

# JIM QUEST

## Journal of Management and Technology



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**Consumer Electric Car Buying Preferences: A Study on The Impact of Influencer Marketing**

*Pankaj Sharma, Prof. (Dr.) R.K. Yadav*

**Role of Employee Engagement and Organizational Culture on Sustainable organisational Performance: Motivation as Mediating Variable**

*Prof. Surekha Rana, Pragati*

**The Rise of Chatbots: A new era in Marketing**

*Dr. Shipra Agarwal, Aahana Sharma*

**Role of 5G technology for Humanity Security Issues, Challenges and Applications**

*Mr. Harshil Sharma, Dr. Shipra Agarwal*

**Green Technology and Smart Mobility: Shifting Paradigms For A Sustainable Future**

*Poonam Bera*

**Employee Experience approach to Leadership development**

*Mr. Mangesh B Kulkarni, Dr. Vandana Mohanty*

**An Analytical Study of Financial Inclusion and Its Impact on Rural Area**

*Dr Suruchi Satsangi, Ms. Neha Singh, Mr. Rajeev*

**A Study of Impact of Green Banking Service Practices for Sustainable Development of SBI**

*Dr. Preeti Varshney*

**A Study of the Relationship between Green Governance and Sustainable Finance in PSU Banks**

*Tarun Bose*

**The Impact of Rural Credit on Poverty Elimination**

*Varun Tiwari, Dr. Shilpy Jindal*

**Examining the relationship between emotion and academic motivation among students-A case of private university in India**

*Ashoo Khosla, Shard Gupta*

**Analyzing the Barriers to Women Entrepreneurship in India**

*Supriya Srivastava, Devesh Kumar*

**Sustainability Practices and Challenges in Higher Education Institutions: An Exploratory Study**

*Dr. Divya Rana, Dr. Syed Md Faisal Ali Khan, Mr. Shashank Chaudhary*

**Unprecedented Influence of Confirmed Covid-19 Death Cases on Indian Stock Market**

*Jonika Lamba, Dr. Esha Jain, Dr. Priyanka Banerji*

**Cost benefit analysis of IOT based green building technology for residential sector of India**

*Giti Vatsa*

**A Study on Employees Retention of Self-Finance Institutes in Lucknow**

*Sanjoli Kedia, Dr. Arun Kumar Shukla*



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discovered that influencers have the necessary popularity and competence. Even while influencers are used to increase EV Car brand engagement and attract new consumers, it can be difficult to choose the right sort of influencer who will have the biggest impact on a favorable target market by propagating the good brand message (Johansen, 2017). Influencer marketing's growing popularity may be ascribed to a variety of causes, including a greater return on investment, more clear content, increased connection with the proper target groups, and near real-time consumer feedback. There has not been a specific scholarly definition of influencer marketing, particularly in the Indian context, where it is rapidly gaining popularity (Cartwright, 2022). In compared to just 1,000 Instagram influencers in India at one time, there are currently over 6 million influencers globally (Economic Times, 24 May 2022). The customer generation, or those born between 1982 and 2004, (Vrontis, 2021), is the subject of the authors' examination of the influencer advertising and marketing environment to influence consumers' EV car purchase preferences. This booming economy is getting attention in India. Researchers have researched how entrepreneurs use influencers across several media to better understand the influencer function. When the writers looked at the many ways that influencers impact customers' decisions to buy an EV, there was a dearth of supporting evidence. 25 consumers who routinely observe five influencers-bloggers, business evangelists, and industry experts-will take part in a qualitative field research for this piece (marketing practitioners). Childers' (2019) social getting to know notion and Taylor's (2020) planned behaviour idea were used to augment the authors' discussion guide. The discussion content includes research into the numerous ways that influencer marketing effects customer behaviour. To identify which product categories are most enticing to influencer marketers, the authors examined the degree of affect for a range of product categories such as beauty, lifestyle, technology, food, healthcare/fitness, and so on. The authors also considered how the influencer type and the EV car category interacted. The study's findings may also serve as a foundation for entrepreneurs to enhance their strategy to employing influencers in advertising by offering insight into customer expectations, problems, and influencer types chosen for several EV vehicle features.

## Literature Review

Over time, influencer marketing has developed and gained acceptance.

The word "influencer" has grown more popular in marketing and advertising literature in recent years. There is no theoretical meaning of the term "influencer" currently. According to Jin and Ryu (2019), "influencer marketing" is the process through which a third party impacts a customer's purchase choice. Influencer

marketing, according to Chopra et al., is interacting with the desired audience and propagating a brand's message through individuals with a significant social media following. (2020). Influencers promote consumer confidence more than other online sources (2019). Customers use ad blockers to avoid adverts on purpose. Influencer advertising is seen as less apparent and more fascinating than traditional internet advertising such as pop-ups, banners, and the like in this environment. Online influencers are increasingly considered as legitimate authority in the digital domain, according to Woods et al. (2016). Influencers have been employed to increase two-way commercial dialogue on online platforms such as Facebook, YouTube, and Instagram to urge their online audience to buy certain items (Haenlein et al., 2020). Businesses may utilize influencers to communicate with clients who usually ignore or avoid advertising (Gretzel et al., 2017). Most EV vehicle marketers understand the need of collaborating with influencers to develop meaningful relationships with clients. According to the Association of National Advertisers, 58% of agencies would have connections with 25 or fewer influencers by 2022. (ANA). This shows that marketers strive to strengthen relationships between customers and influencers (Fries, 2019).

## The theoretical foundation

The social learning hypothesis has been used in academic research, notably in the conversational sector (Kadekova, 2018). (Zietek et al., 2016). The notion establishes a framework for comprehending how peer, authority, and other human forces impact consumer behaviour (Childers et al., 2019; Byrne and co., 2017). Agents of socialization induce people to respond positively, both instantly and in response to earlier social encounters (Biaudet, 2017; Martnez-López, 2017). Many management publications have utilized this kind of thinking to find out how key individuals, such as family, friends, people who happen to be around a lot, and opinion leaders, influence how people act. Beliefs that have an influence on humans fall into three categories: behavioural beliefs (beliefs about the outcomes of an action), normative beliefs (beliefs about other people's expectations), and manipulative beliefs (beliefs about the presence or absence of elements that ought to enhance or obstruct the performance of the behavior).

## Influence of recommendations

Endorsements are viewed as critical for developing a good image for the electric car sector and attaining commercial goals when it comes to a company's advertising activities. Online influencer marketing, according to (Levin,2020), has lately attracted a lot of attention and is believed to be more profitable and less expensive than more traditional marketing tactics such as celebrity endorsements. Although some study shows that online influencers have a beneficial impact on consumers' EV car buying decisions (Leung, 2022), others argue that evidence on

digital influencers is lacking. (Belancheet al.,2021) Influencer marketing trumps digital advertising in terms of outcomes, according to search association A. C. Nielsen (Feng, 2021). A poll found that celebrity endorsements raise awareness of electric car manufacturers, but internet influencers play a critical role in driving product engagement and brand loyalty (Feng, 2021). Influencers communicate to a certain audience, thus the messages they provide are more targeted. It is usual practice to assess the dependability of the source to estimate the success of a recommendation (Hudders et al., 2021). Customers are more inclined to think favorably of an electric car if their favorite celebrity recommends it (Veissi, 2021). Additional recommendations make it easy to collect appropriate product statistics (Xiao et al., 2021). To get great outcomes, the endorser's message should be suitable with the product. According to Glucksman (2017), the theory considers a recommendation as well as the appropriateness of a company. A high-quality advertising and marketing plan should prioritize selecting endorsers who suit the EV car brand (Karagür, 2022). The authors investigated if the elements influence people's chances of acquiring an electric car. Furthermore, the search will find the influencer types with the biggest sway and crew influence levels for certain electrical car characteristics.

## **Research Methodology**

The target demographic included internet-savvy, educated, and engaged social media users (those who used social media at least once per day). Furthermore, each responder consistently accompanied prominent persons (checked updates twice a week and followed at least three influencers). The major goal of the investigation, as previously indicated, was to learn more about the just developing electrical car advertising method known as influencer marketing. Exploratory research is the initial step in evaluating an issue or concept without reaching any conclusions (Bognar, 2021). Instead, it focuses on increasing our understanding of the relevant topic (Cartwright, 2022). This inquiry uses a qualitative investigation to uncover important influencer advertising and marketing features and subdimensions that impact customers' purchasing intentions. It is based on the TPB and social learning theory. Because influencer marketing is a novel idea, the authors are currently finding out which other factors should be researched (Lagrée et al., 2018). According to Lou (2019), the primary aims of qualitative research, which does not begin with a fixed premise, are the production of fresh concepts and thorough understanding of a specific subject. Rather than forecasting future behaviour, the purpose of this study is to discover and expound on the effects of influencer advertising on consumer behaviour. Despite its lack of scientific generalizability, qualitative research seeks to get a better understanding of a phenomena rather than generalizing to a broader population (Johansen, 2017). The qualitative study served as the

foundation for the research design. Previously, in-depth interviews were performed with members of the target market, namely followers who actively followed influencers across a wide range of product categories. Active followers examined the updates of the influencers they were following at least three times every week. Open-ended interviews were conducted with the assistance of the researchers. One-on-one interviews were performed in person. Once, all twenty-five in-depth interviews were performed. the second set of interviews with company executives working on influencer marketing campaigns. Interviews were conducted with experts in the electrical car advertising sector. Their recommendations were a valuable resource that served as the foundation for developing discourse information for the in-depth interviews. A total of 57 interviews were performed with fervent followers to discover more about how followers see influencers, the numerous classes they follow and like, and the kind of influencers they respect in each category. The researchers had a solid knowledge of how to build the interview dialogue guide, prepare for interviews, and break up each unit of analysis for comparable dialogue after reading a considerable quantity of literature.

### **The following format was used for the discussion information:**

1. Obtaining data on the most recent social media platforms, influencers, and EV car categories that have shown effectiveness with influencer marketing
2. Identifying the key components of an influencer advertising and marketing strategy that affect customers' decisions to buy an electric car (attitude, perceived behavioural control, subjective norms, source credibility, and product influencer fit) Construct a priority list for the various influencer types for each category of electric car to create a matrix that best matches the influencers.

## **Results of the Data Analysis Process**

Participants were asked to expand on their understanding of each issue after a conventional introduction of the distinctive components (attitude, perceived behavioural control, subjective norms, supply credibility, and product influencer fit). Each person's records were examined to detect patterns of similarities and differences. Statistical assessment using the conceptually clustered matrix technique (Chopra et al., 2021). Some components of this strategy "belong together." The transcripts of each unit were inspected, evaluated for trends, and labelled suitably for further investigation. The simplified concepts and guiding principles from the quotes were originally utilized to build a desk. Case-by-case style analysis and instance differentiation were coupled to evaluate product category-influencer fitting (Grafström, 2018). The data were first utilized to generate the first participant's precise ideas and sub concepts. If the initial responder's essential concepts did not

match the outcomes of the numerous participants, the producing themes, subthemes, and thoughts were evaluated by examining them across respondents. The development of the themes, subthemes, and concepts appeared more comprehensive as a result. After the thoughts and statements were condensed, three academic and research specialists validated the accuracy of the content. The comments of the experts were used to advise the prior construction desk (Table 1).

### Results of interviews

The conclusions and fresh discoveries from in-depth interviews with members of the target audience were divided into two

groups. These categories were developed as a result of extensive interviews with respondents. The researchers constructed dictionaries for each construct by reviewing literature and classifying the most essential themes into each construct. Personal relevance, trust, inspiration, and perceived risk were utilized to categorize the findings, which were classified using the TPB's unique constructs (positive attitude, subjective norms, and perceived behaviour control) and other constructs mentioned throughout the conversation. The outcomes of the important constructions are given in the next section.

Table 1. Principal Findings

Construct	Key Finding	Dictionary
Attitude	Favorable because consumer base their electric car purchasing decisions on meaningful content	Like, follow, current source of information on EVs
Perceived behavior control	Favorable, as evaluated by behavior	Acquire domain knowledge
Subjective norms	The peer group had minimal influence.	It makes no difference who my friend follows; the category can be considered.
Personal relevance (Masuda, 2018; Gross et al., 2018; Kim, 2021; Farivar, 2021; Karagür, 2022)	As people's curiosity rose, they became followers.	relatable, compatible with my tastes and ideas
Trust (Haenlein et al., 2020)	appeared as a necessary feature of EVs	Consideration for followers, dependable, authentic material
Inspiration (De Veirman et al., 2019)	It stimulates the consumer	Motivate people to act
Perceived risk (Vrontis,2021; Fries, 2019; Fenget al., 2021)	Was discovered to be low because unfollowing is simple.	The expectation was not met.

### An Overview of the Individual Buildings

- Attitude:** an individual's favorable or negative reaction to a specific conduct. Most respondents had a positive view and profited from the expertise of specialists. Influencers, according to respondents, assist comprehension, are scenario experts, keep others informed, and communicate well, enlightens me on the most innovative electric car strategy approaches accessible today(Vishal, 34).
- Perceived movement control:** reflects a person's past engagement in the project as well as their concentration on possible barriers. According to the respondents, witnessing an influencer is the greatest approach to learn more about a successful job. They should also distinguish between the several influencer subtypes that exist for each type of electric vehicle. the

acquisition of subject-matter knowledge "Influencers don't simply look at how electric vehicles appear;" They explore thoroughly into the characteristics and aspects based on rates (Sonu, 33). Automobile bloggers offer their honest thoughts on the electric vehicle(Vishu, 33).

- Arbitrary criteria:** The fundamental goal of subjective standards is to understand how various individuals may accept or disapprove of a certain activity. Peers had no effect on the responses. Rather than following what one's old peer team was doing, the key motive for following an influencer was curiosity. Even though peer ideas drew attention, the target audience stated that if the material did not keep their attention, they would cease following the influencer. "I will absolutely quit following that character if an influencer tweets

about issues that are extraneous to what I am interested in," (Naresh, 36) adds. I don't follow influencers because they're recommended to me by friends. Because I am no longer a part of it, if I don't like it, I may not be motivated to follow those who do. Despite my best attempts, I always wind up unfollowing these folks after a while (Sunak, 37). Regardless of who my friends are following.

## New Development

- 1. Personal significance:** the ability to learn from one's own prior experiences in ways that are relevant to one's own goals, hobbies, or culture. Numerous research has demonstrated that while processing information, motivation and participation are the same (Xiao, 2018; Glucksman and others, 2017; 2022 Karagür; 2019 Bognar; Lagrée, 2018). This group was determined to be extremely essential because the majority of respondents stated that they followed influencers out of curiosity and for relevant material. According to the responder, individuals monitor influencers in industries that are comparable to and affiliated with them. I follow electric car influencers because I am interested in the issue and believe their information to be relevant, attractive to my tastes, and consistent with my beliefs. I also recommended an electric automobile to a friend, Amit, 33, after hearing about it from an influencer. I follow people who match my tastes for electric vehicles in terms of features, performance, and longevity (Mona, 35).
- 2. Implicit beliefs:** the most crucial aspect in a customer's choice to buy from unknown sources is the product's look (Johansen et al., 2017). According to Grafström (2018), believing promotes long-term customer connections, stimulates more purchases (Masuda, 2022), and encourages customers to tolerate a pricing rise (Farivar, 2021). Now more than ever, trust is required. Respondents prefer influencer referrals to corporate promotion because they perceive influencers to be trustworthy sources of information. They indicated that they expected influencers would avoid misleading advertising since they cared about their following. Consider your audience and utilize credible facts. I have started excluding them because I'm aware of a few automobile websites that inflate product specifications (Sahilesh, 35). Some influencers provide me with precise, in-depth knowledge that helps me understand autos better. (Vikash, 35).
- 3. Inspiration:** A country of thinking inspires humans to act on their ideas. By better understanding inspiration, researchers may be able to discern people's emotions

as they act on their creative ideas (Veissiet al., 2017). The following have also been shown to be highly supported by inspiration. People are compelled to follow influencers and keep track of their blogs, ideas, and activities, according to the respondents, since they provide as motivation. People are urged to act, such as suggesting an electric car or becoming a thought leader. Encourage others to participate: "After reading an article on electric automobiles, I went for a test drive of the EV cars," a client once said. (Sangam,34)

- 4. Risk:** The anticipation of future loss has been defined using a risk knowledge and a probability measure linked with each prospective occurrence (Gross, 2018; Woods, 2016; Taylor and co., 2020). When customers are apprehensive that a product may not meet their expectations, they are exposed to performance risk (Haenlein et al., 2020). Previously, this notion was regarded to be insignificant. Because there was no initial investment necessary, most respondents said they saw no danger in following influencers. They unfollowed the influencers if they thought the statements were bogus; all it took was time. Expectations not met Contrary to popular belief; the product is not the Holy Grail. (Amit, 36) Other Consequences What comes to mind first when you think of an influencer? The majority of poll respondents identified influencers with concepts such as trustworthy sources, subject matter experts, trustworthy persons, and so forth. Personal activities of influencers (such as bloggers, social activists, and so on) were less recalled.

## What makes influencers so well-known?

Influencers were seen as being up to speed on the most recent trends and frequently functioning as opinion leaders due to their in-depth expertise of technology, the most latest vehicle goods, and a number of other issues. They were adored by their followers as well-informed authorities who offered straightforward information. According to the respondents, the difference between celebrities and influencers is that celebrities marketed things they did not use themselves and focused on spreading the style they were enthusiastic about, while influencers prioritized agencies.

## Platforms of preference

Most respondents said they wanted to learn more about electric cars because of the electric motor. Price, design, after-sales services, security, and entertainment accessories were among the criteria they considered. YouTube and Instagram were picked above other social media sites for these genres because of their visual content. Bloggers were seen to be wise since they

used blogs, forums, corporate websites, and Instagram accounts. For statistics on technological items and educational programs, blogs and boards were regarded neutral and objective, which increased clarity.

The key variables encouraging individuals to monitor influencers in following influences' driving forces were passion and interests. Following the counsel of significant individuals resulted in the acquisition of an electric car. One of the responders, a vehicle engineer himself, got an electric vehicle after hearing about it from a professional auto blogger. People followed influencers more for their activities than for their personality, according to the most well-known influencers.

### The dependability of influences

Respondents stopped following influencers when they learned they were spreading false advice, notably in beauty classes. As a result, influencer marketing was primarily reliant on trustworthiness.

### Influencer Effects

More than 80% of the people polled indicated that influencers kept them updated about the electric car brand, 70% said they helped them think favorably about the product, 33% said they helped them become experts on the product, and 25% said they bought the product. To put it another way, influencers do affect behaviour on four unique levels: product promotion, purchase, understanding improvement, and raising awareness.

### Electric Car suitability matrix

After obtaining the list, respondents were asked to categorize it into high, medium, and low classes depending on their personal preferences. They were instructed to choose the influencer kind that had previously been well-suited following separation. Influencers include social media stars, celebrities, expert bloggers, thought leaders, unbiased voices, everyday influencers, micro-influencers, and manufacturer advocates (friends and family) (Table 2). When offered with three alternatives of "high, medium, and low," it was observed that factors such as "electric motor," "security," "purchasing cost," and "design" were regarded as relatively desired. "Entertainment devices," "interior," "operating cost," and "environmentally friendly" were assessed as having a medium level of preference, but "tax benefits," "charging stations," "noise pollution," and "AI" were regarded as having a low degree of choice. It was found once when individuals were unsure about the type of influencer they desired in various categories.

- Celebrities have been preferred for electric car company endorsement only.
- Professional bloggers have been favored for their knowledge.
- Micro-bloggers have been desired for electric car the place respondents stated that customized blogs on the journey of automobile and its aspects stories about the typical advantages of electric cars.

Table 2: Product Influencer Fitment Matrix

Level	Category	Celebrities	Online Personalities/ Pro Blogger	Thought Influencers	Regular Influencers	Brand References (Friends, Family)
High	Electric motor	8	9	2	2	0
	Security	18	19	10	6	8
	Buying cost	16	13	13	2	5
	Design	12	17	11	13	8
Medium	Entertainment devices	6	4	6	2	4
	Interior	5	10	9	3	4
	Running cost	5	12	5	9	6
	Environment friendly	7	5	6	3	4
Low	Tax benefits	3	2	2	3	0
	Charging points	2	6	4	3	2
	Noise pollution	0	0	0	2	0
	AI	4	2	7	3	3



Figure 1. Theoretical Framework proposed by authors.

Source: The authors.

Findings from Experts in the Vehicle Industry (Entrepreneurs, Small and Medium-Sized Enterprises, Senior Marketing Professionals, Academics)

According to specialists in the automobile sector, most marketing experts are more concerned with how influencer advertising should be employed than with its advantages. With their marketing message, electric car firms may employ influencers to reach all socioeconomic classes and ranges of individuals in their target market. It is believed that vehicle manufacturers maintain their activities hidden and allow word to flow spontaneously. The most critical step, on the other side, is selecting the proper influencer. Marketers feel that clients are growing more aware of and depending on well-known influencers. One of the best examples of opinion leaders on social media is a person with over 3,0000 followers on YouTube, where they express ideas and standards that impact the perspectives of others. The feedback section, shares, and reposts may reflect how well marketers view viral marketing.

### Discussion and Implications

The current study offers marketing professionals strategic insights that will assist them in selecting the right influencers and content distribution tactics to efficiently reach their target audience. Because of enhanced consumer education and training, they can now tell the difference between an honest advice and an endorsement. Consumers are more inclined to dislike manufacturers who hire influencers if they do not analyze how the influencer fits into the manufacturer's story. After defining the target population for whom the message would be relevant, advertising and marketing specialists would want to focus on picking the proper influencers and employing them to increase corporate involvement. Customers' perceptions of

influencers as an extension of their friends suggest that the question to ask is not "why should I use influencer marketing," but "how should I use influencer marketing," even though word-of-mouth recommendations from friends or family are consistently rated as the most trustworthy data source. According to the study, influencers may help businesses engage with customers by developing empathy and connections. However, because personal relevance is more essential than peer influence, it is critical to utilize the appropriate influencers for each product category. Entrepreneurs will struggle to discover the proper influencers for their target demographic who can promote the brand's narrative and develop strong relationships with followers. When the goal is to improve conversions, influencer advertising should be employed cautiously. According to current research, electric car marketers favor influencers and bloggers with a big social media following.

### Future research scope and limitations

While the present study investigates the notion of influencer marketing while also considering customer attitudes, it focuses only on urban consumers. Because the findings are qualitative, they are not relevant to the entire universe. Given these constraints, a thorough quantitative review will be conducted soon to determine the reasons for customer approval of the influencer marketing plan. It would also be fascinating to investigate the perspectives of urban and rural clients, as well as the effect of celebrities and influencers. Following study may focus on evaluating the persona features of the most prevalent influences to strengthen a personality archetype. Marketers may then associate the traits of the influencer with the personality of the brand.

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# Role of Employee Engagement and Organizational Culture on Sustainable organisational Performance: Motivation as Mediating Variable

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## Abstract

*This study investigate the role of Employee engagement (EE) on motivation (MO) and “Sustainable organizational performance” (SOP); the role of organizational culture (OC) on motivation (MO) and “Sustainable organizational performance” (SOP); the role of motivation (MO) on “Sustainable organizational performance”(SOP); The influence of “Organizational culture” and Employee engagement on motivation and “Sustainable organizational performance”; Mediating role of Motivation the relationship between “Organizational culture” and “Sustainable organizational performance”, and between “Employee engagement” and “Sustainable organizational performance”. We develop a conceptual framework by using Structural equation model to analyse data collection from 300 bank employees in India. A survey questionnaire was employed to collect data, which were then analyzed by SPSS-26 and AMOS-SEM software. Results revealed that “Organizational culture” significantly affects Motivation and “Sustainable Organisational performance”; “Employee engagement” positively affects Motivation and “Sustainable organisational performance”; Motivation significantly affects “Sustainable Organisational performance”; “Organizational culture” and “Employee engagement” positively affects Motivation and Employee engagement. Furthermore, mediating role of Motivation the relationship between “Organizational culture” and “Sustainable Organisational performance” and that between “Employee engagement” and “Sustainable Organisational performance”.*

**Keywords:** Organisational Culture; Employee Engagement; Motivation; Sustainable Organisational Performance.

## 1. Introduction

Organizations are going through fast, unplanned transformation in the age of globalization. As a result, in order to accomplish its objectives, a company must be able to react to developments in the workplace and find qualified personnel. According to Dessler (1997), A manager in a managerial position must be in charge of all facets of human resources, including recruitment, selection, training, compensation, and judgment. This is known as human resource management. According to Schuler et al. (1992) HRM acknowledges the value of labor as a human resource, which is crucial to achieving the organization's goals and utilizing the HRM function.

An organization's success may depend on its deeply rooted culture. Organizational culture (OC) is what sets one company apart from another, according to Robbins (2002). OC is the system of shared recognizing among members of an organization. Each organization has its own set of rules and regulations to help it accomplish its objectives. Using the

relatively new concept of organizational culture as defined by Robbins et al., (2013), OC sees an organization as a culture whose structure has significance for its members. Additionally, according to Armstrong (2009), organizational culture (OC) is a pattern of norms, values, attitudes, beliefs, and assumptions that, despite the fact that they may not be explicitly stated, influence how individuals behave inside an organization.

The success of a company may be determined by looking at its culture, which promotes effective and efficient organizational performance. The definition of OC provided by Robbins (2002) comprises seven indications, including attention to detail, outcomes orientation, people orientation, team orientation, assertiveness, and stability. The body of research on organizational culture is extensive and diverse. Its depth is primarily based on the claim that organizational performance and culture are connected. There is enough data to support the relationship between organizational culture and performance, despite the claims of certain theorists to the contrary (Ogbonna & Harris, 2000). The authors analyze these organizations'

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organizational cultures and follow their success through time. The author's analyzed sales and return on investment data to assess performance. Responses to a single survey on views of work structure and involvement in decision-making were gathered for organizational performance. Although the authors conclude that organizational culture and financial success are related, the intensity of this association varies across some of his measures. Long-term financial performance is correlated with decision-making and job design, but short-term financial performance is correlated with supervisory leadership. The study had limitations, despite the positive findings. The study's use of employee perception, which implies it used measurements of organizational climate rather than organizational culture, has drawn the most significant criticism (Lim, 1995).

Employee engagement assesses how committed and focused an employee is at work. Many businesses believe that doing employee engagement surveys can help them develop, but this is completely false. A survey won't provide the whole story. It is more efficient to improve business outcomes and promote development through improving corporate culture. Strong business cultures are directly linked to highly engaged workforces. Employees who work for a business with a strong culture understand what is expected of them and how their efforts will benefit the company. A devoted employee understands the firm's objective, goes above and beyond expectations, is highly creative, acts swiftly, and takes decisions that are in the best interests of the company and his team.

Consequently, having a strong company culture is crucial to raising employee engagement. In the assessment of an organization's organizational success, employee engagement has a number of traits and commonalities. Other studies, such as that by Zaki et al., (2015), who found a strong correlation between employee engagement and organizational success, support this trait.

According to Al-Dalahmed et al. (2018), employee engagement and organizational performance are positively correlated. Employee engagement and organizational performance are strongly and positively correlated, according to studies by Qureshi et al. (2011) and Yermen et al. (2016). On the other hand, Syamsun et al. (2015) shown that employee involvement did not significantly and favourably affect organizational performance. How employees view an organization and the purposes it serves is referred to as employee motivation to work Ali et al., (2011).

This study seeks to determine if organizational culture and employee engagement might improve organizational performance processes using incentives in Indian banking in order to resolve the conflicting findings of other studies. Consumers may now easily obtain and trade news thanks to

Indian banking. It is difficult to achieve the functioning and objectives set out by the sector. For instance, determining desk occupations or work schedules for employees based on their talents and shortcomings is a challenging procedure.

## **Literature Review**

### **Link in Organisational Culture and motivation**

Particularly, Manzoor (2012) and Avolio et al., (2003) contend that an organization's culture is influenced by its effective leadership and subordinate interactions. Scholars have also stressed the crucial role that leadership plays in establishing and sustaining organizational culture in corporate companies. From the start of and through the training period, the organizational culture is determined by how well the company addresses external conflict and internal integration Moore et al., (1991) and Wilkinson et al., (2021). While that founders and executives are frequently business owners who undermine tenacity and confidence, Forst et al., (2011) asserts that these individuals enforce resilience practices while creating firms. The following theories are put out in light of observations of prior research findings on the subject:

**H1: Organisational Culture is positively influence the motivation.**

### **Link in employee engagement and motivation**

Employee loyalty and the possibility that they will leave the organization willingly both rise with employee engagement (Hermawan et al., 2020). Employee engagement, which refers to the psychological condition of employees who think they are engaged in the success of the firm and go above and beyond what is asked of them, is another term for commitment or motivation (Handoyo et al., 2017). Having motivated workers can help the business achieve its objectives. Workers that are highly motivated at work will provide the finest work to meet their objectives. Also, personnel are motivated by wants that must be addressed. Workers that are driven to satisfy their demands will put in more effort, which will more positively impact the performance. In other words, employee engagement encourages employees to feel at ease, at peace, and joyful while at work. To increase performance, businesses must concentrate on increasing employee engagement. According to some researchers, employee satisfaction affects productivity (Kim & Kim, 2020).

