequately be supplemented with more security in banking operations.
- Service provider of mobile wallet, net banking must take into consideration user experience and take their valuable feedback in order to better their services.

Conclusion

This study explored the impact of digital payment systems among youth in Belthangady Taluk, Dakshina Kannada District, focusing on their awareness, usage, and challenges. The findings reveal that digital payments are widely adopted, with Google Pay being the most preferred method, driven by factors such as convenience**,** time-saving, and instant payments. However, challenges like security concerns**,** fraud**,** and poor internet connectivity hinder broader adoption.

The study mainly highlights the adaptability of digital payment system by youth in Belthangady taluk in spite of different challenges such as poor internet connectivity, safety and security and frauds. This indicates that youth in Belthangady are well educated and largely aware of digital payment system.

The digital payment ecosystem in India has grown significantly in recent years, driven by government initiatives, an increase in internet and smartphone penetration and raiseof E-commerce. Even with the certain difficulties people are still attracted towards the digital payment system. More and more people are getting towards the digital payment system because of its ease of use, time saving, being cash less, no banking hours time

bound.The country need to move way from the cash-based towards cashless(digital) payment system.

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