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CONTENTS

Editorial

Sustainability has evolved from a peripheral concern into a defining element of modern business strategy. As global enterprises navigate complex economic, environmental, and social challenges, sustainability is no longer viewed merely as an act of corporate responsibility but as a strategic imperative that drives long-term competitiveness and value creation. The Global Conference on Achieving Sustainability: A Corporate Perspective, held on September 22, 2025, reaffirmed this transformation, emphasizing the necessity for businesses to integrate sustainable principles into all facets of their operations. The insights and discussions that emerged underscored how sustainability not only addresses ethical and environmental obligations but also fosters innovation, efficiency, and resilience in an increasingly uncertain global economy.

The implications of sustainability extend deeply into the core functions of business management. Finance and strategy are being redefined through the adoption of Environmental, Social, and Governance (ESG) frameworks, ensuring that investment decisions align with long-term ecological and societal priorities. Operations and supply chain management are evolving towards circularity and resource efficiency, while marketing and branding increasingly focus on authenticity, transparency, and purpose-driven narratives. Human resource management too, is recognizing sustainability as integral to organizational culture—prioritizing diversity, employee well-being, and ethical leadership as cornerstones of responsible growth. Collectively, these shifts signal a paradigm where sustainability informs every decision, shaping how organizations create and sustain value.

As the world faces intensifying challenges—from climate change and biodiversity loss to inequality and resource scarcity—the integration of sustainability across business functions represents both a moral duty and a strategic opportunity. By embracing sustainability as a guiding principle, organizations can build resilience, secure stakeholder trust, and contribute meaningfully to global progress. This special issue of the *Monti Journal of Business and Innovation* explores these critical intersections, offering research, insights, and case studies that illuminate how modern businesses can align profitability with purpose. In doing so, it reaffirms that the path to enduring success lies in harmonizing economic ambition with environmental stewardship and social responsibility.

Dr. Subin Thomas

Chief Editor

Impact of Sustainable Marketing on Responsible Consumer Behaviour: The Mediating Role of Brand Image with Reference to Cosmetic Industry

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A B S T R A C T

The present research paper examines the Impact of Sustainable Marketing (SM) on Responsible Sustainable Consumer Behaviour (RSCB), considering Brand Image (BI) as a mediator concentrating on the cosmetic sector. Based on Structural Equation Modelling (SEM), the study analyzes the direct and indirect relationships between the three constructs. The study conducted analysis based on the 420 responses collected from the college students in the Kottayam District with the help of google form. The results indicate that SM strongly increases BI (â = 0.79) but has no direct effect on RSCB (â = -0.01). But BI has a strong effect on RSCB (â = 0.81), and the indirect effect of SM on RSCB via BI is high (â = 0.63), and so the mediating effect of brand image is ensured. Reliability and validity tests ensure the strength of the model with all Cronbach's Alpha, AVE, and CR values being high. By utilizing skewness and kurtosis values, assumptions of normality in the data were examined. To enhance and report the sustainable initiatives of the brand image, the study is aimed at encouraging sustainability as well as ethical consumer conduct. The results present managerial implications for the integration of sustainability into brand positioning strategy and provide implications for future studies across business sectors and cultures.

Keywords: Brand Image, Responsible Consumer Behaviour, Sustainable Marketing

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INTRODUCTION

In recent years, increasing issues about the environment, the loss of resources and the climate change have changed the hopes that society has for companies, pointing them to work in a more sustainable way. This change in ways to think about how we do business has shown the importance of SM as a main way to help a company become more competitive and to help us grow in a way that can last (Kotler & Keller, 2016). Sustainable marketing is more than just an old goal to meet what the customer wants, it is also about what will last, and what will help the environment, community and business in the long term (Peattie & Belz, 2010). As business readjusts their targets so they meet the aims of the world's effort for sustainability, such as the SDGs of the United Nations. the push on doing the right thing with the use of good marketing and the way people buy things is much more of a must.One of the most visible effects of green final goods is their ability to influence Brand Image (BI). In a world where users are more moral and can learn more easily, how they think about a brand's environmentally friendly actions has a big effect on how they feel about the brand and act on the brand (Leonidou et al., 2013). Having a brand image that is strong and good, enough to have been built on the basis of green final goods, is a sign you can trust a brand, it is high in quality, and has acted out their ethics on green final goods. So, firms that bring green final goods into their marketing efforts will more likely create more body for that firm; and this effect will make consumers stay loyal and buy more forever (Nguyen et al., 2020).Despite the focus on these forms of branding, there is much to be understood on how sustainable marketing connects to people's ideas and acts that they do best, not just what they want to do (RSCB). The purpose of branding while also being responsible for the world can lead to this. But the path toward this is not always easy. Many have found that what we say we do and what we really do often are not the same, a problem called the attitude-behaviour gap (Joshi & Rahman, 2015). So, brands that are simply more sustainable may not lead people to do better unless consumers trust what they see on the outside.Recent research indicates that a brand's image plays a crucial role in how sustainable marketing impacts consumer behavior (Martínez & Rodríguez del Bosque, 2013). When customers perceive a brand as genuinely sustainable, they are more likely to embrace its values and be guided by it. This highlights the significance of the emotional and psychological bonds that a brand's image is able to establish, thus bridging the gap between marketing strategies and actual consumer behavior (Rahman et al., 2014). Being aware of the interactions and interdependencies between sustainable marketing, brand image, and ethical consumer behavior within an integrated framework is the key.

LITERATURE REVIEW

Sustainable Marketing and Brand Image

Sustainable marketing (SM) is the marketing process whose design is affected by environmental, social, and ethical concerns. SM creates long-term value for the company and for society in general (Peattie & Belz 2010). The cosmetics industry has felt increasing pressure for SM owing to growing concern regarding the environment and increasing demand for ethically produced goods. Eco-conscious packaging, cruelty-free testing, and organic ingredients are some attributes that help to quickly cement a strong and positive image of the brands (Nguyen et al. 2020). A brand's sustainable initiatives reflect on its brand personality, thus forging an emotional bond with the consumers.Sustainable marketing initiatives create often then trust and admiration that lead to improving brand loyalty (Jung et al., 2020). Consistent sustainability messaging builds credibility and thus enhances the brand image (Rahman et al., 2014). On the other hand, if the consumer is not delivered with sustainability promises or if the company engages in greenwashing, they're going to be damaging the brand image and leading to distrust (Joshi & Rahman, 2015).In cosmetics, making a difference means bringing forth a competitive advantage through value alignment. Leonidou et al. (2013) further stated that companies practicing sustainability tend to hold onto their customers

better, and thus higher equity. Among other things, the strong link between sustainability and brand can be especially well seen in the minds of young consumers, who tend to opt for brands that are socially and environmentally responsible.Hence, SM is not merely a fashion statement, it is a purposeful tactic in sculpting brand image for future business success. The weighty sustainability messages are tied deeply into marketing communications, thus enhancing perceived authenticity and reputation of the said brand.

H_1: Sustainable Marketing positively influences the brand image of the cosmetic industry.

Brand Image and Responsible Sustainable Consumer Behaviour

An important point is made by brand image (BI) regarding the shaping of Responsible and Sustainable Consumer Behaviour (RSCB) as with cosmetics, where emotional and ethical values lie. For example, consumers tend to behave more sustainably if the brand presents itself as environmentally and socially responsible (Martínez & Rodríguez del Bosque, 2013). A strong BI undergirded by sustainability corresponds with the ethical perspectives of a brand, one that is particularly appealing to consumers who value the environment. As per (Nguyen et al., 2020) a sustainability-based brand image is related to the better engagement of consumers and their loyalty in a long-term context. This manifests in some instances among cosmetics consumers, who repeatedly purchase products from brands identified with cruelty-free and natural products. A consistent green image or misrepresentation of products reinforces sustainable buying behaviours (Leonidou et al., 2013). In spite of this assertion, the issues of credibility must accompany BI. The influence on RSCB becomes weaker if consumers find that claims regarding sustainability are insincere or misleading (i.e., greenwashing) (Joshi & Rahman, 2015). Transparency and consistency of sustainability claims would be crucial for persuading consumers about changes in consumption behaviour.Moreover, such a symbolic value might very well then be reflected in

consumers who consider themselves as such responsible global citizens (Rahman et al., 2014). These linkages mostly avoid the unsustainable brands while choosing between those brands with the respected brand image as related to ethical practices.

H_2: Responsible Sustainable Consumer Behaviour has been positively influenced by Brand Image.

Sustainable Marketing and Responsible Sustainable Consumer Behaviour

Sustainable marketing refers to the processes which guide in educating, persuading, and promoting consumers toward an environmentally friendly decision. Within a growing cosmopolitan consumer framework, with a greater emphasis on environmental-ethical concerns in product choice, SM is indeed the catalyst for responsible consumer actions (Peattie & Belz, 2010). Henceforth, brands that would create responsible consumer behavior include those that promote the use of ingredients that are natural and organic, recyclable packaging, and eco-friendly production modes. According to Nguyen et al. (2020), these SM techniques can create changes in consumers' values, behaviours, and even their daily routines. Yet even with these techniques in practice, many consumers reflect the so-called "attitude-behaviour gap" - they claim to care about sustainability, but their behaviour does not really reflect it (Joshi & Rahman, 2015).While these inconsistencies may exist, the natural barriers between the consumer and the product—high costs, skepticism toward sustainability claims, or little relevant information—remain the order of the day. Further, Leah et al. (2013) opine that SM would work only if firms provided products that are sustainable at prices low enough to attract customers.Educational campaigns, increasing product transparency, and getting involved in the community can help arrest this gap. When brands have a steady visibility on responsible lifestyle partnering with solutions that are sustainable, somewhere along the line, consumers are incited into making responsible choices. SM creates that moral conscience within consumers that makes them believe their purchases really do count, leading them to act responsibly.

H_3: Sustainable marketing has a direct impact on Responsible Sustainable Consumer Behaviour.

Sustainable Marketing, Brand Image and Responsible Sustainable Consumer Behaviour

The interaction between sustainable marketing (SM), brand image (BI), and responsible sustainable consumer behaviour (RSCB) is key to understanding consumer trends in the modern cosmopolitan landscape. SM builds the sustainable ethical and ecological branding, while BI functions as a conduit for the brands' sustainable values and consumer buying behavior. Sustainability-oriented marketing constructs a brand image appealing to those consumers who subscribe to environmental ethics (Martínez & Rodríguez del Bosque, 2013). Jung et al. (2020) asserted that consumers evaluate the personality of a brand through a lens of sustainability, thus strengthening emotional and value-driven connections. This perception then refines itself into conscious responsible consumer behaviour, such as purchasing eco-friendly products or supporting cruelty-free brands.Joshi & Rahman (2015) warned that unless the BI is perceived as authentic, SM efforts fail to translate into RSCB. Therefore, mes-sages need to be credible. Leonidou et al. (2013) provided a link between the credibility of marketing campaigns and tangible acts to back up BI and responsible behaviour.Thus, the BI would be meditating the marketing sustainability efforts into conscious consumer choices. When consumers identify with a brand communicating environmental and ethical values, they are more motivated to display sustainable behaviour.

H_4: Brand Image indirectly influence Sustainable Marketing and Responsible Sustainable Consumer Behaviour.
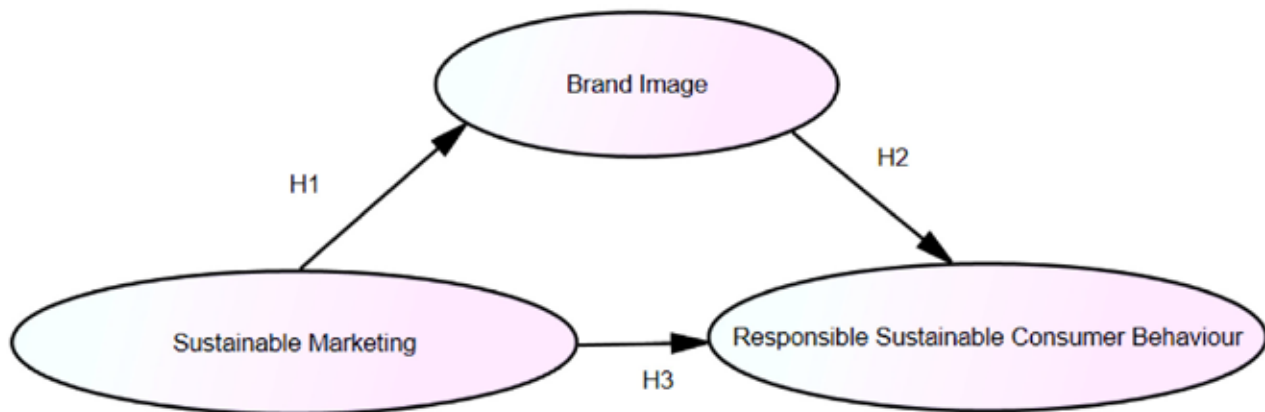
Figure 1

METHODOLOGY OF THE STUDY

In this research, the Sustainable Marketing (SM)-Responsible Sustainable Consumer Behavior (RSCB) link is investigated with a particular focus on the role played by Brand Image (BI) as a mediator. The primary data for the study were collected using the structured questionnaire sent to 420 college students in the Kottayam District, purposively sampled. This group was particularly relevant for the study since its members belong to a relatively younger population likely to know of sustainability-related issues in the cosmetics industry and be influenced by them. Data was collected using Google Forms on the grounds of voluntary and anonymous participation.Through the scales SM and BI, two constructs namely Sustainable Marketing, Brand Image, and Responsible Sustainable Consumer Behavior have been defined in the questionnaire. The scales adapted are that of SM with 12 items and BI with 4 items obtained from Jung et

al., (2020). RSCB has been measured with the help of a 6-item scale that has been developed by Roberts and Bacon (1997). Each item was rated on a five-point Likert scale, where 1 meant Strongly Disagree and 5 meant Strongly Agree. The instrument was pre-tested for clarity and relevance.Data for analysis were carried on with SPSS and AMOS Software. The check on internal consistency of constructs was done with Cronbach's Alpha, and all values were above the threshold of 0.7, thus establishing reliability. Average variance extracted (AVE) and composite reliability (CR) validity tests were done with both obtaining recommended values for good convergent validity. Discriminant validity was established also using the Fornell-Larcker criterion. Normality tests were run next on skewness and kurtosis to check data's viability for SEM, and these were established to be within the acceptable range.

ANALYSIS & IMPLICATIONS

The analysis of thevalues of mean, standard deviation andthedata normality had been measured using skewness and kurtosis of all the constructs considered for the study. The meanvaluesfor Sustainable Marketing(SM), Responsible Sustainable Consumer Behaviour (RSCB) and Brand Image (BI) are3.01, 3.06 and 2.99. The respective values for standard deviationconsist of 0.51, 0.55 and 0.62. The recommended threshold values for skewness and kurtosis rangesbetween -1 to +1 and -3 to +3 (Ghasemi and Zahediasl, 2012). Therefore, the data satisfies the analysis of normality.According to (Tabachnick & Fidell, 2007), the values of correlation pointedout to be lesser than 0.9 and hence the values .723,.593 and .743 signifiedtherequirements.The multicollinearity values infer that it is not problematic, thus implying that the constructs are appropriate for further investigation. These results are consistent with the structural integrity of the model adopted as a result, making such data robust and suitable for Structural Equation Modelling (SEM).

Table 1 Normality Assessment

Variables	Mean(S.D)	Skewness(Std.error)	Kurtosis(Std.error)	1	2	3
SM	3.01(0.51)	0.173(0.12)	- 0.171(0.24)	1		
BI	3.06(0.55)	0.159(0.12)	0.300(0.24)	.723[*]	1	
RSCB	2.99(0.62)	-0.425(0.12)	1.638(0.24)	.593[*]	.743[*]	1

*Denotes the significance level of correlation at 0.01
Source: Author's Compilation

CONFIRMATORY FACTOR ANALYSIS & MEASUREMENT MODEL

Inorder to measure the accuracy and consistency of the data, the reliability and validity analysis is estimated. Table 2 computes the reliability of the constructs included in the study.According to Hair et al. (2019), the suggested value of Cronbach's Alpha 0.9 represents the acceptabilityof the constructs considered. The values .957, .894,.947 meets the suggested criteria limit and hence reliable for further analysis. SM refers to Sustainable Marketing, BI for Brand Image and RSCB for Responsible Sustainable Consumer Behaviour.Convergent Validity and Discriminant Validitymeasures the validity of the indicators considered. Inorder to assess the validity of the indicators CFA analysis was measured using AMOS and as per Hair et al. (2010), the lower factor loadings should be .05. Hence, all the items satisfy the proposed criteria and thus, validate the indicators. Table 3 showcase the fitness of goodness in the model, which includes the calculated values as well as the estimated values Hair et al. (2019).

Table 2 Reliability Assessment

Variables	N of Items	Cronbach's Alpha
SM	12	0.957
BI	4	0.894
RSCB	6	0.947

Source: Author's Compilation

Table 3 Measurement Model

Model	CMIN/DF	p-value	GFI	AGFI	CFI	RFI	IFI	TLI	RMR	RMSEA
Calculated value	3.85	.000	.839	.803	.930	.897	.930	.922	.019	.071
Threshold value	1-5	<.05	>.9	>.9	>.9	>.9	>.9	>.9	<.08	<.08

Source: Author's Compilation

To evaluate the legitimacy of the estimation, both convergent and discriminant validity were assessed. As per Fornell and Larcker (1981), convergent validity is built up when the AverageVariance Extracted (AVE) surpasses the edge esteem of 0.5. Composite Reliability (CR) was moreover calculated to guarantee inner consistency among things inside each build. Discriminant validity was confirmed utilizing the square root of AVE, which ought to be higher than the inter-construct relationships to affirm that each build is particular from the others (Fornell & Larcker, 1981; Hair et al., 2019). As appeared in Table 4, all AVE values surpass 0.5, affirming convergent validity analysis. Moreover, the values, .806 for SM, 0.824 for BI, and 0.866 for RSCBare more prominent than their comparing inter-construct relationships, in this manner supporting discriminant validity.