**H2: Employee Engagement is positively influence the motivation.**

### **Link in Motivation and Organisational Performance**

Leaders that utilize inspirational motivation use less control in order to achieve organizational success. These leaders may act as their followers' guides, mentors, and coaches by broadening their outlook. Job performance is one of the results of leader-

subordinate interactions, according to Farmer et al., (2009) which is based on social exchange theory [Geyer et al., (1998) and., Steers et al., (1995)]. Scholars, such as Melien et al., (2011), have so noted the direct effect of inspiring motivation on job performance. Moreover, it has been found that inspirational motivation has indirect impacts on organizational performance, with these effects manifesting through variables like confidence Gillespie & Mann (2000), self-efficacy Moreno et al., (2013) and collective efficacy Wang et al., (2004) As a result, the following theories are suggested for testing:

**H3: Motivation positively influences Organisational Performance.**

**Link in organisational culture and organisational performance**

The majority refer to the collection of guiding principles and values that affect every action, behavior, and employment connection, despite the fact that there are various perspectives on what organizational culture is and what it means. (Carvalho et al. 2019 & Arayesh et al. 2017). Because it crosses over into many other scientific disciplines, the concept of organizational culture is a contentious topic. As a result, the phrase is frequently used to refer to ideas like an organization's ideals and environment or a group of people's shared beliefs and behavioural standards. In a coordinated group of individuals with common expectations, it also signifies "a shared style of being, thinking, and behaving" (Serpa 2016, p. 51). In a thorough description of culture provided by Brown (1998), it is said that "organizational culture refers to the ideas, values, and acquired ways of coping with experience created historically in an organization, frequently manifested in their tangible arrangements and in the behavior" (Brown 1998, p. 9). According to Schein (1985), an organization's culture is made up of the members' most fundamental assumptions and beliefs. The organization's attempts to overcome the obstacles presented by a hostile external environment help to build and maintain these beliefs and presumptions. They also aid in influencing the behavior of both seasoned and new employees (Kotková Stteská and Sein 2021).

Usually, a lot of academics look at how organizational culture and performance are related. A typical conclusion is that organizational performance can benefit from how organizational culture is communicated and ingrained among employees (Zain-Ul-Abidin et al. 2020). Measurement of performance and corporate culture go hand in hand. A "performance-oriented culture" is one that is developed to boost an organization's incentive to accomplish its objectives. In addition to emphasizing individual human resources, this strategy also holds the entire business accountable for attaining objectives (Prentice et al. 2019). The initial researchers focused mostly on local government as they investigated the impact of organizational culture, its traits, and some elements of organizational performance in the public sector (Spekle and

Verbeeten 2014). These studies, however, did not deal with identifying the critical characteristics of culture that fuel an organization's better performance.

**H4: Organisational Culture positively influence Organisational Performance**

**Link in Employee Engagement and Organisational Performance**

The motivation that comes from within allows someone to seek and accomplish organizational goals (Jan, Essa, & Ahmed, 2021). The relationship between involvement and performance has not frequently been studied by researchers (Kim et al., 2019). The connection between dedication and organizational performance has not been extensively studied (Bunchapattanasakda, 2019). These studies demonstrate that the relationship between dedication and performance is talent-dependent (Shrestha, 2019). According to Moletsane et al. (2019), companies may boost productivity via engagement by establishing a human capital management strategy that encourages proper cooperation and effective communication. Although engagement is anticipated to grow sensitive and challenging in the upcoming years, it does boost customer satisfaction at the individual level and increases productivity and efficiency at the organizational level (Horvathova, Mikuova, and Kashi, 2019). More labor force participation in service industries is reported to have a beneficial impact on economic gains, and changes in individual labor force participation are also shown to have a positive impact on performance (Bledow, Schmitt, Frese, and Kuhnel, 2011).

**H5: Employee engagement has a positively influence organisational performance.**



**Figure 1 Conceptual Framework**

**Methodology**

The top three public sector banks in Delhi, India's NCT region were used to pick the 300 individuals that make up the sample population. All businesses in India may get banking services from these three banks: SBI, PNB, and BOB Bank. Because these banks' HR management services are sensitive, studying them can assist the global banking sector better its HR practices in terms of employee engagement, organizational culture, and motivation. Simple random selection was used to give the questionnaire to participants in bank. To help them comprehend the questionnaire and to urge them to respond

within a few days, explain it to them. The response rate was 76% when a total of 500 paper surveys were given out to bank workers who agreed to respond. Of those, 300 were completed and returned (see Table 1).

**Table 1 Demographic Results**

Demographics	Profile	N	Percentage (%)
Gender	Male	168	61.20
	Female	132	38.79
Age	Below 25	40	10.60
	25-35	98	42.40
	35-45	78	30.84
	45 and above	84	16.14
Academic qualification	Graduate	146	50.12
	Post Graduate	124	40.72
	Other	30	9.15
Experience	Below 2 years	45	8.43
	02-05 years	153	38.55
	05-10 years	79	31.56
	Above 10 years	23	21.45

(Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014). To validate the scale's validity, the second stage focuses on confirmatory factor analysis (CFA) and the chi-square test of variance. The structural model is evaluated in the study's last step, which also estimates its direct and indirect consequences. The study took into account debates about mediation analysis. As an illustration, Baron and Kenny (1986) proposed that in order for mediation to be created, a number of requirements must be satisfied. The criterion for the development of a mediator is that the independent variable must first have a considerable direct influence on the dependent variable; hence, the direct impact is required.

**Table 2 Factor Analysis**

## Measurement

There are two unique sections of the questionnaire. The respondents' gender, age, experience, and level of education are all gathered in the first section's demographic data collection. The second section focuses on metrics that gauge an organization's performance, employee dedication, and organizational culture (see Appendix). The validated scale was adapted for use in the banking sector from earlier studies. Responses are given on a Likert scale of one to five, with one denoting "strongly disagree" and five denoting "strongly agree."

## Method

Using AMOS and SPSS 26.0 software, structural equation modeling (SEM) was utilized to evaluate hypotheses (direct and indirect effects). SEM is used to establish the hypothesis routes for maximum likelihood, chi-variance tests, and confirmatory factor analysis. First, an exploratory factor analysis (EFA) was carried out to determine the factorial structure of the scale and the correlations between the structures, comparing them with the extracted mean variance to establish discriminative validity

Baron and Kenny's (1986) method of finding a mediator requires a zero-order effect of X on Y, which is incorrect, according to Zhao, Lynch, and Chen (2010).

## Results

### Validity and reliability

“Structural equation modeling was used to test theoretical concepts (SEM). To examine the reliability and validity of the measurement scales, an exploratory factor analysis (EFA) was conducted. The scale's internal consistency was assessed using Cronbach's alpha and composite reliability. Table 3 demonstrates that because Cronbach's alpha is within the acceptable range of 0.60 recommended by Latan and Ramli (2013), the scale is internally consistent and suitable for further research. The scale's mean variance was extracted because convergent validity is crucial in assessing a scale's robustness. The findings also demonstrate that the items converge because their average variance is higher than 0.50 (Hair et al., 2014). AMOS SEM and SPSS 26.0 are the primary tools for data analysis.”

Furthermore evaluated was the method used to distinguish the objects. According to Table 4's findings, the square root of the average variance extraction (AVE) of structures is higher than that of (Hair et al., 2014) (Employee engagement, 0.852; organisational culture, 0.941; motivation, 0.684; organizational performance, 0.961), confirming the structures' ability to discriminate between one another. The real value of the parameter was included in 95% of all confidence intervals generated for inter-structural correlations (Finch & Cumming, 2009). With a 95% confidence interval, the lower limits in this study's context vary between 0.058 and 0.409 and the higher bounds between 0.264 and 0.604, demonstrating considerable structural variations. The real value of the parameter was included in 95% of all confidence intervals generated for inter-structural correlations (Finch & Cumming, 2009). With a 95% confidence interval, the lower limits in this study's context vary between 0.058 and 0.409 and the higher bounds between 0.264 and 0.604, demonstrating considerable structural variations.

**Table 3 Discriminant Validity”**

Constructs	1	2	3	4
<b>Employee Engagement</b>	<b>0.864</b>			
<b>Organisational Culture</b>	0.256**	<b>0.825</b>		
<b>Motivation</b>	0.186**	0.274**	<b>0.795</b>	
<b>Organisational Performance</b>	0.197**	0.168**	0.532**	<b>0.802</b>

### Analysis of the measurement model using confirmatory factor (CFA)

A second-order measurement model was created (Byrne, 2005; Zainudin, 2015) for structural and psychological weighting to establish how measured items loaded onto their components in order to further evaluate the discriminant and convergent validity of the scale (1995; Spreitzer). Three latent variables are included in Employee engagement (meaning, competence, impact). Three latent variables make up organisational culture (opportunity, information, support). Organizational performance, corporate citizenship, and employee engagement are all modelled as first-order structures. Each item strongly loaded for its corresponding factor (Table 4).

**Table 4 CFA results**

Construct	CFI	NNFI	IFI	$\chi^2$	Df.	$\chi^2 / Df.$	RMSEA	P-value
EE	0.912	0.956	0.936	93.56	20	4.678	0.109	P=000
OC	0.934	0.906	0.921	124.196	20	6.209	0.008	P=000

### Model Fit Analysis

To compare the two models, researchers used a chi-variance test to further evaluate discriminant validity (Ronkko and Cho, 2020). Structure (Employee engagement and organisational culture) was not connected in one model, but it was significant ( $p=0.05$ ) in the other structure and mental model, indicating that the two structures had distinct levels of validity (Employee engagement and organisational culture). Table 5 displays the findings of the chi-square difference.

**Table 5 chi-square value test**

Model 1	Model 2
CFI=0.856	CFI=0.934
NNFI = 0.842	NNFI = 0.903
IFI = 0.876	IFI = 0.921
RMSEA = 0.048	RMSEA = 0.076
$\chi^2 = 634.365$	$\chi^2 = 508.579$
df = 136	df = 130
P = 000	P = 000
$\chi_1 - \chi_2 = 125.786$	
df1-df2 = 6	

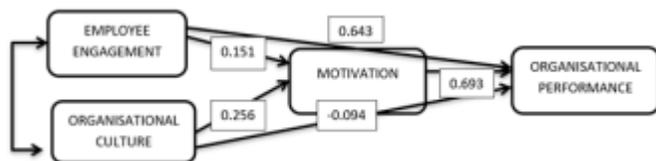
## Hypotheses testing

To put the posed hypotheses to the test, a structural model was created. All fit indices are within the range that is acceptable.

**Table 6 Model Fit Values**

Indicators	CFI	IFI	$\chi^2$	Df	$\chi^2 / df$	RMSEA	P- value
Fit Indices	0.924	0.901	893.045	398	2.836	0.065	P = 000

The structural model did not support hypothesis 1 since it did not demonstrate any impact of employee engagement on organizational performance ( $=0.643$ ,  $t=4.893$   $P=000$ ). H2 is not supported since the relationship between organisational culture and organizational performance is not statistically significant ( $=-0.094$ ,  $t=0.592$ ,  $P=000$ ). According to the analysis, organisational culture influences motivation favourably ( $=0.256$ ,  $t=7.789$ ,  $P=000$ ), supporting H3.



**Figure 2 Path Diagram**

The fact that employee engagement substantially influences motivation ( $=0.151$ ,  $t=8.931$ ,  $P=000$ ) provides support for Hypothesis H4. Finally, H5 supports the hypothesized hypothesis and is significant ( $=0.693$ ,  $t=9.385$ ,  $P=000$ ); see Table 7.

**Table 7 Hypothesis Test**

Hypothesis	Path Coefficient	t-value	Observation
H1 EE → OP	0.643	4.893	Accepted
H2 OC → OP	-0.094	0.592	Rejected
H3 OC → MO	0.256	7.789	Accepted
H4 EE → MO	0.151	8.931	Accepted
H5 MO → OP	0.693	9.385	Accepted

## Results of mediation analysis

Using incentives, Zhao et al. (2010) examined the indirect impacts of organizational culture and employee engagement on organizational performance. Models that are purely hypothetical examine both the influence of the independent variable and the influence of the mediator on the dependent variable. The relationship between organizational culture and performance was not significantly mediated by motivation ( $=0.096$ ,  $t=5.376$ ). The link between employee commitment and organizational performance did not additionally demonstrate a favourable effect of motivation ( $=0.076$ ,  $t=7.643$ ).

**Table 8 Mediation test**

Relationship	Indirect Effect		
	B	t- values	Findings
EE MO OP	0.096	5.376	Significant
OC MO OP	0.076	7.643	Significant

## Discussion and Implications

According to our research, employee involvement has the greatest impact on enhancing organizational performance. Individuals who are highly engaged at work are more likely to excel in social organizations and contribute to gaining a competitive edge. These bank personnel are driven to complete tasks, and market pressures have a difficult time keeping them from doing so. Also, we discovered that employee engagement is a strong predictor of organizational success, and our findings are in line with other studies (Muscat & Whitty, 2009). Moreover, a recent cross-sectional quantitative study examined the role of the employee engagement on organisational performance and found that employee engagement positively influenced organisational performance. Therefore, our findings suggest that employee engagement has a strong influence on organisational performance and results are commented (Javed et al., 2019). Meanwhile, we found that organisational culture positively influenced organisational performance. Organisational culture is the dynamic factor of organisation. Corporate culture is the best indicator of economic sustainability and aids in addressing the problems that companies face in the areas of the economy, society, and the environment (Melville, 2010). This outcome is consistent with earlier discoveries (Aksoy et al., 2019). Moreover, according Littlewood and Holt (2018), who refer to motivation as a requirement for banks to acquire a competitive edge, our findings imply that motivation has a favourable influence on organizational performance. As a result, motivation aids the entrepreneur in seeing possibilities and resources in the current market. In order to link people to address organizational challenges, motivation fosters organizational culture and employee dedication. Politicians, scientists, and bankers may all benefit from the findings in practical ways. Our study examines the banking sector's contributing variables that maximize revenue while safeguarding the company. According to research, bank workers who are highly engaged in their work are more likely to achieve their organization's mission objectives. As a result, those who have a strong commitment to employee engagement are more likely to succeed in the banking sector and contribute to the company's ability to compete favourably. Using cross-industry incentives, bank workers may impact

organizational culture and increase the bank's market value. Finally, by applying employee engagement, culture, and practices to the marketplace to create competitive pressure, bank workers will be able to drive economic and organizational performance.

## Conclusion

In order to attain sustained organizational success, this research discusses employee engagement, organizational culture, and motivation. The Bank workers in NCT Delhi who are active in development initiatives complete an online survey as part of this project to gather data. The study's overall findings show that motivation, organizational culture, and employee engagement are important components of long-term organizational effectiveness. The best indicator of how to resolve all social and economic issues is corporate sustainability. Every firm strives to achieve sustainable growth in the modern day, and doing so requires effective and efficient business practices in order to remain competitive. These practices are also linked to social and economic sustainability. By researching the significance of a sustainable business utilizing many elements including marketing, human resources, and strategic management, many academics have added to the literature on human capital. Few empirical research, however, have examined the role of banking and its influences on long-term organizational success.

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# Role of Employee Engagement and Organizational Culture on Sustainable organisational Performance: Motivation as Mediating Variable

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## Abstract

*This study investigate the role of Employee engagement (EE) on motivation (MO) and “Sustainable organizational performance” (SOP); the role of organizational culture (OC) on motivation (MO) and “Sustainable organizational performance” (SOP); the role of motivation (MO) on “Sustainable organizational performance”(SOP); The influence of “Organizational culture” and Employee engagement on motivation and “Sustainable organizational performance”; Mediating role of Motivation the relationship between “Organizational culture” and “Sustainable organizational performance”, and between “Employee engagement” and “Sustainable organizational performance”. We develop a conceptual framework by using Structural equation model to analyse data collection from 300 bank employees in India. A survey questionnaire was employed to collect data, which were then analyzed by SPSS-26 and AMOS-SEM software. Results revealed that “Organizational culture” significantly affects Motivation and “Sustainable Organisational performance”; “Employee engagement” positively affects Motivation and “Sustainable organisational performance”; Motivation significantly affects “Sustainable Organisational performance”; “Organizational culture” and “Employee engagement” positively affects Motivation and Employee engagement. Furthermore, mediating role of Motivation the relationship between “Organizational culture” and “Sustainable Organisational performance” and that between “Employee engagement” and “Sustainable Organisational performance”.*

**Keywords:** Organisational Culture; Employee Engagement; Motivation; Sustainable Organisational Performance.

## 1. Introduction

Organizations are going through fast, unplanned transformation in the age of globalization. As a result, in order to accomplish its objectives, a company must be able to react to developments in the workplace and find qualified personnel. According to Dessler (1997), A manager in a managerial position must be in charge of all facets of human resources, including recruitment, selection, training, compensation, and judgment. This is known as human resource management. According to Schuler et al. (1992) HRM acknowledges the value of labor as a human resource, which is crucial to achieving the organization's goals and utilizing the HRM function.

An organization's success may depend on its deeply rooted culture. Organizational culture (OC) is what sets one company apart from another, according to Robbins (2002). OC is the system of shared recognizing among members of an organization. Each organization has its own set of rules and regulations to help it accomplish its objectives. Using the

relatively new concept of organizational culture as defined by Robbins et al., (2013), OC sees an organization as a culture whose structure has significance for its members. Additionally, according to Armstrong (2009), organizational culture (OC) is a pattern of norms, values, attitudes, beliefs, and assumptions that, despite the fact that they may not be explicitly stated, influence how individuals behave inside an organization.

The success of a company may be determined by looking at its culture, which promotes effective and efficient organizational performance. The definition of OC provided by Robbins (2002) comprises seven indications, including attention to detail, outcomes orientation, people orientation, team orientation, assertiveness, and stability. The body of research on organizational culture is extensive and diverse. Its depth is primarily based on the claim that organizational performance and culture are connected. There is enough data to support the relationship between organizational culture and performance, despite the claims of certain theorists to the contrary (Ogbonna & Harris, 2000). The authors analyze these organizations'

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organizational cultures and follow their success through time. The author's analyzed sales and return on investment data to assess performance. Responses to a single survey on views of work structure and involvement in decision-making were gathered for organizational performance. Although the authors conclude that organizational culture and financial success are related, the intensity of this association varies across some of his measures. Long-term financial performance is correlated with decision-making and job design, but short-term financial performance is correlated with supervisory leadership. The study had limitations, despite the positive findings. The study's use of employee perception, which implies it used measurements of organizational climate rather than organizational culture, has drawn the most significant criticism (Lim, 1995).

Employee engagement assesses how committed and focused an employee is at work. Many businesses believe that doing employee engagement surveys can help them develop, but this is completely false. A survey won't provide the whole story. It is more efficient to improve business outcomes and promote development through improving corporate culture. Strong business cultures are directly linked to highly engaged workforces. Employees who work for a business with a strong culture understand what is expected of them and how their efforts will benefit the company. A devoted employee understands the firm's objective, goes above and beyond expectations, is highly creative, acts swiftly, and takes decisions that are in the best interests of the company and his team.

Consequently, having a strong company culture is crucial to raising employee engagement. In the assessment of an organization's organizational success, employee engagement has a number of traits and commonalities. Other studies, such as that by Zaki et al., (2015), who found a strong correlation between employee engagement and organizational success, support this trait.

According to Al-Dalahmed et al. (2018), employee engagement and organizational performance are positively correlated. Employee engagement and organizational performance are strongly and positively correlated, according to studies by Qureshi et al. (2011) and Yermen et al. (2016). On the other hand, Syamsun et al. (2015) shown that employee involvement did not significantly and favourably affect organizational performance. How employees view an organization and the purposes it serves is referred to as employee motivation to work Ali et al., (2011).

This study seeks to determine if organizational culture and employee engagement might improve organizational performance processes using incentives in Indian banking in order to resolve the conflicting findings of other studies. Consumers may now easily obtain and trade news thanks to

Indian banking. It is difficult to achieve the functioning and objectives set out by the sector. For instance, determining desk occupations or work schedules for employees based on their talents and shortcomings is a challenging procedure.

## **Literature Review**

### **Link in Organisational Culture and motivation**

Particularly, Manzoor (2012) and Avolio et al., (2003) contend that an organization's culture is influenced by its effective leadership and subordinate interactions. Scholars have also stressed the crucial role that leadership plays in establishing and sustaining organizational culture in corporate companies. From the start of and through the training period, the organizational culture is determined by how well the company addresses external conflict and internal integration Moore et al., (1991) and Wilkinson et al., (2021). While that founders and executives are frequently business owners who undermine tenacity and confidence, Forst et al., (2011) asserts that these individuals enforce resilience practices while creating firms. The following theories are put out in light of observations of prior research findings on the subject:

**H1: Organisational Culture is positively influence the motivation.**

### **Link in employee engagement and motivation**

Employee loyalty and the possibility that they will leave the organization willingly both rise with employee engagement (Hermawan et al., 2020). Employee engagement, which refers to the psychological condition of employees who think they are engaged in the success of the firm and go above and beyond what is asked of them, is another term for commitment or motivation (Handoyo et al., 2017). Having motivated workers can help the business achieve its objectives. Workers that are highly motivated at work will provide the finest work to meet their objectives. Also, personnel are motivated by wants that must be addressed. Workers that are driven to satisfy their demands will put in more effort, which will more positively impact the performance. In other words, employee engagement encourages employees to feel at ease, at peace, and joyful while at work. To increase performance, businesses must concentrate on increasing employee engagement. According to some researchers, employee satisfaction affects productivity (Kim & Kim, 2020).

**H2: Employee Engagement is positively influence the motivation.**

### **Link in Motivation and Organisational Performance**

Leaders that utilize inspirational motivation use less control in order to achieve organizational success. These leaders may act as their followers' guides, mentors, and coaches by broadening their outlook. Job performance is one of the results of leader-

subordinate interactions, according to Farmer et al., (2009) which is based on social exchange theory [Geyer et al., (1998) and., Steers et al., (1995)]. Scholars, such as Melien et al., (2011), have so noted the direct effect of inspiring motivation on job performance. Moreover, it has been found that inspirational motivation has indirect impacts on organizational performance, with these effects manifesting through variables like confidence Gillespie & Mann (2000), self-efficacy Moreno et al., (2013) and collective efficacy Wang et al., (2004) As a result, the following theories are suggested for testing:

**H3: Motivation positively influences Organisational Performance.**

**Link in organisational culture and organisational performance**

The majority refer to the collection of guiding principles and values that affect every action, behavior, and employment connection, despite the fact that there are various perspectives on what organizational culture is and what it means. (Carvalho et al. 2019 & Arayesh et al. 2017). Because it crosses over into many other scientific disciplines, the concept of organizational culture is a contentious topic. As a result, the phrase is frequently used to refer to ideas like an organization's ideals and environment or a group of people's shared beliefs and behavioural standards. In a coordinated group of individuals with common expectations, it also signifies "a shared style of being, thinking, and behaving" (Serpa 2016, p. 51). In a thorough description of culture provided by Brown (1998), it is said that "organizational culture refers to the ideas, values, and acquired ways of coping with experience created historically in an organization, frequently manifested in their tangible arrangements and in the behavior" (Brown 1998, p. 9). According to Schein (1985), an organization's culture is made up of the members' most fundamental assumptions and beliefs. The organization's attempts to overcome the obstacles presented by a hostile external environment help to build and maintain these beliefs and presumptions. They also aid in influencing the behavior of both seasoned and new employees (Kotková Stteská and Sein 2021).

Usually, a lot of academics look at how organizational culture and performance are related. A typical conclusion is that organizational performance can benefit from how organizational culture is communicated and ingrained among employees (Zain-Ul-Abidin et al. 2020). Measurement of performance and corporate culture go hand in hand. A "performance-oriented culture" is one that is developed to boost an organization's incentive to accomplish its objectives. In addition to emphasizing individual human resources, this strategy also holds the entire business accountable for attaining objectives (Prentice et al. 2019). The initial researchers focused mostly on local government as they investigated the impact of organizational culture, its traits, and some elements of organizational performance in the public sector (Spekle and

Verbeeten 2014). These studies, however, did not deal with identifying the critical characteristics of culture that fuel an organization's better performance.

**H4: Organisational Culture positively influence Organisational Performance**

**Link in Employee Engagement and Organisational Performance**

The motivation that comes from within allows someone to seek and accomplish organizational goals (Jan, Essa, & Ahmed, 2021). The relationship between involvement and performance has not frequently been studied by researchers (Kim et al., 2019). The connection between dedication and organizational performance has not been extensively studied (Bunchapattanasakda, 2019). These studies demonstrate that the relationship between dedication and performance is talent-dependent (Shrestha, 2019). According to Moletsane et al. (2019), companies may boost productivity via engagement by establishing a human capital management strategy that encourages proper cooperation and effective communication. Although engagement is anticipated to grow sensitive and challenging in the upcoming years, it does boost customer satisfaction at the individual level and increases productivity and efficiency at the organizational level (Horvathova, Mikuova, and Kashi, 2019). More labor force participation in service industries is reported to have a beneficial impact on economic gains, and changes in individual labor force participation are also shown to have a positive impact on performance (Bledow, Schmitt, Frese, and Kuhnel, 2011).

**H5: Employee engagement has a positively influence organisational performance.**



**Figure 1 Conceptual Framework**

**Methodology**

The top three public sector banks in Delhi, India's NCT region were used to pick the 300 individuals that make up the sample population. All businesses in India may get banking services from these three banks: SBI, PNB, and BOB Bank. Because these banks' HR management services are sensitive, studying them can assist the global banking sector better its HR practices in terms of employee engagement, organizational culture, and motivation. Simple random selection was used to give the questionnaire to participants in bank. To help them comprehend the questionnaire and to urge them to respond

within a few days, explain it to them. The response rate was 76% when a total of 500 paper surveys were given out to bank workers who agreed to respond. Of those, 300 were completed and returned (see Table 1).

**Table 1 Demographic Results**

Demographics	Profile	N	Percentage (%)
Gender	Male	168	61.20
	Female	132	38.79
Age	Below 25	40	10.60
	25-35	98	42.40
	35-45	78	30.84
	45 and above	84	16.14
Academic qualification	Graduate	146	50.12
	Post Graduate	124	40.72
	Other	30	9.15
Experience	Below 2 years	45	8.43
	02-05 years	153	38.55
	05-10 years	79	31.56
	Above 10 years	23	21.45

## Measurement

There are two unique sections of the questionnaire. The respondents' gender, age, experience, and level of education are all gathered in the first section's demographic data collection. The second section focuses on metrics that gauge an organization's performance, employee dedication, and organizational culture (see Appendix). The validated scale was adapted for use in the banking sector from earlier studies. Responses are given on a Likert scale of one to five, with one denoting "strongly disagree" and five denoting "strongly agree."

## Method

Using AMOS and SPSS 26.0 software, structural equation modeling (SEM) was utilized to evaluate hypotheses (direct and indirect effects). SEM is used to establish the hypothesis routes for maximum likelihood, chi-variance tests, and confirmatory factor analysis. First, an exploratory factor analysis (EFA) was carried out to determine the factorial structure of the scale and the correlations between the structures, comparing them with the extracted mean variance to establish discriminative validity

(Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014). To validate the scale's validity, the second stage focuses on confirmatory factor analysis (CFA) and the chi-square test of variance. The structural model is evaluated in the study' last step, which also estimates its direct and indirect consequences. The study took into account debates about mediation analysis. As an illustration, Baron and Kenny (1986) proposed that in order for mediation to be created, a number of requirements must be satisfied. The criterion for the development of a mediator is that the independent variable must first have a considerable direct influence on the dependent variable; hence, the direct impact is required.

**Table 2 Factor Analysis**

Constructs	Indicators	Factor Loading	Cronbach's Alpha	CR	AVE
Employee Engagement	EE1	0.911	0.967	0.943	0.852
	EE2	0.932			
	EE3	0.861			
	EE4	0.647			
	EE5	0.879			
	EE6	0.843			
	EE7	0.854			
Organisational Culture	OC1	0.869	0.921	0.876	.0941
	OC2	0.781			
	OC3	0.765			
	OC4	0.892			
	OC5	0.834			
	OC6	0.902			
	OC7	0.924			
Motivation	MO1	0.846	0.867	0.899	0.684
	MO2	0.873			
	MO3	0.889			
	MO4	0.789			
	MO5	0.698			
Organisational Performance	OP1	0.728	0.889	0.922	0.961
	OP2	0.941			
	OP3	0.760			
	OP4	0.956			
	OP5	0.943			
	OP6	0.856			
	OP7	0.878			
	OP8	0.765			

Baron and Kenny's (1986) method of finding a mediator requires a zero-order effect of X on Y, which is incorrect, according to Zhao, Lynch, and Chen (2010).

## Results

### Validity and reliability

“Structural equation modeling was used to test theoretical concepts (SEM). To examine the reliability and validity of the measurement scales, an exploratory factor analysis (EFA) was conducted. The scale's internal consistency was assessed using Cronbach's alpha and composite reliability. Table 3 demonstrates that because Cronbach's alpha is within the acceptable range of 0.60 recommended by Latan and Ramli (2013), the scale is internally consistent and suitable for further research. The scale's mean variance was extracted because convergent validity is crucial in assessing a scale's robustness. The findings also demonstrate that the items converge because their average variance is higher than 0.50 (Hair et al., 2014). AMOS SEM and SPSS 26.0 are the primary tools for data analysis.”

Furthermore evaluated was the method used to distinguish the objects. According to Table 4's findings, the square root of the average variance extraction (AVE) of structures is higher than that of (Hair et al., 2014) (Employee engagement, 0.852; organisational culture, 0.941; motivation, 0.684; organizational performance, 0.961), confirming the structures' ability to discriminate between one another. The real value of the parameter was included in 95% of all confidence intervals generated for inter-structural correlations (Finch & Cumming, 2009). With a 95% confidence interval, the lower limits in this study's context vary between 0.058 and 0.409 and the higher bounds between 0.264 and 0.604, demonstrating considerable structural variations. The real value of the parameter was included in 95% of all confidence intervals generated for inter-structural correlations (Finch & Cumming, 2009). With a 95% confidence interval, the lower limits in this study's context vary between 0.058 and 0.409 and the higher bounds between 0.264 and 0.604, demonstrating considerable structural variations.

Table 3 Discriminant Validity”

Constructs	1	2	3	4
Employee Engagement	0.864			
Organisational Culture	0.256**	0.825		
Motivation	0.186**	0.274**	0.795	
Organisational Performance	0.197**	0.168**	0.532**	0.802

### Analysis of the measurement model using confirmatory factor (CFA)

A second-order measurement model was created (Byrne, 2005; Zainudin, 2015) for structural and psychological weighting to establish how measured items loaded onto their components in order to further evaluate the discriminant and convergent validity of the scale (1995; Spreitzer). Three latent variables are included in Employee engagement (meaning, competence, impact). Three latent variables make up organisational culture (opportunity, information, support). Organizational performance, corporate citizenship, and employee engagement are all modelled as first-order structures. Each item strongly loaded for its corresponding factor (Table 4).