Table 4 Convergent and Discriminant Validity

Variables	CR	AVE	SM	BI	RSCB
SM	0.957	0.649	**0.806**		
BI	0.894	0.679	0.785	**0.824**	
RSCB	0.947	0.750	0.628	0.802	**0.866**

Source: Author's Compilation

HYPOTHESIS TESTING AND STRUCTURAL EQUATION MODELLING

The results of the hypothesis had been represented in the Table 5. The Structural Equation Modelling denotes the association between sustainable marketing, brand image, and responsible sustainable consumer behaviour. The findings of the study show that sustainable marketing has a significant direct impact on brand image with beta value at 5% significance level.Thus, the structural path analysis reveals a number of strong relationships between Sustainable Marketing (SM), Brand Image (BI), and Responsible Sustainable

Consumer Behaviour (RSCB). SM and BI association (H1) are positive and very strong with a measure of 0.79***, indicating that sustainable marketing practices enhance the image of a brand significantly..However, the direct influence of SM on RSCB (H2) is very weak and negative (-0.01***), showing that sustainable marketing does not directly lead to responsible consumer behaviour. In a contrasting scenario, the direct relationship between BI and RSCB (H3) possesses a high and significant positive influence (0.81***), suggesting that a positive brand image greatly influences consumers to act responsibly and sustainably. Interestingly, the indirect effect of SM on RSCB through BI (H4) is also significant (0.63***), which means that brand image is a highly influential mediator. This implies that sustainable marketing may not have a direct effect on the behavior of consumers but is crucial in impacting brand image, which significantly influences responsible and sustainable consumer behavior.

Table 5 Analysis of direct effect & indirect effect

Path	Standardized Direct Effect	Standardized Indirect Effect
SM->BI**(H1)**	0.79***	
SM->RSCB**(H2)**	-0.01***	
BI->RSCB**(H3)**	0.81***	
SM->BI->RSCB**(H4)**		0.63***

Notes:***p<0.05 SM-Sustainable Marketing, BI-Brand Image, RSCB-Responsible Sustainable Consumer Behaviour
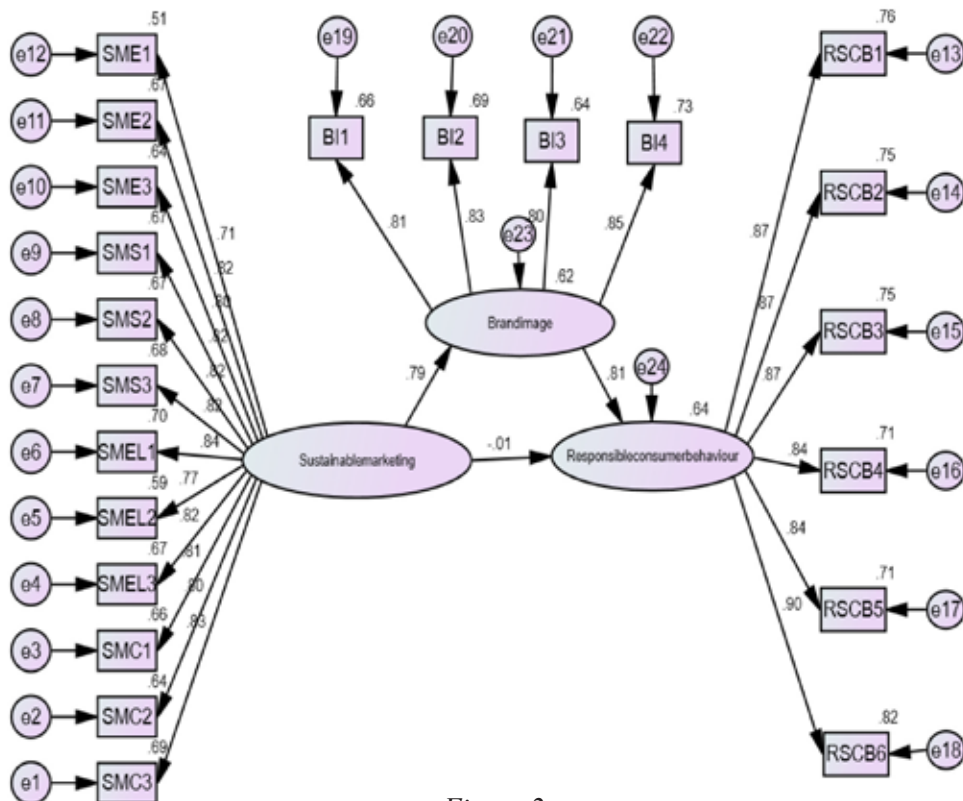
Source: Author's Compilation

Figure 2

The model is a Structural Equation Model (SEM) capturing the interactions between three core constructs: Sustainable Marketing, Brand Image, and Responsible Consumer Behaviour. The model indicates that Sustainable Marketing is operationalized by several observed variables under efforts (SME1–SME3), strategies (SMS1–SMS3), and communication (SMC1–SMC3), which possess high factor loadings, suggesting valid measurement of the construct. Similarly, Brand Image is also gauged through four indicators (BI1–BI4), and Responsible Consumer Behaviour is captured through six observed variables (RSCB1–RSCB6) out of which each one depicts good consistency with the latent constructs.Regarding the structural paths, it is observed that the model represents a significant and positive high relationship between Sustainable Marketing and Brand Image (path coefficient = 0.79), which means that if sustainable marketing operations are carried out efficiently, it greatly helps in enhancing the image of the brand. The connection between Brand Image and Responsible Consumer Behaviour is also strong and positive (0.81), suggesting that consumers are made to do responsible and sustainable things by a positive brand image. The connection between Sustainable Marketing and Responsible Consumer Behaviour is negative and weak (-0.01), suggesting that sustainable marketing alone would not make consumers behave unless the mediation through brand perception is established.

Thus, the model confirms the mediating role of Brand Image between Sustainable Marketing and Responsible Consumer Behaviour. High standardized factor loadings and minimal error terms in most items confirm the reliability and validity of the constructs. Overall, this SEM analysis highlights the point that although sustainable marketing is the cornerstone, its real impact on consumer behavior comes through the reinforcement of the brand's image.

CONCLUSION

The findings of this research provide important implications into the ways in which Sustainable Marketing (SM) campaigns influence consumer behavior and attitudes towards a more sustainable and responsible direction. The study validates that SM practices are indeed effective in strengthening Brand Image (BI) but not directly affecting Responsible Sustainable Consumer Behaviour (RSCB). This is reflected in the negative and weak path coefficient of SM and RSCB (-0.01), showing that sustainable marketing by itself does not suffice to alter consumer behavior (Tabachnick & Fidell, 2007). Yet, the significant and positive relationship of SM with BI (0.79) reflects that customers find value in a brand that is devoted to sustainability, which ultimately generates credibility and trust (Hair et al., 2019).

In addition, BI has a significant and positive impact on RSCB (0.81), which indicates that the consumer is likely to practice responsible consumption if they relate a brand to sustainable and good values. The indirect impact of SM on RSCB via BI (0.63) underlines the significance of the role of brand image as a strong mediator in moderating sustainable consumer behavior. These results support the contention of Fornell and Larcker (1981) that mediating constructs can be used to strengthen and improve the direction of relationships in a model.

The research also verifies that the instruments of measurement are statistically valid and reliable. High Cronbach's Alpha values (greater than 0.9) signal internal consistency, and acceptable Average Variance Extracted (AVE) and Composite Reliability (CR) values validate convergent validity. Discriminant validity was also confirmed, with the square roots of AVE values being higher than inter-construct correlations (Fornell & Larcker, 1981; Hair et al., 2010). Normality was verified based on acceptable skewness and kurtosis value thresholds (Ghasemi & Zahediasl, 2012), affirming the appropriateness of the data for structural modelling.Essentially, this study highlights that businesses that want to encourage sustainable consumer behavior need to pay attention not only to carrying out sustainable practices but also to communicating the same in an appropriate manner in order to better the brand image. A positive brand image works as a psychological connection between efforts of

marketing and consumer reaction. Hence, marketing managers have to create strategies that not only reflect environmental responsibility but also evoke emotional and cognitive connections among customers. Subsequent studies may investigate these associations between various sectors and cultures in order to extend the findings further.

SCOPE FOR FURTHER STUDY

The study provides a great chance for more research. More research should look at other things that make the link between green marketing and what people do as consumers stronger or weaker. It needs to be studied more in many kinds of fields, age groups and locations to know if it is true. People from bottom and top of the social scale and from many places should compare to know how different communities know what green things are better. Also putting how people feel about green things in place, then looking at what they want to buy, would show as time goes by what and how they buy is different. Other researchers could set up groups that study how people act over time to see how they change in how they think and buy things because of the green messages they have heard every day.Further studies could also take use of qualitative ways to have more full view of the mind and feeling side that will change how people behave about sustainability. These added views would help get the full knowledge of how companies could put their ways of being sustainable to the way consumers want and help lead them to good use.

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Reassessing Leadership Efficacy through Employee Engagement in the Indian Banking Sector with reference to Kerala

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ABSTRACT

The evolving workplace dynamics highlight the crucial role of employees in organizational success, with leadership playing a pivotal role in fostering and facilitating employee input. The study, encompassing 462 employees from the top 26 banking institutions in India, demonstrates a positive relationship between various forms of employee voice and the adoption of transformational leadership styles. Transformational leaders cultivate an environment conducive to employee input by fostering trust, openness, and a shared vision. In return, employee voice enriches the effectiveness of transformational leadership by providing valuable insights and a nuanced understanding of organizational dynamics. The study underscores the importance of integrating employee voice and transformational leadership, offering practical strategies such as active listening, empowerment, recognition, and transparent communication to foster a harmonious relationship. By embracing these strategies, organizations can leverage the collective intelligence of their workforce, adapt to change, and achieve sustained growth, contributing to the ongoing discourse on organizational dynamics and optimizing workplace cultures for long-term success.

Keywords: Employee Input, Leadership Efficacy, workplace dynamics, organizational success and Transformational Leadership.

INTRODUCTION

The synergy between effective leadership and active employee engagement is essential for organizational success (Avolio & Gardner, 2005; Bass & Riggio, 2006), highlighting the importance of fostering empowered and motivated employees amidst workplace changes (Harter et al., 2002). This study aims to explore how employee voice contributes to organizational vitality, recognizing it as a valuable resource for innovation and problem-solving (Brown & Cregan, 2008; Morrison, 2014), while also promoting organizational learning and adaptability (Morrison, 2014). Employee involvement in decision-making correlates with increased job satisfaction and organizational dedication (Brown & Cregan, 2008).

This study addresses the gap in understanding the relationship between employee voice and leadership strategies, emphasizing the importance of employee input for organizational effectiveness (Dundon et al., 2004; Wang et al., 2019). Focusing on the banking sector, it investigates how leadership practices either facilitate or hinder employee voice expression and its impact on organizational performance (Dundon et al., 2004; Wang et al., 2019). The research aims to provide insights for leaders, HR professionals, and researchers to create empowering workplace environments (Decramer et al., 2013).

LITERATURE REVIEW

Employee Input

Employee input, encompassing the expression of opinions and ideas within organizations, is a proactive communication behavior recognized for its potential to enhance organizational processes and outcomes (Morrison & Milliken, 2000; Liang et al., 2012). This multifaceted concept, as described by Morrison (2014), includes various means of expression, from traditional grievance procedures to modern strategies like social media engagement, contributing to improved organizational outcomes and employee well-being (Donaghey et al., 2011).

Both promotive and prohibitive voices play crucial roles in organizational functioning, with promotive voice involving employees actively contributing ideas to enhance processes and outcomes, while prohibitive voice entails raising concerns and identifying risks (Morrison & Milliken, 2000; Li et al., 2010). Recent research emphasizes the importance of considering both types of voice as complementary rather than mutually exclusive, contributing to a comprehensive feedback mechanism for organizational improvement (Grant & Mayer, 2009). These expressions of voice are influenced by organizational culture, particularly one that values open communication and psychological safety, thereby encouraging employees to voice both innovative ideas and concerns (Wheeler-Smith, 2011; Morrison, Wheeler-Smith, & Kamdar, 2011).

Effective employee voice mechanisms contribute to organizational growth and adaptability (Rusbult et al., 1988), while also correlating with increased job satisfaction and organizational commitment (Brown & Cregan, 2008). Organizational culture, particularly one that values openness and collaboration, plays a pivotal role in shaping employees' willingness to express their viewpoints (Morrison, 2014), with hierarchical and autocratic cultures potentially hindering effective employee voice mechanisms (Wilkinson et al., 2017). Empowering employees to voice their ideas enhances organizational innovation processes (Nishii & Wright, 2008), facilitated further by technological advancements such as social media platforms (Morrison, 2014). However, the acceptance and nature of employee voice may vary across different cultural contexts (Farndale et al., 2014). Effective employee voice mechanisms also contribute to organizational learning and continuous improvement by facilitating issue resolution (Gollan & Wilkinson, 2007), ultimately leading to higher levels of job satisfaction among the workforce (Nawakitphaitoon & Zhang, 2021).

Leadership Effectiveness

Leadership, encompassing various styles and behaviors, is a crucial process guiding

organizational success by inspiring and influencing individuals towards shared goals (Liphadzi et al., 2017; Gochmann et al., 2022). Transformational leadership, characterized by charisma and vision, significantly impacts employee voice by fostering an ethical environment conducive to open communication (M. E. Brown & Treviño, 2006). Early theories focused on identifying intrinsic traits and observable actions of leaders (Stogdill, 1948; Fleishman et al., 1992; Jaqua & Jaqua, 2021), while contingency theories introduced the notion of situational effectiveness (Fiedler, 1967). Transformational leadership emphasizes inspiration and motivation, contrasting with transactional leadership's focus on contingent rewards and management by exception (Bass, 1985; Burns, 1978). Greenleaf's servant leadership emphasizes humility and empathy (Greenleaf, 1977), while authentic leadership promotes self-awareness and ethical decision-making, fostering trust and positive organizational cultures (Avolio & Gardner, 2005).

Various leadership styles, including despotic and democratic approaches, have distinct impacts on organizational outcomes, with despotic leadership associated with task effectiveness but potentially lower employee satisfaction, while democratic leadership fosters satisfaction and cohesion (Carr, 1969; Vroom & Yetton, 1973). Gender stereotypes influence perceptions of leadership behavior (Eagly& Johnson, 1990), and adaptive leadership is essential for fostering resilience in teams. Cultural dimensions theory informs understanding of how leadership varies across cultures (Ferreira et al., 2014), and effective leadership development programs enhance leadership skills and situational awareness (Day et al., 2009). In the digital age, transformational leaders are adept at navigating digital complexities, fostering innovation and adaptability (Bass & Riggio, 2006), highlighting the nuanced and context-dependent nature of effective leadership (Aloysius, 2010).

RELATIONSHIP BETWEEN EMPLOYEE INPUT AND LEADERSHIP

The dynamic interplay between employee voice and leadership styles, particularly transformational leadership, is crucial for organizational effectiveness (Eisenbeiss et al., 2008). Employee voice, encompassing the expression of thoughts and concerns, is positively associated with transformational leadership, which fosters open communication and psychological safety (Edmondson, 1999; Graen & Uhl-Bien, 1995). A culture that values innovation and teamwork encourages employee voice, contributing to a reciprocal relationship that enhances organizational culture and effectiveness (Detert & Edmondson, 2011; Istiqomah&Trinarningsih, 2022). Transformational leaders who actively listen to employee input and encourage participation foster trust and accountability, ultimately leading to a more supportive work environment (Den Hartog &Belschak, 2012; Eisenbeiss et al., 2008). Research indicates that employee voice positively influences transformational leadership, creating a cycle where both concepts reinforce each other, leading to enhanced employee satisfaction and organizational performance (Wang, 2013; Kim & Ishikawa, 2021).

H1: Promotive voice positively influences Transformational leadership.

H2: Prohibitive voice positively influences Transformational leadership.

METHODOLOGY

Data was collected from India's top 26 financial institutions, with approximately 36% reporting formal incorporation of employee voice. Both managerial and non-managerial employees were surveyed, with 600 questionnaires distributed and 482 returned, resulting in an 80.3% response rate. After eliminating 20 questionnaires with the lowest standard deviations, 462 responses were used for analysis. Surveys were conducted in English using a 5-point Likert scale, and data was collected through personnel visits, emails, and social media

apps. Promotive and prohibitive voices were measured using a 10-item scale developed by Liang et al. (2012), while transformational leadership was assessed using a 7-item Global transformation scale by Carless et al. (2000). Data analysis was performed using Smart PLS 4 and SPSS 21.

Data Analysis and Interpretation

Evaluation of Measurement Model

Table No 1

Construct	Scaled Items	Factor Loadings	Cronbach's Alpha	CR	AVE
Promotive Voice	PMV1	0.833	0.945	0.875	0.734
	PMV2	0.834			
	PMV3	0.854			
	PMV4	0.855			
	PMV5	0.863			
Prohibitive Voice	PHV1	0.822	0.869	0.832	0.644
	PHV2	0.843			
	PHV3	0.863			
	PHV4	0.855			
	PHV5	0.824			
Transformational Leadership	TL1	0.843	0.938	0.854	0.756
	TL2	0.883			
	YL3	0.787			
	TL4	0.844			
	TL5	0.794			
	TL6	0.865			
	TL7	0.836			

Source: Author's Compilation

It can be inferred that, the indicator reliability, composite reliability, Cronbach's alpha (á), and average variance extracted (AVE). Indicators with loadings greater than 0.7 and composite reliability (CR) exceeding 0.7 are considered reliable, following the criteria outlined by Hair et al. (2012). Convergent validity of the indicators is established, indicated by AVE values surpassing the 0.5 threshold, as suggested by Sarstedt et al. (2017).