Table 4 CFA results

Construct	CFI	NNFI	IFI	$\chi^2$	DF	$\chi^2 / DF$	RMSEA	P-value
EE	0.912	0.956	0.936	93.56	20	4.678	0.109	P=000
OC	0.934	0.906	0.921	124.196	20	6.209	0.008	P=000

### Model Fit Analysis

To compare the two models, researchers used a chi-variance test to further evaluate discriminant validity (Ronkko and Cho, 2020). Structure (Employee engagement and organisational culture) was not connected in one model, but it was significant ( $p=0.05$ ) in the other structure and mental model, indicating that the two structures had distinct levels of validity (Employee engagement and organisational culture). Table 5 displays the findings of the chi-square difference.

Table 5 chi-square value test

Model 1	Model 2
CFI=0.856	CFI=0.934
NNFI = 0.842	NNFI = 0.903
IFI = 0.876	IFI = 0.921
RMSEA = 0.048	RMSEA = 0.076
$\chi^2 = 634.365$	$\chi^2 = 508.579$
df = 136	df = 130
P = 000	P = 000
$\chi^2_1 - \chi^2_2 = 125.786$	
df1-df2 = 6	

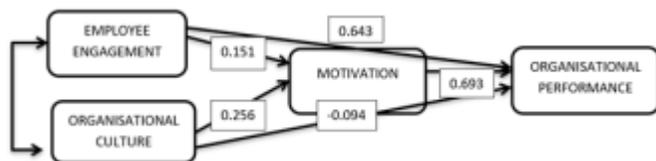
## Hypotheses testing

To put the posed hypotheses to the test, a structural model was created. All fit indices are within the range that is acceptable.

**Table 6 Model Fit Values**

Indicators	CFI	IFI	$\chi^2$	Df	$\chi^2 / df$	RMSEA	P- value
Fit Indices	0.924	0.901	893.045	398	2.836	0.065	P = 000

The structural model did not support hypothesis 1 since it did not demonstrate any impact of employee engagement on organizational performance ( $=0.643$ ,  $t=4.893$   $P=000$ ). H2 is not supported since the relationship between organisational culture and organizational performance is not statistically significant ( $=-0.094$ ,  $t=0.592$ ,  $P=000$ ). According to the analysis, organisational culture influences motivation favourably ( $=0.256$ ,  $t=7.789$ ,  $P=000$ ), supporting H3.



**Figure 2 Path Diagram**

The fact that employee engagement substantially influences motivation ( $=0.151$ ,  $t=8.931$ ,  $P=000$ ) provides support for Hypothesis H4. Finally, H5 supports the hypothesized hypothesis and is significant ( $=0.693$ ,  $t=9.385$ ,  $P=000$ ); see Table 7.

**Table 7 Hypothesis Test**

Hypothesis	Path Coefficient	t-value	Observation
H1 EE → OP	0.643	4.893	Accepted
H2 OC → OP	-0.094	0.592	Rejected
H3 OC → MO	0.256	7.789	Accepted
H4 EE → MO	0.151	8.931	Accepted
H5 MO → OP	0.693	9.385	Accepted

## Results of mediation analysis

Using incentives, Zhao et al. (2010) examined the indirect impacts of organizational culture and employee engagement on organizational performance. Models that are purely hypothetical examine both the influence of the independent variable and the influence of the mediator on the dependent variable. The relationship between organizational culture and performance was not significantly mediated by motivation ( $=0.096$ ,  $t=5.376$ ). The link between employee commitment and organizational performance did not additionally demonstrate a favourable effect of motivation ( $=0.076$ ,  $t=7.643$ ).

**Table 8 Mediation test**

Relationship	Indirect Effect		
	B	t- values	Findings
EE MO OP	0.096	5.376	Significant
OC MO OP	0.076	7.643	Significant

## Discussion and Implications

According to our research, employee involvement has the greatest impact on enhancing organizational performance. Individuals who are highly engaged at work are more likely to excel in social organizations and contribute to gaining a competitive edge. These bank personnel are driven to complete tasks, and market pressures have a difficult time keeping them from doing so. Also, we discovered that employee engagement is a strong predictor of organizational success, and our findings are in line with other studies (Muscat & Whitty, 2009). Moreover, a recent cross-sectional quantitative study examined the role of the employee engagement on organisational performance and found that employee engagement positively influenced organisational performance. Therefore, our findings suggest that employee engagement has a strong influence on organisational performance and results are commented (Javed et al., 2019). Meanwhile, we found that organisational culture positively influenced organisational performance. Organisational culture is the dynamic factor of organisation. Corporate culture is the best indicator of economic sustainability and aids in addressing the problems that companies face in the areas of the economy, society, and the environment (Melville, 2010). This outcome is consistent with earlier discoveries (Aksoy et al., 2019). Moreover, according Littlewood and Holt (2018), who refer to motivation as a requirement for banks to acquire a competitive edge, our findings imply that motivation has a favourable influence on organizational performance. As a result, motivation aids the entrepreneur in seeing possibilities and resources in the current market. In order to link people to address organizational challenges, motivation fosters organizational culture and employee dedication. Politicians, scientists, and bankers may all benefit from the findings in practical ways. Our study examines the banking sector's contributing variables that maximize revenue while safeguarding the company. According to research, bank workers who are highly engaged in their work are more likely to achieve their organization's mission objectives. As a result, those who have a strong commitment to employee engagement are more likely to succeed in the banking sector and contribute to the company's ability to compete favourably. Using cross-industry incentives, bank workers may impact

organizational culture and increase the bank's market value. Finally, by applying employee engagement, culture, and practices to the marketplace to create competitive pressure, bank workers will be able to drive economic and organizational performance.

## Conclusion

In order to attain sustained organizational success, this research discusses employee engagement, organizational culture, and motivation. The Bank workers in NCT Delhi who are active in development initiatives complete an online survey as part of this project to gather data. The study's overall findings show that motivation, organizational culture, and employee engagement are important components of long-term organizational effectiveness. The best indicator of how to resolve all social and economic issues is corporate sustainability. Every firm strives to achieve sustainable growth in the modern day, and doing so requires effective and efficient business practices in order to remain competitive. These practices are also linked to social and economic sustainability. By researching the significance of a sustainable business utilizing many elements including marketing, human resources, and strategic management, many academics have added to the literature on human capital. Few empirical research, however, have examined the role of banking and its influences on long-term organizational success.

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# The Rise of Chatbots: A new era in Marketing

Dr. Shipra Agarwal\*  
Aahana Sharma\*\*

## Abstract

*Marketing describes a business's actions to encourage the purchase or sale of a good or service. Promotional, distributing, & supplying goods to customers as well as other firms are all included in marketing. Associates perform certain marketing on behalf of an organization. Advertisement is one of the primary methods used by marketing and promotional consultants to capture the interest of important target markets. Specialized advertising may include influencer marketing, recognizable titles or taglines, eye-catching packages or graphic arts, and general media coverage. The term "marketing technology" (sometimes referred to here as "marketech") refers to a collection of various software applications that marketing professionals employ to promote vital strategic goals as well as boost productivity among their businesses. Advertisement, direct mail, commercial administration, marketing business intelligence, & content, and consumer experience are the main areas of concentration for marketing technology services. There are various technologies in the field of marketing that influence consumer behavior, marketing, brand image, etc. This research paper will highlight chatbots as the future of marketing. Worldwide use of chatbots in a variety of fields-including businesses, support programs, education, medicine, cultural traditions, and entertainment-has accelerated recently. This paper initially provides a brief history of the shifts in global chatbot interests. Afterward, this paper discusses the reasons for chatbot adoption as well as how useful chatbots are mostly in various scenarios. In addition, this paper emphasizes how society significantly depends on chatbot design. Then continue to discuss a categorization of chatbots depending on several factors, which include the field of expertise chat bots refer to, that there is a need for, they serve, and others, after delineating important technological aspects. This study focuses on the pros and cons of chatbots in marketing by researching the users' personal experiences. The results from this research aid businesses in analyzing exactly their targeted customers considering the use of chatbots in marketing and communications and how chatbots affect their purchasing decisions.*

**Keywords:** Artificial intelligence, Digital marketing, Ethical issues, social media marketing, chatbots, advantages, customer service, Traditional method.

## 1. Introduction

To meet strategic sales and marketing goals, virtual marketing combines all internet-based marketing techniques. It covers things like blog posts, advertisements, magazines, and email marketing. But it's important to keep in mind that now e-commerce is simply one of many powerful tools you may use to promote the business. However, it is not intended to take the role of the different promotional networks. Multinational firms continue to work for total disruption of space-time. Additionally, when engaging in marketing conversations. Generally speaking, the internet offers a virtually 24-hour experience for global information prospecting in any market sector. The next step is to use virtual marketing, a collection of internet-based marketing strategies that let consumers connect with, personalize, and

explore products and services in virtual worlds just as they would in the real world. The effectiveness of digital marketing techniques and tactics in generating new business leads is widely known. A virtual approach is also excellent for nurturing leads until they develop into opportunities. Afterward, turn those potential clients into actual customers. In short, a virtual approach works well at every stage of the marketing and sales process. Artificial intelligence (AI) is completely changing how marketing is done today, especially how customers are treated. Modern marketing is more fact-based, automatic, and smarter. With the development of advanced agent technology solutions, AI has made it feasible for humans and machines to communicate. For instance, chatbots have the ability to capture client inputs and provide real-time personalized services. In

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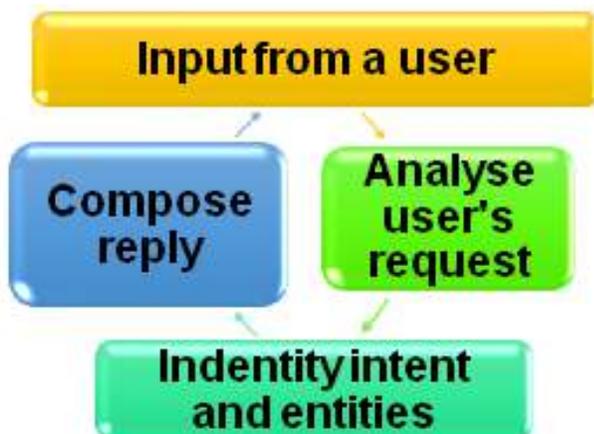
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order to provide a personalized service rather than one-sided purchasing, businesses are now gradually creating chatbots to use in direct client contacts. However, assert that "businesses really need to expand further insight and perspective about the performance of service usage on performance indicators like client satisfaction, loyalty, and the desire to reuse systems and applications." Chatbots are software tools that can mimic human communications by text or voice to serve as uses virtual assistants. Also recognized as artificial interaction organizations, participatory agents, smart bots, and digital assistants, chatbots are the representation of the future of virtual assistants. "An artificial construct that is designed to communicate with humans utilizing natural language as input and output," is how one definition of a chatbot is defined. Innovations in marketing communications really do have the ability to assist businesses to discover more about their target audience than they ever imagine. Innovations, for example, artificial intelligence have developed into a massive advantage for marketers and different advertising strategies, providing significant benefits of massive transformations. This research will also provide information on how Artificial Intelligence will impact marketing.

### Objectives

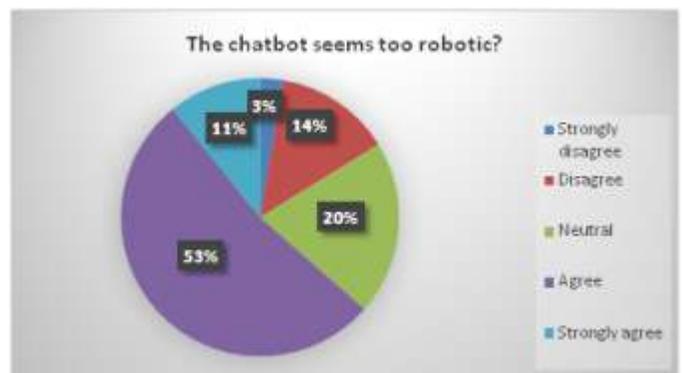
- To study the role and advantages of chatbots in marketing.
- To analyze if the Chatbots are able to respond to and interpret the given customer inquiry.
- To compare the use of Chatbots with Human customer services.
- To study Chatbot's Responses.
- To know which age group preferences chatbots as well as customer services.
- To know if chatbots are an extremely cheap technique to annoy consumers.
- To study Chatbots, as a future of marketing.

#### I. HOW DOES THE CHATBOT WORKS?



### CHATBOTS IS UNABLE TO RESPOND AND INTERPRET GIVEN CUSTOMER INQUIRY.

After A chat bots may occasionally become confused and then become trapped in the middle of a user's query. Because they depend on the restricted method to handle as well as address an inquiry, upgraded Chabot falls short. The second issue arises because a non-AI Chabot already has a built-in communication process that is based on pre-set rules. Whereas if chatbots were inundated with questions left unanswered, this communication process may collapse, which might lead to chatbots' failures. To avoid these, chatbots must have a built-in natural language recognition system that really can support them in handling an overall situation of such query and generate a dialogue that appears human. In the end, a business must offer services that improve the chatbot's situation intelligence. Prior to designing a chatbot, a thorough understanding of its purpose must exist.



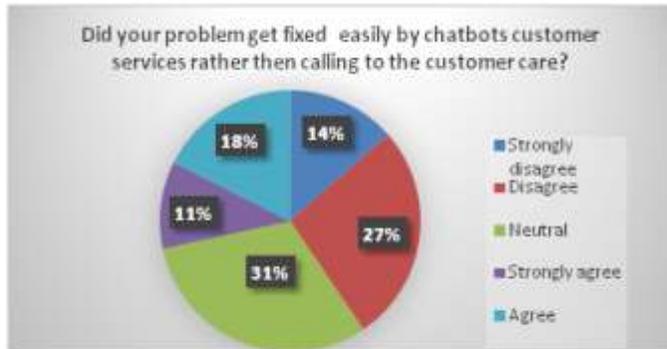
The above diagram depicts that 53% of users believe that the chatbot seems too robotic while using them. As we all know to resolve the problem or queries users want to interact with customer services rather than using chatbots for queries. As we all know if there is a positive response to something there will be a negative response too. 64% of respondents believe that chatbot is very robotic and can't substitute customer care executives. 16% of respondents don't get the feeling of talking with robots and are able to solve their queries with chatbots. It can be concluded that most of the users feel chatbots are too robotic and not artificial humans.

### CHATBOTS VS HUMAN CUSTOMER SERVICES

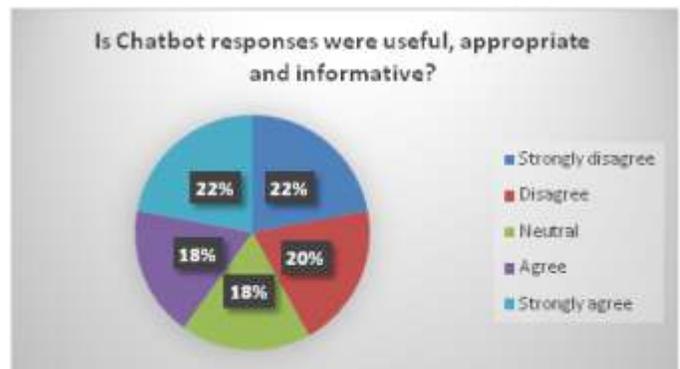
Humans becoming more and more willing to adopt chatbots as they make massive achievements. But the majority of us continue to prefer interacting with individuals rather than robotic representatives. Clients enjoy speaking directly with human customer service representatives over chatbots. By sending consumers to a live representative whenever necessary, you can resolve the issue. Since chatbots lessen the overall strain on customer care representatives by responding most frequently asked questions, it's also crucial to provide an option

for user intervention. Customers will feel more comfortable realizing the support is simply a click away in this way. Consumers such as you are undoubtedly well aware of all that. It is really annoying whenever computer programmers uncomfortably communicate with you when you're dealing with a query.

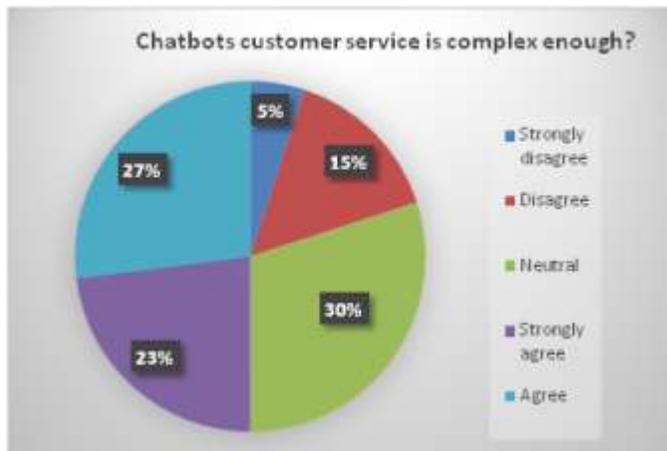
- Text
- Random text.
- Image.
- Gallery.
- Button.
- Quick reply.



This study concludes that 29% of users agree on the fact that the problem gets fixed easily by chatbot customer services rather than calling customer care. But there are 31% of users aren't sure if their problems get easily solved by chatbots as compared to human customer services. 40% of respondents disagree with this fact and voted that chatbots can't fix the queries raised by the users.



The above diagram depicts that only 40% of users believe that chatbot responses are useful, appropriate, and informative to them while using the chatbots. 42% of users didn't find the chatbot responses as useful, appropriate, and informative.

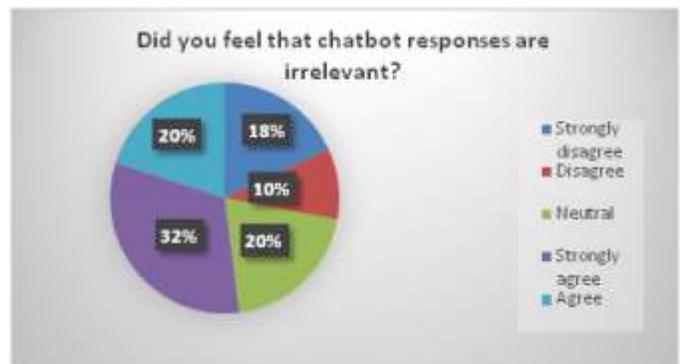


The above diagram shows that 50% of respondents feel that chatbots customer service is complex enough to use as compared to live customer service. 20% of users are not sure if the chatbots are complex enough to use or not. 30% of users believe that they don't feel complex while using the chatbots, and they are happy with this technology.

### CHATBOTS RESPONSES

Every message the chatbot sends to a customer is known as a robotic response. Users have a choice among six different kinds of chatbots responses are:

The study concludes that chatbot responses are not useful, appropriate, and informative in comparison to human customer services, the reason may be that chatbots lack personal touch.

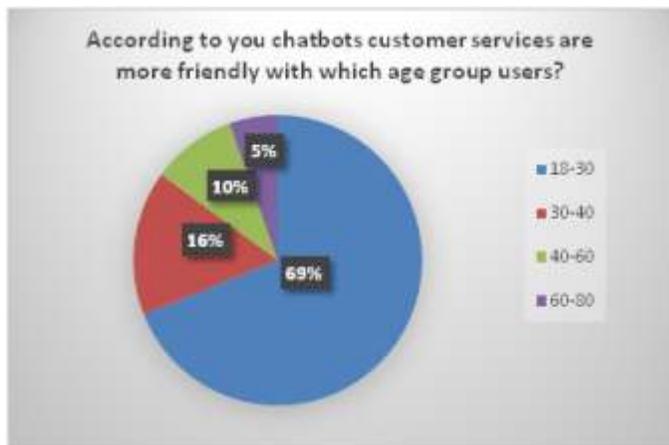


The above pie diagram shows that 52% of respondents believe that chatbot responses are irrelevant to the consumer's queries. 20% respondents are not sure if the responses of the chatbot are irrelevant or not. 28% of respondents believe that chatbot responses are not irrelevant.

### AGE-WISE CUSTOMERS: PREFER CHATBOTS OR HUMAN CUSTOMER SERVICES?

Companies are implementing consumer digital technologies more and more, whereas the elder generation is less enthusiastic about using technology. Although often dependent

on digital technology, customers over the age of 70 don't believe brands understand how to respond to them. Only 12% of individuals over 65 who depend on digital purchases believe that businesses understand their needs while talking to them. Since it is very helpful and a time saver for the new generation and adults but the elder customers face a lot of issues while using the chatbots. Chatbots help digital marketing in a lot of ways by providing 24-hour customer service through chatbots but elder customers who are willing to do online shopping face a lot of problems while using chatbots and they don't prefer chatbots over human customer services. But if we talk about the young generation they are many users friendly to chatbots. Chatbots are more time-consuming as compared to live customer services. Chatbot technology is extremely popular among the younger generations. Chatbots are the ideal choice for teenagers who want to tackle client service concerns by themselves. The report suggests how a growing number of businesses, including industry giants like McDonald's or Facebook, are implementing intelligence assistants to manage customer interactions.



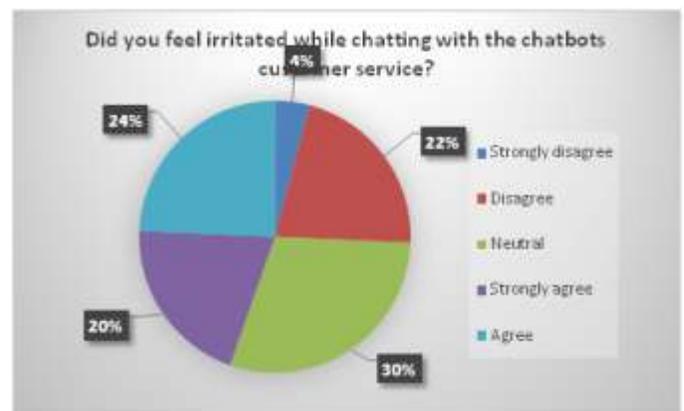
The above diagram shows that the 18-30 age group users i.e.69 % of respondents (mostly teenagers or adults) are more friendly towards chatbots customer services because they are more technological advancements and more aware of the technologies in this competitive world.

As the age increases users are not comfortable with the robotic customer services called chatbots rather they prefer human customer services for resolving their queries. This study talks about the 60-80 age group respondents as they are not comfortable with the chatbots according to the survey only 5% of 60-80,10% of 40-60,16% of the 30-40 age group people are comfortable with the chatbots.

**CHATBOTS: A EXTREMELY CHEAP TECHNIQUE TO ANNOY YOUR CONSUMERS?**

In the past few years, chatbots have gradually taken the role of or improved front-line support. Whenever a user signs into it to

try to get help or learn about a specific business, a chatbot greets them with just an automatic answer. Since it was created expressly to address business-specific inquiries, the chatbot throughout this situation had information at its imaginary fingertips. While chatbots are really a terrific way to increase results, chatbots can also result in an unpleasant consumer experience. Just 22% of respondents to a recent study had a favorable opinion of a chatbot, and a large proportion is disappointed with the services chatbots provide. You must establish a connection with your consumers if you intend to reduce irritation and sell more products. You are skipping out on additional successful methods to satisfy consumers' expectations and earn customers confidence if you are only using the chatbot. Situational advice functions in concert and partnership with chatbots. You'll find yourself in the greatest position to increase business loyalty with time if you use self-guided solutions to address simple problems & continue to provide real interactions during conflicts. 60% of clients who have trouble with the internet desire the option of speaking with a human operator. Businesses can't solve customers' issues or answer questions using chatbots alone. By preparing for it, people can stay well clear of this dispute. By observing how company internet customers behave, you may find out why they're there and what they are seeking. Customers as well as the company will benefit when you provide customers with helpful information before they require or even know that they have a question. The most expensive solution channel is offering 1-1 help over the phone, therefore firms prefer the less expensive computer alternatives.



The above diagram depicts that 44% of respondents believe that they feel that they get easily irritated while chatting with chatbots customer services and 30% of respondents are not sure if they feel the same.

Only 26% of respondents don't feel irritated while using the chatbot's customer services because these users think that chatbots are a more easy way to solve queries as compared to calling customer care for long hours. According to this survey, we conclude that chatbots annoy the most the customers, and this

can lead to a decrease in sales, a decrease in customer loyalty towards the brands, etc.

## **Chatbots: Future of Marketing**

In the past few years Organizations nowadays are constantly on the lookout for rapid progress to advertise and sell their goods and offerings since technologies will always be evolving. This shows that organizations need to be adaptive to compete with certain other organizations. With every step forward in our digital growth, we come closer to a future wherein limitless marketing chances exist, providing businesses with something like a channel to entice a growing number of clients. Chatbots which are pervasive have become one of the developing trends in the world of marketing. Chatbots are being utilized by businesses for quite everywhere customer support tasks, effective team interaction, improved sales activities, & appropriate chatbots market intelligence. Overall outcomes have been extremely positive, indicating that it is clear that now the chatbots intend to stay in the game for the long term. As a result of their belief in the possibilities of chatbots, a wide range of financial experts from so many other sectors are making a significant contribution to the success as well as expansion of our bots friends. The development of chatbot technologies has now been greatly accelerated by recent technical developments. The variety of alternatives available to us, ranging from a simple menu/button-based chatbot to logically Ai-powered chatbots, seems to be a privilege! The menu-based chatbots, which come in the shape of icons and a top-down menu, are really the most widely used and the most basic version currently available. Such chatbots operate mostly on ideals underlying decision trees, in which you must be made choices to reach the most definitive conclusions. Each user is told to choose their selections and then look more into any proper answer by the AI in order to accomplish such judgments. However, such menu-based chatbots work quite slowly, therefore, are not entirely dependable to provide the correct response. One of the latest technologically sophisticated as well as viable forms of human-machine interaction is generally referred to by the term chatbots. But on the other hand, from such a technological point of view, a chatbot signifies the logical advancement of a Question-Answering system that utilizes Natural Language Processing. (NLP). Among the most frequent uses of NLP throughout a wide variety of industries & end-user applications is really the creation of natural language solutions for inquiries. This helps online consumers to choose the best products and solutions for particular requirements, respond to commonly asked questions by shopping online, alert shoppers, as well as provide assistance after just a purchase. A chatbot responds in accordance with the needs of the user. Although the procedure might seem straightforward, it's really actually rather complicated. The first need and also the most essential step just at the bases of a chatbot seems to be the capacity to understand

the user's preferences or extract information and significant information existing within the customer's query. We can divide chatbots on the basis of their programming. There are two groups of chatbots:

- Simple Chatbot working principle is based upon specified predetermined parameters. Each programmer personally creates each of the following instructions by utilizing regular expressions and different string research methodologies. Robots cannot interpret questions that don't contain none of the pre-stated keywords in any way and, therefore accordance with a specified instruction, reply with messages such as "I'm really sorry, I did not interpret this question" or by providing the appropriate response"
- Smart chatbots depend on ai technology to interact with customers. The chatbot responds using appropriate recommendations mostly on an issue rather than pre-written responses. Likewise, every customer's whole conversation is captured for evaluation in the future.

Artificial intelligence chatbots may be utilized in a variety of fields, including telecommunications, education, tourism, diet & nutrition, and wellness, as well as other areas. In fact, a large number of media companies, online businesses, banking institutions, hotels and resorts, airline companies, insurance firms, providers of health care, retail outlets, chain stores of cafés, as well as governmental organizations have always been successfully using ai technologies to handle simple communication with customers because they help create relationships with customers for marketing and familiarize people with different communication methods. Digital chatbots have been frequently utilized in situations requiring basic communication with just a restricted set of replies. This could consist of customer care & promotional tools, whereby chatbots can answer questions about services, goods, as well as organizational guidelines. Every consumer is very often redirected to a human operator when their queries are too complex for the chatbots to answer. The marketing manager receives a good amount of assistance via chatbot with regard to enhancing the branding, products, and sale; this greatly expands the overall potential of chatbots to benefit the business in the future. study the role and advantages of chatbots in marketing.

## **Conclusion**

The capacity of chatbots to automate elements of a selling process can aid in the optimization of digital advertising strategies. Techniques for digital marketing and chatbot may contribute to providing data while still minimizing customer care charges by automated conversations with clients asking for information, supporting customers during the shopping experience, or providing valuable customer assistance. Despite great progress in Technology, chatbots have a few drawbacks and possible concerns. Such as:

- **Chatbots have a higher mistake frequency:** because they are only programs and therefore cannot understand the complexities of interpersonal interactions. Consequently, there will be a higher mistake probability and low user satisfaction.
- **Stability issues:** Only with help of cutting-edge machine theories of learning, Bots are becoming increasingly proficient at simulating human speech. Although it may appear as a benefit, it also comes with a negative side since cybercriminals may simply construct chatbots to mislead consumers into sharing extremely insecure private information.
- **Chatbots can sometimes be extremely robotic:** Bots are generally pre-programmed by programmers and therefore can reply to user inquiries whenever the discussion flows naturally. Performance is adversely affected if an unforeseen event that wasn't anticipated occurs.
- **Repetitive chats and an absence of individual identity:** Through the utilization of Artificial Language Processing, Chatbots interact with consumers in a human-like manner. Bots, on the other hand, lack unique personalities and tend to appear in chats as overly impersonal. Because there are no sensations or feelings, interacting with others is essential.
- **Opportunities for minimal jobs are now being destroyed:** Since knowledgeable bots are developed utilizing the most recent artificial intelligence techniques, they do tasks far more efficiently than human employees, boosting corporate efficiency. Bots are taking the place of people, which poses a severe danger to those working in minimal professions.