Table No 2

	Mean	Standard Deviation	PMV	PHV	TL
PMV	0.326	0.675	1	0.454	0.433
PHV	0.324	0.732		1	0.532
TL	0.406	0.623			1

Source: Author's Compilation

To assess discriminant validity, the Heterotriat-Monotrait correlation (HTMT) was utilized. The HTMT values, displayed in Table 2, are below the cut-off of 0.85 suggested by Sarstedt et al. (2020). Thus, the measurement model confirms discriminant validity, indicating that each construct within the model is distinct.

Structural Model Assessment

Table No 3

Construct Prohibitive Voice	Promotive Voice	Transformational Leadership
Promotive Voice		1.669
Prohibitive Voice		
Transformational Leadership		1.448

Source: Author's Compilation

Table No 4

	Transformational Leadership	Result
R Square	0.51	Medium
Q Square	0.23	Medium

Source: Author's Compilation

When evaluating the structural model, it is essential to verify the constructs' collinearity. Multicollinearity among variables is indicated by a variance inflation factor (VIF) of five or higher, as outlined by Hair et al. (2016). In the current model, all VIF scores are below 5, indicating the absence of multicollinearity issues (see Table 3). Subsequently, the explanatory power (R^2) and predictive relevance (Q^2) of the model were assessed. R^2 values of 0.25 are considered poor, 0.5 moderate, and 0.7 excellent in terms of explanatory power, according to Sarstedt et al. (2017). For predictive relevance, threshold values for Q^2 greater than 0.50, 0.25, and 0 are indicative of large, medium, and small predictive importance in the PLS-path model, as suggested by Hair et al. (2019) (refer to Table 4).

Table no 5

Hypotheses	Relationship	Path Coefficient	T value	P value	Decision
H1	PMV→TL	1.39**	3.432	0.001	Supported
H2	PHV→TL	1.67**	4.233	0.000	Supported

Note: PMV: Promotive Voice, PHV: Prohibitive Voice, TL: Transformational Leadership Significant level; p*<0.001, p**<0.05   Source: Author's Compilation

Structural equation modeling was utilized to examine the influence of promotive and prohibitive voices on transformational leadership style. The standard path coefficient for promotive voice on transformational leadership is 1.39, significant at $p < 0.05$, supporting H1. Similarly, the path coefficient for prohibitive voice on transformational leadership is 1.67, significant at $p < 0.001$, thus supporting H2.

DISCUSSION AND FINDINGS

This study synthesizes empirical findings and theoretical frameworks to elucidate the complex interplay between employee voice and transformational leadership, revealing how employees' proactive expression of ideas influences leadership styles in organizational settings. The results indicate a significant impact of promotive voice on transformational leadership ($p < 0.05$), as well as a significant impact of prohibitive voice on transformational leadership ($p < 0.001$). Literature suggests a reciprocal relationship between employee voice and transformational leadership, with authentic leadership emerging as a product of organizational climates that value employee input (Walumbwa et al., 2008). Participative decision-making, a key aspect of employee voice, is identified as a catalyst for transformational leadership behaviors (Liang et al., 2012). Theoretical frameworks rooted in social exchange theory and transformational leadership theory provide a robust understanding of these dynamics (Düger, 2020). Empirical evidence supports these propositions, indicating that organizations fostering employee voice witness leaders who inspire and motivate, thereby creating an innovative and engaged workplace culture (Detert & Burris, 2007).

CONCLUSION

The comprehensive examination of the interplay between employee voice and leadership has unveiled a nuanced interaction crucial for organizational dynamics. The acknowledged positive correlation between transformational leadership and the encouragement of employee voice underscores the pivotal role of leadership in fostering open communication and a culture of trust within organizations (Islam et al., 2020). While the study acknowledges limitations, such as potential self-report biases and the need for a more diverse exploration of leadership styles and organizational contexts (Valldeneu et al., 2021), organizational leaders aiming to enhance employee engagement, satisfaction, and innovation through the active promotion and appreciation of employee voice can derive significant benefits from the insights provided by this review. Further research endeavors should address identified gaps and utilize diverse methodologies to broaden our understanding of this fundamental relationship in various organizational settings (Korejan& Shahbazi, 2016).

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Harnessing People Analytics for Strategic HRBP Decision-Making: Advancing Data-Driven Practices in Human Resource Management

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ABSTRACT

In the rapidly evolving landscape of human resource management, the strategic utilization of people analytics has become imperative for Human Resource Business Partners (HRBPs). This paper investigates the critical role that data-driven decision-making plays within HRBP functions, emphasizing how people analytics can be leveraged to optimize organizational performance. The research focuses on three fundamental areas: (1) the competencies necessary for HRBPs to effectively engage with people analytics, (2) the tangible impacts of analytics on key organizational metrics such as recruitment efficiency and employee engagement, and (3) the ethical considerations tied to data usage in HR contexts.

Our findings reveal that HRBPs equipped with robust analytical skills are better positioned to translate data into actionable insights that inform strategic HR decisions. Case studies demonstrate a compelling link between the adoption of people analytics and enhanced employee retention rates, further substantiating the importance of data-driven approaches in improving organizational outcomes. Furthermore, the study highlights the critical need for comprehensive ethical frameworks surrounding data management to protect employee privacy and ensure responsible practices in the use of analytics.

The implications of this research extend beyond enhancing HR practices; they emphasize a paradigm shift where HR is viewed not merely as a support function but as a strategic partner capable of driving business objectives. The conclusion offers recommendations for future research directions that include the development of competency models for HRBPs, longitudinal analyses of analytics impact, and explorations into ethical data governance. Ultimately, this paper positions people analytics as a cornerstone of contemporary HR practice, underscoring its potential to foster organizational agility and innovation in a data-centric era.

Keywords: People analytics, data-driven decision-making, HRBPs, organizational performance, ethical considerations, competency development, employee engagement, strategic HR management.

INTRODUCTION

In today's highly competitive and rapidly evolving business landscape, organizations are increasingly recognizing the strategic importance of Human Resource Business Partners (HRBPs) in driving business success. Traditionally, HR functions were primarily administrative, focusing on payroll, compliance, and employee relations. However, as businesses become more complex and data-driven, the role of HRBPs has evolved beyond operational support to one that requires strategic foresight and evidence-based decision-making. This transformation has been fuelled by the growing adoption of People Analytics—an approach that leverages data, statistical models, and AI-driven insights to optimize human capital management.

THE SHIFT TOWARDS DATA-DRIVEN HRBP ROLES

Historically, HR decisions were made based on intuition, anecdotal evidence, and past experiences. While these approaches provided valuable insights, they lacked the precision and predictive power that modern organizations require to remain agile and competitive. The emergence of People Analytics has bridged this gap by enabling HR professionals to collect, analyze, and interpret workforce data in ways that drive more effective talent strategies.

HRBPs who integrate People Analytics into their decision-making processes can gain deeper insights into critical areas such as talent acquisition, employee engagement, performance management, workforce planning, and retention strategies. For instance, predictive analytics can help identify employees at risk of attrition, allowing HR to take proactive measures to improve retention. Similarly, advanced data modelling can assist in workforce planning by forecasting talent needs based on business growth projections and market trends.

RELEVANCE OF PEOPLE ANALYTICS IN TODAY'S BUSINESS ENVIRONMENT

The increasing reliance on People Analytics is particularly significant in regions, where businesses operate in fast-paced, technology-driven markets.

Companies seeking to enhance competitiveness and innovation are prioritizing workforce optimization, and HRBPs are expected to contribute meaningfully to these strategic initiatives. In this context, data-driven HRBP roles are becoming indispensable, as they enable organizations to align workforce planning with business goals, drive employee productivity, and foster a culture of continuous improvement.

Moreover, the rise of remote and hybrid work models, coupled with the challenges posed by economic fluctuations and talent shortages, has further underscored the need for data-driven HR decision-making. Organizations that fail to harness the power of People Analytics risk falling behind in talent management, employee engagement, and overall business performance.

PURPOSE OF THIS PAPER

This paper explores the growing importance of People Analytics in HRBP roles, examining how data-driven decision-making enhances HR effectiveness and contributes to business success. It delves into key trends, challenges, and best practices for integrating People Analytics into HRBP functions. By providing insights into how organizations can leverage workforce data, this study aims to highlight the transformative impact of People Analytics on HR strategy, employee experience, and organizational growth.

As the HR landscape continues to evolve, it is imperative for HRBPs to embrace a data-driven mindset. This shift not only strengthens HR's strategic influence but also ensures that HR functions remain relevant and capable of driving business value in an increasingly complex and digital world.

LITERATURE REVIEW

Theoretical Foundations of People Analytics in HRBP Roles

The evolution of People Analytics in HR Business Partner (HRBP) roles is rooted in several

key theories and models from human resource management (HRM), organizational behaviour, and data science. These theories provide a foundation for understanding the impact of People Analytics on HR decision-making and business performance.

Human Capital Theory

Human Capital Theory (Becker, 1964) posits that investments in employee skills, education, and training lead to higher productivity and economic returns. In the context of People Analytics, this theory underpins the argument that leveraging workforce data can optimize talent acquisition, development, and retention. Studies have demonstrated that organizations using predictive analytics to identify high-potential employees experience higher performance outcomes (Boudreau & Ramstad, 2007).

Resource-Based View (RBV) of the Firm

The Resource-Based View (RBV) (Barney, 1991) emphasizes that sustained competitive advantage is derived from unique resources—such as human capital—within an organization. People Analytics aligns with this perspective by enabling HRBPs to leverage employee data as a strategic asset, optimizing workforce planning and talent management (Marler & Boudreau, 2017).

The HRM Analytics Maturity Model

Davenport, Harris, and Shapiro (2010) introduced a framework for HR analytics maturity, categorizing organizations into four levels: operational reporting, advanced reporting, strategic analytics, and predictive analytics. According to a Bersin (2021) study, most HR departments remain at the operational reporting stage, struggling to move toward predictive and prescriptive analytics, highlighting a key gap in HRBP capabilities.

The Ulrich HR Model and HRBP Evolution

Dave Ulrich's (1997) HR model revolutionized human resource management by categorizing HR roles into **four key functions:**

a) **Strategic Partner** – Aligning HR with business strategy

b) **Change Agent** – Managing transformation and cultural shifts

c) **Administrative Expert** – Streamlining HR operations

d) **Employee Champion** – Enhancing employee engagement and well-being

Transition of HRBPs from Operational to Strategic Roles

Traditionally, HR Business Partners (HRBPs) focused on administrative and compliance-driven tasks, such as policy enforcement and employee relations. However, with the rise of People Analytics, their role has evolved toward strategic workforce planning and data-driven decision-making (Ulrich & Brockbank, 2005).

Recent studies indicate that organizations implementing People Analytics in HRBP functions report improved business alignment and workforce efficiency. For example, a McKinsey (2023) survey found that companies with data-driven HRBPs saw a 21% increase in workforce productivity compared to those relying solely on traditional HR methods.

Key Competencies for the Modern HRBP

The integration of **People Analytics** into HRBP roles demands a shift in competencies. According to **Gartner (2024),** high-performing HRBPs must now possess the following **skills and capabilities:**

- **Data Literacy** – Understanding and interpreting HR analytics

- **Business Acumen** – Aligning workforce strategies with business goals

- **Change Management** – Driving organizational transformation using insights

- **Consultative Approach** – Acting as a strategic advisor to leadership

However, research highlights a significant **competency gap** in HRBPs' ability to leverage analytics effectively. A **LinkedIn (2024) report** found that **only 38% of HR professionals feel confident using analytics tools,** and **42% struggle with translating data into actionable insights.**

The Ulrich HR Model remains a foundational framework, but its application has evolved significantly in the era of People Analytics. Today, HRBPs must go beyond administrative tasks and become strategic advisors, leveraging analytics for workforce planning, talent management, and business growth. However, challenges such as skill gaps, technology adoption barriers, and ethical considerations must be addressed for HRBPs to fully transition into data-driven, high-impact roles.

2.4. People Analytics and HRBP Effectiveness

Several empirical studies have examined the role of People Analytics in enhancing HRBP effectiveness and overall business outcomes.

2.4.1. Impact on Talent Management and Workforce Planning

A study by McKinsey & Company (2020) found that companies leveraging People Analytics for talent management increase employee retention by 25% and improve internal mobility by 30%. The research highlights that organizations with data-driven HRBPs are more successful in aligning workforce strategies with business needs.

2.4.2. People Analytics and Employee Performance

In an extensive meta-analysis, van den Heuvel and Bondarouk (2017) found a positive correlation between HR Analytics adoption and workforce productivity. Their findings indicate that organizations using analytics to assess employee performance experience a 20-30% increase in efficiency.

However, Angrave et al. (2016) caution that the effectiveness of People Analytics depends on HR's ability to interpret and act on insights. Their study warns against over-reliance on data without qualitative context, suggesting that HRBPs must blend data-driven insights with human judgment to avoid reductionist decision-making.

RESEARCH GAPS

Despite the growing body of research on People Analytics and its role in HR Business Partner (HRBP) decision-making, several critical gaps remain in the literature. These gaps highlight areas requiring further empirical investigation to enhance the strategic integration of data-driven decision-making in HRBP functions.

LIMITED EMPIRICAL STUDIES ON HRBP-SPECIFIC PEOPLE ANALYTICS ADOPTION

While multiple studies have explored the broader adoption of People Analytics in HR (Davenport et al., 2010; Marler & Boudreau, 2017), research focusing specifically on HRBP roles remains limited. Most studies generalize findings to HR functions, without isolating the unique challenges and competencies required for HRBPs to leverage analytics effectively (Bersin, 2022). Understanding how HRBPs interpret, utilize, and influence decision-making with analytics remains an underexplored area (McKinsey, 2023).

THEORETICAL-IMPLEMENTATION GAP IN HRBP ANALYTICS MATURITY

Theoretical frameworks, such as the HR Analytics Maturity Model (Davenport et al., 2010) and the Resource-Based View of HR (Barney, 1991), suggest that organizations should progress from basic reporting to predictive and prescriptive analytics. However, real-world evidence suggests that most HRBPs are still in the early stages of analytics adoption (Gartner, 2024). While studies highlight the potential of predictive analytics, there is a lack of empirical research on how organizations successfully transition HRBPs toward advanced analytics adoption(van den Heuvel &Bondarouk, 2017).

SKILL GAPS AND COMPETENCY DEVELOPMENT FOR HRBPS

Several studies have identified HR professionals' lack of data literacy as a major barrier to People Analytics adoption (Angrave et al., 2016; SHRM, 2024). However, there is a limited understanding of how HRBPs can bridge this skill gap. While training programs are recommended (Bersin, 2023), empirical studies on the effectiveness of different training methodologies in upskilling HRBPs remain scarce. Future research should explore the impact of structured learning programs, mentorship, and AI-driven tools in enhancing HRBPs' data-driven capabilities.

BALANCING PEOPLE ANALYTICS WITH HUMAN JUDGMENT IN HR DECISION-MAKING

A significant debate in HR Analytics literature is the balance between algorithmic decision-making and human intuition. While analytics improve objectivity and efficiency, excessive reliance on data-driven algorithms may overlook qualitative factors like cultural fit, leadership potential, and employee well-being (Angrave et al., 2016; Harvard Business Review, 2023). There is a lack of research on best practices for integrating People Analytics insights with qualitative HR expertise to create holistic, human-centric decision-making frameworks.

ETHICAL CONCERNS AND BIAS IN HR ANALYTICS IMPLEMENTATION

The increasing use of AI-driven People Analytics raises concerns regarding data privacy, algorithmic bias, and ethical decision-making (Harvard Business Review, 2023). While existing studies discuss potential risks, there is a research gap in governance frameworks and regulatory policies for ethical AI deployment in HR decision-making (Diversio, 2024). Further empirical research is needed to examine how organizations can mitigate bias and ensure transparency in People Analytics applications.

MEASURING ROI AND BUSINESS IMPACT OF PEOPLE ANALYTICS IN HRBPS

Organizations invest in People Analytics with the expectation of improved business outcomes, yet there is limited research on quantifying its direct impact on HRBP effectiveness and organizational performance (McKinsey, 2023). Most existing studies rely on correlation-based insights rather than longitudinal or experimental research designs. Future research should focus on developing standardized ROI metrics to measure the impact of People Analytics-driven HRBP strategies on employee retention, engagement, and productivity.

While People Analytics is widely recognized as a transformative tool for HRBP roles, significant research gaps remain in empirical validation, skill development, ethical considerations, and business impact measurement. Future research should focus on HRBP-specific analytics adoption, bridging theoretical-practical gaps, and creating holistic frameworks for data-driven yet human-centered HR decision-making.

RESEARCH APPROACH

The study of People Analytics and data-driven decision-making in HRBP roles has been explored using quantitative, qualitative, and mixed-method approaches. This section reviews key methodologies used by previous researchers, highlighting their strengths, limitations, and contributions.

QUANTITATIVE APPROACHES IN PEOPLE ANALYTICS RESEARCH

Survey-based research has been the most common method for assessing People Analytics adoption and effectiveness.

- Marler and Boudreau (2017) conducted a large-scale survey to measure People Analytics maturity, using Likert-scale responses and regression analysis.

- Gartner (2024) surveyed HR leaders to identify barriers to analytics adoption,

employing factor analysis to group HRBPs by analytics capability.

- McKinsey & Company (2023) performed a longitudinal study, tracking organizations over three years to analyze the evolution of HRBP roles with increased analytics integration.

- Davenport et al. (2010) used an experimental design, comparing business performance metrics before and after analytics implementation.

While quantitative research provides broad, generalizable insights, it often lacks contextual depth on implementation challenges and behavioral factors.

QUALITATIVE APPROACHES: CASE STUDIES AND INTERVIEWS

To explore the practical application and challenges of People Analytics, researchers have employed case studies and interviews.

- Van den Heuvel and Bondarouk (2017) conducted case studies of organizations transitioning to analytics-driven HR, using document analysis and HR reports.