Chatbots are most important for organizations when they can promptly respond to common inquiries. The firm must offer the ability to elevate the contact to a human adviser if the inquiry gets more complicated. When required, the adviser should be able to take up where things left off and change their conversation from one chat box to a live engagement. This progression method is crucial since if the client feels their issue has not been appropriately resolved, they can discontinue using the company's products or services. Improve the friendliness of the chatbots instead of being annoying. Setting the right atmosphere for the client is crucial. The computer begins to recognize actual words using natural language processing (NLP). Through this interaction with languages, the programmer is capable of utilizing information to give clients individualized data. Additionally, the technology can detect the mood of the user's voice, enabling the chatbots to converse with the customer. Consumers also frequently reported feeling as though they are getting communication from a regular person

instead of just automated processes. The technology will expand the business into more of an engaging experience for clients using this more casual tone. This has two advantages for the business since managing and analyzing chat recordings is simple. The program gives the business more user feedback by helping it identify the kind of consumers that really are viewing its webpage, exactly what they are searching for, and any reoccurring problems that need to be fixed. Know which age group prefers to use chatbots as well as customer services.

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# Role of 5G technology for Humanity

## Security Issues, Challenges and Applications

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### Abstract

*The continual evolution of technology and communication has made portable and versatile devices indispensable. As a result, more people are using the Internet. In order to supply these gadgets with unlimited, consistent, and content-rich services, the 5G network generation has emerged. 5G networks are more reliable than 4G networks and could offer faster data transfer rates and higher QoS. (QoS). When compared to other portable innovations currently on the market, 5G technology stands out due to the high quality of its video communication, high definition sight and sound streaming, media papers, HD online television, and so on. Fifth-generation networks cannot function without the progress made in IPv6, level IP, and VOIP (Voice over IP). More and more of our culture is being digitized as time goes on.*

*Regrettably, the existing communication network, 5G, is not capable of resolving the challenges that may develop in the future. In order to better prepare for the launch of new administrations and growing applications, swift, flexible exchanges are necessary. This book offers a comprehensive history of the many forms of distant organizations. The numerous uses and difficulties of 5G network architecture are also discussed.*

**Keywords:** 5G networks technology & Latency Internet of Things & artificial intelligence, Wireless, Challenges.

### 1. Introduction

5G technology refers to the next generation of mobile communications. We are currently living in the fifth era, which is the age of the infinitely connected, remotely accessible portable device. Developed by the Third Generation Partnership Project, 5G is the latest iteration of cellular network technology (3GPP). It's the next generation after 2G, 3G, and 4G, and it brings major gains in performance. There are a lot of developments from the first Age to the last Age. The next generation of 5G enterprise technology is competitively priced, holds considerable promise, and is more trustworthy than its forerunners. The purpose of fifth-generation (5G) business technology is to connect nearly everything and everyone. After years of development, numerous countries have now finished standardizing and deploying their 5G systems. Because to its dependability, high-quality data rates, and energy efficiency, 5G has found application in a wide variety of areas (Cave, M., 2018). However, this may change in light of forthcoming developments in wireless communication. Customers around the world will soon have access to the mobile gaming, persistent remote access, and

other innovations made possible by 5G. Congestion will be reduced thanks to 5G's utilization of a wider spectrum of frequencies. By contrast, 4G networks typically operate between 700 and 2600 MHz (N. Al-Falahy and O. Y. K. Alani 2017). The global high-rate connectivity and seamless user experience that 5G communications bring represent a paradigm change from the current mobile networks (F. Bacardi 2014). 5G network technology is able to bypass digital obstacles due to its speed, reliability, organizational capacity, and passivity. The "real faraway world" is another name for the 5G commercial technology. This is a completely hypothetical concept, and there is no such thing as it. With 5G enterprise technology, users may expect larger phone storage space, quicker call speeds, and clearer audio and video. The use of 5G technology will improve several aspects of production, including item assembly, documentation, electronic communication, and more. New, remote firms can offer better Start-to-finish network in an on-demand format with the support of 5G business innovations. Telemedicine, brain-computer interfaces, and expanded realities are just a few examples of how the Internet of Things (IoT) will transform the traditional definition of 5G services. Very

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advanced technology for mobile devices will require future mobile networks to go well beyond the initial ambitions of 5G networks by providing high transfer speeds, high reliability, and low latency all at once (Gupta, R. Shukla & Khan, L.U. 2020). In order to effectively combat the coronavirus, modern digital technologies, such as artificial intelligence and 5G-based solutions [20], are crucial for health, social, and economic results. These technologies have the potential to provide enhanced digital solutions that can help reduce the global health disaster caused by this epidemic. Many sectors stand to benefit from the increased availability of real-time services made possible by the proliferation of 5G-enabled devices (Rahman MM, Khatun F, Sami SI, Uzzaman A 2022). As a contrast to the current generation of 4G networks, 5G infrastructure incorporates new wireless interfaces that can handle higher frequencies and more efficient use of the radio spectrum. To meet the requirements of a wide variety of new applications that fall beyond the typical mobile broadband category, 5G core networks have undergone major improvements in signaling, management, and accounting operations (NGMNAlliance. 2015). Traditional mobility uses in 5G include road/route planning, while newer applications include autonomous driving services (connected vehicles), and the expanded sharing economics of smart transportation. Smart mobility's advantages include decreased emissions and costs, improved traffic flow, and the elimination of potential dangers like accidents (Benevolent et al. 2016). Scalability, intelligence, ease of installation and maintenance, and cheap costs are all need for 5G's core network in addition to a larger radio access network (RAN). An exciting new frontier of flexibility for virtualized core networks has emerged with the advent of cloud-based networking. Rupendra Nath Mitra and Dharma P. Agrawal (2016) The construction of a Radio Area Network, a novel use of cloud services, is a crucial part of a 5G communication network that is both environmentally friendly and efficient in terms of energy consumption. With 5G, devices can have one-to-one conversations with one another with only limited assistance from the network's infrastructure [9]. 5G's device-to-device (D2D) connection is a game-changer that could speed up the creation of edge-centric apps (S. K. Biswash, A. Ziviani, R. Jain, J. Lin 2017).

#### **Benefits of 5G Network Technology:**

There are various benefits of 5G technology for humanity.

- Faster uploading and sending of data.
- Assisted with WAN connections.
- Corrections to the remote access system.
- Longer battery life for far-flung Internet of Things devices.

- Better protection against unauthorized access thanks to deployed endpoints.
- Capabilities for minimizing idle time, especially in remote or branch offices.
- Increases in the thickness of mobile devices are good for business.

#### **Research Objectives:**

The main objectives of this study are

- To put in serious efforts toward creating ground-breaking 5G infrastructure in India.
- To zero in on how 5G business technology can be put to use
- To learn more about the challenges faced by organizations when putting 5G technology into practice.

#### **Research Methodology:**

This investigation in light of the most obvious type of research. Our piece draws significantly on entries from a journal and a number of writing-related websites, as well as results from a poll we asked readers to complete. This information also originates from legitimate government databases.

## **2. Evolution of 5G Network Technology**

A briefly discussion about evolution of 5G network technology generations are discussed.

### **(A) First Generation Networks (1G)**

The original began development in the 1980s and was completed in the early 1990s. Famous for its PDAs, or Simple Frameworks. In 1G, a completely formed voice was guaranteed through the use of simple signs. 2.4kbps was the system's top speed for accepting data transfers. Such innovations as the Cell Phone Framework (MTS), the Advanced Mobile Phone Framework (AMTS), and the Push to Talk feature are highlighted (PTT). The radio waves employed have a frequency of 150 MHz, making this a relatively simple means of communication. It has several issues, such as a low limit, bad voice joins, and insufficient security. (B) Next-Generation Connections (2G)

The second time period, which began in the 1990s, is being described. Though it could handle data transfers at speeds of up to 64 kbps, its primary use case was for voice communication. It was data-based and computerised, providing a slow but functional mode of communication. Users can also use MMS-based instant messaging, email, and file sharing with 2G technologies (MMS). The most well-known innovations in 2G access were worldwide Frameworks for mobile interchanges. Weak data transfer rates, a maximum number of cells, increased changeover inactivity, and a general inability to adapt were some of 2G's primary flaws. In addition, it has the capacity to send PIN-protected conversations.

### © Third Generation Networks (3G)

A new millennium started in 2000. The 2G network was developed with the primary goal of supporting high-quality voice calls and extremely rapid data transfer (up to 2Mbps). Circuit exchanging technology translated voice conversations, whereas packet exchanging technology carried data. The end consequence is a louder volume in the voice. Video chatting, texting, internet banking, bill paying, mobile TV, and more are all made possible. The enhanced bandwidth made available by 3G mobile phone networks is used for a wide variety of applications, including video chat, online gaming, email management, and social networking and video sharing services like Facebook, Orkut, and so on.

### (D) Fourth Generation Networks (4G)

By 2010, the fourth generation of remote employment had been established (4G). Data transfer rates of up to 300 Mbps and "nature of administrations" support are two of 4G's primary goals (Qos). One of the most common methods of access is the Voice over Long-Term Evolution (LTE) network (use IP Bundles for voice). The primary goal of 3G and 4G systems is to provide content to mobile devices as quickly as possible, rather than to maximise delivery efficiency. One of the many benefits of the 5G wireless technology is its capacity to accommodate a vast number of devices. 5G networks are scheduled to become the industry standard in 2020. Additionally to Quality of Service, 5G can manage data transmission rates up to 10 Gbps. Online UHD video streaming and online gaming become feasible with a more rapid connection.

## 3. Application of 5G Network technology

There will be significantly less downtime and a far higher quality of service with 5G compared to the current remote method. Future updates to the programme could include more flexible bandwidth, a higher machine type correspondence rate, and a more stable low inertness correspondence rate.

### Enhanced Mobile Broadband

Like current mobile broadband, EMBB has progressed to accommodate increased data loads and a more satisfying user experience. A greater quantity of high-quality customer data is always helpful in advocacy.

### Massive Machine Type Communication

Companies that handle a huge number of devices are often referred to as "massively multi-device" (MMTC). Such services necessitate low-priced hardware and hardware that makes optimal use of power. Because of this, the devices can be used for longer periods of time without needing to be recharged. There is a finite quantity of data that can be processed by and stored in any given technological gadget.

### Ultra-Reliable Low Latency Communication

For the success of the URLLC, it is crucial that there be almost no downtime and high reliability. Components of automated traffic management, processing plant automation, and programmed control are all accounted for in the models. Modern robotics, self-driving automobiles, e-health, hazardous situations, vehicle-to-vehicle communication, robots, and so on are only a few of the many common applications for URLLC.

## 4. Issues and Challenges of 5G Network technology

The difficulties presented by the new turn of events are especially notable. In comparison to 3G and 4G services, 5G aims to deliver significantly higher throughput and latency-free mobile internet, as well as ultra-low idleness, high consistent quality, and security.

### High Data Rates and Increased Network Capacity along with Energy Optimization

Wireless networks of the 5th generation are based on a convoluted set of principles. Installation of several Base Stations is required even in a relatively flat geological region. It will allow for faster data transmission while consuming less power. In order for Enormous Different Info and Numerous Results to function, more people are need to act as collectors than if the identical information were delivered. The preferred frequency range is from 1-10 mm, and the preferred recurrence interval is 30-300 Ghz.

### Environment Friendly

The radio infrastructure consumes the bulk of 4G's energy needs. This causes a significant amount of carbon dioxide to enter the atmosphere, which has a chilling effect on the weather. 5G, on the other hand, suggests alternative setups to achieve the same end result. 5G's eco-friendliness stems from its utilisation of elements including CloudRadio Networks (CRNs), Visual Light Communication (VLC), millimetre wave connection, direct-to-device communication, vast amounts of diverse data, and variable outcomes.

### Low Latency and High Reliability

On average, a 4G network is fully dormant for around 15 ms. It is generally acknowledged that 5G networks would vastly increase consistency and reliability by drastically decreasing latency, packet loss, and jitter.

### Network Performance Optimization

Few interruptions in service could be expected with the 5G network. The efficiency of administration, the smoothness of supply from start to finish, the dependability of the network, and similar aspects would all be negatively impacted.

## Security and Privacy for Network and Mobile Hosts

Whereas 4G networks were designed primarily for corporate communication, 5G networks will serve both consumers and enterprises. Fast mobile administrations require more lax security than flexible IoT devices. Some of the most significant security challenges encountered by 5G businesses are denial-of-service (DoS) assaults, capturing attacks, flagging tempests, security keys exposure, IMSI obtaining attacks, TCP level attacks, design attacks, entry attacks, and so on.

## 5. Conclusion

The rapid development of portable and small sensing devices is a key factor in the success of the information technology and electrical sectors. These sensor nodes, especially those connected to the Internet of Things, could be used to establish new kinds of businesses. In order for these gadgets to communicate with one another, a rapid data network is required. The goal of the design of the 5G network's underlying technology is to provide an open platform that spans multiple layers, from the physical to the application. Currently, 5G development is centred on delivering specific types of assistance with WWW features at historically low prices in order to best meet the needs of clients. However, 4G cannot support the necessary data transport and stationary requirements. Since this was a problem, firms and professionals came up with 5G as an alternative to 4G. There is no doubt that 5G companies can meet consumer needs. At the very beginning, the magazine jumped back and forth between two different, far-off eras. The report also discusses the issues and difficulties that 5G companies encounter when implementing IoT devices in a variety of sectors. The many obstacles to 5G business innovation are explored further in this paper.

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# Green Technology and Smart Mobility: Shifting Paradigms For A Sustainable Future

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## Abstract

*This paper will outline the current and futuristic effective transportation solution with the aid of green technology, issues in manufacture and utilization of smart green mobility technologies, issues related to use and transfer of these technologies with specific reference to the TRIPS agreement. It is also necessary to discuss the role of policy framework and governance in the use and transfer of green technologies for smart mobility by emphasizing on need for more constructive strategic approach for consensus building in this regard.*

**Key words:** *Green technology, transfer of technology, IPR, smart mobility, green space, smart transportation management etc.*

## 1. Introduction

Rapid growth of population has amplified the problem of climate change which has assumed global dimension as this problem is not limited to any particular country but is affecting the whole world community. Forcing the human mass to change their lifestyle is a very difficult task because it can be criticized by the world community as forcing of “environment despotism” (Henry G. 2010). Thus, the ultimate way out remain with us is the technology revolution. Technology revolution has provided us with the green technology as a significant mechanism to solve the problems arising from the rapid upsurge of population and its urbanization. Use of green technologies and other associated information technologies for smart mobility may help us in fueling the pace of sustainable growth of humankind. Smart mobility planning offers us effective green technology solution for the transportation ensuring the sustainable future by reducing adverse impacts on climate and public health.

Use of green technology in creating eco-friendly transportation by production and deployment of electric vehicles, biofuel, building green space and tools for traffic management is vital for achieving the goal of sustainable cities. Mere inventions in the field of green technology for transportation management would not be a conclusive solution to the crisis rather development and smart deployment of these technologies is need of the hour. Further the cooperative working of developed and developing countries in form of technology transfer in facilitating the use of energy and renewable energy sources to deal with the problem of climate change caused by the high carbon sources. Technology transfer principle has been a controversial aspect in global market and both developed nations and developing nations view this principle according to their own expediency.

Development and transfer of green technology or the environment sound technology has been the policy objective of various climate conventions at multilateral level for example the UNFCCC climate change conference particularly the Rio declaration which provided an important provision of focusing

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on effective framework for transfer of environment sound technology, the Kyoto protocol, UNFCCC Copenhagen summit and Paris climate agreement which has emphasized on the establishment of effective mechanism for the efficient transfer of these environment sound technology.

Now this conflicting situation between the countries has raised several issues which include what type of green technologies can be included within the smart mobility framework? What are the issues in the transfer of green technology or environment sound technologies? Adding to this it is important to analysis the issue whether the IPR works as an encouraging mechanism for green technology transfer or it is one of the barriers in green technology transfer? While the Developed countries are of view that owners of the green technology inventions should be provided with the exclusive right in the form of IP protection to commercially exploit it so to enable them to recuperate large investment which has spent in the research and development of these green technologies.

This paper will outline the current and futuristic effective transportation solution with the aid of green technology, issues in manufacture and utilization of smart green mobility technologies, issues related to use and transfer of these technologies with specific reference to the TRIPS agreement. It is also necessary to discuss the role of policy framework and governance in the use and transfer of green technologies for smart mobility by emphasizing on need for more constructive strategic approach for consensus building in this regard.

### Research Methodology

In this study, researcher has employed a doctrinal research technique to gather information. Using a doctrinal research approach, researcher has acquired relevant literature from libraries, journals, and other sources to conduct the study. While putting up the proposal, researcher has consulted various books and articles to gather knowledge about the subject matter.

### Literature Review

1. In the journal titled "Sustainable Smart Cities Creating Spaces for Technological, Social and Business Development" (Ortiz M., Bennett D.,Yábar B.D. 2018) the authors have provided insight on economic viability and sustainability of smart cities while citing examples of various innovative practices and policies for smart mobility around the world.
2. In the journal titled "Urban Policies and Mobility Trends in Italian Smart Cities"(Pinna, Masala& Garau, 2017), the authors have evaluated progress of various cities in Italy using smart mobility and how these development works as an example for other cities in European union.

3. In the journal titled "Investigating the interplay between transport, land use and the environment: a review of the literature"(Tan and Kamruzzaman 2014)the authors have identified the importance of interoperability of land use, transportation and environment in smart mobility and how sustainable urban development can be achieved by smart integration of transport and land use.
4. In the journal titled "Service-dominant business model design for digital innovation in smart mobility", (O. Turetken, P. Grefen, R. Gilsing, O.E. Adali,2019) the authors in this paper have discussed about the shift of service dominant business in smart mobility domain. The work has investigated and proposed a definite business model solution for challenges in sustainable mobility.
5. In the book titled "Smart Mobility Exploring Foundational Technologies and Wider Impacts", (Alaa Khamis, 2021) the author has dealt with various paradigm shifts in mobility systems due to progressive technology. The book provides information regarding how technologist can work to develop technologies for smart mobility which can help in mitigating risk of world urbanization on public health and climate.
6. In the journal titled "Intellectual Property Rights and International Technology Transfer to Address Climate Change: Risks, Opportunities and Policy Options"(Keith Maskus and Ruth Okediji2010) the authors have undertaken extensive work on intellectual property (IP), technology transfer, climate change and development. The paper provides a much-needed 'holistic' approach, which combines legal and economic analysis. It also has significant merit in going beyond the 'all or nothing' approach that has characterized the debate on IPRs and technology transfer.

## 2. The Concept of Smart Mobility and Its Dimensions

Term "mobility" refers to demand for activities in which cost is an essential ingredient. The dimension of Smart mobility cannot be limited to modes of transportation rather it extends to intelligent transport network through assimilation of numerous technological elements. (Pangbourne K. et al. 2020). It is an integration of means of transport and infrastructure using software, data platform and other industrial technologies.

A smart city can be referred as a geographical area which is well designed with the incorporation of highly innovative technologies to benefits its citizens in terms of quality life, environment sustainability, inclusive and intelligent development while ensuring the economic, social and environmental needs of future generations (Neckermann Lukas 2017). Smart mobility is a revolutionary feature of the smart cities optimizing multiple modes of transportation like car

sharing, on demand ride sharing, public transportation, use of electrical vehicles, AI vehicles, light rail trains etc.(Seimens AG. 2015).

(kohler J. 2013) sustainable transportation has become a global perception for making world a better place by creating new urban living. In the wake of climate change to mitigate environmental effect and to offer quality life to people countries are transiting towards green mobility ensuing uninterrupted affordable travel thus allowing fulfillment of sustainable goals. The concept Smart mobility principles for efficiency, safety, flexibility, integration and green technologies while ensuring Z's vision for zero emission, zero ownership and zero accident (Neckermann Lukas 2017).

Rather than building more roads to avoid traffic congestion taking examples of cities like ohio and columbus for collecting data on identifying collision hotspots and detecting signal issues to ensure smart mobility for smart cities will ensure new options for sensor network to systemize the transportation(Allwinkle S. and Cruickshank P. 2011) Use of electric bikes, electric cars, incorporation of digital token in place of plastic tokens or cards, use of waste material in road constructions or other state of art technologies can be proved as an important aspect of smart mobility strategy.

To implement smart mobility solution by developing and adopting to intelligent transportation system understanding of various innovative strategies of other cities can be proved advantageous. Following the example of Singapore driverless mass rapid transit, Bike sharing system in Barcelona (T. Bakıcı, E. Almirall, and J. Wareham 2012), updation by Woensdrecht city of its 6-mile bike route with use of automatic LED lights which turns only when car or bikes passes using less electricity with modern feature likes adaptability to 5 G transmission points and air quality sensors and wi-fi network receivers can ensure efficient and effective traffic management.

Smart mobility is a keystone of smart city strongly connected with the trans boundary haze (routing, digital transformation systems, and forecast of car traffic) decisions and policy of municipalities that are focused on the tools and innovations of data and communication (Tomaszewska and Florea)

Sustainability of a smart city can be improved through strategic environmental assessment plan, reducing carbon footprints, enhancing sustainable urban mobility plan, making sustainable efficient safe ways by reducing use of private cars, increasing interoperability of urban transfer system like bike or car sharing and electric mobility etc. (Aletà, N.B et al.)

Cities having higher population due to concentration of peoples, institution or companies are undergoing the smart transformation to answer all the challenges arising from urbanization, natural resources depletion and climate change.

To ensure social cohesion and environment sustainability it becomes imperative to architect a smart mobility plan with green technology blue print. Diffusion of technology has open pandora box for remarkable opportunities and applications for smart city paradigms. The advancement of smart mobility can be ensured by the technological advancement and financial investment to develop and deploy these technologies (Pinna, Masala & Garau, 2017).

### **3. The Concept of Green Technology and Its Use for Smart Mobility**

Conventional technologies for road building tend to harm eco system by creating environment pollution. Often construction of roads leads to cutting of trees, disposal of waste material in open, mining of construction material. In the race of advancement, we cannot overlook the sustainability of the environment thus solution lies in the use of smart green technologies.

Green technologies or "low carbon emission" technologies aim to protect the environment by utilizing natural resources in the form of technology (Jaher Wasim J., AKM Hasan Julker Nine 2016). UNFCCC Agenda 21 has defined the term green technology as an "Environmentally sound technologies are technologies which protect the environment, are less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner than the technologies for which they were substitutes" (United Nations / Framework Convention on Climate Change 1992, Agenda 21.)

Making and functioning of green technology has its base on energy resources as it also includes management and recycling of waste material, hybrid system technologies, technical devices use in abatement of Air and water pollution, use of solar and wind power, use of renewable energy sources, fusion technology and other Sustainable building materials (Hesse M. Dieter 2013)

The increasing significance use of green technology is the use of Hydrogen Fuel Cells in the vehicles. Hydrogen Fuel Cells are intended to use for supplying power and heat to the building and fuels to the vehicles in the future (Melis, A And Happe 2001). Other examples of environment sound technology are the phytoremediation clean up technology which use innate ability of plants in remediation climate effect can be considered as an effective clean technology for mitigation of pollution (Agbontalor A.E. 2007).

Use of emulsion based cold mix in place of hot bitumen resulting in lesser hydrocarbon emission, decreasing carbon footprint while saving cost and energy, production of environment friendly noise reducing asphalt, use of inclusive transportation technologies, information technology, internet of a thing,

internet of manufacturing, digital tools, internet of manufacturing and transport management can help us in creating enrich urban areas (Casini, 2017).

Ministry of rural development has sanctioned construction of 35,922 Km length roads while using new technologies like coir technology for subgrade improvement, jute geo textile for subgrade improvement, cell filled concrete, waste plastics, fly ash, lime stabilization and paneled cement concrete pavement etc. Ministry of rural development has issued guidelines under the Pradhan Mantri Gram Sadak Yojana to encourage use of green technologies and local available materials for road building ( Pib.gov.in)

#### **Need for Invention in the Field of Green Technology**

As already pointed out the green technology inventions has become the necessity of world considering the rampant rise of global warming due to greenhouse gas emission. Increasing emission of greenhouse gases has threaten the world community with the increase in global temperature from 0.3 °C to 0.6 °C which will be impossible to tackle if rise beyond the 3 °C. Other effects caused due to global warming include increase in Sea level ensuing flooding of coastal limits caused due to melting of polar ice, depletion of ozone layer, unforeseen wildfire, raise in forceful heat waves, Heavy rain at same time drought in many areas worldwide (WWF organization, effect of climate change 2022).

COP26 has announced net zero emission by the year of 2070 with certain interim target to reduce emission by the year of 2030. Giving new dynamism to the principle of “vasudhaivkutumbakam” and “one earth-one family-one future”, Indian government has prioritize productivity enhancement and investment for energy transition and climate action with allocation of Rs 24,000 crores to boost solar energy needs in India.

#### **4. Concept of Transfer of Technology and Green Technologies**

Concept of technology transfer regarded as eternal basis of common welfare of human civilization. International instruments like WTO, TRIPS, UNFCCC, Agenda 21RIO declaration, the Johannesburg Plan, Kyoto protocol, Paris agreement on climate change and several other international conventions and treaties has recognized the need for development, capacity building and transfer of technology.

The Association of University Technology Managers has defined the term technology transfer as "the process of transferring scientific findings from one organization to another for the purpose of further development and commercialization." Technology transfer refers to “the diffusion and adoption of technology and knowhow between parties, typically private

companies, universities, financial institutions, governments and non-governmental organizations”. (UNDP, Technological Cooperation and Climate Change Issues and Perspectives, Working papers 2011)

#### **International Legal Framework on Green Technologies and Its Transfer**

There are several international frameworks which have emphatically included the transfer of environment sound technology as a mechanism for the sustainable development. Some of the major international instruments are Declaration of the UN Conference on the Human Environment, 1972, United Nation Conference on Environment and Development, 1992, Conventions on biological diversity 1993, United Nation Convention on combat of Desertification 1996, Kyoto Protocol, 1997, Doha Declaration 2001, The Bali Action Plan 2007, The Copenhagen Accord 2009, Conference of Parties 2013, The United Nation Paris Agreement on Climate Change, 2015.

All these conventions and treaties expressly and impliedly provides for cooperative working of all the countries in the direction of development and dissemination of green technologies and its essential know-how (Kyoto Protocol 1998).

Mere inventions in the field of green technology would not be a conclusive solution to this crisis rather it requires cooperative working of developed and developing countries in form of technology transfer in facilitating the use of energy and renewable energy sources to deal with the problem of climate change caused by the high carbon sources (Kemfert C. 2004) Technology transfer principle has been a controversial aspect in global market and both developed nations and developing nations view this principle according to their own expediency.

Development and transfer of green technology or the environment sound technology has been the policy objective of various climate conventions at multilateral level for example the UNFCCC climate change conference particularly the Rio declaration which provided an important provision of focusing on effective framework for transfer of environment sound technology, the Kyoto protocol, UNFCCC Copenhagen summit and Paris climate agreement which has emphasized on the establishment of effective mechanism for the efficient transfer of these environment sound technology.

#### **5. Role of IPR in Development and Transfer of Green Technology**

The role of intellectual property rights as a central point of policy framework comes into consideration for the green technologies and its transfer for the developing countries. Here it become important to analysis the issue whether the IPR works as an encouraging mechanism for green technology transfer or it is

one of the barriers in green technology transfer? While the Developed countries are of view that owners of the green technology inventions should be provided with the exclusive right in the form of IP protection to commercially exploit it so to enable them to recuperate large investment which has spent in the research and development of these green technologies (Ahmed Abdel Latif 2012).

The importance of inventions is growing in the wake of economic development has put the innovation on the central clause of government policies and business practices. As a result the significance of IP protection of these inventions has drastically enlarged. According to data provided by the WIPO numbers of patent application has rose to 278,000 in 2022 (World Intellectual Property Report 2022) In this technology revolutionizing world IPR has become an asset for the private enterprises of the countries and a medium to establish its dominance in the market. International instruments specifically related to intellectual property right also emphasizes in the technology transfer are:

- **Wipo and Principle of Technology Transfer**

WIPO Convention has also made provisions for technology transfer with the objective to has given thrust to “to promote the protection of Intellectual property throughout the world through cooperation among States and, where appropriate, in collaboration with any other international organization” (World Intellectual property Organization 1967, Article 3).

- **Principle of Technology Transfer within The Framework of Trips**

The TRIPS Agreement strives to make Transfer of technology for least developed countries easier by allowing a grace period and encouraging developed countries to distribute new inventions and know-how to the developing world (Art. 65, 66.). Now these flexibilities have been criticized by the countries several time reason being that due these flexible approach the countries have adopted such IP framework which has proved harsh to other countries that are in developing stage. The developed countries which provide stringent IP regime for technology protection shows unwillingness in technology transfer to developing countries that lacked strong intellectual property rights protection mechanism and export regulations. Here certain question becomes important to be address firstly, whether TRIPS aid or obstruct the technology transfer? How far TRIPS provisions are helpful in facilitate the technology transfer?

Article 7 and 8 of the TRIPS Agreement also emphasis on principle of technology transfer in order to facilitate innovations and dissemination of technology for social, economic and public benefit. Further Article 31 of the TRIPS provides for the authorization of use of patented invention often termed as compulsory license on existence of national emergency, other

circumstance of extreme urgency. TRIPS also entails for the financial and technical assistance by the developed nations in promoting technology transfer to developing and least-developed countries to enable them to build up viable technological base. (Article 66.2 and article 67)

One of the questions can be raised in relation to technology transfer that “whether the transfer of technology means the transfer of whole technology or mere hardware or equipment transfer?

In this regard some of the studies stated that the technology transfer does not include mere transfer of component part or equipments but the transfer of whole system consisting of all the components, equipments, systematic organization and essential know how (Bronwyn H. Hall & Christian Helmers 2010). Taking into account the definition of technology transfer as given by the IPCC, technology transfer is a “broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change amongst different stakeholders such as governments, private sector entities, financial institutions, non-governmental organizations and research/educational institutions” (IPCC Climate Change 2014).

Thus, it can be concluded that Technology transfer includes not only the supply and acquirement of equipments but it has extended its scope also to transfer of essential knowhow and skills so that the recipient parties can also developed the transferred innovations.

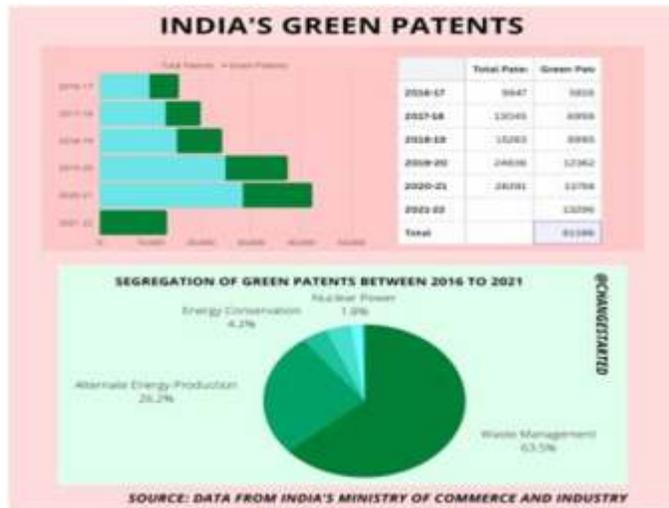
### 5.1 Green Patenting

The emergence of green technology invention and huge investment in the field has certainly paved way for the IP protection of these technologies for the purpose of securing these inventions in order to get the return of investment put in development and deployment of these technologies. The United State has seen huge amount of green tech patent application majorly from automobile industry and highest number of patent registration is with the Tyoto following it Tesla, Hyndi and Mercedes.

Clean Energy Patent Growth Index (CEPGI) 2022 provided data which states that around 453824 clean energy patents were granted between 2000 to 2021 in which major share belongs to the automobile industry for introduction of new climate technology which include fuel cells. one of the noteworthy green technology inventions is the electric cars as developed by the Tesla at huge number has provided us with large inventive ideas for the green technology or has open an plethora of possibility in the field of green technology and use for climate protection. The problem of global environment damage has raised the demand for transfer of these green technologies from the developed countries to the developing countries as an

important factor for the determining environment policies (James Shephard J. 2007).

Considering the data inventions and IP registration of green technologies have also accentuated India's ranking on Global Innovation Index. India has moved from 81st position in 2015-16 to 40th position in 2022 in global innovative index.



According to the data provided by the ministry of commerce and industry majority of 92,000 patents which were granted from 2016 to 2022 were in the field of green technology. To expand these initiatives and cooperate in technology transfer, India and Denmark has signed strategic partnership to build eco-friendly technologies. India, USA, Japan and Australia also referred as QUAD in term of establishment of climate working group has decided to promote technology transfer and accountable trade practices in green technologies

## 5.2 IPR: A Contentious Issue in Transfer of Green Technologies

As far as the role of IPR in green technology transfer concerns there are two conflicting ideologies. Supporters of one ideology have highlighted that IPR framework provides an absolute extended monopoly over a particular technology which acts as barrier in transfer of technology to other developing countries as they fail to provide sufficient protection to the new owners of the technology which in a way discourage the transfer of these technologies (Keith E. Maskus & Ruth L. Okediji 2010). Supporters of Other approach rationalize the intellectual property rights as it provides inducement for technology development and transfer.

Intellectual property can be categorized as “Technological IP” and “Non-Technological IP” respectively”. “Technological IP may include patents, integrated circuit designs, copyright in relation to computer programs, and protection against unfair competition (including trade secrets and confidential

information) (Falvey R. 2006).. In contrast, Non-Technological IP, on the other hand, may include copyright (not including computer programs), trademarks, industrial designs, geographical indications, and protection against unfair competition. The distinction between the two categories is relevant to the present discussion because their impact on the development and transfer of green technology.

Non-Technological intellectual property such as trademark rights, design rights, and copyright (not including computer programs) generally do not impede the development and diffusion of green technology. The primary reason these rights may be non-impeding is apparently because they themselves are not a direct solution to climate change, nor do they embody the technology themselves. Other reasons these rights do not appear to be impeding is because their impact actually encourages the transfer of green technology (Falvey R. 2006).

While the direct impact of trademark rights seems limited insofar as the development and adoption of green technology is concerned, particularly when compared to patent rights and copyright, there are important indirect impacts that occur. Patent rights are the most obvious rights that propel the development of technology. It is well recognized that of the various types of intellectual property rights, patent rights play a pertinent role in the impact on green technology. These Patent rights exclusive rights to use inventions in jurisdictions where they are granted. Patents are at the forefront of protection of technology as intellectual property since they are conferred to inventions which are products or processes, in all fields of technology, provided that they are new and involve an inventive step.

The essential logic of the patent system is often portrayed as a ‘balance’: an optimal balance that respects the private interests of those investing resources in the development of new technologies, and that promotes the broader public interest in seeing these new technologies emerge not only as abstract scientific publications, but as effective, proven technologies that are actually disseminated to the broader public, for overall welfare outcomes” (Reichman J. 2009) The relation of IP with the green technology and its transfer has received more criticism than the appreciation so request and discussion emphasis that IP framework must work as tool for the technology transfer.

## 5.3 IPR: As A Barrier or Aid To Transfer Of Green Technologies

Countries have adopted different IP regime according to their economic, technical, social, legal and political capabilities. Now the degree of IP protection or to say the level of IP regime determines whether IP regime working as an aid or as a barrier in the way of technology transfer. Considering the need for technology transfer it is suggested that countries should adopt less stringent Intellectual property rights structure. It can be

stated that the countries with flexible intellectual property rights regime likely to create more technological innovations". (Sanghoon A., Bronwyn H. Hall, Keun L. (2014)

The argument supporting the IPR as an aid for technology transfer based on the statement that IP works as an incentive for the private sector entities to invest and develop new inventions for which the exclusive right to use is granted but the legislative grant of protection does not structured for grant of monopoly but to sufficient diffusion of knowledge of that technology and knowhow for the betterment of the society.

Countries having the capacity to develop and export new inventive technologies demands for strong IP regime of same level as they follow for the protection of their inventive technology. But the existing IP legislative frameworks of the several developing countries are not as effective and strong as of the developed nations which are dominating parties in the green technology sector. TRIPS Agreement also to an extent hinders the free flow of technology to developing countries as article 28 of TRIPs provides power position to technically well developed countries in dealing with developing countries by putting their own terms and conditions in negotiation with recipient party. Further the scheme of Technology Pooling and compulsory licensing can be a way to remove the existing barrier of green technology transfer.

It can be suggested that when it comes to transportation, for instance, rules are necessary to safeguard the public's safety if autonomous vehicles are to be allowed on the road or in the air. The amount of potential road situations that a self-driving automobile must be prepared to handle is staggering. When choosing whether or not to allow the use of AVs, it is important to weigh the dangers associated with both traditional vehicles and AVs. Product effectiveness may be a regulatory requirement. Currently, humans are often uneasy with machines making judgments with such far-reaching consequences. To encourage app creation, policy is required to ensure that developers have access to public data.

Further, to turn cities into smart cities it is necessary to make best use of infrastructure and land through green technology and to carry forward these initiatives within integrated and systematic approach. Smart mobility being part of urban management can influence the architect of urban areas and its sustainability. Integration of smart mobility and green technology can play viable role in generating clean energies, sustainable road building, hybrid transportation system which is significant for traffic congestion mitigation, pollution mitigation and creating better livable urban areas.

## 6. Conclusion

Need for preservation of environment from harmful effect of climate change has called for the new technological inventions in the form of green technologies but all the countries are not

financially and socially developed to initiate such technology revolution therefore requirement for technology transfer these green technologies have arisen. Future of smart mobility and green technology advancement is unpredictable due to competing technology. Competitive modes using green technology for smart transportation management has resulted into flying cars, automotive cars or trains, electric bikes or cars. Use of Green technology among other information technologies can foster smart mobility by reducing congestion.

Various international frameworks have emphasis on the need for dissemination of green technology by cooperative working of developed and developing countries. There are several barriers which hinders the free flow of technology among which IP regime is considered as greatest challenge. Though the TRIPS regime provides for the flexible regime for the protection of the IP rights but the countries are free to adopt strict IP protection regime. Innovative technologies like method to produce PAT and technology for manufacturing paver blocks from process waste developed and patented by the Hindustan coals company can set precedent for the other companies or organization working in the field of manufacturing and deployment of these technologies.

The issue associated with the flexible IP protection is that developers of these technologies are least interested in supplying their technology to such countries because their inventive work might be exploited by the local entities through reverse engineering. The existing flexibilities in the TRIPS and WTO should be reconsidered in order to give new interpretation to transfer of technology inkling towards the efficient mechanism for green technology transfer. There is a need for some strict measures to be taken at International level and policy measures at domestic level through which a balance could be maintained between the growing IP regime and technologies that favour sustainable development.

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# Employee Experience approach to Leadership development

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## Abstract

**Purpose:** Many large and small organizations invest in their employees to develop leadership. However, almost all of them are not satisfied with the return on investment in development. To provide one of the different solutions to this perception of the inadequacy of return, this conceptual research introduces the concept of the Employee Experience approach to Leadership development. This research paper aims to study the changing needs of Leadership Development and conceptualize the Employee Experience perspective-based approach to Leadership Development.

**Design/Methodology/Approach:** The paper draws on the employee experience literature in leadership development. It reviews the existing conceptualizations of the employee experience and Leadership development construct in human resource management studies and other disciplines. The researchers have attempted an extensive and in-depth analysis of the academic and business literature on leadership development topics.

**Findings:** This paper presents the findings of the author's literature review, observation, and own experiences. It highlights the integration of employee experience with leadership development. The researchers have proposed a framework that attempts to address the needs and expectations of employee experience and leadership development, focused on increasing the quality of experience of leadership development. The framework can be utilized to increase the effectiveness of leadership development investments across the organization. The framework is helpful across industries and organizations to design and implement leadership development using the concept of employee experience. Applying the framework will provide more confidence in return on investment to the sponsors of leadership development.

**Originality/Value:** In this concept, employee needs and expectations are at the center of the design of leadership development. This is an experience economy, and offering an employee a choice to meet the needs of leadership development, with his needs at the center, is similar to the concept of employee experience. The needs of development are derived based on the organization's business strategy. The development expectations of the employee are based on his assessment of self-performance and career goals in the context of a given business strategy. Leaders across the organization influence the employee experience, and as a result, successful leadership ensures people are more engaged, feel cared for, stay longer, and ultimately perform better. The current study contributes to further theorizing and expanding our understanding of employee experience creation in the context of leadership development interventions and the overall development process of leaders.

**Keywords-** Employee Experience, Engaged Employee, Leadership Development, Return on Investment.

## 1. Introduction

Employee experience is a similar concept to customer experience. Companies can provide choice and empowerment to the employees of ways to achieve the desired goal by the human-centric design of the process. In that case, it drives an

outstanding employee experience of the respective process. The process design using design thinking is suitable for outstanding employee experience. One of the critical human resource processes is leadership development. The primary objective of the leadership development process is continually developing successful leaders. This can be supplemented with

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outstanding employee experience by empowering employees to make choices based on their own needs and expectations of leadership skills.

For several years local and multinational organizations across categories have significantly invested time and money in leadership training and development programs. The objective of leadership training and development programs aim to improve managerial and behavioral skills to impact leaders' leadership and on-the-job performance. These leadership development interventions focus on knowledge and skills needed across similar situations to generalize the learning. The generalization is achieved through the design of a standard approach, which can be extended large number of employee groups. Despite the organizations' sustained investment in leadership development, they are still determining the effectiveness of these development investments through impact on the business.

A recent Fortune survey<sup>12</sup> states that around seven percent of CEOs believe their companies are building influential global leaders. Only ten percent said their leadership-development initiatives have a clear business impact. The poor perception of the effectiveness of the leadership intervention indicates the need for more leadership interventions to provide the necessary employee experience of leadership development, leading to a successful on-the-job impact on performance.

Several surveys of the CEOs and top executives of the organization have expressed the need to understand the impact on the leadership development business. Organizations always need leaders to achieve their strategic goals. Successful leaders thrive in the changing context of the organization and their businesses. The ever-increasing demand for leaders and their outstanding leadership in a complex VUCA world has increased the expectations of the leadership development process. Leadership development approaches are evolving with the changing needs of leadership and the arrival of technology as an enabler.

Along with this approach evolution, a new dimension of employee experience is added to leadership expectations. This means that in designing and implementing 21st-century leadership development, a new perspective on employee experience of leadership development has become an important consideration. This employee experience approach will increase the effectiveness of leadership development interventions, thereby increasing positivity about leadership development.

*The employee experience approach to leadership development is defined as a development process that provides perception to the employee as enhancement of his skills and knowledge that can be transferred in the actual workplace environment, leading to self-development as the leader, in the context of his own needs*

*of personal growth and business needs, at the various touch points and interactions of the leadership development process.*

Employee experience of leadership development will occur at every step of developing an individual employee as the leader. Leadership needs are defined by the skills, behaviors, and mindset needed to achieve business goals and sustain employee motivation. The concept of leadership is dynamic and will change with the context in which the leaders demonstrate it, and so is the leadership development approach. With changes in leadership development, the employee experience will evolve as the leadership development need to keep pace with the changes in the needs of leadership. For example, 21st-century leadership development will focus on developing more social and relationship-oriented leaders instead of authoritative and directive leadership. So the employee experience of leadership development must consider this at the design stage. This is equally true for the development of leadership oriented towards enhancing the managerial skills of leaders. There is a significant change in the profile of followers, their expectations from the leader, and their relationship with leadership. The organization's social, economic, and technological environments are changing faster than in the earlier century, and so are leadership expectations. All these changes must be considered in designing the employee experience of leadership development in the 21st century.

### **Research Objectives**

This work aims to explain the “employee experience approach to leadership development” concept to increase the effectiveness of investments in leadership development. The key research objectives are:

- To understand the effectiveness of Leadership Development
- To conceptualize the Employee Experience perspective of Leadership Development
- To study the needs of Employee Experience in Leadership Development
- To propose a framework for building Employee Experience in the Leadership Development

### **Literature Review:**

Collins & Holton<sup>1</sup> conducted a meta-analysis study to determine the effectiveness of development interventions across 83 managerial training interventions. The study focused on understanding the enhancement of performance, knowledge, and expertise at the individual, team, group, or organizational level due to the training interventions. They found that practicing leaders can significantly improve knowledge and skills if sufficient front-end analysis is conducted to ensure that the right leaders are offered the proper development. This analysis

will help to identify the critical experiences along the leadership development journey to increase the effectiveness of leadership development. The critical experiences focused on optimizing the needs of the skills and experience of learning and development will enrich the employee's perception of his development journey. The upfront analysis of the needed employee perceptions based on the experience of the leadership development journey will enable the design to be more effective. Such an employee experience during leadership development enables significant improvement in the on-the-job performance of individuals and teams. A Cumulative Study of the Effectiveness of Managerial Training by Burke and Day 2 used a meta-analysis approach to integrate the findings of 70 managerial pieces of training empirically. The metanalysis results showed that managerial training is moderately practical, but choosing a particular training method is the critical differentiator for effectiveness. The content and methods are an essential element of providing a positive employee experience of leadership development, and customization of the content and methods can be enhanced by meeting the needs and expectations of the employee.

McKinsey's report by Gurdian & Lane<sup>3</sup> highlights the need to customize leadership development experience through unique initiatives and move away from the one size fits all approach. Leadership development can avoid common mistakes and increase the odds of success by matching specific leadership skills and traits to the context at hand, embedding leadership development in real work, fearlessly investigating mindsets, and monitoring the impact. The employee experience of development can integrate these needs, as the concept of experience insists on the customization of the solution based on the needs and expectations of the employee.

McKinsey<sup>4</sup> found that only eleven percent of executives strongly agree with the statement that their leadership development interventions achieve and sustain the desired results. There is no one-size-fits-all solution to achieve the scale in leadership development. The survey lists forty key actions that would create an impact of around eighty percent, categorized into four major groups: contextualizing the program based on the organization's position and strategy, ensuring sufficient reach across the organization, designing the program for the transfer of learning, and using system reinforcement to lock in change. The employee experience dimensions of development - involvement in the development of own and others, desire to learn by the employee, and mastery in the application of learning - are critical for successful leadership development. Most of the executives in the survey responded negatively to the ability to translate business strategy into an appropriate leadership competency model that drives business growth. However, organizations with successful leadership development programs were likely to have eight times more

than those without such programs in which the executives demonstrate leadership behaviors critical to achieving the business strategy.

Leadership at Scale<sup>5</sup> outlines how to drive leadership effectiveness that reaches the entire organization, adapting to diverse contexts and achieving impact at scale. It is based on insights from over 375,000 data points and the global experience of 25 senior leadership practitioners. Leaders are facing unprecedented shifts, and the nature of work is increasingly decentralized, so they need to help their organizations adapt quickly to new realities. Most leadership development programs focus on bringing universal leadership qualities to a few individuals. However, research shows this approach could be more effective in today's constant change and decentralized decision-making. The customization or personalization of the learning experiences can be achieved through a microlearning approach and embedding the technology in the experience. A uniform employee experience approach can be one of the potential solutions to achieve leadership at scale.

The Deloitte report<sup>6</sup> in 2017 emphasized the importance of employee experience in organizational performance. As per the study, organizational performance results from employees' connections, meaning, impact, and appreciation for their jobs, along with daily interactions with company values, co-workers, management, customers, work content, tools and technology, and the physical environment. Organizations looking for a positive employee experience invest in all four pillars: their connection with managers, colleagues, the company, and the community; the meaning and purpose of their work and the company; proof that their work has a positive impact on colleagues and organizations; and a sense of appreciation and acknowledgment for their contribution. Companies must address satisfaction and engagement holistically and integrate design thinking, HR practices, and talent programs, providing programs for younger and older. A multi-generational workforce, considering the diversity of employee preferences when designing work, building a solid employee experience brand, aligning employees and personal goals with corporate purpose, and helping to bring together social, community, and corporate programs.

Upfront analysis, personalization, achieving scale, and selection of methods are all the elements highlighted by the literature to ensure the effectiveness of leadership development. The employee experience concept integrates these components in the experience design for any process. The literature on leadership development has considered the results or end states of the individual's development, like an increase in the skills, knowledge, competencies, and on-the-job performance, and misses out on the individual's journey of the development

process. Moreover, the literature prioritizes the needs of the business as the focus of leadership development. It needs to include the employee perception of the journey of development, the associated outcomes of these perceptions, and its contribution to the effectiveness of the development effort. The employee experience focuses on the journey and perceptions at different critical touch points in the execution of the process. The need for integration of employee experience and leadership development will significantly increase with faster changes across the environment in which businesses operate; the workforce mixes moving towards a higher percentage of gen z and technology as a lifeline of all processes. Thus, the literature study on leadership development identifies a researchable area of integrating employee experience and leadership development. Research on such integration would solve the problem of effectiveness and return on investment in leadership development.

### **Employee Experience based leadership development design - A potential solution to increase the effectiveness of leadership development:**

The core assumption in the employee experience approach to leadership development is to blend the organization's needs and the employee's expectations to provide an outstanding employee experience of development, which leads to a higher return on leadership development investments.

Leadership development is the journey an individual experience to achieve goals at respective career stages through the career life cycle. The career life cycle is defined as growing in roles and responsibilities, growth in monetary and non-monetary rewards, and growth in capacity and capability through successive years of experience. Leadership development needs are derived using the needs of long-term business strategy, understanding the gap between the needs of the business strategy and currently available leadership<sup>7</sup>.

The concept of employee experience is similar to customer experience. At the center of employee experience lies the needs of employees and potential solutions to meet those needs throughout the journey of the employee life cycle in each organization. Employee experience combines feelings,

attitudes, and perceptions based on his involvement in a particular activity. The combined experience is the cumulative effect of a journey through several activities involving an employee to achieve a specific outcome<sup>8</sup>. The degree of positiveness around an experience is based on the perception of the match between expectations and delivery to meet the expectation. The same set of tools, methods, and techniques in a similar environment will lead to different experiences for individuals on the same journey, consisting of similar activities and outcomes. Employee experience is a qualitative concept that is significantly valuable for increasing the effectiveness of actions to improve the performance of individuals in the context of an organization or employer-employee relationships.

### **Concept of Employee experience approach to leadership development**

Organizational needs of leadership development can be defined as cognitive and behavior modification in a professional role through developing skills and knowledge and practicing new behaviors to support and stop behaviors that negatively impact performance as a leader. Employee needs for leadership development can be defined as satisfaction and happiness with the process of change in self, coupled with learning style alignment with the development process, customization of methods, development support, self-conviction of the change based on the results achieved, and heightened self-awareness. Employee experience approach to leadership development includes both these needs<sup>9</sup>.

The conventional approach to leadership development focuses on the needs of the business strategy. The business strategy needs are defined by identifying the business-critical behaviors and combining them in groups called competencies. Incorporating employee experience into leadership development and developing business-critical behaviors leads to an employee-experience approach to leadership development. This approach focuses on designing and implementing leadership development interventions, keeping employee expectations of experience at the center of leadership development. The following table highlights the comparison of the conventional approach and employee experience-based approach to leadership development.

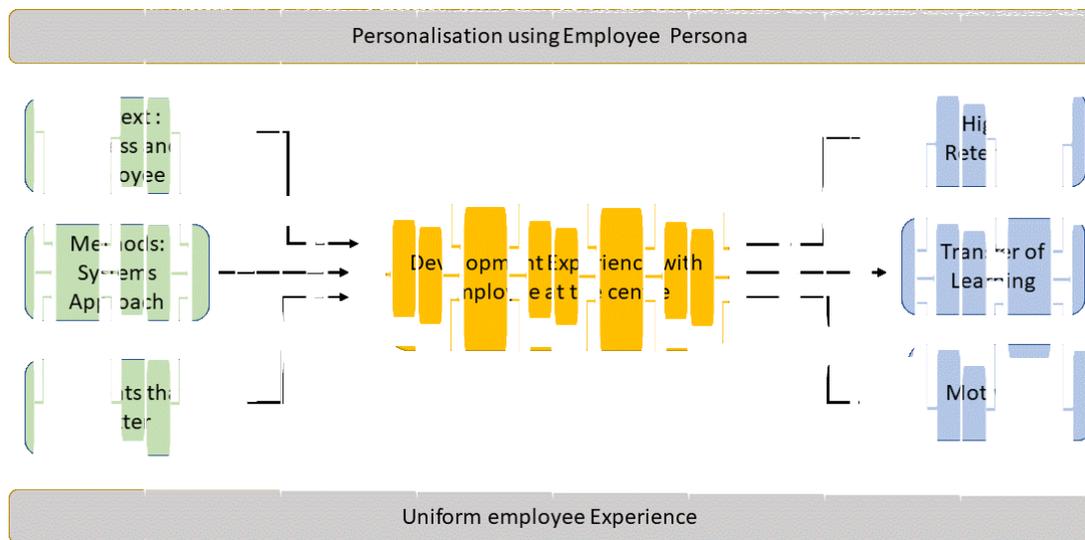
**Table-1: Comparison between Conventional Leadership and Employee Experience Based Leadership.**

	Conventional Leadership Development Approach	Employee Experience-Based Leadership Development Approach
1	Focus on business needs of business strategy	Focus on employee expectations of development to meet business goals
2	One size fits all approach to development	Combination of personalization and uniform approach to development
3	Systems and organizational leadership competency framework based	Flexible approach and Agility in the design to provide experiential outcome
4	Impacts organization competence to achieve business goals	High impact on employee motivation to achieve business goals

A typical journey of employee experience of leadership development consists of -

- 1) employee’s self-awareness of the gaps in required versus current leadership capabilities.
- 2) coupled with a deep inner desire of employees to change,
- 3) followed by purposeful actions by employees to narrow the gap
- 4) through profound involvement in leadership development interventions (planned and executed by an organization, initiated by self-etc.)
- 5) resulting in the transfer of learning (through on-the-job demonstration of the improved behaviors and skills by an employee) and impact on performance
- 6) leading to improved employee motivation, engagement, happiness, and impact on business results.

**The Framework of Employee experience approach to leadership development (Determinants- Resultants Model)**



**Figure-1: (Determinants- Resultants Model)**

The conceptual framework consists of determinants and resultants of the employee experience as applied to the employee experience of leadership development. The determinants are categorized into three major groups: the context, the methods, and the moments that matter. Similarly, the resultants are categorized into three major groups: higher retention, transfer of learning, and motivation. The overall environment in which this leadership development occurs is influenced by consistent leadership experience and employee persona. Both these significantly impact the resultants and determinants of the employee experience approach to leadership development. The consistent employee experience is the core experience that every employee goes through as part of the leadership development needs. Personalization refers to the customization of the design of development experience considering the needs of a specific persona of a group of employees undergoing leadership development<sup>10</sup>.

### **Determinants of Employee experience approach to leadership development**

#### **Context**

Context of employee experience of development refers to understanding the relationship between a business's current and future needs and expectations of the employee experience of development.

Context is a critical component of successful leadership. A brilliant leader in one situation could perform better in another. Focusing on context inevitably means equipping leaders with critical competencies that significantly impact performance instead of multiple competencies.

An upfront analysis of the needs of development by an organization includes identifying critical skills and behaviors to meet current and future business strategies, assessment of future employee expectations, and success profiles across various roles. This enables to set of realistic expectations for leadership development.

An analysis by an employee that shapes his expectations of the experience of development considers various situations, identification of what worked well for him and what could have been done better, what he is missing out on, how he is equipped to deal with the constant changes around him- on and off the workplace. This analysis helps the employee to set realistic expectations of leadership development goals. An employee considers several situations to arrive at realistic goals for his development, such as - a performance gap that needs development of higher leadership effectiveness in his role, a new expectation is driven by the changes in the organizational restructuring, the introduction of a new leadership competency models by the organization to be successful in the future, a new career opportunity for the employee as part of the career path,

potential vertical growth in different domain with the different work environment, an expansion in the scope of the responsibility in horizontal growth of the career, anticipated change in the technology, needs of self-wellbeing are few of the examples, etc.

Collaborating between employees and the employer is necessary to clearly understand the context of leadership development that meets the needs for a positive employee experience. Cultivation of vibrant organizational contexts will create a level of receptivity, infectious action, and proactive "pull" that fundamentally redefine the on-the-job application of leadership development skills and insights.

#### **Methods**

Methods refer to evolving multiple potential solutions with different approaches that provide choices to meet the needs of employee experience of leadership development over a long-term period. Methods bring a faster shift in mindsets, adaptations in the belief system underlying a particular new behavior, and learning new skills.

For a positive employee experience of the leadership development journey, the methods need to be designed using the ideas and actions of employees, performing actual work, having an in-depth understanding of real work performed in the real world, and leveraging the proven success of existing employees. It should use a coherent model built from research on employee needs, with the flexibility to personalize and adapt to changing needs of individual groups of employees. The high-impact integration of on-the-job learning (70%), social learning through coaching and mentoring (20%), and formal skill development programs (10%) are critical to leadership development success, with room for innovation in terms of how you can apply learned knowledge. Designing engaging, memorable experiences and ongoing developmental inputs over a long period increases knowledge retention. An essential agent of change is the deep integration of experience of leadership development programs with "real work" so that employees can feel like they are the same.<sup>12</sup>

#### **Moments that matter**

Employee experience is a process of mapping the journey, an end-to-end understanding of the needs of the employee experience across stages of leadership development. There are different types of employees with a mix of backgrounds and experience and in different stages of their careers across functions. The needs of employee experience of these groups are dynamic and evolve with the changes in these dimensions of respective employees. At the design stage, the employee experience approach to leadership development identifies critical moments during the development journey. The design of development tools, techniques, and methods is centered on

these moments. The critical moment's identification and design of the development experience around the same will have more than 80% percent impact on the overall success of leadership development. This approach ensures a high-impact employee experience of the development journey for the employees, prioritizing development investment. Some of the crucial moments for high-impact employee experience of development are:-

1. Setting the goal of personal development
2. Self-assessment report of the current reality
3. Feedback of assessment by experts – why I do, what I do.
4. Awareness of what needs to change and what needs to sustain.
5. High-impact areas and action identification - what should I develop?
6. Implementation of actions and debottlenecking process, developmental change
7. Mentoring conversations
8. Coaching conversations
9. Results of actions - New every day of self
10. Acknowledgment by others of positive change
11. Achievement of a higher performance level of self and team
12. Rewards of performance through the development

### **Personalization using employee Persona**

The employee experience is delivered through the concept of persona, which enables personalization. Persona is defined based on the data collected about an employee, like the career stage, education, current and past experience, future career goals, etc. The most critical dimension for designing the employee experience of leadership development is the goal of development- personal and professional development.

Personalization is achieved by understanding employees' interaction points with the process and customizing the development at the critical moments of interaction. The personalization is coupled with standard uniform experience across crucial points of interactions. This persona and the persona's journey through the process define the employee experience of the process. In the context of the leadership development process, there could be many personas and employee experience of leadership development needs to optimize the design such that overall, there is a positive employee experience at optimum investment.

### **Uniform Employee Experience**

The consistent employee experience is defined as a set of experiences built in the leadership development process

essential to all leaders across the organization. These experiences include demonstrating the organization's values, critical business behaviors, behaviors aligned with the code of ethics, etc. The overall leadership development experience combines uniform and personalized leadership development. This is a holistic approach to leadership development. Organizations support this through on-the-job changes in the system to test and validate the new learning. Consistent employee experience is essential to develop the pool of leaders across the organization, which can be further developed in a shorter time and with less effort to meet specific business needs.