- Angrave et al. (2016) interviewed HR professionals to understand barriers to People Analytics adoption, using thematic analysis to categorize challenges such as data literacy gaps and resistance to change.

- Bersin (2022) explored how HRBPs interpret and communicate analytics insights, emphasizing the need for storytelling and business acumen in data-driven decision-making.

While qualitative studies offer deeper insights, findings are not easily generalizable due to smaller sample sizes and industry-specific contexts.

MIXED-METHODS RESEARCH: INTEGRATING QUANTITATIVE AND QUALITATIVE INSIGHTS

To balance statistical reliability with contextual understanding, many researchers have adopted mixed-methods approaches.

- Creswell and Plano Clark (2018) advocated for a sequential explanatory design, where surveys identify trends, followed by interviews for deeper exploration.

- SHRM (2024) combined competency assessments with qualitative feedback from HR professionals, revealing skill gaps in analytics adoption.

- Bersin (2023) integrated survey data with focus groups to explore how HRBPs leverage analytics for talent management.

Mixed-methods research enhances validity, but challenges include higher resource requirements and complexity in data integration.

Existing research employs diverse methodologies, each offering unique insights into People Analytics adoption in HRBP roles. While quantitative methods reveal trends, qualitative approaches uncover underlying factors, and mixed-methods research ensures a holistic understanding. However, future studies should address HRBP-specific challenges, longitudinal capability development, and ethical implications of AI-driven People Analytics

DISCUSSION

The findings from the literature review highlight the increasing reliance on People Analytics in HRBP roles as organizations transition from traditional HR functions to data-driven decision-making. Despite its transformative potential, several challenges hinder HRBPs from fully leveraging People Analytics, as evidenced by the research gaps identified. This section synthesizes key insights from existing studies while addressing critical concerns such as skill gaps, ethical

considerations, and the balance between analytics and human judgment.

THE STRATEGIC ROLE OF PEOPLE ANALYTICS IN HRBP FUNCTIONS

The adoption of People Analytics enables HRBPs to move beyond administrative tasks and play a more strategic role in talent management, workforce planning, and business decision-making (Marler & Boudreau, 2017). Empirical studies indicate that organizations utilizing data-driven HR practices report higher employee engagement, improved workforce productivity, and better retention rates (McKinsey & Company, 2023). However, a critical limitation in existing research is the lack of HRBP-specific empirical studies, with most analyses focused on broader HR functions rather than the unique competencies required for HRBPs to drive analytics adoption effectively (Bersin, 2022).

The HRM Analytics Maturity Model (Davenport et al., 2010) suggests that organizations should progress from basic reporting to predictive and prescriptive analytics. However, industry reports indicate that many HRBPs struggle to transition beyond operational analytics, highlighting a significant gap between theoretical models and real-world implementation (Gartner, 2024). Addressing this gap requires structured training programs and organizational support to enhance HRBPs' ability to integrate analytics into their strategic functions.

ADDRESSING HRBP SKILL GAPS IN PEOPLE ANALYTICS

One of the primary barriers to effective People Analytics adoption in HRBP roles is limited data literacy and analytical capabilities. Studies have consistently shown that HR professionals often lack the necessary skills to interpret and act on complex workforce data (Angrave et al., 2016; SHRM, 2024). A LinkedIn (2024) survey found that only 38% of HR professionals feel confident using analytics tools, and 42% struggle with translating data into actionable insights. These findings underscore the need for targeted training programs, mentorship initiatives, and AI-driven analytics tools to bridge the competency gap.

Furthermore, HRBPs must develop business acumen and consultative skills to align workforce strategies with organizational goals (Gartner, 2024). While existing studies emphasize the importance of these competencies, there is a lack of empirical research on the effectiveness of different training methodologies in upskilling HRBPs (Bersin, 2023). Future studies should explore how structured learning programs and real-world case studies can enhance HRBP proficiency in People Analytics.

BALANCING PEOPLE ANALYTICS WITH HUMAN JUDGMENT IN HR DECISION-MAKING

A significant debate in HR Analytics literature concerns the balance between algorithmic decision-making and human intuition. While People Analytics enhances objectivity and efficiency, excessive reliance on data-driven algorithms may overlook qualitative factors such as leadership potential, employee motivation, and organizational culture fit (Angrave et al., 2016).

For example, McKinsey & Company (2020) found that companies using People Analytics for talent management achieved a 25% increase in employee retention. However, algorithmic biases and contextual blind spots remain major concerns, particularly when AI-driven recruitment models reinforce existing biases due to skewed historical data (Harvard Business Review, 2023). Research suggests that HRBPs must act as ethical stewards, ensuring that data-driven insights are interpreted within a broader human-centric framework (Diversio, 2024).

To address this challenge, organizations must develop best practices for integrating People Analytics with human expertise, ensuring that decision-making remains data-informed rather than data-driven. Future research should focus on identifying effective hybrid models that combine quantitative workforce analytics with qualitative

HR expertise to create holistic decision-making frameworks.

ETHICAL CONSIDERATIONS AND BIAS IN PEOPLE ANALYTICS IMPLEMENTATION

The increasing use of AI-driven People Analytics raises ethical concerns related to data privacy, algorithmic bias, and transparency (Harvard Business Review, 2023). While existing research discusses potential risks, there is limited empirical evidence on governance frameworks and regulatory policies to mitigate these issues (Diversio, 2024). Organizations must ensure that People Analytics tools comply with ethical guidelines, prioritizing fairness, accountability, and data security.

Furthermore, HRBPs must develop ethical literacy to critically evaluate People Analytics models and identify potential biases in HR decision-making. Future research should explore how organizations can establish ethical safeguards and create guidelines for responsible AI adoption in HRBP roles.

MEASURING ROI AND BUSINESS IMPACT OF PEOPLE ANALYTICS

Despite the increasing adoption of People Analytics, there is limited research on its direct impact on HRBP effectiveness and organizational performance (McKinsey, 2023). Most existing studies rely on correlation-based insights, whereas future research should focus on longitudinal studies and experimental designs to measure the return on investment (ROI) of People Analytics-driven HR strategies.

For instance, while McKinsey & Company (2020) found that organizations using People Analytics experienced a 21% increase in workforce productivity, further research is needed to establish causal relationships and quantify long-term benefits. Developing standardized metrics to assess the effectiveness of People Analytics in HRBP roles will be crucial for demonstrating its value to business leaders and driving broader adoption.

FUTURE RESEARCH DIRECTIONS

While the existing literature underscores the growing significance of People Analytics in HRBP roles, several critical research gaps remain unaddressed. These gaps highlight the need for empirical studies, theoretical advancements, and practical implementations to enhance the strategic integration of People Analytics in HR decision-making. The following key areas warrant further investigation:

HRBP-SPECIFIC ANALYTICS ADOPTION AND MATURITY MODELS

Most research on People Analytics adoption has focused on HR functions in general, with limited emphasis on HR Business Partners (HRBPs) as a distinct group with unique competencies and responsibilities (Bersin, 2022). Future research should:

- Conduct empirical studies to examine how HRBPs specifically interpret, utilize, and influence decision-making with analytics.

- Investigate organizational barriers that prevent HRBPs from transitioning from operational to predictive and prescriptive analytics.

- Assess the effectiveness of existing HR analytics maturity models, such as the one proposed by Davenport et al. (2010), in guiding HRBP-specific adoption.

BRIDGING THE HRBP SKILL GAP IN PEOPLE ANALYTICS

A major challenge in the successful adoption of People Analytics is the lack of data literacy among HRBPs. Although existing studies highlight skill deficiencies (Angrave et al., 2016; LinkedIn, 2024), little research has explored effective interventions to upskill HRBPs. Future research should:

- Investigate different training methodologies, including formal education, certifications, and experiential learning (e.g., case-based simulations).

- Examine the role of AI-driven learning platforms in enhancing HRBP analytics capabilities.

- Evaluate the effectiveness of mentorship and coaching programs in improving HRBPs' ability to translate analytics insights into strategic workforce decisions.

BEST PRACTICES FOR INTEGRATING PEOPLE ANALYTICS WITH HUMAN JUDGMENT

One of the key debates in HR Analytics is the extent to which algorithmic decision-making should be balanced with human intuition. Excessive reliance on data-driven models may overlook qualitative factors such as leadership potential, employee well-being, and workplace culture (Angrave et al., 2016). To address this, future research should:

- Develop hybrid decision-making models that blend analytics with qualitative HR expertise.

- Assess how HRBPs can effectively challenge and validate People Analytics insights to ensure fair and ethical workforce decisions.

- Explore the impact of AI-assisted HR decision-making on employee perceptions of fairness and transparency.

ADDRESSING ETHICAL CONCERNS AND BIAS IN AI-DRIVEN PEOPLE ANALYTICS

As organizations increasingly adopt AI-powered People Analytics, concerns regarding data privacy, bias, and algorithmic transparency are rising (Harvard Business Review, 2023). Despite discussions on the risks of biased AI models, limited empirical research exists on governance frameworks for ethical HR analytics. Future research should:

- Investigate how organizations can proactively identify and mitigate algorithmic biases in HR decision-making.

- Develop and test ethical AI governance frameworks for People Analytics.

- Examine the role of regulatory policies and compliance mechanisms in ensuring fairness and transparency in HR Analytics applications.

MEASURING THE ROI OF PEOPLE ANALYTICS IN HRBP FUNCTIONS

Despite the increasing adoption of People Analytics, there is a lack of standardized frameworks for measuring its return on investment (ROI) in HRBP roles (McKinsey, 2023). While existing studies show correlations between analytics adoption and improved business outcomes, few have established causal relationships. Future research should:

- Develop quantitative models to measure the impact of People Analytics on HRBP performance and business success.

- Conduct longitudinal studies to examine the long-term benefits of People Analytics adoption in workforce planning and retention.

- Establish best practices for communicating People Analytics ROI to business leaders, ensuring continued investment in data-driven HR strategies.

THE ROLE OF ORGANIZATIONAL CULTURE IN PEOPLE ANALYTICS ADOPTION

The success of People Analytics implementation is not solely dependent on technology and skills but also on organizational culture and leadership buy-in. Research suggests that companies with a strong data-driven cultureare more successful in embedding analytics into HR practices (Gartner, 2024). However, there is limited research on how organizational culture influences HRBPs' ability to adopt and utilize People Analytics effectively. Future research should:

- Identify cultural factors that promote or hinder People Analytics adoption within HR teams.

- Investigate the role of senior leadership and HRBP collaboration in driving analytics-driven transformation.

- Assess how organizations can foster a culture of continuous learning to ensure HR professionals remain adaptable to evolving analytics technologies.

THE FUTURE OF HRBP ROLES IN AN AI-DRIVEN WORKFORCE

As AI and automation continue to evolve, HRBP roles are expected to undergo significant transformation. The future of HRBPs in an AI-driven workforce remains an underexplored area in research. Future studies should:

- Examine how AI-powered tools, such as generative AI and natural language processing (NLP), can augment HRBPs' strategic decision-making.

- Investigate how HRBPs can shift from traditional roles to becoming AI-enabled strategic advisors within organizations.

- Explore potential job redesign strategies to redefine HRBP responsibilities in a technology-driven HR landscape.

PEOPLE ANALYTICS IN REMOTE AND HYBRID WORK ENVIRONMENTS

With the rise of remote and hybrid work models, organizations are leveraging People Analytics to track employee productivity, engagement, and well-being (McKinsey, 2023). However, research on how HRBPs can effectively use analytics to manage distributed teams remains limited. Future studies should:

- Investigate how People Analytics can help HRBPs optimize remote workforce planning and engagement strategies.

- Assess the ethical implications of employee monitoring through People Analytics tools.

- Develop frameworks to measure productivity and performance in hybrid work environments using a data-driven yet employee-centric approach.

CONCLUSION

The integration of People Analytics into HR Business Partner (HRBP) roles represents a transformative shift in human resource management, enabling data-driven decision-making to enhance workforce efficiency, talent management, and strategic alignment with business goals. This paper has examined the theoretical foundations, empirical research, and practical challenges associated with People Analytics in HRBP functions, highlighting its potential to improve HR effectiveness and drive business success.

Despite its advantages, several barriers hinder the full adoption of People Analytics in HRBP roles. These include skill gaps in data literacy, limited access to advanced analytics tools, ethical concerns regarding algorithmic bias, and challenges in balancing data-driven insights with human judgment. Addressing these challenges requires structured competency development programs, robust governance frameworks for ethical AI deployment, and a cultural shift toward evidence-based HR decision-making.

Future research should focus on HRBP-specific People Analytics adoption, strategies for bridging analytical skill gaps, and the development of standardized frameworks for measuring the return on investment (ROI) of data-driven HR practices. Additionally, exploring hybrid decision-making models that integrate People Analytics with qualitative HR expertise will be critical in ensuring that organizations leverage workforce data responsibly and effectively.

As organizations continue to navigate an increasingly complex business landscape, HRBPs who embrace People Analytics will play a crucial role in driving talent strategies that align with corporate objectives. The ongoing evolution of HRBP functions, powered by analytics and AI, will redefine HR's strategic impact, making it imperative for HR professionals to adapt, upskill, and integrate data-driven approaches to remain relevant in the digital age.

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Promoting Sustainable Agriculture: Farmers' Awareness and Satisfaction on Biofertilizers

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ABSTRACT

The farming practices that meet the human needs without disturbing the nature is referred as sustainable farming practices. In the last century there was stress to meet the immense food requirements so the factor sustainability has been overlooked across the farms around the globe. The excessive application of synthetic inputs in agriculture has resulted in vigorous damages to the soil and ecosystem. Recognizing the evil impacts of chemical input driven farming, the organic farming concept which rely on organic and biofertilizers gained massive acceptance across the world. The present study was conducted among 156 farmers of Kottayam taluk to examine the farmers' awareness and satisfaction towards biofertilizers. The analysis of data using appropriate statistical methods has revealed that Health benefits of biofertilizers and Ability of biofertilizer to improve soil fertility naturally are ranked as the major factors influenced the farmers to choose biofertilizers. The mean ranking study exhibits that the mean awareness among the farmers is high for the factors Health benefits of biofertilizer application, Role of biofertilizers in improving the soil fertility naturally and Role of biofertilizers in improving the microbial activity and water retention capacity. The mean satisfaction is found to be high for Health benefits of biofertilizer application, Ability of biofertilizer to improve the soil fertility naturally and Availability of biofertilizers. The study also explores the factors that influence the farmers to adopt biofertilizers.

Keywords: Biofertilizers, Sustainable farming practices, Organic farming, Framers' satisfaction.

INTRODUCTION

The increase in population across various countries exerted huge pressure on the agricultural lands to increase production. The dependence on synthetic inputs were the most common strategy adopted by the framers. In the last century the chemical fertilizers became very popular among the farmers across the globe. In India also the situation was not different. For the past few decades the adverse effects of chemical inputs for agriculture were widely discussed across the world and the demand for organic food has been increased. In view of the ever increasingdemand for safe and healthy food and sustainability concerns for environment organic farming has turned up as a priority area globally. Biofertilizers contain living microorganisms are inevitable ingredients of organic farming. These fertilizers are the preparations containing the strains of phosphate solubilizing and nitrogen fixing micro-organisms that can be applied in the seeds or soil. These micro-organisms improve the microbial process and the nutrient availability for the plants. The augmented nutrient availability due to the microbial activity can be easily assimilated by the plants. Biofertilizers play a crucial role in the atmospheric nitrogen fixation and solubilizing the insoluble form of phosphates that enhances the growth of plants. Recognizing the need for sustainable farming practices the State and Central Governments have taken rigorous steps to promote biofertilizers which are the vital ingredients for healthy food production of the country.

LITERATURE REVIEW

Anand Kumar Pathak and Kevin Christopher (2019) examined the socio-economic conditions and the constraints faced by the farmers of Uttar Pradesh in the adoption of biofertilizers. It was observed that 63% of the farmers had lack of awareness regarding biofertilizers. It was concluded that majority of the farmers had medium socio-economic status and there is lack of awareness in the knowledge of biofertilizers especially regarding the application of these fertilizers. The lack of availability of biofertilizers was also reported.

Anand Dave and Mishra Snehal (2018) carried out a study in Gujarat to identify the farmers' perception towards organic inputs in farming and to examine the awareness and satisfaction about organic inputs. The study conducted among 320 framers reflected that most of the farmers were highly aware about biofertilizers. It was understood that satisfaction, availability and accessibility are the major driving forces that tend the farmers to choose organic inputs for agriculture. Less satisfaction was observed towards price and productivity. For the farmers' dealers served as the major source of information about biofertilizers for the farmers. In selected crops biofertilizers were applied one to three times. The authors opined that popularity of organic inputs among the farmers depend mainly on the promotional efforts. It was suggested that demonstrations and improved promotional activities with the help of dealers are needed to improve the customer base of bio-products.

Nigade D. D et.al., (2017) examined the constraints faced by sugarcane farmers in the adoption of biofertilizers. The researcher revealed that biofertilizers could be considered as close substitutes for chemical fertilizers because of the eco-friendly nature and the reasonable cost of biofertilizers. Lack of awareness, insufficient subsidies, non-availability of labour and lack of confidence regarding the resultswere the major restricting factors in the adoption of biofertilizers by the framers.

Sangapal Prakash Ingle and RachanaRameshwarThombre (2016) in their article titled "A Study on Farmers Awareness Towards Biofertilizers Consumption in Aurangabad District" elicited that 50% of the selected respondents use biofertilizers 30% use only chemical fertilizers and 20% of the farmers use combined fertilization methods. Majority of the farmers opine that biofertilizers are cheaper than chemical fertilizers and the application of biofertilizers improves crop production. It was concluded that the relevance of biofertilizers for the farmers are regarding the aspects cheap and

reliable inputs for agriculture, eco-friendly nature and the absence of pollution and soil contamination.