### **Resultants of Employee Experience-based approach to Leadership Development**

As mentioned earlier, the stages of employee experience of the leadership development journey can be identified as "awareness - action - results - new awareness ."The awareness leads to actions that enable the achievement of results. Achieving results validates the journey of the earlier three stages, that is, new awareness to the employee. This cycle of development leads to the following three key outcomes: -

- Higher Retention - After completing an introductory training session, adults can retain about ten percent of what they hear in classroom lectures versus nearly two-thirds when they learn by involving and doing. One of the potential solutions is an employee experience approach that ensures deeper involvement and immersion in the development process. This leads to higher recall of the learning for a more extended period.
- Transfer of Learning - No matter how talented the leaders are, they often struggle to transfer their most potent learning experiences into changed behavior on the job. With immersion in the experience, there is higher confidence in the success of applying the learning in the real world of work. This leads to significant incentives to experiment with new learning on the job. The new learning in the simulated development experience and application of the same leads to better results in the individual employee's job performance.
- Motivation- The success with the results of the application of learning in the real world of work encourages the employee to change. With increased employee motivation, he seeks more and more experience in leadership development, thereby benefiting both the employee and the organization. The newly learned and practiced behaviors help in the holistic development of the individual employee.

### **Framework Applicability- Applying the framework**

- Define the context of leadership development for specific leadership intervention: This includes collecting data before designing a leadership development experience. The critical data points include business strategy, the employee persona of participants, and the need for consistent leadership development experience.
- Define the data points of the target employee experience of leadership development by identifying the moments that matter for the development experience and measuring effectiveness post-leadership development. Prioritize the investments around key moments like first-time leadership, high-impact performance behaviors, etc.
- Identify multiple methods and generate choices for employees and the organization to achieve the objectives of employee experience of leadership development. Prioritize the experiential methods and profound learning opportunities that stretch the employee involvement in the employee development experience.
- Define the persona as a group of employees with similar group characteristics, and identify the potential experience needed.
- Define consistent experience of leadership development, which is deeply embedded in, must be overall leadership behaviors of the organization, like a demonstration of values, etc.
- Implement leadership development and monitor progress against the targeted experience.
- Define the systems for implementing learning at the workplace and measure the transferred learning and its effectiveness.
- Connect the organizational rewards system to the impact of development on business performance to motivate and retain the developed employees.

### **Conclusion and Implications for Leadership Development**

The research will give the community of human resource managers, practicing leaders, and the organization a different perspective in planning and executing leadership development.

Employee experience approach to development increases the effectiveness of development investment. A series of research findings in the past indicate that the effectiveness of leadership development is an area of concern among sponsors of leadership development. The experience approach increases the involvement of employees in the planning and execution of organizational intentions to move them to a next higher level of development and performance.

Organizations need to identify the critical moments that matter in the leadership development journey essential for achieving business goals. These moments will help to define the employee experience and enable the customization of the experience. The moments that matter approach optimizes investment in leadership development by prioritizing the elements in the journey. This will likely increase trust in the entire process by providing higher productivity.

In the world of the experience economy, such an approach based on enhancing the experience of members of the community of employees will motivate employees to participate and focus on self-development. Organizations need to define critical personas for the achievement of their business goals. The expectations of these personas and business strategy needs will shape the leadership development experience. These personas will help to define the uniform experience and enable the customization of the experience to increase the impact of leadership development. This will increase the speed of development and early impact on the business.

The combination of persona and moments that matter concepts of employee experience to leadership development will generate different leadership development tracks for the specified context. These different tracks will be a combination of different methods and content and provide the choice of experience of leadership development to employees.

Multiple generations are part of the workforce across organizations. Gen x, gen y, gen z, and millennials have different expectations of the work and performance of the work. The combination of uniform experience and personalization of experience approach to leadership development proposed in the framework will likely address the expectations of different generations<sup>11</sup>.

The integrated approach includes the ecosystem of change required to apply development efforts over the long term in a natural work environment. This realistic work experience approach of leadership development, a holistic approach, ensures integrated leadership development. Embedding technology is essential to the employee experience approach to leadership development. The experience design of leadership development provides choices to the leaders of time, content, and learning. The learn-from-anywhere-and-anytime concept is an integral part of the development journey of the new-age employee experience-based leadership development approach. Technology-enabled leadership development programs provide a more flexible, agile employee experience and choices for leaders to experience the development journey. It has moved the employee experience from the teacher-classroom model to multidisciplinary and multimethod experience across knowledge domains.

Organizations invest in leadership development for their long-term good, and individuals participate in enhancing their skills and advancing their careers. They only sometimes continue with the organizations that have invested in their development. This leads to a loss of the return on investment to the organization. The employee experience-based approach to leadership development is likely to increase the retention of these leaders as the focus is on their own performance needs and a more empowered approach to development.

### Scope for further research

The leadership competency model describes the definition of leadership for the organization through the expected leadership behaviors to be demonstrated by the leaders at the workplace. The effectiveness of leadership development is assessed using these competency definitions as the base criteria. Defining the employee experience measurement model for the leadership development intervention would be prudent. Such a model can then be used along with the competency definitions to measure the effectiveness of leadership development. The effectiveness of the overall leadership development journey can be mapped to the employee experience model and the competencies' development.

Organizations with employee experience of leadership development effort spread over a more extended period strategized to the context and reached to all employee groups through consistent employee experience are likely to be more successful than other organizations.

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# An Analytical Study of Financial Inclusion and Its Impact on Rural Area

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## Abstract

*The elimination of poverty from the nation is being facilitated through a new paradigm of economic growth known as financial inclusion. It refers to providing financial services on reasonable terms and conditions to a large population, including both rich and poor individuals. In terms of economic development and societal advancement, financial inclusion is a top objective for the nation. It makes it possible to close the gap between the rich and the poor. The strong foundations of progress, economic growth, and economic development in the current situation are financial institutions. The process of guaranteeing needy groups' access to financial services and financial products at a reasonable cost and in a transparent manner by authorities is known as "financial inclusion." The study's goals are to investigate the government of India's numerous financial inclusion programmes and to assess the influence of financial inclusion indicators on economic growth. Financial inclusion was first mentioned in India in 2005, and Dr. K. C. Chakraborty, the chairman of Indian Bank, presented it at that time as part of a pilot project in the UT of Pondicherry. Mangalam Village was the first hamlet in India to offer banking services to every family. In order to achieve inclusive growth, financial inclusion is crucial. The poor population benefits from its overall economic progress. Effective financial inclusion in India is required for the upliftment of the underprivileged and impoverished by offering them adapted financial products and services. Products in this category include banking, loans, equity, and insurance. The majority of financial inclusion initiatives are directed at underbanked and unbanked people, providing them with sustainable financial services. Age, gender, income, and education all play a role in determining financial inclusion. Formal saving, formal credit, and formal accounts are the key determinants of the primary measure of financial inclusion. The aim of the paper is to study the various financial inclusion schemes by the government of India and to examine the awareness level of people regarding financial services & products. This study is based on descriptive research and non-probability judgemental convenience research design has been used. This study is constructed on the primary as well as secondary data. The primary data has been collected from rural area of the Ghaziabad. For the collection of the primary data, interview schedule (questionnaire) has been used. In a sample size, around 350 data from the village have been considered for the study. This study is also based on secondary data which are composed from the various websites, newspapers, Reports of RBI, Ministry of Finance & GOI and E-journal.*

**Keywords:** Financial Inclusion, GOI, RBI, Awareness, rural based study and Financial Schemes

## 1. Introduction

One of the most crucial elements for the inclusive growth and development of countries today is financial inclusion. When it was discovered that around 7.5 million people lacked a bank account, the term "financial inclusion" was first used in British slang. Nonetheless, the idea of financial inclusion is not new to the Indian economy. The founding of RRBs, the nationalisation of banks in 1969, and the rollout of SHG-bank linkage programmes were all steps the RBI took to make unbanked groups more financially accessible.

Financial inclusion is "the process of ensuring access to financial services and timely and enough credit where needed for vulnerable groups such as weaker parts and low income," according to the committee on financial inclusion headed by Dr C. Rangarajan. Financial Inclusion does not imply that financial services must be provided to everyone at all costs. However, it means that excluded populations and low-income groups will receive financial services and products at reasonable pricing. It is essential for eradicating poverty from the nation. Giving large segments of the population equal access to traditional financial

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services will improve their quality of life, standard of living, and ability to earn a living. It offers a way to achieve inclusive growth.

The provision of accessible financial services through the established financial systems to individuals who are excluded, including saving, credit, insurance, access to payments, and remittance facilities, is known as financial inclusion. Access is what financial inclusion therefore means a wide range of financial products and services are available at reasonable prices. It also includes other financial services including loan, equity, and insurance goods in addition to banking products.

Financial exclusion needs be understood before we can fully comprehend financial inclusion. Leyshon and colleagues, who were worried about limited access to banking services as a result of a number of bank branches being shuttered, used the term "financial exclusion" for the first time in 1993. Kempson and Whyley in 1999 the same.

A scenario known as "financial exclusion" occurs when people lack access to common financial products and services including bank accounts, credit cards, and insurance policies, particularly home insurance and student loans. Included among the repercussions of financial marginalisation is exclusion from other popular services, such pensions or savings plans, and they may also cause debt or shut off access to necessary utilities.

Financial exclusion, in the words of the European Commission, is "a process where people experience barriers to accessing or using financial services and products in the mainstream market that are appropriate to their needs and enable them to lead a normal social life in the society to which they belong."

In India, C. Rangarajan's Report on Financial Inclusion from January 2008, Financial exclusion is the restriction of financial services to a particular group of the population. This significant portion of the population is typically made up of low-income individuals or families who are unable to access even the most fundamental banking services, such as bank accounts, credit, insurance, financial advising services, and payment services. To put it simply, financial exclusion occurs when certain a segment of the population is excluded from or unable to use mainstream financial goods and services that are affordable and appropriate.

In order to provide universal banking services for every unbanked household, the government launched the National Mission for Financial Inclusion (NMFI), also known as the Pradhan Mantri Jan Dhan Yojana (PMJDY), in August 2014. This initiative is based on the guiding principles of banking the unbanked, securing the unsecured, funding the unfunded, and serving unserved and underserved areas. Through the linkage of Jan-Dhan accounts with mobile and Aadhaar [Jan Dhan-Aadhaar-Mobile (JAM)] a digital pipeline has been set up for the implementation of PMJDY.

Three ambitious Jan Suraksha Schemes, or Social Security Schemes pertaining to the Insurance and Pension Sector, were announced by the Government in the Budget for 2015–16 as a step towards developing a universal social security system for all Indians, especially the poor and the underprivileged. The programmes were introduced on May 9 2015, specifically (a) Pradhan Mantri Suraksha Bima Yojana, (b) Pradhan Mantri Jeevan Jyoti Yojana, and (c) Atal Pension Yojana, for offering life insurance and accident risk insurance as well as social security at a very low cost. To protect seniors 60 years of age and above, the Pradhan Mantri Vaya Vandana Yojana was initially opened for subscription for a year, from the 4th of May 2017 to the 3rd of May 2018.

## Review of Literature

1. **Tefera Getachew Dagnachew and Temeselew Woldetsadik Mawugatie (2022)**, main goal of this study is to examine financial inclusion and related factors in rural South Wollo Zone areas. The binary logit model, primary and secondary data, and multi-stage sampling techniques were all applied in the study. Only 20.72 percent of those questioned in the rural South Wollo zone were given access to formal financial institutions, leaving 79.28 percent of those who were excluded. According to the report, access to traditional financial institutions is influenced favorably by factors such as affordability, financial literacy, age, and secondary education in rural areas, as well as the availability of Islamic banking services. Based on research, researcher recommend that the government and other relevant organizations seek to improve the country's degree of financial inclusion in rural areas by offering formal financial services at a reasonable cost and by boosting the financial capacity of rural low income groups.
2. **Rahul Singh Gautam, Dr Shailesh Rastogi & Aashi Rawal (2022)**, The paper aims to examine the impact of financial literacy on financial inclusion and rural development in India. Researcher take secondary data from 29 states and two union territories in India for three fiscal years, i.e., 2018 to 2020. The study uses panel data analysis (PDA) to test the hypothesis. As per result, financial literacy positively impacts financial inclusion and rural development. The present study suggests that the banks and government should pay more attention to expanding financial literacy.
3. **Morshadul Hasan, Thi Le and Ariful Hoque (2021)**, This study investigated the impacts of financial knowledge on financial access through banking, micro finance, and fintech access using the Bangladesh rural population data. Researcher employed three econometrics models: logistic regression, probit regression, and complementary log–log regression to examine whether financial literacy significantly affects removing the barriers that prevent

- people from participating and using financial services to improve their lives. The empirical findings showed that knowledge regarding various financial services factors had significant impacts on getting financial access.
4. **A. Vinay Bhushan & Dr S. Manjunath (2020)**, studies the impact of various financial inclusion schemes on economic well being of rural citizens. The study proposes a new economic satisfaction scale to measure the effectiveness of financial inclusion on the economic well being in rural villages. The scale is validated and reliability analysis of it is conducted through statistical tests. The study is conducted using a structured questionnaire response from 10 rural areas of Karnataka. Through the questionnaire responses, correlation between the various financial inclusion programmes and its economic impact on rural livelihood are analysed.
  5. **Yashwant Kumar Vaid, Vikram Singh and Monika Sethi (2020)**, the purpose of this study is to identify the dimensions of successful financial inclusion in the low-income rural segments with special reference to Raipur, Chhattisgarh. The study uses factor analysis to identify the determinants and path analysis to analyse the significance of these factors in financial inclusion. Researcher used secondary data for the study and made questionnaire with 45 items was prepared for the purpose of the study. The questionnaire was divided into two parts. First part had questions related to the demographics of the respondents while the second had questions related to the determinants of financial inclusion.
  6. **Alka Chaudhary & Shweta Anand (2019)**, study was conducted to identify the challenges associated with financial inclusion in Sonapat Haryana. Financial inclusion is a major problem associated with economic growth and rural development in India. The researcher has collected primary data for the purpose of this study. The data has been collected using semi-structured questionnaires. The researcher has explored the perception of respondents with respect to the challenges faced by them when it comes to financial inclusion.
  7. **Shalini Singh & Dr V. Shunmugasundaram (2019)**, This paper studies the impact of financial inclusion practices on rural masses in Varanasi district. Methods/ Statistical Analysis: A total sample size consists of 400 respondents in the district and 50 respondents from the eight blocks in Varanasi district. The data collected through questionnaire and convenience sampling method has been followed to collect the data. The study found that there is a significant variation among all the groups except the age groups of the respondents have a significant influence of financial inclusion practices on rural masses under study.
  8. **Ciya. M & M. Mahesh Kumar (2017)**, This study is mainly intended to measure the awareness and impact of financial inclusion among rural people of Palakkad district. Questionnaire was used to collect primary data from 150 rural people and were analysed by using different statistical and hypothesis tests. The study reveals that rural people are aware about financial inclusion programmes but they are not getting adequate information & services from authorities. Financial awareness programmes are too low in the sample area.
  9. **Vinayak Bhagwanrao Bhise & Someshwar Narayan Babar (2016)**, In this study researcher reveals that current development theories suggest that greater financial inclusion can have a positive impact on the lives of the poor. On the contrary, financial exclusion refers to the lack of access to financial services. Financial exclusion thus makes it difficult to reduce inequalities and alleviate poverty.
  10. **Vinay K. Srivastava and Mukesh Kumar Sharma (2016)**, The objectives of the study are to assess the banking habits among the people and to examine the financial services awareness among the households residing in Udaipur District in Rajasthan. Research follows Descriptive Research design and applied convenient sampling technique for sample design and for the collection of data interview schedule has been used. The study also reveals that PMJDY scheme also playing vital role in shaping the financial inclusion in desired manner.
  11. **Shashank Bansala (2014)**, This paper is an attempt to study the contribution of ICT towards financial inclusion in the country and analyse different application of ICT which banks are adopting. This would directly or indirectly reflect the effectiveness of the financial institutions efforts to bring-in underprivileged people to the mainstream financial system, especially in rural area and support in achieving Govt. objective of inclusive growth.

### Research Gap

When the researcher came across several reviews of literature, mostly past studies focused on the Digital India, impact of finance, rural development, determination of financial inclusion etc. and few past studies also focused on impact of financial inclusion on rural areas which covered different villages from different states. There were no past studies which were focused on the awareness level of village people. Therefore, the present study endeavours study the various financial inclusion schemes by the government of India and to examine awareness level of people in rural area of Ghaziabad i.e., Husanpur Village.

## Need of the Study

In India, the single most commonly used source of borrowing for medium Indian household is still moneylender. Political interference and bureaucratic restrictions continue to hinder a sizable portion of our financial system, limiting their potential contribution. The poor of India, many of whom work as farm labourers and other low-wage, unskilled employees, are mostly excluded from the financial system. Due to this, researcher want to know about the awareness level of villagers regarding the financial services and products.

## Objectives of the Study

1. To study the various financial inclusion schemes by the government of India.
2. To examine the awareness level of people regarding financial services & products.

## Research Methodology

**Research Design:** The research design for this study includes the characteristics of Explanatory Research to full fill the objectives.

**Data Collection:** The appropriate data were collected from Primary sources as well as Secondary sources.

**Primary Sources:** For the collection of primary data, a Schedule had formulated to collect the relevant information. The sample size for the primary data was 350 respondents taken for the study.

**Secondary Sources:** Secondary data were collected from different sources like Websites, Magazines, Research Papers and Newspapers, etc.

**Sample Size:** For analysis of the study, researcher select Husanpur Village in Ghaziabad Region.

**Selection Criteria:** The selected village on the availability of location and easily target the rural people.

**Tools of the Study:** For the data analysis, the tools which were used for data analysis is Chi-Square Test. When the population and the data are matched using the Chi-Square Test, the test is known as the Chi-Square Goodness Fit to Test. The very small Chi-Square Test result indicates a relationship between observed and expected data, whilst the different high Chi-Square Test results indicate a lack of association between observed and expected data.

**Hypothesis:** There is no significant difference in the awareness level of peoples regarding financial products & services.

## Analysis of the Study

**To study the various financial inclusion schemes by the government of India**

The followings are the various financial inclusion that is governed by the GOI to provide security to the society:

### • PRADHAN MANTRI JAN DHAN YOJANA (PMJDY)

The Government of India created it to provide the underprivileged and needy in our society with easy access to financial services. Other financial services, such as credit, insurance, pensions, savings and bank accounts, are also offered.

The following important information about PMJDY:

Interest Rate	Based on the savings deposits interest rate offered by the bank
Need for minimum balance	Zero balance
Accidental Insurance Cover	Cover Rs. 1 lakh under Rupay Scheme but after 28 <sup>th</sup> August 2018, covers Rs. 2 lakh
Overdraft facility	Up to Rs. 5,000

### • ATAL PENSION YOJANA (APY)

Retirement-age workers in the organised sector are the main target audience. The fundamental reason for starting the APY is to offer protection from illnesses, accidents, infections, etc.

The following important information about APY:

Pension amount	Covers up to Rs. 5,000
Age of account holder	Age between 18 to 40 years

### • PRADHAN MANTRI VAYA VANDANA YOJANA (PMVVY)

This programme is offered by LIC both online and offline. The primary goal is to consistently pay pensions to senior persons. The PMVVY offers perks including a pension paid out when the policyholder dies and a loan facility. The policyholder can cancel these plans if they're not satisfactory within 15 days of the policy, so no.

The following important information about PMVVY:

Minimum age	Age must be 60 years or more
Duration of the policy	Tenure is about 10 years

### • PRADHAN MANTRI MUDRA YOJANA (PMMY)

These initiatives offer access to a MUDRA loan. Micro-Units Development and Refinancing Agency's full name is Micro-Units Development and Refinance Agency. Via a number of programmes like Sishu, Kishor, and Tarun, loans between Rs. 50,000 and Rs. 10 lakh are accessible. These programmes are designed to assist small businesses, regardless of whether they operate for profit or nonprofit purposes.

The following types of schemes under PMMY:

Name of the schemes	Amount of loan covered under this scheme
Shishu	Up to Rs. 50,000
Kishor	Rs. 50,000 to Rs. 5 lakh
Tarun	Rs. 5 lakh to Rs. 10 lakh

- **SUKANYA SAMRIDHI YOJANA (SSY)**

With the aim of achieving Beti Bachao, Beti Padhao, these programmes seek to improve the lives of girls. This plan intends to save the female kid in order to relieve the family of the girl child's burden and secure the girl's future.

The following important information about SSY:

Interest Rate	Up to 7.60% p.a.
Investment amount	Minimum – 250 Rs. And maximum up to Rs. 1.5 lakh p.a.
Maturity period	21 years

**To examine the awareness level of people regarding financial services & products**

The primary research was directed by the schedules from the rural people and collected valuable responses about the awareness level of people regarding financial inclusion. For this purpose, 350 rural people from Husanpur Village were taken. To assess the perception of the rural people, responses were collected from around 800 people. Out of these, 450 surveys were cancelled because the respondents provided insufficient information, remaining 350 responses were considered for the study.

For analysing the validity of any instrument its reliability should be seen first, Cronbach Alpha is the tool through which, reliability can be assessed based on consistent measurement. Its value ranges between 0 to 1 a higher value indicates a strong relationship whereas, a lower value indicates a weaker relationship. Cronbach's alpha value for the 39 items is observed at 0.81, which is acceptable and indicates a strong relationship between the test and data can be said to be reliable.

**Demographic Study**

The overall responses of this study were 350 and out of these 90% respondents were male and 10% respondents were female. According to this study, 20% of people are close to graduating, however the majority of people just have primary education, which cannot be considered a standard level of education. The role is somewhat flexible there. According to the sample survey, the majority of the population is made up of tribal members,

who make up about 60% of the ST& SC group. By occupation, 15% of respondents are salaried workers, 20% of respondents are small businessmen who engage in petty business activity, and 35% of respondents are farmers. The data shows that they solely make a living through farming and day jobs, which contributes to their poor income and low literacy rate. According to the monthly income variable, 64% of respondents make less than Rs. 5000, 29% make between Rs. 5000 and Rs. 10,000, and 7% make more than Rs. 10,000. The overall economic picture shows that the majority of households rely on daily wage workers, farmers, and the MNREGA program, which barely provides them with enough money for two square meals.

Only 80% of people, according to the study on financial literacy and access to banking services, have a bank account, of which 52% had one before the ambitious PMJDY program was introduced. This program results in a 48% rise in bank accounts, which spurs financial inclusion. People have in some ways started to focus on schemes as well. MNREGA and subsidies from various government programs are discovered to be the primary reasons for opening bank accounts on a big scale, which has been confirmed by data analysis and in-person interactions throughout data gathering. The PMJDY significantly contributed to the rural Udaipur region's population being inspired to create bank accounts quickly. According to the findings for the duration of association with various financial/banking services under various time periods, the majority of respondents (34%) are associated with services for less than a year, 36% are between one and three years, and 18% are between three and five years. All of these variables point to a moderate level of banking inclusion in the region, which suggests that the majority of respondents have recently become financially literate. The area's network of bank branches indicates that additional banking branches are needed. According to the report, 42% of respondents don't have a bank branch in their neighbourhood. There is a distance of more than 4 km from their home.

**Awareness regarding financial products & services**

The general awareness of financial inclusion (financial products & services) among the households in the husanpur village. According to the use of statistical tools like the chi-Square Test, only a small number of services-including deposit accounts, lending facilities, life insurance, and cattle insurance-are actually widely used. The results revealed a range in the degree to which people were aware of several financial services, including mobile banking, locker facilities, cattle insurance, housing loans, tax services, etc.

**Level of awareness of people regarding financial services and products**

S.No.	Financial Services & Products	Full Not Aware	Not Aware	Neither Aware or Not Aware	Aware	Fully Aware
1.	Deposits (Savings A/c, Current A/c, RD & FD)	07	18	47	125	153
2.	Credit Facilities	19	27	82	105	117
3.	Micro Finance	21	35	85	97	112
4.	DEMAT Services	156	115	37	25	17
5.	Fund Transfer	15	21	80	105	129
6.	Tax Collection	141	139	56	09	05
7.	Housing Loan	125	141	55	17	12
8.	Investment Advice	136	132	45	21	16
9.	Mutual Fund Services	141	146	39	15	09
10.	Cattle Insurance	24	51	69	81	125
11.	Crop Insurance	19	34	51	111	135
12.	Accidental Insurance	136	95	46	45	28
13.	Life Insurance	128	108	54	39	21
14.	Educational Loans	187	112	30	13	08
15.	Locker Facility	135	141	56	13	05
16.	Online Banking	11	15	47	135	142
17.	ECS Facility	146	99	67	20	18
18.	Pension Services	159	94	64	23	10
19.	ATM Services	06	11	24	168	141
20.	Mobile Banking	21	35	89	127	78

(Source: Calculation by Researcher through Schedules)

#### Summary of Chi – Square Test

S.No.	Financial Services & Products	Chi - Square	p – Value (Sig. Value – 0.05)	Accepted/Rejected
1.	Deposits (Savings A/c, Current A/c, RD & FD)	43.03	0.00	Rejected
2.	Credit Facilities	44.56	0.00	Rejected
3.	Micro Finance	47.54	0.00	Rejected
4.	DEMAT Services	76.22	0.45	Accepted
5.	Fund Transfer	40.99	0.00	Rejected
6.	Tax Collection	77.43	0.37	Accepted
7.	Housing Loan	78.23	0.22	Accepted
8.	Investment Advice	60.21	0.34	Accepted
9.	Mutual Fund Services	59.32	0.48	Accepted
10.	Cattle Insurance	49.21	0.00	Rejected
11.	Crop Insurance	32.11	0.00	Rejected
12.	Accidental Insurance	51.13	0.00	Rejected
13.	Life Insurance	43.87	0.48	Accepted
14.	Educational Loans	47.32	0.31	Accepted
15.	Locker Facility	44.21	0.55	Accepted
16.	Online Banking	38.24	0.00	Rejected
17.	ECS Facility	33.98	0.32	Accepted
18.	Pension Services	41.76	0.11	Accepted
19.	ATM Services	52.23	0.00	Rejected
20.	Mobile Banking	38.43	0.00	Rejected

(Source: Compiled by Researcher through SPSS)

There is a significant difference in the awareness level of people regarding financial services and products in respect to Deposits (Saving A/C, Current A/C, RD & FD), Credit Facilities, Micro Finance, Fund Transfer, Cattle Insurance, Crop Insurance, Accidental Insurance, Online Banking, ATM Services and Mobile Banking. There is no significant difference in the awareness level

of people regarding financial services and products in respect to DEMAT Services, Housing Loan, Tax Collection, Investment Advice, Mutual Fund Services, Life Insurance, Educational Loans, Locker Facilities, ECS Facilities and Pension Services.

#### Summary of Weighted Average Test

S.No.	Financial Services & Products	Weighted Average
1.	Deposits (Savings A/c, Current A/c, RD & FD)	4.02
2.	Credit Facilities	3.67
3.	Micro Finance	4.02
4.	DEMAT Services	3.38
5.	Fund Transfer	4.46
6.	Tax Collection	3.68
7.	Housing Loan	4.11
8.	Investment Advice	3.93
9.	Mutual Fund Services	3.11
10.	Cattle Insurance	4.11
11.	Crop Insurance	4.36
12.	Accidental Insurance	3.45
13.	Life Insurance	3.21
14.	Educational Loans	3.89
15.	Locker Facility	4.33
16.	Online Banking	4.45
17.	ECS Facility	4.28
18.	Pension Services	3.43
19.	ATM Services	4.87
20.	Mobile Banking	4.22

(Source: Calculation by Researcher through MS Excel)

The overall weighted average of awareness level of peoples regarding the financial services and products is close to weight 4 i.e., Aware. Hence, it is concluded that people are aware about some financial services and products.

#### Suggestions

The following are the suggestions:

1. The Government of India should be liberal the micro finance policies as it could reduced the limits of loans facilities, provide free collateral securities for under privilege people, etc.
2. The Government of India should emphasis on the government policies related to financial inclusion and also take initiative for the effective implementation of financial products and services given by the government bodies to unemployed and low-income group.
3. For the success of financial inclusion program, the government should motivate and encourage the people

who reside in rural areas to make the use of banking services and product instead of informal source of finance.

#### Conclusion

It is concluded that financial inclusion is the way to provide financial services as well as financial products at affordable cost to vast section of under privilege and low income groups. This paper covered various schemes regarding financial inclusion and level of awareness of rural people in Hosanpur, Ghaziabad. This study revealed that 90% respondents were male and 10% respondents were female. The results revealed a range in the degree to which people were aware of several financial services, including mobile banking, locker facilities, cattle insurance, housing loans, tax services, etc. There is a significant difference in the awareness level of people regarding financial services and products in respect to Deposits (Saving A/C, Current A/C, RD & FD), Credit Facilities, Micro Finance, Fund Transfer, Cattle Insurance, Crop Insurance, Accidental Insurance, Online Banking, ATM Services and Mobile Banking.

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# A Study of Impact of Green Banking Service Practices for Sustainable Development of SBI

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## Abstract

*Green Banking is a recently developed observable fact in the economic world. Banks as the financing agent plays an important role for the economic wellbeing activities. Banking sector plays a crucial role in influencing the economic position of the nation. With the initiation of Automated Teller Machines (ATMs) in 2001, banking sector took steps in environment-friendly practices for running a progressive nation, banks have to be effective and efficient, not only through their working but also through adoption of new techniques and technologies. With the increasing environmental problems taking place because of human activities, it is the most pressing need to take certain actions are required to take in every sector of the nation to define the evolution of electronic banking and severely, to analyze the various steps and targeting banking sector as well. State Bank of India, being the biggest and the most trustworthy public bank of India, has become the first Indian bank to focus on green policies and has taken certain initiatives for introducing green banking to the system. The present study is qualitative in nature thus methodology was based on extensive literature review and secondary data. The research took place in two phases: The first phase was an up-to-date literature review on Green Banking service practices for sustainable development of SBI and particularly in green banking that identified results, and suggested future steps. The second phase included data collection about SBI in particular through secondary published sources. The results of the study suggest that Environmental Awareness, Energy Efficient Practices/Policies and Green Projects have significant Impact on SBI Environmental Performance.*

**Keywords:** Green Banking, Environmental Training, Green Loan & Green Policy

## 1. Introduction

Green Banking is a recently developed Practice in the economic and financial world. According to Indian Banks Association (IBA, 2014) "Green Bank is like a normal bank, which considers all the social and environmental / ecological factors with an aim to protect the environment and conserve natural resources."