STATEMENT OF THE PROBLEM

In the last century the agricultural farms witnessed the excessive and indiscriminate application of synthetic inputs in the soil to boost the agricultural production. The non-scientific application of these chemical inputs has resulted in serious long lasting damages to the soil and eco-system. Recognizing the evil impacts of these chemical inputs for human health and eco-system serious deliberations happened across the world to shift towards sustainable farming practices. Organic farming that is gaining wide acceptance across the world is the result of these discussions. Biofertilizers, the inevitable ingredients of organic farming supply the required nutrients for the plants without disturbing the soil and the eco-system. In India also the Government has taken various steps to promote these eco-friendly fertilizers among the farmers. Despite the various steps taken and the considerable budget allocations to promote biofertilizers, the adoption of these fertilizers is not uniformly spread across the farms in the country. In the marketing point of view, the farmer becomes a consumer while purchasing and procuring the agricultural inputs. As a consumer the purchase behaviour and adoption of biofertilizers by the farmers are greatly influenced by the satisfaction derived. Therefore, the present study examines the farmers' satisfaction towards various aspects of biofertilizer application.

SCOPE OF THE STUDY

The increased consciousness regarding health and concern for the environment has resulted in the adoption of sustainable agricultural practices. Organic farming is accepted worldwide as an effective sustainable practice in farming. Biofertilizers contain living microorganisms are the vital inputs for organic farming. The living microorganisms present in biofertilizers supply the essential plant nutrients without affecting the natural soil structure. Framers awareness and satisfaction are considered as the major factors that leads to the adoption and prolonged use of these eco-friendly fertilizers. The present study explores the awareness and satisfaction of farmers towards biofertilizers.

OBJECTIVES

➢ To identify the demographic profile of the farmers and their awareness about biofertilizers

➢ To examine the farmers' satisfaction towards biofertilizers

➢ To examine the relationship between selected socio-economic characteristics and the factors affecting farmers' Satisfaction towards Biofertilizers

LIMITATIONS OF THE STUDY

a) The study was restricted to Kottayam taluk due to time constraint.

b) Data were collected only from 156 farmers.

RESEARCH METHODOLOGY

The descriptive study is an attempt to examine the farmers' awareness and satisfaction towards biofertilizers. The factors contributed to the adoption of biofertilizers have also been examined. The farmers of Kottayam taluk constitute the population for the study. Data were collected from 156 farmers through structured questionnaire. Simple random sampling has been adopted for the study. The collected data has been analysed using percentage analysis, weighted average ranking method One-way ANOVA and correlation method.

RESEARCH HYPOTHESIS

➢ There is no significant difference in the factors that affect farmers' satisfaction towards biofertilizers with respect to educational qualification.

➢ There is no significant difference in the factors that affect farmers' satisfaction towards biofertilizers with respect to monthly income.

Results and Discussion
Table I Demographic details of respondents

Particulars	Classification	No of respondents	Percentage
Age	15-30	31	20
	31-45	52	33
	46-60	48	31
	Above 60	25	16
	Male	128	82
Gender	Female	28	18
Educational Qualification	Illiterate	4	3
	Up to SSLC	50	32
	SSLC-Graduation	57	37
	PG and Above	45	28
Monthly Income	Up to Rs. 10,000	77	49
	Rs. 10,000-20,000	44	28
	Rs. 20,000 -30,000	25	16
	Above 30,000	10	6
Land Holding	Up to 1 Acre	31	20
	1-3 Acres	87	56
	3-5 Acres	30	19
	Above 5 Acre	8	5

Source: Primary Data

Table II: Farmers Awareness towards Biofertilizers

SI. no.	Statement	VHA	HA	MA	A	NA	Sum	Mean	Rank
1.	Financial as sistances to promote biofertilizers	33 (21.2%)	64 (53.8%)	33 (21.2%)	4 (2.6%)	2 (1.3%)	286	1.83	7
2.	Crop specific usage of biofertilizers	30 (19.2%)	91 (58.3%)	31 (19.9%)	4 (2.6%)	0 (0%)	321	2.06	6
3.	Dosage of application of biofertilizers	32 (20.5%)	77 (49.4%)	39 (25.0%)	8 (5.1%)	0 (0%)	335	2.15	5

4.	Role of biofertilizers in improving the life span of farms	16 (10.3%)	82 (52.6%)	48 (30.8%)	8 (5.1%)	2 (1.3%)	366	2.35	4
5.	Role of biofertilizers in improving the microbial activity and water retention capacity	20 (12.8%)	66 (42.3%)	55 (35.3%)	14 (9%)	1 (0.6%)	378	2.42	3
6.	Role of biofertilizers in improving the soil fertility naturally	18 (11.5%)	70 (44.9%)	53 (34%)	12 (7.7%)	3 (1.9%)	380	2.44	2
7.	Health benefits of biofertilizer application	19 (12.2%)	58 (37.2%)	59 (37.8%)	17 (10.9%)	3 (1.9%)	395	2.53	1

Source: Primary Data

VHA-Very Highly Aware, **HA**-Highly Aware, **MA**-Moderately Aware, **A**-Aware, **NA**-Not Aware

The mean ranking study exhibits that the mean awareness among the farmers is high for the factors Health benefits of biofertilizer application, Role of biofertilizers in improving the soil fertility naturally and Role of biofertilizers in improving the microbial activity and water retention capacity. It is understood that for the factors Financial assistances to promote biofertilizers, Crop specific usage of biofertilizers and Dosage of application of biofertilizers mean awareness is less.

Table III: Farmers' Satisfaction towards of Biofertilizers

SI. no.	Statement	Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied	Sum	Mean	Rank
1.	Price for biofertilizer	30 (19.2%)	74 (47.4%)	47 (30.1%)	5 (3.2%)	0 (0%)	339	2.17	5
2.	Subsidies for biofertilizers	29 (18.6%)	97 (62.2%)	23 (14.7%)	6 (3.8%)	1 (0.6%)	321	2.05	7
3.	Shelf life of biofertilizers	35 (22.4%)	74 (47.4%)	39 (25.0%)	7 (4.5%)	1 (o.6%)	333	2.13	6
4.	Ability of biofertilizer to improve yield	23 (14.7%)	75 (48.1%)	43 (27.6%)	13 (8.3%)	2 (1.3%)	364	2.33	4

5.	Availability of biofertilizer	24 (15.4%)	71 (45.5%)	46 (29.5%)	14 (9.0%)	1 (o.6%)	365	2.34	3
6.	Ability of biofertilizer to improve the soil fertility naturally.	15 (9.6%)	72 (46.2%)	56 (35.9%)	11 (7.1%)	2 (1.3%)	381	2.44	2
7.	Health benefits of biofertilizer application	24 (15.4%)	57 (36.5%)	56 (35.9%)	14 (9.0%)	5 (3.2%)	387	2.48	1

Source: Primary Data

The mean ranking study discloses that among the seven factors that contribute towards farmers' satisfaction, the mean satisfaction is found to be high for Health benefits of biofertilizer application, Ability of biofertilizer to improve the soil fertility naturally and Availability of biofertilizer, the mean satisfaction is reported less for the factors; Subsidies for biofertilizers, Shelf life of biofertilizers and Price for biofertilizers.

ANOVA

H_o: There is no significant difference in the factors that affect farmers' satisfaction towards biofertilizers with respect to educational qualification.

Table IV: ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
Price for biofertilizers	Between Groups	1.849	3	.616	1.036	.379
	Within Groups	90.478	152	.595		
	Total	92.327	155			
Subsidies for biofertilizers	Between Groups	.954	3	.318	.578	.630
	Within Groups	83.527	152	.550		
	Total	84.481	155			
Shelf life of biofertilizers	Between Groups	9.747	3	3.249	5.018	**.002**
	Within Groups	98.426	152	.648		
	Total	108.173	155			
Ability of biofertilizer to improve yield	Between Groups	4.122	3	1.374	1.823	.145
	Within Groups	114.545	152	.754		
	Total	118.667	155			
Availability of biofertilizers	Between Groups	1.306	3	.435	.572	.634
	Within Groups	115.688	152	.761		
	Total	116.994	155			
Ability of biofertilizer to improve the soil fertility naturally.	Between Groups	.643	3	.214	.320	.811
	Within Groups	101.838	152	.670		
	Total	102.481	155			
Health benefits of biofertilizer application	Between Groups	7.686	3	2.562	2.837	**.040**
	Within Groups	137.257	152	.903		
	Total	144.942	155			

Source: Primary Data

The Analysis of Variance reveals that the factors Shelf life of biofertilizers and Health benefits of biofertilizer application vary significantly among the farmers with respect to education. For these two factors as the calculated p value is less than .05, the null hypothesis is rejected. For all the other factors; Price for biofertilizers, Subsidies for biofertilizers, Ability of biofertilizer to improve yield, Availability of biofertilizers and Ability of biofertilizer to improve the soil fertility naturally the calculated p value is greater than .05. The null hypothesis is accepted which means that there is no significant difference regarding these factors among the farmers with respect to education.

ANOVA

H_o: There is no significant difference in the factors that affect farmers' satisfaction towards biofertilizers with respect to monthly income.

Table V: ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
Price for biofertilizers	Between Groups	5.977	3	1.992	3.507	.017
	Within Groups	86.350	152	.568		
	Total	92.327	155			
Subsidies for biofertilizers	Between Groups	1.130	3	.377	.687	.561
	Within Groups	152	.548			
	Total	84.481	155			
Shelf life of biofertilizers	Between Groups	2.491	3	.830	1.194	.314
	Within Groups	105.682	152	.695		
	Total	108.173	155			
Ability of biofertilizer to improve yield	Between Groups	5.195	3	1.732	2.320	.078
	Within Groups	113.471	152	.747		
	Total	118.667	155			
Availability of biofertilizers	Between Groups	3.103	3	1.034	1.380	.251
	Within Groups	113.891	152	.749		
	Total	116.994	155			
Ability of biofertilizer to improve the soil fertility naturally.	Between Groups	12.860	3	4.287	7.270	**.000**
	Within Groups	89.621	152	.590		
	Total	102.481	155			
Health benefits of biofertilizer application	Between Groups		3	4.595	5.325	**.002**
	Within Groups	131.158	152	.863		
	Total	144.942	155			

Source: Primary Data

The Analysis of Variance reveals that the factors; Ability of biofertilizer to improve the soil fertility naturally and Health benefits of biofertilizer application vary significantly among the farmers with respect to monthly income. For these two factors as the calculated p value is less than .05, the null hypothesis is rejected. For all the other factors Shelf life of biofertilizers, Price for biofertilizers, Subsidies for biofertilizers, Ability

of biofertilizer to improve yield, Availability of biofertilizers and Ability of biofertilizer to improve the soil fertility naturally the calculated p value is greater than .05. The null hypothesis is accepted which means that there is no significant difference regarding these factors among the farmers with respect to monthly income.

Table VI: Relationship between selected socio-economic characteristics and farmers' Satisfaction towards Biofertilizers

Sl.No.	Characteristics	Coefficient ofcorrelation 'r' value
1	Age	-0.1544[NS]
2	Gender	0.2092*
3	Education	0.2962**
4	Size of Land holding	0.2180*
5	Monthly Income	0.2405**
6	Type of Fertilizer Application	0.2962**
7	Financial Assistances Received	0.0815[NS]

* Significant at 0.05 level of probability   ****** Significant at 0.01 level of probability
NS- Not-significant

Correlation values reflect that the variables gender, education, monthly income, type of fertilizer application and size of the land holding are positively correlated with farmers' satisfaction towards biofertilizers. The variables age and financial assistance received have no significant relationship with farmers' satisfaction towards biofertilizers.

FINDINGS

❖ It is found that the mean awareness among the farmers is high for the factors Health benefits of biofertilizer application, Role of biofertilizers in improving the soil fertility naturally and Role of biofertilizers in improving the microbial activity and water retention capacity. It is understood that for the factors Financial assistances to promote biofertilizers,Crop specific usage of biofertilizers and Dosage of application of biofertilizers mean awareness is less.

❖ The mean ranking study discloses that the mean satisfaction is found to be high for Health benefits of biofertilizer application, Ability of biofertilizer to improve the soil fertility naturally and Availability of biofertilizer, the mean satisfaction is reported less for the factors Subsidies for biofertilizers, Shelf life of biofertilizers and Price for biofertilizers.

❖ The Analysis of Variance reveals that the factors Shelf life of biofertilizers and Health benefits of biofertilizer application vary significantly among the farmers with respect to education. Factors Price for biofertilizers, Subsidies for biofertilizers, Ability of biofertilizer to improve yield, Availability of biofertilizers and Ability of biofertilizer to improve the soil fertility naturally does not vary significantly with respect to education.

❖ It is observed that the factors Ability of biofertilizer to improve the soil fertility naturally and Health benefits of biofertilizer application vary significantly among the farmers with respect to monthly income. Factors Shelf life of biofertilizers, Price for biofertilizers, Subsidies for biofertilizers, Ability of biofertilizer to improve yield, Availability of biofertilizers and Ability of biofertilizer to improve the soil fertility naturally does not vary significantly with respect to monthly income.

❖ It is learned that the variables gender, education, monthly income, type of fertilizer application and size of the land holding have significant relationship with farmers' satisfaction towards biofertilizers. The variables age and financial assistance received have no significant relationship with farmers' satisfaction towards biofertilizers.

❖ It is found that health benefits of biofertilizers and ability of biofertilizer to improve the microbial activity are ranked as the major factors influenced the farmers to choose biofertilizers followed by improved soil fertility due to biofertilizer application, ability of biofertilizer to improve yield, increased demand for organic foods, own interest, eco-friendly nature of biofertilizers, recommendations by other farmers and subsidies for biofertilizers

SUGGESTIONS

❖ As mean awareness is found to be less among the farmers regarding the financial assistances provided by the Government effective measures shall be taken to familiarize the various schemes and subsidies provided by the Government to promote biofertilizers. It should also be ensured that the subsidies are availed by the real beneficiaries. The agricultural officers of the respective area shall be entrusted to identify the factors in which farmers are having lack of awareness regarding biofertilizers and customized awareness campaigns for respective areas can be conducted.

❖ Field demonstrations shall be helpful to educate the farmers regarding the crop specific application of biofertilizers and dosage requirements for different crops.

❖ The budget allocations for biofertilizer subsidies shall be increased. More financial assistance should be provided for the farmers during the period of transformation to biofertilizers.

❖ Liquid biofertilizers are having more shelf life and less contamination loss than carrier based biofertilizers. Promoting liquid biofertilizers among the farmers may help in improving the farmers' satisfaction regarding the shelf life of biofertilizers. Low cost fertilizers like compost biofertilizers shall be promoted among the farmers, this will help the farmers to have considerable savings on cost.

❖ It is recommended to identify the farmers successfully adopted biofertilizers and their farms can be chosen as model farms so that the other farmers can be motivated to visit these model farms to learn the successful practices in biofertilizers.

❖ As word of mouth is an effective promotional tool, the farmers using biofertilizers shall be motivated to promote these fertilizers.

❖ Organic certification shall be made popular among the farmers this will help the farmers to get increased prices for their crops, so that more farmers shall shift to biofertilizers.

CONCLUSION

The irreparable damages occurred to the soil and eco-system due to the non-scientific application of chemical inputs prompted the world nations to shift towards sustainable farming practices. Organic farming practices that rely on organic and biofertilizers are considered as an effective sustainable farming practice. Like the other countries, the Government of India has also implemented various schemes to promote organic farming and biofertilizers. Despite the rigorous measures adopted the adoption of biofertilizers is not widely accepted by the farmers as expected. The factors contributing to this scenario have to be iterated to take corrective measures. The present study elicits that mean awareness among the farmers is less for the factors financial assistances to promote biofertilizers, crop specific usage of biofertilizers and dosage of application of biofertilizers. It is learned that the farmers experience less satisfaction regarding the subsidies for

biofertilizers, shelf life of biofertilizers and price for biofertilizers. It is expected that identifying the factors that restrict the adoption of biofertilizers by the farmers and implementing appropriate strategies to counter act these constraints shall catalyse the adoption of biofertilizers among the farmers.

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Exploring the Impact of Digital Banking on Financial Inclusion in Kerala

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ABSTRACT

During 1990-2000, India made financial inclusion one of the most important policyobjectives while trying to put an end to poverty and ensure truly inclusive economic growth. Underinitiativessuch asDigital Indiaand Pradhan MantriJan Dhan Yojana, theGovernment of India, in collaboration with the Reserve Bank of India, has worked through digitization involving ATMs, mobile banking, internet banking, and e-wallets, among others. There are two related means through which digital financial services promote financial inclusion, mobile cellular penetration, and internet usage. This paper analyzes the link between the digitization of the banking sector in Kerala and the achievement of a more inclusive financial environment through the innovative application of Fin-tech innovations. The study involves the 385 bank employees of the kottayam District. Outcome determination with the help ofthestatisticaltoolSPSSbyregressingwasdonewithbankemployeesinthedistrictKottayam in the state of Kerala by considering a survey. Significant Correlation Between Digital Technology And Financial Inclusion Conclusion To the best of my research, this is perhaps forthefirsttimeitcomesoutthattherewouldhavebeenarelationshipexistingthatispositive between Digital Technologies and Financial Inclusions while assessing this relationship the very four indicators of development toward inclusiveness were found here: access, usage quality, and efficiency. Notably, in the Indian context, this can help understand themeaning of Fin-tech and its contribution toward promoting financial inclusion.

Keywords: *Digital Banking, Financial Inclusion, Technology*

INTRODUCTION

Some of these new entrants, be it a start-up in digital finance, Fin-Tech companies, among others, have been raking enormous expertise in what were once traditional bank activities, thus compelling banks to speed up their digital transformations as new ideas keep on surfacing every two to three months into India's digital industry. A recent study reveals that traditional banks must transform themselves to be at par with the competition as theyhave to transform into digital banks (Sinha, 2020). The RBI has, therefore, launched initiatives like "FinTech Sandbox" and "Regulatory Innovation Hub" to collaborate with Fin-Techs and drive technological advancement. Digital banking has added much to inclusive finance around the world by bringing the financial services within reach of all, especially the less privileged. Studies showthat integration of IT and mobile telephonyreduced the requirement of physical bank branches. Hence, there is enhanced financial inclusion. This study will explore how digital banking by banks enhances financial inclusion, based on the fact that financial inclusion has been considered an imperative precursor for sustainable growth of the economy. For achievement of inclusive growth, access of all segments of society to the right quality services through efficient digital financial system will be necessary.

The development of digital banking has brought a tremendous revolution in the financial world, increasing the scale of financial inclusion around the world. It provides easyaccess to financial services using mobile devices and the internet, thus overcoming geographical and socio-economic boundaries. Digital banking has helped people with no or very limited financial capabilities manage their finances, apply for credit, and execute transactionswithout hassle. In doing so, digital banking has encouraged entrepreneurship, promoted financial literacy, and narrowed the economic gap. This, added to streamlined processes, cost-cutting measures, and improved security, makes financial services far more efficient and reliable than their predecessors. As a matter of fact, with the development of digital banking and it becoming one of the most significant kinds of banking, it would connect millions to the world economy, empower them, and achieve financial stability and prosperity.

It enabled growth in further microfinance and peer-to-peer lending because there was provision of funds that individuals and small businesses made use of to boost the investment into their future with job and local economyto further lower povertylevels most importantly financial education and planning were given as tools when making a smart decision from the financial platform. Such platforms use data analytics and artificial intelligence to offer individualized advice on saving, investing, and paying down debt to its users.

As digital banking continues to advance, its potential to drive sustainable financial development will only expand. Emerging technologies like blockchain, biometric authentication, and open banking APIs will enhance security, transparency, and interoperability. This will lead to greater collaboration among financial institutions, fintech companies, and governments, ultimately strengthening financial systems worldwide. Moreover, digital banking will play a pivotal role in achieving the United Nations' Sustainable Development Goals (SDGs). By bridging financial divides and fostering inclusive economic growth, digital banking will remain a transformative force in the global financial landscape.

REVIEW OF LITERATURE

Digital banking is a cross between Fintech Company and Bank .Fintech defined by Nurfadilah and Samidi (2021) as a transformation of the financial system based on new technology. Whereas a digital bank, like a traditional bank, can be organized into five divisions: Retail Banking, Private and Commercial Banking, Analysis and IT, Financial Management and Operations, and Risk Management, the relative importance of these departments is not the same. Furthermore, the map of the relationships between the different divisions

is different between digital and traditional banking, with Analysis and IT is the cornerstone of the digital bank. In general, the success and failure of a bank are measured by the technologies and analytical methods adopted rather than by its product range (Lipton et al, 2016). The use of technology to deliver financial goods in order to improve accessibility and affordability of services is known as digital banking (Melubo and Musau, 2020). The implementation of new financial instruments, services, or practices, the introduction of new money uses, the discovery of new funding channels, the implementation of new methods for processing daily operations, or the establishment of a new organization are all aspects of digital banking strategy (Kithinji,2017).

Bank digitization involves conducting transactions digitally and accessing account information electronically through personal computers. More broadly, banking digitization encompasses technological initiatives in the banking sector, enabling the delivery of services and products through digital channels like phones, tablets, and the internet.

Financial inclusion ensures everyone, regardless of income, has access to basic financial services like payments, transfers, savings, credit, and insurance. This concept involves providing quality financial services in a sustainable and responsible manner, emphasizing access and usage for all segments of society. Financial inclusion encompasses various financial products (micro insurance, credit, savings and money transfer) and non-financial services (business management training, financial education). Its key dimensions include banking penetration, service availability, usage, affordability, and timeliness. Essentially, financial inclusion fights exclusion by making financial services accessible and usable for everyone.

The theoretical foundation for linking digital banking to financial inclusion rests on the assumption that a significant portion of the financially excluded population possesses mobile phones. Consequently, providing financial services through mobile devices can enhance eaccess to financial resources for this underserved group (The World Bank, 2016).

This section examines relevant research papers investigating the connection between the digital transformation of banking and financial inclusion. However, identifying high-quality articles specifically addressing our research question posed a challenge. Despite technological advancements like the internet and mobile phones promoting broader access to financial services, few studies have empirically measured these relationships.

One primary reason for this scarcity is the relatively recent widespread adoption of these technologies. Measuring causal relationships requires extensive time-series data spanning decades, which is currently lacking.

Recent studies have investigated the impact of digital banking on financial inclusion in various contexts. For instance, Makau and Olando (2021) conducted a survey of 179 respondents across 323 bank branches and agents in Kajiado, Kenya, using a closed-ended questionnaire. Their findings indicate that digital banking channels, infrastructure, and services have a significant positive effect on financial inclusion. However ,digital service provision was found to have an insignificant impact. Similarly, Melubo and Musau (2020) explored the effects of digital banking on women entrepreneurs' financial inclusion in Narok County, Kenya. They collected primary data through semi-structured face-to-face interviews with women business owners. This studyaimed to understand howdigital bankinginfluences financial inclusion amongthis demographic. Siddik et al. (2020) examined the relationship between digital finance and financial inclusion, measuring financial inclusion by outstanding commercial bank loans as a percentage of GDP and digital finance by three key indicators: ATMs per 100,000 adults, internet usage percentage, and mobile money transaction value. Additionally, Fanta and Makina (2019) investigated the link between digital technologyand financial inclusion. Their study contributes to the growing body of research

on how digital banking and finance can enhance access to financial services.

These studies offer valuable insights into the role of digital banking in advancing financial inclusion in India. They underscore the potential benefits of digital banking channels, infrastructure, and services in widening financial access. Researchers evaluated financial inclusion across two primary dimensions: availability and utilization. They utilized three indicators: bank accounts per 1,000 adults to measure access, and electronic transfers and deposits as a percentage of GDP to assess usage. The findings reveal a robust positive correlation between digital technology adoption and improved financial inclusion.

Research by Kumar et al. (2019) in India's Rupnagar district showed digital banking boosts financial inclusion. Using primary and secondary data, they found a positive link between digital banking channels and financial inclusion. Similarly, Kithinji's study (2017) in Kenya

revealed digital banking strategies significantly enhance financial inclusion in commercial banks. Analyzing quantitative data, Kithinji identified mobile banking as the most impactful strategy, followed by ATM, agent, and online banking. Both studies highlight digital banking's role in increasing financial inclusion, measured by accounts, deposits, outlets, and customer growth. Naumenkova et al. (2018) examined digitalization's effect on Ukraine's financial inclusion, assessing financial access, barriers, and potential for innovative services to expand formal financial system participation among adults.

Kerala's financial inclusion rate is impressive, with the state being recognized as the "best performer" in this aspect. While I couldn't find the most up-to-date figures, recent estimates suggestthataround27% ofactivedebit cardsareattached to BasicSavingsDepositAccounts (BSDBAs) in large public banks [2]. This indicates a significant portion of the population has access to banking services. Kerala's economic planning prioritizes social inclusion, which contributes to

its high financial inclusion rate. The state also boasts the lowest multidimensional poverty index among Indian states, with a headcount ratio of just 0.71%.

HYPOTHETICAL DEVELOPMENT AND CONSTRUCT

Generally, financial inclusion refers to the provision of affordable, accessible, and usable financial services to the underserved population, fostering economic equality and social development. Financial inclusion promotes economic growth, social development, and poverty reduction through provision of access to financial services for all. Digital banking refers to the provision of banking services through digital channels where customers can perform financial transactions outside the banking hall using digital devices. Digital banking has revolutionized the financial industry, promoting convenience, accessibility, and innovation.

Makau and Olando (2021) conducted a survey of 179 respondents across 323 bank branches and agents in Kajiado, Kenya, using a closed-ended questionnaire. Their findings indicate that digital banking channels, infrastructure, and services have a significant positive effect on financial inclusion. However, digital service provision was found to have an insignificant impact. Similarly, Meluboand Musau (2020) explored the effects of digital banking on women entrepreneurs' financial inclusion in Narok County, Kenya.

H1: There is a positive relationship between digital banking and financial inclusion

Research by Kumar et al. (2019) in India's Rupnagar district showed digital banking boosts financial inclusion. Using primary and secondary data, they found a positive link between digital banking channels and financial inclusion. Similarly, Kithinji's study (2017) in Kenya

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followed by ATM, agent, and online banking. Both studies highlight digital banking's role in increasing financial inclusion, measured by accounts, deposits, outlets, and customer growth.

H1:There is a positive impact of digital banking on financial inclusion

RESEARCH METHODOLOGY

A total 400 employees were selected at random using a simple random sampling technique. Out of which 385 were reliable responses. The data was gathered using a structured Google Form survey. The study uniquely assesses this relationship using four indicators of inclusive development: access, usage, quality, and efficiency of financial services. Responses were analyzed utilizing a scale with five points, spanning from 'strongly agree' (5) to 'strongly disagree'(1). SPSS was utilized to analyses how these factors influence financial inclusion and digital banking.

Our objective is to assess the impact of digital banking on financial inclusion in India. To address this research question, we employed a quantitative approach, conducting a survey among 385 employees from various banks in Kottayam District, Kerala. Primary data was collected through a questionnaire. The study analysed the data using SPSS 20 software. Financial inclusion was measured across three dimensions: access, quality, and efficiency.

Data Analysis and Interpretation

A. FactorAnalysis

KMOandBartlett'sTest

Kaiser-Meyer-OlkinMeasureofSampling Adequacy.		.847
	Approx. Chi-Square	4694.264
	df	384
	Sig.	.000

INTERPRETATION

The table shows the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test outcomes, which assess the appropriateness of the data to be used in factor analysis. Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0.847. The two tests guarantee the adequacy of the data to be used in factor analysis (KMO = 0.847). Relationships between variables are significant (Bartlett's test, Sig. = 0.000).

B. CorrelationAnalysis

Correlations

		gmean	Emean
Mean1	PearsonCorrelation	1	.544**
	Sig. (2-tailed)		.000
	N	385	385
Mean2	PearsonCorrelation	.544**	1
	Sig.(2-tailed)	.000	
	N	385	385

**.Correlation is significantatthe0.01level(2-tailed).

INTERPRETATION

There is a strong positive correlation between financial inclusion (mean1) and digital banking (Mean2), with Pearson's correlation coefficient at 0.544, p-value less than 0.01 (two-tailed). Highly significant association is indicated whereby if Mean1 increases, Mean2 alsoincreases. The result is highly significant with p-value 0.000, meaning the probability of this relationship arising is verylow. The sample size for this finding is robust N = 385. The value of the correlation coefficient does indicate a moderate to strong positive relationship and accounts for an explanation of approximately29.6% of variance between Mean1 and Mean2. The correlation denotes a substantial positive linear association between the two variables under study.

C. **RegressionAnalysis**

Model Summary

Model	R	R Square	AdjustedRSquare	Std.Errorofthe Estimate
1	.544[a]	.296	.294	.65998

a. Predictors:(Constant), mean1

ANOVA[a]

Model		Sum of Squares	df	MeanSquare	F	Sig.	
1	Regression	66.156	1	66.156	151.881	.000[b]	
	Residual	157.244	384	.436			
	Total	223.400	385				

a. Dependent Variable: mean1

b. Predictors: (Constant), mean

INTERPRETATION

The regression model shows a significant positive relationship between digital banking and financial inclusion. The model explains 29.6% ofthe variance in digital banking (AdjustedR-Square = 0.294), which is a moderate level of predictive power. The standard error of the estimate is 0.65998, which suggests reasonable accuracyin predicting digital banking values. The results from ANOVA prove that the model is significant F = 151.881, p < 0.001. The mean2 has a huge contributiontowards the explanation of the variation inmean1. With every unit of change in mean2, there was approximately 0.544 units of change in mean1 (R = 0.544). It, therefore, implies that this model shows that the mean2 is a good predictor of mean1, nearly accounting for about 30% variation.

FINDING AND DISCUSSIONS

The correlation between financial inclusion and digital banking was investigated in this study. A Pearson correlation coefficient of 0.544 (p < 0.01, two-tailed) was revealed between financial inclusion (Mean1) and digital banking (Mean2), revealing that there is a strong positive correlation between the two means. This significant correlation indicates a tendency for financial inclusion to increase as digital banking rises. Regression analysis shows that the predictor digital banking is significant. It explained 29.6% of the variance (Adjusted R- Square=0.294). Standard error of estimate is 0. 65998.This indicates the prediction of values of financial inclusion is quite reasonable. The findings thus suggest that digital banking plays a very crucial role in promoting financial inclusion.

This aligns with the existing literature, which puts forth that digital banking holds enormous potential and can offer greater access to financial services that can be extended to less privileged communities. The very high positive association between financial inclusion and the digital banking index indicates that digital banking is contributing substantially to making the country more financially included and that increased digital banking would lead to greater financial inclusion. Policymakersand banks should invest in digital banks for the enhanced financial inclusion of people.

SCOPE FOR FUTURE RESEARCH

The future of research must examine the causal relationships between digital banking and financial inclusion in order to understand how these are interlinked. Additionally, more research will be conducted to determine how digital banking impacts specific metrics on financial inclusion, including access, usage, and quality. Regional differences in how digital

banking impacts financial inclusion will help pinpoint context-specific strategies for bridging geographical disparities. These research avenues will contribute significantly to raisingproper policymaking, optimizing digital banking initiatives, and ultimately enhancing financial inclusion on a global level.

CONCLUSION

Based on the relationship established between digital banking and financial inclusion, it shows a significant positive correlation. To that extent, this study determines that digital bankingcontributes significantlyto financialinclusionsinceit explains29.6%ofits variance. According to the findings, an increase in the adoption of digital banking enhances financial inclusion. This study presents digital banking as a key channel for attaining financial inclusion. Policymakers and financial institutions need to make digital banking initiativesand digital literacy programs intrinsic to

improving access to finance, driving economic growth, and promoting social prosperity. Contribution of this study: provide a literature review that brings to the fore the importance of digital banking in enhancing the level of financial inclusion. Findings from this article are useful for policymakers, financial institutions, and researchers. Future research recommendations involve causal relationships, the influence of digital banking on particular financial inclusion metrics, and regional differences. This research shows the transformative power of digital banking in terms of promotingfinancial inclusion, stressingthat it isan important force behind economic growth, social development, and global financial equality.

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Hybrid Working Beyond Covid-19: A Study on Information Technology Start-ups in India

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ABSTRACT

Hybrid Working is a model of working which combines both office working and home working. Studies have shown that those people using this system reported better psychological and mental health, reduced job burn-out and better working relationships than others. Remote working was a provision adopted by many organizations during the outbreak of Covid 19 but as Covid has begun to ease organizations are assessing about the viability of adopting a hybrid work model. This paper explains about various dimensions and issues related to hybrid working model in Information Technology Startups in India. In order to understand the merits, demerits and challenges of hybrid working, 80 respondents from information technology start-ups in India were selected.

Key Words: Hybrid-working, pros, cons and challenges, Information Technology.

I. INTRODUCTION

Hybrid working is a flexible working arrangement which provides employees with the provision of partly working in office and partly as remote working, usually as work from home. There are numerous benefits for adopting such a provision both for employees and for the organizations (Mutebi & Hobbs, 2022). For the employees, the benefits include enhanced autonomy, better job and life satisfaction, ability to work during the time preferred by the employees, improved work and life balance. There are certain disadvantages also related with a hybrid working model as it might not be suitable for every industry. There might be difficulty in evaluating the involvement of workers.

Creativity and critical thinking are two necessary skills needed in hybrid working. As the superiors are not physically present to support employees in decision making, employees must themselves develop autonomy and creativity when the situation demands. Another crucial aspect of hybrid working is the ability to manage time. Sometimes when they work-from-home, they may lose track of their work due to any personal emergencies. Thus a proper time management evaluation must be done by the superior. It must be noted that superiors must not overburden their employees with too many tasks at a stretch when they opt work from home.

(Sokolic, 2022) Emphasized that hybrid work model will become the 'new normal' in future. In a globalized economy where innovations in people management are happening day-by-day, it is inevitable to organizations to retain their talented employees. Ensuring more flexibility is becoming the priority for employees and employers.

(Jalagat & Jalagat, 2019) explains different merits and demerits of hybrid working. The study says that remote working is a system where work is completed other than the normal workplace. The study revealed that people who work remotely where more happier and is cost effective for the organizations. Even the working system was not affected by rest hours and sick leaves.

A. Hybrid Working

Hybrid working is a type of blended working which helps you to work from different locations. It breaks the traditional working style of isolating employees around four walls of your office. This system of working gives more autonomy and job satisfaction to the work force thus improving the organizational performance (Iqbal, Khalid, & Barykin, 2021). There are different steps to make hybrid working more effective. Every organization must make sure that they have the adequate tools to ensure hybrid working. Also scheduling of meetings or conferences must be for right purpose. Organizations must ensure that they avoid unnecessary travel of their workforce. Open Communication is another key for the successful implementation of hybrid model. Cross functional work teams, especially HR and IT serves best to adopt hybrid model. Connecting with employees and making them dynamic helps in the success of hybrid environment. Even though such a system of working was used in western countries like United States, its popularity increased during Covid-19 Pandemic. In fact, hybrid working was a relief to many organizations to stay productive during pandemic (Lenka, 2021). During the adoption of hybrid working, organizations realized that there are many advantages for opting a hybrid work model. The companies were able to cut-down huge costs drastically without compromising on their organizational performances. This is the reason why employers are not still returning to the traditional 9 to 5 office working even though Covid-19 has begun to ease (Baker, 2021). The usage of hybrid working is different for different organizations. Some employers let their employees to decide their way of using hybrid model while in some companies, employers decide upon it. For some organizations, the team decides the schedules of meeting and co-working (Grzegorczyk, Mariniello, Nurski, & Schraepen, 2021).