The most dominant influence of the economic activities can be evidently seen on the environment. In the recent decades, the biosphere has got drastically deteriorated which has resulted into the innumerable menaces and problems like global warming, pollution, droughts, tsunamis, droughts and other endless issues.

Banks as the economic agent of the economic well being activities have a crucial role in promoting overall sustainable development. Green banking is the term used by banks to make them much more responsible to the environment. The term

green banking means developing inclusive banking strategies which will ensure sustainable economic development.

Green banking means combining operational improvements, technology and changing client habits in banking business. It means promoting environmental-friendly practices. This comes in many forms such as using online banking instead of branch banking; paying bills online instead of mailing them; opening up CDs and money market accounts at online banks, instead of large multi-branch banks; or finding the local bank in the area that is taking the biggest steps to support local green initiatives. Foreign banks are practicing green banking on a much serious note.

The Indian banks are still taking baby steps into this form of banking. Still, many of them are keen to actively pursue this strategy. Presently, sustainable development has become the priority of every sector and is contributing towards environment preservation. The term environmental sustainability was

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introduced with the enforcement of the National Environmental Policy Act (NEPA, 2014). Banking Sector is the most prominent sector for the overall development of the financial sector of the country, as stated by Finance minister Arun Jaitley in his speech from FY 2016-17 budget (CII-Deloitte, 2016).

In a developing country like India, where environment concerns are important, State Bank of India is one of the major initiators and adopters of sustainable development. Therefore, this study will focus on the major steps taken by State Bank of India (SBI) to promote green banking practices and its impact on sustainable development.

### **STATE BANK OF INDIA (SBI)**

SBI holds the honour of turn out the first bank in India to bring the focus over green banking and came up with a separate policies and practices for promoting environmental sustainability regarded as Green Banking Policy, since 2007 and has become the first bank in the country to venture into generation of green power by installing windmills for captive use. As part of its green banking initiative, has installed 10 windmills with an aggregate capacity of 15 MW in the states of Tamil Nadu, Maharashtra and Gujarat. It has planned to install an additional 20 MW capacity of windmills in Gujarat soon and touch 100 MW power generation through windmills within five years, windmills are set up with a specific objective of lessen the dependence on the polluting thermal power and not on exclusively economic or business considerations. SBI had launched Green Channel Counter (GCC) facility at their branches in 2010 to change the traditional way of paper-based banking (SBI, 2014).

The bank had also collaborated with Suzlon Energy Ltd for the generation of wind power for selected branches by setting of windmills in Gujrat, Tamil Nadu and Maharastra (Business Standard, 2014). It has become a signatory to the Carbon Disclosure Project in which they undertake various environmentally and socially sustainable initiatives through its branches spread across the length and breadth of the country (WWF-INDIA, 2014). Export Import Bank of India (EXIM) and SBI entered into an agreement to jointly provide long term loans up to 14 years to Spain based company Aston field Renewable Resources and Grupo T- Solar Global SA for building solar plant in India (Yadav & Pathak, 2013).

Under the initiative of becoming a green bank, the bank has started various services such as; paperless banking, kiosks which are self-operated by the customers, green debit and credit cards which include Vishwa Yatra card, Ez Pay Card, Smart Payout Card and more ensuring a steady movement towards green banking. The bank has adopted a green objective for achieving the green goals referred to as SMART: Specific, Measurable, Achievable, Realistic and Time Bound.

### **Literature Review**

Dharwal, Mridul and Agarwal, Ankur (2011), in research article on "Green Banking: An Innovative initiative for Sustainable Development" concluded that Indian banks have to be fully aware of the Knowledge of environmental and social guidelines and practices to which banks worldwide are agreeing to.

Bahl, Sarita (2012), conducted an empirical study "Green Banking- The new Strategic Imperative" on public sector banks and collected manager's views on green banking financial products, carbon footprint reduction by paperless banking, carbon footprint reduction by energy consciousness, carbon footprint reduction by using mass transportation system, carbon footprint reduction by green building and social responsibility services. Jha & Bhome (2013) try to figure out the ways to go green through Green banking service practices. This study is based on both qualitative and quantitative data. Researcher has interviewed 12 bank managers, 50 bank employees and bank customers. Further Study focussed on steps in green banking practices.

Ravi Meena (2013) covering the various practices and policies of green banking such as benefits of green banking, policies adopting green banking, steps taken by Indian banks and finally suggest for banks to initiate towards green banking practices. D. Kandavel (2013) reviewed the banks those are positively implementing green banking practices. Green banking in rural branches, creating awareness towards financing for green projects, organizing seminars, green loans etc. some of the suggestions are given by the researcher. Saleena T. A. (2014) make a comparison of green banking initiatives by SBI and ICICI bank also focussed on various opportunities and challenges of green banking practices in India.

Jaggi Geetika (2014) evaluated the green banking practices taken by SBI and ICICI bank. Nath, Nayak & Goel (2014) analyzed the green banking practices of top four public and private sector banks in India and conclude that if Indian banks want to gain access of global economy, it is priority for them to recognize and understand their responsibilities as a global corporate citizen. Garg (2015) focused on the strategies for green banking and need of it. Omid Sharifi & Bentolhoda K. Hossein (2015) made SWOC analysis of four (SBI, PNB, BOB, Canara bank) public sector banks green practices. Research concludes that there is a wide range of green banking opportunities for economic sector.

K. Vadrale (2016) in his study undertook a comparative study on three public-sector and three private-sector banks selected by considering their net profit values, explaining the efforts made by these banks in promoting green banking practices and the products in practice in these banks. The results were based on secondary sources of data and it was found that although the banks in both the sector have initiated towards considerable

changes but public-sector banks are more progressive and have taken substantial improvement.

R. Jankiraman and S. Karthikeyan (2016) concluded that with the stern policies and guidelines of RBI and the government, green banking practices can be implemented effectively and it can open newmarkets and eventually, benefit the banks. The paper was based on secondary sources of data analyzing the initiatives of some public and private-sector banks of India, along with the several challenges to be faced by the banks in shifting from traditional banking and adopting green banking practices. C. A. Mahesh, M Nirosha, V Pavithra (2016) examined the various practices that can be adopted by the banks to shift to green banking. It was concluded that a small step towards green banking can eventually, bring huge positive effects and SBI resulted to be the first Indian bank to work towards the proposed target. The advantages of green banking practices including mitigate the use of paper, make people involve into environmentally responsible practices and also focussing lending standards improves business outcomes. The study was performed using both primary and secondary data.

S Gopi (2016) examined the impact of exercising green activities on environment protection. The study was based on primary and secondary source of data conducted in the SBI branch of Palakkad district, Kerala. It was found that out the various methods of promoting green banking, Internet banking is the most preferred technique among mobile banking, direct deposits, credit cards, online saving accounts, online bill payments. Apart from this, meetings, medias and websites were found to be most effective promotion methods. Banking sector is highly beneficial to adopt environmental friendly business practices. Another study by lopol.org explains that advantages of the newly launched products of SBI that is green home bank loan. It was suggested that although the cost of providing green loans is quite low but the subsequent good impacts are high. It is advantageous as it contributes to the reduction of excessive water usage, efficient wastedisposal, reduces energy consumption, fossil fuels are not wasted, and is also, helping in healthy living.

O. Sharifi and B.N. Hossein (2015) assert that Indian Banking system is quite behind in bringing green banking into banking activities. As a result, the paper details the steps taken by public sector banks and also the benefits of adopting the same based on secondary data sources. It was concluded that banks not only need to make direct investment into green banking rather they should also adopt indirect ways as it reduces cost for the company and provide endless advantages to the society. Dipika (2015) has envisaged that there is a need of the hour to create awareness regarding green banking, to implement the techniques and also to strategically follow the methods. The study was based on secondary data. The study focused on the

techniques and practices of banks, the problems in execution of strategies and measures to gain positive results by effective implementation. The practices of various banks were outlined and it was suggested that more awareness is required to be brought, saving energy, concentrating on social practices, forming clear policies, providing training to employees and financing eco-projects.

India CSR Network (2018) outlined the new measures adopted by SBI to promote green banking through marathon. The main aim of the marathon was to create awareness and knowledge among people regarding the need of environment protection and also more plantation was done during the marathon by giving seedlings to runners. This was done to encourage everyone to exercise the practices that led to sustainable development.

### **Objectives of The Study**

The study attempts to achieve following objectives:

- To define and understand the concept of green banking
- To study the impact of environment friendly practices adopted under green banking approach by state banks of India.
- To find out the challenges faced by SBI in implementation of green banking.
- To find out the necessary steps required for proper implementation of green banking in India.

### **Methodology**

The present study is qualitative in nature thus methodology was based on extensive literature review and secondary data. The research took place in two phases: The first phase was an up-to-date literature review on Green Banking and sustainable development in the banking sector and particularly in green banking that identified results, and suggested future steps. The second phase included data collection about SBI in particular through secondary published sources. Secondary published sources were the reports on Green Banking and other relative information published by the SBI and on the website of the bank.

### **Concept of Green Banking**

Green banking was initially introduced in the year 2009 in State of Florida. In India, SBI (state bank of India) being the largest commercial bank took a lead towards setting higher standards of sustainability and undertook foremost step towards “green banking” initiative. SBI was the first bank to inaugurate wind farm project in Coimbatore.

Green banking is referred to as a concept where the banking institutions adopt those banking practices which mitigate the carbon footprint and preserves the environment from getting exploited. Green bank is not different from the regular banks. The only difference is the consideration of social and environmental aspects and performing the banking activities responsibly. The banks who do such type of banking activities are termed as socially responsible and a sustainable bank or green bank or ethical bank (Hossain et al., 2020; Zhixia et al., 2018).

A green bank is a bank that promotes and enacts green technologies in bank operations both internally and externally to minimize carbon footprints and facilitates environment management (Bose et al., 2017). It is an influencer for holistic growth of economy in the nation (Jeucken & Bouma, 1999; UNEP FI, 2016). Green banks adopt social and economic aspect into their strategies and progress towards sustainable practices (UNEP FI, 2011, 2017).

### **SBI Initiatives Towards Green Banking**

As of 31st March 2022, the Bank managed 22,266 branches, 65,030 Automated Teller Machines (ATMs) and Automated Deposit and Withdrawal Machines (ADWMs), while employing over 2.42 lakh people and a customer base exceeding 46 crore.

Powered by technological innovation to adapt to changing customer preferences, SBI has been transforming its retail banking landscape, moving over 95% of its transactions to alternate channels. As on 31st March 2022, SBI's flagship application YONO has 48.35 million registered users, up from 37.10 million in March 2021.

SBI has ingrained its values of service, transparency, ethics, politeness and sustainability across its operations and value creation model. In this regard, the Bank has revamped its process, re-evaluated its risks, enhanced its systems and customer experience, and introduced several IT initiatives.

### **Green Bonds and Green Loans**

Bonds worth US\$800 million have been issued since FY 2018-19. Listed green bonds worth US\$650 million on INX and Luxemborg Stock Exchange. Proceeds are earmarked for projects with a positive environmental impact. The Bank also raised a green loan worth €50 million in FY 2020-21.

### **Sustainability Linked Loans**

SBI's foreign branches have been extending ESG-related loans and sustainability gridlinked pricing. Incentive of 4 to 6 bps is provided to borrowers for achievement of sustainability linked KRAs, along with a penalty for non-achievement. This helps encourage the borrowers in achieving the KRAs. The portfolio of such loans is approximately US\$1 billion.

### **Impact of Sbi's Green Bonds and Green Loan Amount Sanctioned**

- Projected annual renewable power generation of more than 38,00,000 MWh/year
- Emission reduction potential of over 5.5 Mn. tCO<sub>2</sub>/year
- Wind and solar energy projects totaling over 3,500 MW capacity
- Renewable energy projects spanning in over 10 states

Source: 1 Grid emission factors from CO<sub>2</sub> Baseline Database for the Indian Power Sector User Guide Version 15.0. 2 Plant Load Factors have been taken from the Ministry of Power, Government of India (<https://powermin.gov.in/en/content/power-sector-glance-all-India>)

### **BANK ASSOCIATION WITH VARIOUS INDUSTRY ASSOCIATIONS AND ORGANISATIONS TO DRIVE THE RENEWABLE ENERGY AGENDA.**

These include:

- International Solar Alliance, which was jointly launched by India and France to address the energy needs of member countries by harnessing solar power
- Federation of Indian Chambers of Commerce and Industry (FICCI)
- Bureau of Energy Efficiency (BEE) Confederation of Indian Industries (CII)
- Science and Technology for Society (STS) Forum, Japan, which explores opportunities arising from science and technology to solve the problems facing humankind
- Indo-UK Joint Working Group on Green Finance BRICS Business Council Taskforce on Green Financing

### **SBI Contribution To Sustainable Development Goals**

- The Insta Plus Savings Account is a video-based customer identification process, which brings in complete digitalisation and significant reduction in paper usage.
- SBI has come up with a loan for corporates that are interested in replacing the existing feedstock coal or other fossil fuels with biomass. The Bank helps meet the capital expenditure requirements through this loan.
- For enhancing the healthcare infrastructure in the country, SBI has introduced a loan product to cater to the units engaged in manufacturing of liquid oxygen, oxygen cylinders and to existing hospitals setting up oxygen plants.
- In partnership with World Bank and UN Women, SBI has designed a new loan product to provide access to

institutional credit at affordable interest rates to women entrepreneurs. Particular emphasis is given to those graduating from self-help groups (SHG) or who are part of the supply chain in business enterprises in the manufacturing, trading and services sector, including allied agricultural activities. The World Bank and UN Women will be associated for providing technical assistance and training to identified borrowers.

- A pre-approved and hassle-free credit facility on the YONO platform to help meet the dairy farming needs of farmers, through partnerships with corporates.
- This product helps individuals enhance their skills and improve their livelihood. It promotes opportunities for all, and ensures inclusive and equitable quality education.
- SBI's e-Mudra extends digital term loans up to ₹50,000 to help microentrepreneurs meet key requirements related to their business and enhance employment generation potential. Over ₹934 crores have been sanctioned towards the same as on 31st March 2022.
- SBI provides loans for CBG plants under the Sustainable Alternative Towards Affordable Transportation (SATAT) scheme. This scheme creates large-scale employment along with sustainable industrialisation.
- Bank promotes cleaner mobility through the Green Car Loan scheme by offering a longer repayment period of up to eight years and a concession of 20 basis points (bps) on the interest rate, compared to a regular car loan.
- SBI provides SHGs with the funds for generating sustainable livelihoods. Majority of SHGs are comprised of women, helping the bank contribute towards ensuring gender equality.
- To drive progress on the goals of zero hunger, good health and well-being, sustainable consumption and production, and climate action, SBI is financing polyhouse farming projects to enhance yields.
- SBI helps fund the purchase of solar water pumping systems in alignment with the PM KUSUM Yojana, to provide a sustainable livelihood for farmers and reduce the environmental footprint.
- Popularising RE in commercial institutions and industrial buildings with smaller roofs, SBI has sanctioned, ₹1,089.52 crores for rooftop solar PV projects as on 31st March 2022.
- To facilitate access to better healthcare for residents of smaller cities and villages, SBI has sanctioned healthcare business loans worth ₹39.67 crores to customers as on 31st March 2022.

- SBI helps people achieve the dream of owning their house through its home loans. 58.19% of the home loans provided are affordable housing loans.
- SBI has sanctioned ₹12.06 crores towards e-rickshaws, to promote the usage of cleaner fuel and ensure a boost in environment friendly practices.

### Green Channel Counters (GCC)

GCCs facilitate services like cash withdrawal, cash deposit, internal funds transfer, balance enquiry, Green PIN generation and change, and mini-statement generation at retail branches across the Bank's India operations digitally. Over 27,81,30,000 transactions were undertaken through GCC saving over 445 MT of paper and 39,746.81 m3 of water, in addition to 4,000 tCO2 e of GHG emissions.

### E-REGISTERS

In the second phase of digitisation, SBI rolled out 31 e-registers, of which 26 are newly developed and five were revamped for use internally, to reduce the manual recording and storage of data across the Bank. These e-registers follow a system of checks and balances to ensure the authenticity and veracity of data, along with strict privacy boundaries on the access to the databases, balancing sustainability and digitisation with data security.

### GREEN REMIT CARDS (GRCS)

GRCs allow customers to deposit cash using GCCs, CDMs or ADWMs to a beneficiary's SBI account, using a magstripe-based card. Through GRCs there is cash deposit facility available 24\*7 at CDMs and ADWMs. There is a monthly cap of ₹1,00,000 on the transactions.

### Green Pin

Green PINs provide customers with a hassle-free and environmentally sound way to generate their ATM PINs without having to visit a branch. This year, 6,41,06,135 green PINs were generated, helping reduce paper consumption by 307.71 MT and consequently, water consumption by 27,482.08 m3 and carbon emissions by around 2,766.91 tCO2 e.

Table 1: Year Wise Green Pin Generations

Year	No. of Green Pin Generation (inCrore)
2016 - 2017	1.67
2017 - 2018	5.15
2018 - 2019	9.40
2019- 2020	6.41
2021 - 2022	6.41

### **Fraud Angle Examination Workflow**

This application ensures a reduction in workflow process time and paper usage for tracking fraud loan accounts and non-performing assets.

### **Easy Approval**

In addition to paper savings, the Easy Approval application helps enhance the productivity of the Bank's processes when it comes to online approval of notes. This year, 62,389 notes were approved through this application.

### **LITMAS**

To undertake the streamlining of litigation-related information, the Bank has introduced a litigation management system, which has also helped it save a substantial amount of paper.

### **SBI'S External Environmental Impact**

The strategies adopted by the bank having external environmental impacts are as follows.

#### **Digital Banking**

The Bank offers a range of technology-centric innovations for its customers in the digital banking domain. A multi-channel delivery model offers multiple channels - digital, mobile, ATM, internet, social media and branch offices - to customers to carry out transactions. The Bank's flagship mobile banking and lifestyle app, YONO, is a one-stop shop offering financial services, along with a gamut of other banking solutions. Additionally, the Bank has YONO Krishi for its agricultural segment and YONO Quick Pay for enhancing customer accessibility. YONO has 110.74 million downloads, and over 48.35 million registrations as on 31st March 2022.

#### **ATMS and AWDMS**

With 65,030 ATMs and AWDMS, SBI has one of the largest ATM networks in the world, as on 31st March 2022. The Bank has introduced a 24x7 OTP-based cash withdrawal facility for transactions above ₹10,000/. This was done to strengthen ATM security against skimming, cloning and card thefts, ensuring accessibility and safe banking for its customer base. The Bank has enhanced e-Surveillance to cover around 46,182 ATMs as on 31st March 2022 and will expand its coverage to all ATMs in the coming year.

#### **Internet Banking**

SBI has 918 lakh retail internet banking users and 31.37 lakh corporate internet banking users. To provide them with a seamless and secure experience, a number of new services were rolled out these include, but are not limited to, login OTPs, positive pay systems, real-time multiple demand loan for e-commerce transactions and enhancements to the SARAL

transaction limit. As on 31st March 2022, a total of 68,714 sub-merchants were integrated with Payment Gateway.

### **SWAYAMs**

As of 31st March 2022, SBI has installed 19,500 SWAYAMs (barcode-based, self-passbook printing kiosks) across 16,927 branches. These include 9,139 kiosks in ATM rooms or e-lobbies and 1,601 kiosks are deployed as "Through the Walls" available outside branch banking halls for extended hours. An estimated 4.17 crore passbooks are printed through these SWAYAM kiosks on a monthly basis.

### **CKYC FOR NON-INDIVIDUALS AND CKYC FOR FI-LEGACY**

In August 2021, SBI launched CKYC Document Classification and Upload (CDCU), an improved AI-based scanning solution. SBI has covered individual, non-individual and FI under CKYC. This was done in view of the increased volume of digitisation as an alternative for the scanning.

### **PENSION SEVA PORTAL**

The Bank has revamped its Pension Seva Portal, and has added features such as Video Life Certificate (LC) enabled for regular pensioners with Aadhar seeded accounts and login through OTP on Aadharlinked mobile numbers. Additionally, this portal is also mobile responsive and available at the user's

### **FXOUT FXOUT**

It is a centralised platform for retail remittances, which is accessible to customers 24\*7 and does not require any forex expertise. The Bank has also released an Fxout handbook, which is available in the public domain.

### **SBI FASTag**

SBI has completed the integration of FASTAG application with BillDesk for recharge through PhonePe. Customers can now recharge their SBI FASTags directly from the application by just entering their vehicle number in the FASTAG recharge option.

### **EASYCOLLECT**

Easycollect application has been rolled out in integration with Edelweiss Tokio Life Insurance Co. Ltd. policyholders can now remit renewal premium through SBI branches by making use of this application.

### **SBI UNIPAY**

SBI has developed a Bharat Bill Payment System (BBPS) application named SBI Unipay, for bill payments, which has gone live in July 2021.

Payment Aggregator and Payment Gateway (e-Pay and PG) SBI works both as a payment aggregator and payment gateway, which is a unique PCIDSS-certified secured platform for facilitating seamless e-Commerce transactions between

merchants, customers and financial institutions. The platform is provided through the payment aggregator (SBI e-Pay) and payment gateway (SBIPG) applications by integrating thousands of merchants on the one end and payment channels on the other. As on 31st March 2022, SBI e-Pay has onboarded 343 new merchants including prestigious merchants such as Central Power Research Institute, High Court of Madhya Pradesh, Uttar Pradesh Metro Rail Corporation and Kanpur Metro and a total of 1,502 merchants were integrated with SBI e-Pay.

### **WHATSAPP BANKING**

WhatsApp Banking services offer the convenience of accessing personal banking accounts and services from the comfort of home. The Bank also offers a virtual chatbot to perform functions like balance enquiry, mini statement and many others.

### **CHALLENGES OF IMPLEMENTING GREEN BANKING INITIATIVES**

- Staff training is a major task as few older staff are reluctant towards the change.
- Green goods and services increase bank's cost at least initially though reduces administrative cost in the long run.
- The major problem bank faces in this process is of customers not accepting the online transactions happily.
- Customers are skeptical towards safety in transactions undertaken online; however, educated people easily adopt green technologies.
- There is a lack of awareness amongst the customers and the bank employees about the concept of "green banking" and even if they are aware, the information they have is inaccurate.

### **Discussion and Recommendations**

From the analysis of the stated objectives, it has been observed the SBI has taken some major steps necessary for the initiation and execution of green banking. The investigation clearly states that if Green banking initiatives are implemented effectively, augmenting environmental reputation and reinforcing environmental concern will no longer be a utopia. It has been observed that mostly institutions are introducing the green initiatives in the inside working of the banks while SBI is not only digitalizing its inside working rather extending the green banking services to its customers, clients and other parties in dealings of the bank. Not only these, but, some further steps that can be taken by the bank for promoting green banking have been suggested as follows:

1. Initiatives to enhance the awareness among customers, clients and other parties in dealing of the bank is required at large scale and this can be done through awareness programs and information on public websites.

2. Computer based and electronic banking must be introduced in every branch of the bank.
3. Considerable rewards can be endowed to the customers who are initiating and adopting sustainable banking practices.
4. The bank can further increase performing social responsibility activities by donating and give charity to the institutions working for the preservation of the environment.
5. Specialized training and development programmes must be organized for making the employees of the bank having the relevant skills which are related to green banking.
6. The bank can setup separate offices and outlets that deal with the green practices in the bank and financing more and more environment-friendly projects and green projects.
7. SBI may develop online tool to evaluate the sustainability performance on monthly basis to monitor the energy, waste and water data to enable accurate disclosures during subsequent reporting;
8. SBI can evaluate SROI outcomes to prioritize the CSR projects;
9. SBI may strengthen the management system;

### **Implications of The Study**

The study will motivate the banking sector to be engaged in green corporate social responsibility as "social banking" is an important aspect of "green banking" and use green internal process to create awareness amongst the divergent stakeholders. The study has great relevance for environmentalist, policy makers and all stakeholders in developing effective and efficient green banking strategies. Furthermore, in relation to the banking sector, SBI being the foremost bank to adopt green banking can set an example for other banks as to what initiatives, methods and policies can be undertaken for adopting green banking. The banks which have only started to walk on the road of green banking can follow the footsteps of SBI for successful execution of the plan. The customers of the bank will be benefitted by making themselves aware of the concept of green banking and also knowing, the benefits of the same, people who are concerned about the nature will chose the services of the bank as it will contribute to the betterment of the environment. Also on the part of government, it will help the government to know how the bank is participating in the national motive of preserving the environment and the numerous initiatives that the bank is currently undertaking and pursuing.

## Limitations

Some undeniable and considerable limitations of the study have been enlisted here:

1. The study is based on the secondary data only. All the inherent limitations of the secondary data analysis apply to the present study also.
2. The study has undertaken only one bank, that is, State Bank of India, due to cost and time constraints. A further study considering the initiatives taken by the other banks can be made.
3. A further study to measure the impact of adoption of green banking on the profits and the expenses of the company can be undertaken.

## Conclusion

State Bank of India can be regarded as one of the foremost institutions in India realizing the importance and urgency of shifting the conventional banking practices to the new digital based and environment friendly practices. It can be rightly witnessed from the stated initiatives of the bank that the bank has voluntarily put up the step forward to work towards green banking. Internal as well as external methods are being put into operation for creating awareness and also for changing the banking practices of customers. The Green banking initiatives if successfully explained and implemented will enhance customer's trust in bank and will positively influence their purchasing decisions. Although, SBI is working hard to bring a change, a subsequent effort on part of other banks and other sectors of the industry are much required to combat the situation in order to restrict it from getting worse. The banking and financial sector should be made to work for sustainable development. As far as green banking is concerned, but banks in India are running far behind their counterparts from developed nations because of lack of education, lack of awareness and lack of preparedness of Indian banks to implement green initiatives and it is the need of the hour to think it seriously for the sustainable growth of the nation. Indian banks should adopt green banking as a business model without any further delay.

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# A Study of the Relationship between Green Governance and Sustainable Finance in PSU Banks

Tarun Bose\*

## Abstract

*This study aims to investigate the concept of "Green Governance," to establish accountability to all the company's stakeholders and setting forth the directors' duties. The fundamental ideas of sustainable development and green governance encourage the inclusion of environmental, social, and economic concerns in every element of decision-making. Sustainability and green governance are distinguished from other kinds of policies by the idea of integration. Policy makers and practitioners at the local governance level must promote knowledge-based approaches, such as knowledge sharing, the spread of best practises, improved compliance, and awareness-raising initiatives, in order to strengthen the application of the green governance principles. The broad scope of environmental issues, such as climate change, waste management, energy efficiency leads to institutionalisation of green governance within organisational areas, increasing its complexity and fragmentation. Green governance's goal is to "better the environment fundamentals in myriad areas, encapsulating buildings, water, transit, public health, industry, climate, rural abandonment, and energy." With these premises in cognition, this paper seeks to critically examine how Indian corporations are implementing green governance and Sustainable finance and to what extent it has been successful. It also seeks to examine how the relevant Green Governance and sustainable finance is being applied before making recommendations.*

**Keywords:** Green Governance, Sustainable Finance, Sustainable Development, PSU Banks

## 1. Introduction

India has a sizable population. 382 people live there per square kilometre, which is a high population density. India, which occupies only 2.4% of the global surface area, is home to 17.5% of the world's population. (Times, undated) Indians have historically been heavily reliant on the country's forests and natural resources. The expansion of the economy, business, industry, and population has had a significant negative impact on the environment's health. India is currently the fifth most vulnerable country to the effects of climate change, with a 2.5% to 4.5% yearly risk to its GDP (LabanyaPrakash Jena, 2020). According to a Stanford University research, the Indian economy is now 31% smaller than it would have been without global warming (Times, n.d.). As a result, we can no longer disregard the effects of climate change. In reality, it has evolved into the greatest threat to global GDP growth, and financing will be crucial to advancing India's implementation of its commitment to the Paris Agreement and achieving the Sustainable Development Goals. According to various projections, India will

need roughly 2.5 trillion dollars to implement the climate action reforms required by the Paris Agreement between 2015 and 2030. Only the public sector or the government can make a sufficient contribution. To achieve sustainable growth, private participation or private-public collaboration has become crucial. Indeed, green financing is now a popular way to adopt sustainability.

### Research Objective

- To examine several obstacles to green financing in India.
- To evaluate how green financing has affected India's sustainable banking industry.
- To comprehend the steps done by various PSU Banks to promote green financing.

### Green governance

Green governance is the process of rationally regulating human interactions with the natural world to permit the simultaneous, balanced growth of the economy, society, and environment.

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Both local and global governments must practice green governance in order to accomplish their objectives. In order to promote sustainable development, we analyse the discrepancy between research and practice and offer taxonomy for green governance. The purpose of the case study was to assess if a nation's adoption of a green governance policy is necessary for attaining sustainable growth.

### **Effective green governance procedures**

- The state environmental impact assessment authorities will be evaluated based on seven key criteria by the Union Ministry of Environment, Forests and Climate Change (MoEFCC), which will demonstrate their effectiveness and speed in approving environmental projects. This drew criticism from all angles, prompting the Ministry to make the following clarifications:
- Without weakening any regulatory safeguards, the action aims to promote efficiency, openness, and accountability in the operation of SEIAAs.
- No SEIAA will suffer consequences for taking longer to provide permission. Once they determine that these projects have no environmental impact, the SEIAAs are in charge of granting authorization and environmental clearance for more than 90% of infrastructure, development, and industrial projects in the nation.
- The ministry has undertaken a number of steps to streamline the EC (environmental clearance) procedure and cut down on the excessive time required for permissions to be granted. A new ranking system for SEIAAs has been implemented as a step further to promote their effectiveness, accountability, and openness.

### **Challenges in green governance**

The following are some of the difficulties facing green governance:

1. Non availability of regional and international accords.
2. Numerous issues with development, levels of protection, and available resources. It damages the economy and makes it challenging to implement International Environmental Agreements (IEAs).
3. Struggling for funds to generate environmental resources.