B. Information Technology Startups in India

Information Technology Startups in India play a major role in the contribution of economic development of the state. In order to become more effective, startups in India are exploring the

untapped niche domains. The nation is experiencing a drastic momentum in the entrepreneurial culture. Information Technology Startups dominates the entire startups in India with 70 percent others being Electronics, Biotechnology and other manufacturing companies.

II. LITERATURE REVIEW

Rethinking the physical space of work was the first priority during Covid 19 Pandemic days. The merit of hybrid working is that people can work remotely and at any time they feel productive (Vidhyaa & Ravichandran, July 2022). (Exploring the reality of hybrid working for employees, August 2021) Technology contributes for the effective transition of hybrid working. Before introducing hybrid working in an organization, the employers must meet employees to agree upon its legal implications. Both employers and employees should negotiate upon the number of days to be present in the office and whether hybrid working is required for all employees or only a set number of employees (Hybrid working after COVID-19: home is where the work is). Work-from anywhere is an option which provides geographical flexibility. It is an emerging form of remote work where the employees are given flexibility to live in any location (Choudhary, Foroughi, & Larson, 2020).

It is estimated that there would be a possible leverage in the hybrid work among professionals in the coming five years (Victor, 2009).

III. STATEMENT OF THE PROBLEM

Hybrid working model is widely used in Information Technology industry. There are several advantages and disadvantages associated with the usage of hybrid working. Start-ups are the soul of development of every eco-system. With almost 73,000 start-ups, India bags the third largest start up eco system in the world. There are almost 10,000 technology start-ups in India. This study focuses on the various dimensions like merits, demerits and challenges regarding Hybrid working model in start-ups in India.

IV. OBJECTIVES

- To understand the concept of "Hybrid Working" in Indian Start-ups.

- To identify the merits, demerits and challenges associated with Hybrid working.

- To offer possible suggestions to Start-ups in India regarding Hybrid working.

V. RESEARCH METHODOLOGY

Using the reviews, structured questionnaire was developed and simple random sampling was adopted for the study. The questionnaire was distributed among 80 respondents in Indian start-ups. Garrets Ranking Technique has been used to analyze the factors and rank them based on the responses received. The factors related to merits of hybrid working include 'work-life balance', 'maximise productivity', 'reducing costs', 'Improved mental health' and 'access to more talent'. The factors selected to study demerits of hybrid working are 'Employee marginalization and isolation', 'Data breach and Cyber risks', 'Communication issues', 'problems in maintaining productive routines' 'Disrupting culture' and 'virtual fatigue'. The challenges of hybrid working include 'Building trust & team dynamics', 'Evaluation of quality of work', 'Time Management', ' Developing creativity and critical thinking', 'over-politicized workplace'.

VI. DATA ANALYSIS AND INTERPRETATION

To study the factors associated merits, demerits and challenges of Hybrid working, Garett ranking was done. Equation for percentage position of

Garett's ranking $= \dfrac{100\,(Rij - 0.5)}{Ni}$

Where,

Rij = Rank given for i[th] variable by the jth respondent.

Nj= Number of variables ranked

A. MERITS OF HYBRID WORKING

The respondents were asked to rank the five factors identified for the purpose of this study as 1,2,3,4 and 5 in order to study the merits of hybrid working in Start-ups of India.

The calculated percentage positions for the ranks 1, 2, 3, 4, 5 and their corresponding Garrett's table values are given in Table 1.1.

Table 1.1: Percentage positions and their corresponding Garett's value

Rank	Percentage position		Garett's Table Value
1	100(1-0.5)/5	= 10	75
2	100(2-0.5)/5	= 30	61
3	100(3-0.5)/5	= 50	50
4	100(4-0,5)/5	= 70	40
5	100(5-0,5)/5	= 90	25

The merits of hybrid working are ranked and given in Table 1.2

Table 1.2: Merits of Hybrid Working

Sl.no	Factor	Rank					Total Sample	Total Score	Mean Score	Rank
		1	**2**	**3**	**4**	**5**				
1	Work-life balance	38	22	17	3	0	80	5162	64.53	I
2	Access to more talent	22	36	15	7	0	80	4876	60.95	II
3	Improved mental health	17	15	34	11	3	80	4005	50.06	III
4	Maximised productivity	0	2	3	10	65	80	2297	28.71	V
5	Reduced costs	3	5	11	49	12	80	3340	41.75	IV

Source: Primary Data

Garett ranking was done to analyse the major merits of hybrid working. According to Table 1.2, the respondents opined that the most important benefit of hybrid working is 'Work-life balance' with Rank 1 followed by "Access to more talent', 'Improved mental health', 'reduced costs' and 'Maximised Productivity' and in Rank 2, 3, 4 and 5 positions respectively.

B. DEMERITS OF HYBRID WORKING

The respondents were asked to rank the six factors identified for the purpose of this study as 1, 2, 3, 4, 5 and 6 in order to know the demerits of hybrid working.

Table 1.3: Percentage position & Garett values of six factors

Rank	Percentage position		Garett's Table Value
1	100(1-0.5)/6	= 8.33	77
2	100(2-0.5)/6	= 25	63
3	100(3-0.5)/6	= 41.67	54
4	100(4-0,5)/6	= 58.33	46
5	100(5-0,5)/6	= 75	37
6	100(6-0.5)/6	= 91.67	23

Sl. No	Factor	Rank						Total Sample	Total Score	Mean Score	Rank
		1	2	3	4	5	6				
1	Employee marginalization and isolation	35	23	11	7	3	1	80	5194	64.92	I
2	Data breach and Cyber risks	1	1	3	2	14	59	80	2269	28.36	VI
3	Communication issues	15	12	38	9	5	1	80	4585	57.31	III
4	Problems in maintaining productive routines	4	3	2	24	36	11	80	3294	41.18	V
5	Disrupting culture	5	8	8	32	19	8	80	3680	46	IV
6	Virtual fatigue	20	33	18	6	3	0	80	4978	62.22	II

Table 1.4 Demerits of Hybrid Working

Source: Primary Data

Garett ranking was done to analyse the major demerits of hybrid working. According to Table 1.4, the respondents opined that the major demerit of hybrid working is 'Employee marginalization and isolation' with Rank 1 followed by 'Virtual fatigue', 'Communication issues', 'Disrupting culture' , 'Problems in maintaining productive routines', and 'Data breach and cyber risks' in Rank 2, Rank 3, Rank 4 , Rank 5 and Rank 6 positions respectively.

C. Challenges of Hybrid Working

The respondents were asked to rank the five factors identified for the purpose of this study as 1,2,3,4 and 5 in order to know the main challenges regarding hybrid working.

Table 1.5 Percentage position and corresponding Garett's value

Rank	Percentage position		Garett's Value Table
1	100(1-0.5)/5	= 10	75
2	100(2-0.5)/5	= 30	61
3	100(3-0.5)/5	= 50	50
4	100(4-0,5)/5	= 70	40
5	100(5-0,5)/5	= 90	25

Table 1.6 Challenges of Hybrid Working

Sl.no	Factor	Rank					Total Sample	Total Score	Mean Score	Rank
		1	2	3	4	5				
1	Building trust & team dynamics	24	37	13	6	0	80	4947	61.84	II
2	Evaluation of quality of work	12	17	37	10	4	80	4287	53.59	III
3	Over-politicized workplace	41	19	17	3	0	80	5204	65.05	I
4	Time Management	2	6	10	40	22	80	3166	39.58	IV
5	Developing creativity and critical thinking	1	1	3	21	54	80	2476	30.95	V

Source: Primary Data

Garett ranking was done to analyse the major challenges in establishing hybrid working culture. According to Table 1.6, the respondents opined that the major challenges of establishing hybrid working model is 'Over-politicized workplace' with Rank 1 followed by 'Building trust and team dynamics', 'Evaluation of quality of work, ', 'Time Management', and 'developing creativity and critical thinking in Rank 2, Rank 3, Rank 4 , and Rank 5 positions respectively.

VII. FINDINGS AND DISCUSSION

Garett ranking was done to analyse the major merits of hybrid working. According to Table 1.2, the respondents opined that the most important benefit of hybrid working is 'Work-life balance' with Rank

1 followed by "Access to more talent', 'Improved mental health', 'Maximised Productivity' and 'reduced costs' in Rank 2, 3, 4 and 5 positions respectively. Highly nuclear family system has made it inevitable for today's generation to take care of their dependents. This has made a huge increase in the adoption of flexible working. The same way people are perceiving hybrid system as a way for work-family balance. Thus management must provide this provision and they must also prioritize the requirement of the employees. The priority can be given to feeding mothers and people with critical dependent care.

Garett ranking was done to analyse the major demerits of hybrid working. According to Table

1.4, the respondents opined that the major demerit of hybrid working is 'Employee marginalization and isolation' with Rank 1 followed by 'Data breach and cyber risks', 'Communication issues', 'Problems in maintaining productive routines', 'Disrupting culture' and 'Virtual fatigue' in Rank 2, Rank 3, Rank 4 , Rank 5 and Rank 6 positions respectively. In order to ease these problems, managers must have constant follow up, should schedule face to face meetings. Managers must also ensure that even though the employees are miles apart, they have a sense of harmony.

Garett ranking was done to analyse the major challenges in establishing hybrid working culture. According to Table 1.6, the respondents opined that the major challenges of establishing hybrid working model is 'Building trust and team dynamics' with Rank 1 followed by 'Evaluation of quality of work, 'Over-politicized workplace', 'Time Management', and 'developing creativity and critical thinking in Rank 2, Rank 3, Rank 4 , and Rank 5 positions respectively. (Carmela, 2017) recommended that for breaking the challenges of hybrid work, re-formulation of policies must be ensured. Another crucial point to be noted is to set Key Performance Indicators (KPI) so that expectations of both management and employees would be met.

VIII. CONCLUSION

This paper has provided insights regarding the merits, demerits and challenges of Hybrid working. As hybrid working model is forwarding to create a huge business transformation making it the 'next normal', improvements in policies must be drafted by the management. Further studies must be conducted to know the implications and effects of hybrid working in other sectors also. This study concluded that both employees and management believe that there are certain merits, demerits and challenges of hybrid working to be addressed. The main advantage found with regard to hybrid working is that it enabled work-life balance to the employees. One of the main disadvantages opined by the respondents is that hybrid working lead to employee marginalization and isolation. The major challenge with respect to hybrid working model is that it created an over politicized workplace.

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Investigating Customers' Perceptions on Service Quality: A Study on Hospital Sector

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ABSTRACT

This research explores the changing landscape in healthcare due to the government's shift from direct welfare provision to regulatory roles amidst global changes. As societies become more informed and financially empowered, healthcare providers are adapting their approaches to better serve patients and enhance satisfaction. The main goal of this research is to understand what makes patients content with their experiences in private hospitals and examine how patients perceive the quality of service provided. By identifying these crucial elements, the research seeks to gain insights into patient needs, thereby improving overall satisfaction levels. The findings highlight disparities in patients' overall hospital experiences, emphasizing the need for private hospitals to prioritize essential aspects that significantly impact patient satisfaction. Additionally, variations in service expectations, experiences, and quality perceptions were observed among patients, influenced by factors like education, occupation, and income. The research shows that patients have different opinions about how good the services are in various hospital sections and how long they stay there. Beyond physical amenities, the competence of hospital staff emerges as a significant factor in patient satisfaction. To address patient concerns effectively, hospitals require well-trained and compassionate staff, necessitating strategic human resource planning and development. Patients often express uncertainty and anxiety about hospital processes, which can hinder their experience. Therefore, hospitals should focus on clear communication, explanation of procedures, and decision-making transparency. Implementing standardized procedures and innovative strategies, such as using mystery shoppers, could bridge operational gaps and enhance patient trust. The shortage of skilled medical and support staff negatively impacts service quality, indicating a need for better training and long-term planning in hospitals. Recognizing the rising expectations of informed patients, hospitals must adapt processes and leverage technology to meet evolving needs effectively.

In conclusion, this study underscores the importance of understanding patient needs and aligning services accordingly, recognizing that informed patients expect more and aspire to receive quality care in line with their changing circumstances and expectations.

INTRODUCTION

Different countries have varying levels of healthcare needs. Governments get involved in healthcare in different ways: making rules (regulatory), helping out a bit (supportive), or taking full responsibility (limited role). Some places let private interests help, while others keep healthcare entirely run by the government.

While we often think of the government as taking care of us, in places like India, financial limitations make it hard for the government to handle all healthcare needs alone. That's why in recent years, private involvement in healthcare has become really important globally. This change comes from reducing how much the government helps and relying more on businesses for healthcare. The 'Global Development Bank' and the 'Global Monetary Authority'' have been pushing for this in many developing countries. But how this shift happens varies in each place, depending on how much the government and private businesses work together in healthcare.

The service sector holds considerable importance in India's economy, making a significant contribution to job creation and the country's overall income. India's impressive economic growth has been fueled by reforms in the market, higher foreign direct investment (FDI), expanding foreign reserves, advancements in information technology (IT) and real estate, as well as thriving capital market (Singh & Cortuk, 2010).

Throughout history, economic development has witnessed changes in the structure of national economies. A consistent pattern has been the progression from agriculture to industry and, subsequently, to services. In less developed economies, agriculture usually holds a larger share, but as progress occurs, the significance of industry increases. Eventually, this paves the way for a substantial role for the service sector. This trend has been observed across different countries at varying stages of development (Gangabai, 2011).

Between 1981 and 1990, the service sector expanded annually at a rate of 6.6 percent. Since the major trade and industrial changes in 1991, India's service industry has rapidly expanded in the last twenty years. Subsequently, from 1991 to 2000, this growth escalated to 7.5 percent per year, surpassing the growth rates of both industry and agriculture (Banga and Goldar, 2007). Healthcare in India is a big industry that makes a lot of money and offers many jobs, growing quickly over time.

As the purchasing power of Indian patients grows, there is a willingness to pay more for healthcare services meeting international standards. In the present landscape, it's crucial for healthcare providers in India to offer top-notch services that meet the needs of patients from both within the country and abroad.

REVIEW OF LITERATURE

In this section, the researcher endeavours to provide a thorough and organized overview of pertinent studies within the existing literature. The compilation of these studies is based on their significance and relevance to the current research.

LiMin M (2015) conducted an assessment of patient perceptions regarding hospital service quality across nine cities in China. Their findings indicated overall satisfactory perceptions of quality. Differences in gender or location didn't significantly affect the quality aspects. The SERVQUAL scale showed a positive correlation among the measured dimensions. Notably, patients nearing the age of sixty expressed higher satisfaction compared to those in their forties, particularly concerning reliability, assurances, and empathy. Reliability and tangibility were highlighted as having a more substantial influence on service quality compared to the other dimensions. Out patients showed greater satisfaction, particularly regarding tangibility and reliability, compared to inpatients. Differences in responses across cities were observed, attributed to varying factors such as technology usage, establishment dates, medical professionals' capabilities, resource limitations, geographical disadvantages, and patient overcrowding.

Rahman R (2013) aimed to gauge patient satisfaction across ten private hospitals in Dhaka city. The findings revealed high patient satisfaction levels with assurance, a neutral stance towards communication, responsiveness, and empathy, and overall satisfaction across the quality dimensions. The study indicated that reliability had the most significant impact on customer satisfaction, followed by responsiveness and empathy, whereas cost had the least impact. Consequently, the effective management of quality dimensions is crucial for private hospitals.

Thangaraj B (2016) highlighted the preference given to private corporate hospitals due to their superior access to modern technology. The research paper titled" Research examining how patients view the quality of services provided by private hospitals in Coimbatore. Revealed that the main factors influencing this preference were quality, followed by responsiveness and infrastructure.

Dave J (2014) conducted a study in Vadodara to explore the factors influencing hospital selection, client contentment and allagiance. The findings highlighted the significant role of perception in determining service quality. The choice of hospitals was primarily influenced by family considerations. Factors such as hospital reputation, supplementary facilities, doctors' expertise, and proximity to the patient's residence were key determinants in the selection process. A notable 61% of patients demonstrated loyalty to the hospitals and expressed an inclination towards referrals.

Aghamolaei (2014) assessed the service quality gap among ninety-six patients in a hospital in southern Iran. The study identified that the most significant quality gap was observed overall, particularly evident in the responsiveness dimension, while the smallest gap was associated with assurance. Demographic characteristics of patients were collected and analyzed using the Kruskal-Wallis test, revealing no correlation between demographic features and the quality of services. The author presented an evaluation indicating that the hospital's service quality was average

Augustine P (2014) conducted a review of quality evaluation in a government hospital in Ghana, aiming to understand the contentment degree of individuals seeking medical help. The study suggested that effective communication between healthcare services and patients could bridge existing gaps and cover various quality dimensions. Emphasizing the significance of customer satisfaction in expanding a healthcare provider's business scope, the research highlighted the need to identify gaps and implement measures for improvement.

The overall satisfaction rate was reported at 73.4%, with 38 patients expressing a highly positive response regarding quality. However, in the gap analysis, four out of six dimensions—responsiveness, assurance, communication, and reliability—received negative scores, indicating room for further improvement in hospital services despite empathy and tangibility receiving position rankings from patients.

Punnakitikashem et al. (2012) shed light on quality aspects within a highly quality-oriented hospital in Thailand, certified for Lean quality practices. The study examined the variance between patient expectations and perceptions, finding an overall average alignment. Patients expected higher tangibility, assurance, and reliability, but perceived higher empathy than assurance. Notably, tangibility was rated highest in both patient expectations and perceptions.

Nadi's study in 2016 indicated positive patient perceptions towards various dimensions. However, assurance showed the widest difference, while reliability showed the smallest difference. The authors concluded that the sampled hospitals fell short of meeting patient expectations, highlighting the need for continual improvement across all aspects to ensure patient satisfaction.

In Acharyulu's 2007 study, four internal gaps within hospitals were identified, leading to a fifth disparity between consumer anticipation and realizations. The research emphasized the need for a stronger focus on dependability and promptness,

which exhibited the largest difference. Fulfillment factors took precedence over tangible elements in hospitals, with assurance following closely. Patients anticipated knowledgeable doctors and technologically adept facilities. The authors advocated continuous service evaluations and hospital accreditations to enhance service quality, aligning with the expectations of quality-driven patients in the current era.

Jager's study in 2007 assessed service quality in Gauteng's government hospitals by surveying 583 inpatients and outpatients. The results highlighted high expectations for tangibility, particularly in terms of cleanliness. Overall, both inpatients and outpatients viewed staff appearance positively, with parking being of minimal concern to all patients. Tangibility aspects showed little variation in ranking between inpatients and outpatients. However, heightened anticipation were observed within the confidence category, particularly in security, personnel courtesy, and efficient correspondence. Clear dialogues received elevated ratings. The largest disparity between perception and expectation was observed in hygiene. The writer recommended management's focus on variables within the assurance dimension to address these issues.

Kavitha's 2012 study focused on service quality concerns within Salem's city area, examining two hospitals—a private and a public one. The research revealed that patients had a positive perception across all aspects, with facilities receiving the top score. Both nongovernmental and governmental medical facilities were cognizant of and aimed to meet the high expectations of their patients

Zaim's 2010 study explored the correlation between customer satisfaction and the SERVQUAL measure across twelve hospitals located in Turkey. The research delved into patients' perspectives regarding future intentions, perceptions, and evaluations of service quality. Contrary to expectations, the author's conclusion highlighted that readiness and certainty did not significantly influence contentment, while

concreteness, understanding, dependability, and politeness held greater importance in shaping it.

Ramez W's 2012 perspective favored SERVPERF over SERVQUAL measures. The study highlighted the significance of responsiveness within the tangible aspect. Additionally, reliability, responsiveness, and assurance received high scores across other parameters. The research also noted a strong association between the overall quality of services and contentment.. Furthermore, a contented patient was identified as likely to recommend the service to others.

Caha H's 2007 study utilized the Kara model to assess patient loyalty to hospitals based on customer satisfaction and quality. They employed a modified SERVQUAL model with an expanded set of elements in a questionnaire. The findings indicated that while service quality at private hospitals was deemed satisfactory, significant improvements were required, particularly concerning waiting times due to inadequate physical and Human Resources

STATEMENT OF PROBLEM

The issue at hand is hospitals recognizing the crucial importance of enhancing service quality to remain competitive in today's intense environment. Their competitiveness hinges on service patterns, quality, and meeting patient expectations. However, many hospitals struggle to pinpoint the gaps between patient expectations and their actual experiences. If these gaps aren't effectively identified, healthcare organizations may struggle to sustain themselves in this competitive landscape. Viewing healthcare from the perspective of consumers is vital. By understanding and addressing differences in expectations and experiences, providers can create partnerships rather than taking a paternalistic approach. Quality healthcare is indispensable for individuals, organizations, and society at large. Failing to meet or exceed customers' quality needs is not an option, especially in healthcare, as it could lead to disastrous consequences. Therefore, establishing

a systematic measure to assess healthcare quality is crucial for improvingservices.

This research primarily delves into quality of service and patient contentment with in hospital environments, utilizing the SERVQUAL model, which primarily centres on patients' expectations. It aims to comprehend the facets of service excellence as understood by patients by evaluating their anticipations and their actual appraisals of service quality. In this study, the research aims to address the following inquiries:

How do patients view the quality of medical care provisions?

- Are patients' content with the quality of assistance rendered by hospitals?

- Do patients' perceptions of services align with their initial expectations?

Therefore we've chosen to utilize the service assistance methods to evaluate hospital service excellence. This model aims to gauge the gap between consumers' anticipations of hospital services and their actual experiences across multiple dimensions (such as concreteness, Contentment, understanding, dependability, and politeness). Striving to meet hospital expectations is crucial for maintaining a strong reputation for quality. Understanding patients' perceptions of hospitals is essential for survival in a competitive environment, underlining the significance of this research.

What differences do patients notice between what they expect and what they actually experience in private hospitals in Kottayam when it comes to different aspects of service quality?

This investigation aims to understand what factors are important for patients when choosing a hospital, what patients generally hope for from good hospitals, and whether these hospitals manage to exceed patient expectations in terms of reliability, responsiveness, and other quality parameters. Additionally, it will highlight which specific areas in service quality these hospitals need to focus on

to bridge the gap between expectations and reality for their patients.

OBJECTIVES OF THE STUDY

- To evaluate and compare service quality perceptions among major departments within hospitals to ascertain whether any notable disparity exists in perceived service quality across various departments.

- To evaluate and compare the service quality perceptions among hospitals located in major towns within Kottayam district, aiming to ascertain if there exists a significant difference in perceived service quality among these healthcare institutions.

- To explore the connection between the quality of service and duration of hospital stay, with the aim of determining whether there is a noteworthy association between these patient-related attributes and the perceived gaps in service quality.

- Investigate the association between patient satisfaction levels in hospitals and the dimensions of staff responsiveness and cleanliness & hygiene, aiming to understand the influence of these factors on overall patient satisfaction.

- Create a standardized five-point scale to assess and represent the perceived service quality factors based on customer perceptions, enabling a structured evaluation of these factors' perceived importance from the customer's view point

RESEARCH METHODOLOGY

❖ Research Design

The current research design is categorized as descriptive because it aims to illustrate and depict the observed characteristics or phenomenon related to service quality gaps. Descriptive research primarily focuses on portraying the features of a population or phenomenon under investigation. However, it doesn't delve into answering queries

about the mechanisms, timing, or reasons behind these observed characteristics.

❖ Data Collection Methods

a) Primary Data Collection:

To acquire reliable firsthand data, the researcher utilized the Survey Method by employing a systematic questionnaire. This structured approach was chosen for its cost-effectiveness, wider reach through volunteers, increased efficiency, and reduced interviewer bias. The study's sample size of 300 was determined based on the average bed size and occupancy ratio of selected hospitals, using guidelines established by Krejcie and Morgan.

b) Secondary Data Collection:

Secondary data essential for the study will be gathered from diverse published sources like reference materials, journals, newspapers, governmental reports, apex body records, relevant books, both published and unpublished research, as well as web-based information about private hospitals.

❖ Selection of sample

a) Universe of Hospitals

All those hospitals which are registered with competent government authorities such as District Medical Officer and those which have capability to admit patients for medical treatment are included in the universe.

b) Sample size

In the given study with specified bed capacity (more than 100), 400 patients were approached and 300 responded to the survey which are included in final analysis. These patients were selected from different hospitals of major towns in Kottayam District.

Sample Size Selection

Sl No	Towns	Hospitals	Sample
		Barath Hospital	25
		KIMS	25
		kottayam Medical College	25
1	Kottayam	SH Medical Centre	25
		Mar Sleeva Hospital	25
		Marian Hospital	25
2	Pala	LLM Hospital	25
		Carithas Hospital	25
3	Ettumanoor	Matha Hospital	25
		St Thomas Hospital	25
		Udayagiri Hospital	25
4	Changanacherry	NSS Medical Centre	25

❖ Hypothesis

H0: No significant difference in service quality perception among major departments in the

Hospitals

H0: No significant difference in service quality perception among hospitals in major towns in Kottayam District

H0: No significant relation between service quality gaps and patient characteristics like length of stay and socio-economic factors.

DATA ANALYSIS

▪ TWO WAY ANNOVA

The study examines patients'average ratings, on a scale of 1 to 5, across key service sectors in hospitals within Kottayam district. Specifically, it employs a two-way ANOVA to explore two main aspects:

Determining if there exists a noteworthy discrepancy in the perceived quality of services across major departments within hospitals (emergency, pediatric, surgery, internal medicine).

Investigating whether there's a noteworthy variation in how service quality is perceived among hospitals situated in different major towns within Kottayam district.

Departments

	Emergency service	Pediatric	Surgery	Internal Medicine
Kottayam	3	3	3	2
Changanacherry	3	4	3	3
Pala	4	3	4	4
Ettumanoor	4	4	3	4

Town

$N = 16$

$T = 3+3+\ldots\ldots\ldots+3+4 = 54$

$T^2/N = 182$

$SST = $ Sum of squares of observation $- T^2/N$

$= 6$

$SSC = (\sum X_1^2)/n_1 + (\sum X_2^2)/n_2 + \ldots\ldots\ldots - T^2/N$

$= 0$

$SSR = (\sum X_1^2)/n_1 + (\sum X_2^2)/n_2 + \ldots\ldots\ldots - T^2/N$

$= 2$

$SSE = SST - SSC - SSR = 4$

$MSC = SSC/c-1 = 0$

$MSR = SSR/r-1 = .67$

$MSE = SSE/(c-1(r-1) = .44$

Sources of variation	Sum of squares	D.O.F	Mean Squares	F
Between Columns	0	3	0	$F_C = 0$ $F_R = 1.52$
Between Rows	2	3	.67	
Residual	4	9	.44	
Total	6	15		

Between Columns

DOF= (c-1), (c-1)(r-1)= 3,9@ Level of significance .05 = 3.86

Derived value is lower than tabulated value, leading to the acceptance of H0

F_R = MSR/MSE=1.52

Between Rows

DOF= (c-1), (c-1)(r-1)= 3,9@ Level of significance .05 = 3.86

Derived value is lower than tabulated value, leading to the acceptance of H0

There is no substantial disparity in service quality perception among major departments in the hospitals. There is no substantial disparity in service quality perception among hospitals in major town in Kottayam District

MULTIPLE REGRESSION ANALYSIS

Conducting a comprehensive multivariate regression analysis to ascertain the influence of patient-rated staff responsiveness and communication, quantified with a scale with 5 gradations, on the broader framework of patient satisfaction, appraised through a 10-point scale, within the intricate landscape of hospital settings

Hospitals	Satisfaction level	Staff Responsiveness	Communication
Kottayam	5.5	2	1.5
Changanacherry	6	2.5	2
Pala	6.5	3	2.5
Ettumanoor	7	3.5	3

y on x_1 & x_2

$y = a + b_1 x_1 + b_2 x_2 + \ldots\ldots\ldots\ldots b_n x_n$

$y = a + b_1 x_1 + b_2 x_2$

$\sum y = Na + b_1 \sum x_1 + b_2 \sum x_2 \ldots (1)$

$\sum y x_1 = a\sum x_1 + b_1 \sum x_1^2 + b_2 \sum x_1 x_2 \ldots (2)$

$\sum y x_2 = a\sum x_2 + b_1 \sum x_1 x_2 + b_2 \sum x_2^2 \ldots (3)$

$\sum y = 25, \sum x_1 = 11, \sum x_2 = 9, \sum y x_1 = 70, \sum y x_2 = 57.5, \sum x_1 x_2 = 26, \sum x_1^2 = 31.5, \sum x_2^2 = 15.5$

$25 = 4a + 11b_1 + 9b_2 \ldots (1)$ $70 = 11a + 31.5b_1 + 26 b_2 \ldots (2)$

$57.5 = 9a + 26b_1 + 15.5 b_2 \ldots (3)$

Solving (1) & (2)

$$1 = b_1 + b_2 \ldots\ldots (4)$$

Solving (1) & (3)

$$5b_1 + 19b_2 = 5 \ldots\ldots (5)$$

Solving (4) & (5) we get $b_2 = 0$

Substituting in (4) we get $b_1 = 1$

Substituting the values of b_1 & b_2 in equation (1)

We get a=3.5.

Multiple regression equation is y= 3.5+ $1x_1 + 0x_2$

The constant term (3.5) represents the baseline satisfaction level when both X1 (staff responsiveness) and X2 (communication) are zero.

The coefficient for X1 is 1, indicating that for every unit increase in staff responsiveness (X1), there is a corresponding increase of 1 unit in patient satisfaction (Y).

The coefficient for X2 is 0, which means that communication (X2) doesn't appear to notably influence patient contentment.

- ▪ MULIPLE CORRELATION ANALYSIS

Conducting a multiple correlation analysis between cleanliness and timeliness, each rated on a 5-point scale, in relation to overall satisfaction levels rated out of 10 within the hospital industry, aims to reveal the intricate dependencies and collective influence of these crucial factors on the patient experience and perceived service quality."

Hospitals	Satisfaction level	Cleanliness	Timeliness
Kottayam	5.5	3	3
Changanacherry	6	4	3.5
Pala	6.5	4	4
Ettumanoor	7	5	4.5

$$R_{1.23} = \sqrt{r_{12}^2 + r_{13}^2 - 2r_{13}.r_{23}.r_{12} / 1 - r_{23}^2}$$

$r_{12} = .37$, $r_{13} = .63$, $r_{23} = .78$

$$R_{1.23} = \sqrt{.37^2 + .63^2 - 2*.63*.78*.37 / 1 - .78^2}$$

$$= .64$$

The multiple correlation coefficient of 0.64 between cleanliness and timeliness ratings (each on a 5-point scale) concerning overall satisfaction levels (rated out of 10) in the hospital industry indicates a substantial and positive association among these factors. This suggests that approximately 41% (0.64 squared) of the variability in the overall satisfaction levels can be explained collectively by cleanliness and timeliness, highlighting their noteworthy combined effect on enhancing the perceived quality of services provided to patients.

▪ CHI-SQUARE TEST

To investigate the association between length of hospital stay and service quality gaps within the context of the SERVQUAL model, a chi-square test will be conducted.

Null Hypothesis (H0): There is no substantial discrepancy in the relationship between the duration of stay in the hospital and service quality gaps as per the SERVQUAL model.

Alternative Hypothesis (H1): There is a substantial discrepancy in the relationship between the duration of stay in the hospital and service quality gaps as per the SERVQUAL model.

The sample size for this analysis comprises 300 observations.

Within the SERVQUAL model applied to the hospital industry, service quality gaps encompass five dimensions: dependability, contentment, concreteness, understanding and understanding. These gaps manifest when a contrast exists between customer anticipated ideals and observed perceptions of service.

In hospitals, these gaps may originate due to distinct reasons:

Gap 1 (Knowledge Gap): Arises from a lack of understanding by management regarding patient expectations.

Gap 2 (Policy Gap): Emerges when service standards and policies don't align with patient expectations.

Gap 3 (Delivery Gap): Results from a disparity between provided service and established standards.

Gap 4 (Communication Gap): Occurs due to discrepancies between advertised services and actual delivery.

Gap 5 (Perception Gap): Represents differences between patient perceptions and their expectations.

Addressing and rectifying these gaps is pivotal for hospitals to improve service quality, align services with patient expectations, and ultimately augment patient satisfaction and loyalty.

Observed Frequency

Service Gaps

Days admitted	Gap 1	Gap 2	Gap3	Gap4	Gap 5	
0-3	30	25	50	40	5	150
3-6	5	20	40	22	13	100
6-9	5	5	5	10	5	30
9-above	5	5	5	3	2	20
	45	55	100	75	25	

Expected Frequency

	Gap 1	Gap 2	Gap3	Gap4	Gap 5	
0-3	22.5	27.5	50	37.5	12.5	150
3-6	15	18.33	33.33	25	8.33	100
6-9	4.5	16.5	10	7.5	2.5	30
9-above	3	3.66	6.66	5	1.66	20
	45	55	100	75	25	

Days admitted

Chi square $= \sum (O-E)^2/E$

$=29$

Level of significance $= .05$

Degree of Freedom$= (r-1)(n-1) =12$

TV $= 21.03$

The calculated chi-square value of 29 exceeds the table value of 21.03, indicating a considerable disparity exits between the frequencies observed in your data and what was anticipated. This suggests that there may be a meaningful relationship between the variables being analyzed. In this context, it could imply that the length of hospital stay (days admitted) might be influenced by or associated with the magnitude of the services gap.

FINDINGS

- Analysis reveals an absence of statistically noteworthy variance in the perceived service excellence among the major departments within the hospital setting.

- The study shows a lack of statistically meaningful disparity in the perceived service quality among hospitals located in the principal towns within Kottayam district.

- Notably, staff responsiveness and cleanliness demonstrate higher weighted averages, suggesting potential avenues for improvement. Focusing on augmenting communication practices and enhancing timeliness could contribute to a more holistic and refined service experience.

- A discernible correlation emerges between the identified service quality gaps and the duration of patients' stays within the hospital, indicating a plausible relationship worthy of further exploration and consideration in healthcare management strategies.

CONCLUSION

The global shift in governance from welfare-focused models to regulatory frameworks, catalyzed by the forces of globalization and liberalization, has significantly broadened opportunities within the healthcare industry. Marked by rising literacy rates, increased

disposable incomes, and a burgeoning middle class armed with vast information, healthcare service providers are compelled to reorient their strategies toward bolstering customer satisfaction, aligning with the evolving consumer landscape. However, amidst this transition, the crucial role of internal factors in the selection of healthcare facilities remains a topic of debate, emphasizing the need for hospitals to proactively enhance the service experiences of existing patients, who serve as influential advocates for attracting new ones.

Private hospitals face soaring expectations across various service attributes, signaling a call to action for hospital administrations to earnestly address these elevated demands. Despite these expectations, patient discontent with service quality persists across multiple dimensions, demanding immediate and meticulous attention from hospital administrations for swift intervention. Notably, disparities in service quality across diverse dimensions underscore the pressing need for improvements, with the most significant gaps observed in reliability and assurance of services, while the empathy attribute exhibits a relatively smaller gap. This paradigm shift in healthcare delivery necessitates ongoing enhancement strategies, as evidenced by research seeking to identify and prioritize key service quality dimensions crucial for enhancing patient satisfaction. Effectively addressing patient concerns, ensuring accuracy in treatment delivery, and establishing reliability are vital to fortifying patient trust in healthcare settings. Effective communication between service providers and patients, coupled with modern facilities and advanced equipment, further underscore the need for skilled human resources, requiring precise training and robust human resource planning within hospital environments.

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