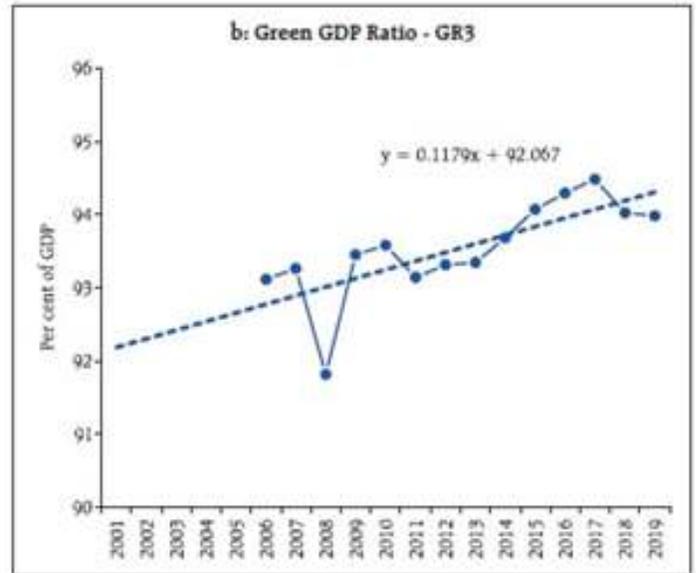
4. The policies of the various sectors associated to green governance.
5. Insufficient institutional resources
6. The order of importance is not a priority.
7. The objectives are obscure.
8. The coordination between the corporate sector, civic society, and other government is insufficient.
9. A lot of effort needs to be done in the absence of a common vision.
10. Trade, agriculture, food safety, peace, and security all have relationships with economic growth.
11. Environmental issues are a result of complex systems that we don't fully comprehend.

### **Green GDP Ratios in India**

The Green GDP ratios for the years 1971 to 1989, 1990 to 2005, and 2006 to 2019 are displayed using the envelope method. Based on the trend of the Green GDP ratio, we identify three major periods. The first phase of the period 1971–1989 shows that the environmental cost of expansion during this phase is indicated by the GR, which primarily shows a decreasing trend with sporadic improvements in the years 1976, 1977–1980, and 1986. The emphasis at this time was on greater economic expansion rather than the environmental costs of deforestation, resource depletion, and harm from carbon emissions. The inclusion of damage data related to particle pollution caused the abrupt decline seen in 1989 and 1990.

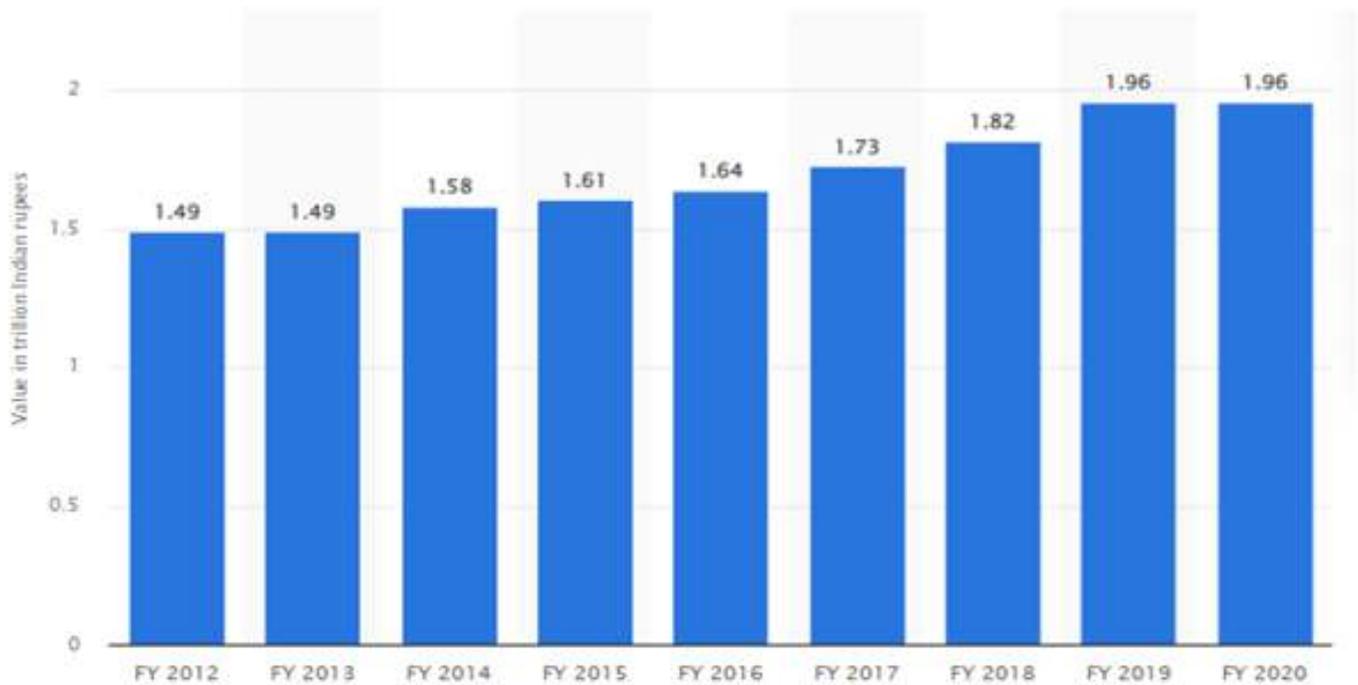
The Green GDP ratio typically followed an upward trajectory during the second phase (1990–2006), which saw the 1992 Earth Summit and the Kyoto Protocol<sup>16</sup>. As India focused on striking a balance between the goals of increased economic growth and environmental sustainability, the declining trend seen in the earlier period got turned into a slightly positive trajectory.

The Green GDP trajectory is shown with all available data in the third phase (2006-2019). The rapid decline in 2007 and ensuing improvement in 2008 are related damages<sup>17</sup> caused by the depletion of minerals and energy. After then, there was an upward tendency with a steeper trend than in the prior phase.



Source: RBI staff estimates on the basis of World Bank database.

From the 2012 fiscal year through the 2020 fiscal year, India's forestry and logging industry will add gross value (in trillion Indian rupees)



Source- © Statista 2023

In the fiscal year 2020, forestry and logging provided over 1.96 trillion Indian rupees to agricultural gross value. From the 2013 fiscal year, there has been an upward tendency in this sector's contribution.

### Sustainable finance

The term "sustainable finance" refers to the practice of considering environmental, social, and governance (ESG) factors when making investment decisions in the financial

industry, which results in longer-term investments in sustainable economic endeavours.

Investments in the agricultural industry, renewable energy, sustainable transportation, and ecological stewardship are a few examples. Investment vehicles include equity, debt, lines of credit, and loan guarantees and come in a wide range of shapes and sizes around the globe.

- **Environmental considerations:** They include things like protecting the environment, preventing pollution, addressing climate change, etc. For instance, if a company has been connected to substantial carbon emissions, an investor might decide not to invest in that company.
- **Social Considerations:** Socioeconomic factors include racism, inequality, and human rights concerns. Among these factors are deciding not to invest in a firm whose founder or vision is racist or whose products are produced by slaves working in sweatshops.
- **Governance Considerations:** This component includes things like management structures, employee remuneration policies, etc. For instance, deciding not to invest in a company because its employees are paid inadequately.

Sustainable finance differs significantly from traditional finance, which primarily focused on profit concerns while making investment decisions. In sustainable finance, one realizes the potential influence that investing in a firm can have and works to take use of it in order to change the world for the better.

### **Relationship between Green governance and sustainability**

With increasing pressure from multiple development-related factors, institutional and non-institutional procedures are becoming more crucial to ensuring the long-term sustainability of natural resources. It is therefore thought that strengthening the governance process of evolution would contribute to increasing the nation's performance in terms of resource preservation and ecological management. The Indian government is involved in numerous activities. Yet, they are divided into a few main categories: international commitments, openness and accountability, conservation of delicate ecosystems, water resources, and domestic research, instruction, and training.

### **Green Banking Products used in The Banking Sector**

#### **Go online**

Online banking comprises RTGS and NEFT transactions, as well as internet banking, mobile banking, tab banking, phone banking, and other services. Online bill payment, online deposits, fund transfers, account statements, etc. are among the functions involved. Banks ultimately use less paper, less energy, and spend less on natural resources thanks to these financial activities.

#### **Transactions with credit cards:**

Banks have launched green channel counters to offer a variety of card-based transactions (GCC). GCC encourages card-based

transactions among its clients in order to save time for the clients as well as resources like paper and electricity. Customers can choose from a range of cards, including ATM, Credit and Debit, Green Remit, International Travel, Gift, and Smart Payout cards.

**Green Finance:** Banks should provide financing for environmentally friendly projects and goods like solar equipment, recycled furniture, auto loans for cars with low carbon emissions, mortgage loans for green homes, etc. while also offering processing fee and interest rate breaks.

**Green infrastructure:** IT infrastructure (Data Centres), environmentally friendly structures with enough natural light and fresh air, power generation for on-site use, and waste recycling facilities for recycling on-site trash are all examples of green infrastructure. Self-service passbook printers, kiosks (both self-service and multi-function), cash deposit machines, contact centres, and other items may also be categorized as green infrastructure. That makes it easier to lower banks' own carbon impact.

Banks in the public and commercial sectors are actively engaging in a variety of green banking activities. In green banking, banks are primarily raising awareness of environmental issues among bank staff, customers, and the general public. The focus of banks' green banking initiatives has gradually evolved from promoting and implementing e-banking to more efficient trash recycling, water treatment facilities, rainwater harvesting, the use of solar-powered equipment, and the construction of green buildings, among other things.

### **Sustainable Finance in India**

To a large extent, financial institutions determine whether a nation is pursuing sustainable economic development. Through their lending, investment, and other financial actions, banks, insurance firms, pension funds, asset managers, and other financial actors influence environmental, social, and governance (ESG) results.

India is attempting to strengthen the climate consistency of its financial system in light of the pressing problems caused by climate change. As a result, a lot of financial actors are looking into domestic and international prospects for peer learning. For instance, the Reserve Bank of India recently joined the Network of Central Banks and Supervisors for Greening the Financial System (NGFS, 2019), the Indian Ministry of Finance is a pioneer member of the International Platform on Sustainable Finance (European Commission, 2019), and the Indian Banks' Alliance, which represents nearly 250 banks, is a member of the Sustainable Banking and Finance Network (IFC, 2012).

A few financial institutions in India have also started looking into ways to lessen the carbon intensity of their portfolios and their exposure to hazards related to climate change. These initiatives

are built upon far more extensive experience dealing with other ESG priorities including social inclusion and gender equity. Other Indian banks have the chance to learn from these industry leaders, allowing success stories to be repeated and expanded throughout the financial sector.

## **Examples of leading financial institutions**

### **NABARD**

The Indian government established NABARD in 1982 as a development finance institution (DFI) to aid small-scale enterprises like textile and handicraft production as well as agricultural production and processing in rural areas. Such funding was intended to support holistic rural development and increase the wealth of rural regions.

Around 30,000 bank branches nationwide now offer official financial services to 14.1 million individuals thanks to the Self-Help Group Bank Linkage Initiative, which NABARD started in 1992.

The program has grown to its current size because to NABARD's efforts to connect self-help groups with wholesale loans. As of March 2021, 13.8 million women were receiving financial services from more than 30,000 bank branches (out of 14.1 million members). Banks had saved \$4.3 billion for women's self-help organizations, and they also gave them an additional \$12.8 billion in loans, with an average loan amount of \$2,394 to each self-help organization (NABARD, 2021a).

The Self-Help Group Bank Linkage Initiative has also provided Indian banks with chances. Millions of bankable clients have been acquired by participating institutions, which also benefit from financial literacy training and have some of their administrative needs handled by a centrally supported Community Resource Person. Although the self-help group members receive interest rates that are lower than those they could get from conventional moneylenders, the banks gain from a rapidly expanding population of new borrowers who pay market interest rates. The number of self-help organizations connected to banks has increased at a 3.6% annual rate during the past ten years. Throughout the same time period, total deposits and total loans disbursed climbed by 15.7% and 20.5%, respectively (Al-Kubati and Selvaratnam, 2021).

The Green Climate Fund's certification of NABARD has given it access to \$120.7 million in concessional financing, which it is now on-lending for solar rooftop installation, groundwater recharge, and solar micro-irrigation.

### **RBL Bank**

With assistance from the UK Commonwealth Development Corporation, RBL Bank was one of the first banks in India to build an integrated Environmental and Social Management System to evaluate credit risks (now British International Investment).

Since 2014, RBL Bank has evaluated all transactions with a value greater than \$1 million and a tenure longer than one year using metrics related to, for example, economization, carbon emission intensity, occupational health and safety, and community-associated concerns (RBL Bank, 2019).

RBL Bank has more recently included the physical and transition hazards of climate change in its evaluations (RBL Bank, 2021). In cases where significant environmental or social issues are found, RBL Bank collaborates with clients to create Corrective Action Plans to reduce the risks. While 32% of RBL Bank's exposure in 2017 met the criteria for integrated risk assessment, that percentage has decreased to 32% as a result of the growth of microfinance and retail banking in comparison to wholesale transactions (RBL Bank, 2019; 2021). RBL Bank has been able to steadily lower its exposure to ESG risks throughout its portfolio thanks to the adoption of an integrated social and ecological management system.

The micro banking strategy used by RBL Bank supports a loan portfolio worth \$966.2 million and has given 3.3 million people access to formal financial services.

Additionally, RBL Bank has set up special loan lines with competitive interest rates to fund environmentally friendly projects. These credit lines were first made available through collaborations with international organizations that offered RBL subsidized financing so it could test and refine its business ideas.

### **SIDBI**

SIDBI's 4E Finance Program has given 105 micro, small, and medium-sized businesses across India access to low-cost financing totaling \$15.4 million, allowing them to make investments in energy efficiency and sustainable production techniques. SIDBI has tested a variety of cutting-edge financial instruments that employ public funding to attract private funding for socially and ecologically beneficial projects. The Sustainable Finance Program, sometimes referred to as the End-to-End Energy Efficiency Investments in MSMEs (4E Financing Scheme), aims to support MSMEs' investments in greener manufacturing by financing any policies and procedures that fall under the Bureau of Energy Efficiency's (BEE) star rating system. With a minimum loan value of \$13,300 and a maximum loan amount of \$199,500 for each qualifying borrower, the program gives loans worth up to 90% of the project cost. The fixed coupon rate on the Women's Livelihood Bond is set at 3% annually. SIDBI will distribute the funds through financial intermediaries such as banks, non-bank financial businesses, or microfinance organizations, who will lend \$133 to \$1,995 to female entrepreneurs (World Bank, 2019).

## **Indian banking sector initiative**

Bank Credit Outstanding to Nonconventional Energy as of March 2020 is depicted in Figures 3-5. As part of its push for

green financing, the Reserve Bank of India included the small renewable energy sector in its Priority Sector Lending (PSL) plan in 2015. At the end of March 2020, there were around 36,543 crores in total outstanding bank credit for the non-conventional energy sector, which represented 7.9 percent of all outstanding

bank credit for the sector of power production (Figure 4), up from 5.4 percent in March 2015. (Figures 3-5). The exposure of commercial banks to non-conventional energy varied greatly throughout India's major states and among bank groups (Figures 3-5).

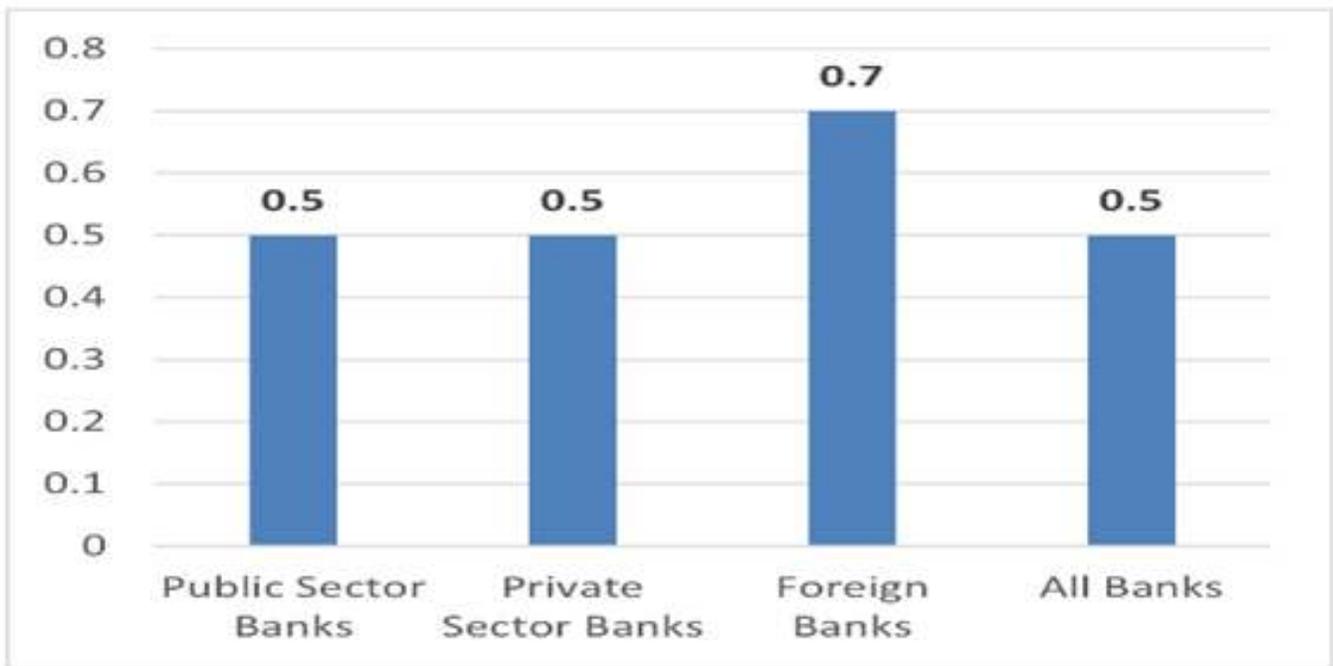


Figure 3. As percent of total bank credit (excluding personal loans). Source: BSR, RBI, Authors' calculations.

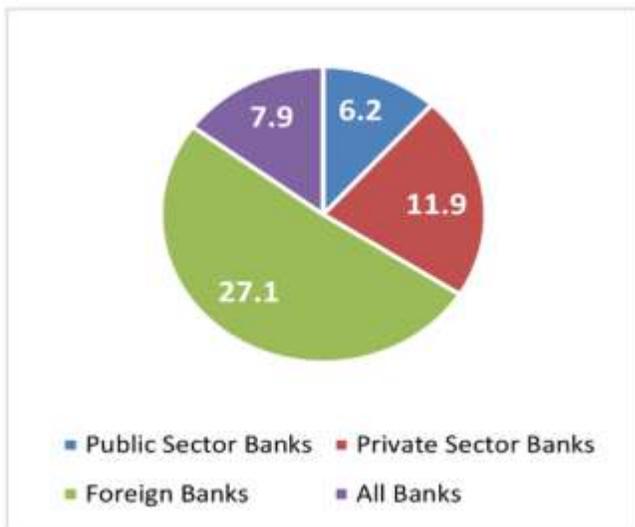


Figure 4. As percent of power sector credit. Source: BSR, RBI, Authors' calculations.

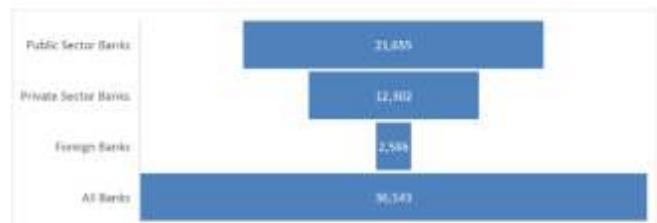


Figure 5. As percent of total bank credit (including personal loans). Source: BSR, RBI, Authors' calculations.

## Conclusion

Public policy is quickly making green finance a top issue. Our findings show that there have been some recent advancements in public awareness and funding alternatives in India as we analyse the evolution of green finance in India. According to existing research, improved information management systems and more coordination among stakeholders may help pave the path for sustainable long-term economic growth by reducing the information asymmetry around green projects. The globe is currently battling COVID-19 and its effects on the expansion of the world economy. Certainly, reviving the world economy is the current policy challenge. But, the epidemic has also given all

parties involved the chance to reconsider the long-term environmental sustainability of the political, financial, and operational methods they have so far chosen. Green finance is unquestionably a significant tool that may support such a transition to sustainable economic growth.

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# The Impact of Rural Credit on Poverty Elimination

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Dr. Shilpy Jindal\*\*

## Abstract

*India, a predominantly rural country, continues to rely significantly on agriculture for both jobs and its booming economy. India's agricultural sector is tremendously fragmented and scattered. Farmers in general have small farms. Dependence on agriculture is still high since there are few employment options available outside of it. The availability of rural funding is a key obstacle to accessibility in rural areas. The changes in policy that took place following independence are the main topic of this paper, along with how they contributed to improve society by reducing poverty. India's rural areas remain the epicentre of the country's pervasive poverty. Importance of rural credit, access to affordable institutional credit becomes crucial to start and sustain a good crop base on quality inputs such as seeds, fertilize machinery and equipment, and means to ensure sufficient supply of water and power. To solve this problem, we need to focus on the ability to repay rather than collateral, i.e., an agriculture credit system, based on productive capacity of the borrowers and not on securities as collateral. This article seeks to understand the connection between the availability of rural loans and India's poverty rate. Doubling agricultural revenue will result in a significant decrease in poverty. Rural lending is a crucial instrument for enhancing the economy's inclusive growth. It has connections both upstream and downstream, which builds a system of opportunities for economic growth that is sustainable. Nonetheless, 90% of the poor live in rural regions, therefore improving rural areas is essential to ending poverty in India. Half of the population still lives in rural areas. The provision of institutional finance, particularly in rural areas, is essential for combating poverty in India.*

**Keywords:** institutional finance, agriculture credit system, institutional credit, rural loans, agriculture economics

## 1. Introduction

Indian economy has an agrarian predominance since independence. After new economic reforms in 1991, the economy was opened up and LPG policies were improvised in the economy. After new economy policy regime, the dominance of agriculture in the Indian economy is on the declining trend. The agriculture contribution has declined to just 16.38% from over 50% percent at the time of independence. the contribution in employment has also declined but still around 46.5% people are employed in agriculture and related activities. Therefore, we can still call the agriculture sector as the backbone of the Indian economy. The agriculture has also modernised over the time period especially after green revolution of 1960's, however still the Indian agriculture system is totally different from the western world. Indian agriculture is scattered and fragmented. According to recent agriculture survey 2015-16 the average land holding is just 1.08 hectare per person. In India most of the

farmers are small and marginal farmers i.e., they hold less than 2 hectares of land. In the India rural development report 2012-13 prepared by the IDFC rural development network, it has been observed that small and marginal farmers are more efficient, especially in cultivating labour-intensive crops or tending livestock, but land holding are too small to generate sufficient household income. Marginal farmers i.e., those holding below one hectare land constitute 68.45% and small farmers i.e., those holding between 1-to-2-hectare land is 17.62%. The farmers being small and marginal lack resources therefore the availability of rural credit is the most basic need for the survival of rural people. The availability of rural credit directly influences the capability of rural people both in terms social and economic interests.

In India rural credit is controlled and managed by the NABARD (the national bank for agriculture and rural development). It is the apex body and also refinances the various institutions

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working as RFI'S (rural financial institution). The Reserve bank of India has retained the power of regulating and directing rural credit funds but it has delegated development function to NABARD. The rural credit hierarchy also includes cooperative banks, schedule commercial banks and regional rural banks. The poverty is a major problem in India and it has been a crucial agenda of economic planning in India since independence. But still around 21% of the population is still living below the poverty line. The mass of the poor people resides in rural areas. According to recent report of NITI Aayog poverty ratio is 32.75% in rural areas in comparison 8.81% in urban area. The mass of the poverty resides in rural area because of poor performance of agriculture and agriculture being a seasonal source of employment. The lack of diversification and lack of access to funds to have non agriculture employment like animal husbandry horticulture and fisheries also aggravate the problem of poverty and employment in the rural areas.

### **Literature Review**

Governments worldwide have taken significant measures to intervene in financial markets, including rural financial markets, to provide funds to rural areas and alleviate poverty. The level of intervention ranges from indirect actions, such as addressing incentive issues and regulating financial intermediaries to direct measures like increasing or replacing credit offered by private lenders (Adewumi, 2006). Various studies have examined the macro-level relationship between agriculture credit and development in the agriculture sector. These studies have documented a positive correlation between credit and the sector's development, as evidenced by research conducted by Demetriades and Hussein (1996), Arestis and Demetriades (1997), Khan (2001), and Rajan and Zingales (2003). As time has passed, the discussion on rural credit and development has expanded to encompass various aspects such as accessibility, productivity, and inequality in credit distribution.

Historically, governments across the globe have utilized subsidized agricultural credit programs to stimulate rural growth and development (Desai & Mellor, 1993). However, this approach has generally failed to improve income levels and alleviate poverty in rural areas, resulting in the erroneous belief that rural credit programs cannot be profitable (Jacob et al, 1998). The traditional strategy for rural finance has been based on the following arguments: governments should prioritize agriculture to promote rural development; farmers lack sufficient capital; farmers require low-cost credit to adopt modern technology and to offset policies that favour urban inhabitants; farmers are too impoverished to save; and private banks offer minimal credit, forcing small borrowers to rely on moneylenders who impose exorbitant interest rates (World Bank, 1993; Bamisele, 2011).

Subsidized agricultural credit programs have had limited reach and produced substantial costs, with little discernible impact at the farm level (Odu, 2006). These shortcomings are largely attributed to the pursuit of short-term goals focused on increasing agricultural production, rather than long-term objectives aimed at sustained expansion of rural incomes. The emphasis on disbursing cheap agricultural credit has typically led to programs with a weak credit culture, marked by reliance on subsidies, low recovery rates, insufficiently diversified portfolios, incorrect targeting of credit (Khan, 1977), and rent-seeking by credit officials and influential farmers (Ladman and Tineermerier, 2004). The traditional approach has overlooked the enormous potential for rural savings, and profit-oriented private financial institutions have been edged out by state-owned rural financial institutions reliant on government subsidies (Ohaegbunam, 2009).

According to Aportela (1999), having access to financial services can result in increased savings, consumption, and investment, as noted by Dupas and Robinson (2009). On the other hand, a lack of access to financial services can lead to a vicious cycle of poverty and inequality, as demonstrated by Banerjee and Newman (1993), Galor and Seira (1993), Aghion and Bolton (1997), and Beck et al. (2007). Several studies have found that financial inclusion tends to increase as prosperity rises and inequalities decline, as evidenced by Sarma (2008) and Rajesh and Das (2019). In the context of India, Kumar et al. (2010) have argued that institutional credit plays a critical role in the agricultural sector's development. Empirical studies have shown that a significant number of institutional agencies provide credit to agriculture. However, the continued presence of moneylenders in the rural credit market remains a significant concern.

On the other hand, there are researchers who argue that microfinance can have negative impacts on the poor. Scholars such as Adam and von Pischke (1992), Kondo (2007), and Roodman and Morduch (2009) express concern that microfinance can lead to credit dependency and cyclical debt, particularly among the poorest borrowers. For instance, Kondo (2007) studied a microfinance operation in rural Philippines and found that the poorest borrowers experienced negative effects. Additionally, several studies, including those conducted by Hulme and Mosley (1996), Coleman (2006), and Kondo (2007), have shown that some microfinance programs do not effectively reach the poorest individuals, despite the claims that they are intended to do so. Coleman (2006) investigated two microlending programs in northeast Thailand and found that they primarily served relatively wealthy borrowers rather than the "poorest of the poor". These studies raise concerns that microfinance programs may not be effectively reaching their target recipients.

The structure of credit institutions has also undergone significant changes, with commercial banks emerging as the primary contributor in recent years. Various socio-demographic factors, such as education, landholding, family size, caste, and gender, affect the amount of institutional Agri-credit available to farmers. The study suggests that simplifying the procedures and reducing procedural complications could make it easier for small holders and less educated/illiterate farmers to access agricultural credit. Satyasai's (2012) findings indicate that there has been an increase in inequalities in the distribution of loans relative to operational holdings over time. Additionally, Chavan (2020) highlights that there is a significant gender gap in credit access.

Micro Financial Intermediaries, commonly referred to as MFBs, were established to provide financial services to rural communities, particularly those living in poverty. Their objective is to assist these individuals in increasing their income levels and living above the poverty line by meeting their credit needs and offering a variety of other financial services. As rural financial intermediaries, the MFBs' performance primarily depends on their ability to reach out to these communities, as they are designed to function as self-sustaining financial institutions. Onwuka et al in 2015 concluded that although MFBs have made some progress in mobilizing deposits from rural areas, there is still much room for improvement in their efforts to penetrate the market, engage rural communities, especially women, and provide affordable credit to those in rural areas, as evidenced by the study.

## Research Methodology

The objective of this paper is to identify how crucial rural credit is for Indian economy. Is there any significant contribution of rural credit in uplifting lives in the rural area? Is poverty declined or does not have any significant impact on poverty.

This paper tries to map the correlation between availability of rural credit and its impact on poverty elimination. In order to study such relationship, we have used the technique of histogram and correlation analysis. Poverty is a multidimensional concept and it is affected by multiple causes but the income is one of the most important and contributory factors in measuring as well as eliminating poverty. Credit availability in rural areas is one of the most important factors in generating income and poverty elimination. This paper focuses on credit dispersal in rural areas since 1980 and simultaneously plots the decline in poverty levels. The correlation is quite significant and dominant as well. In this paper we also have analysed the state wise performance in poverty elimination and rural credit dispersal. For reference we have used kisan credit card coverage and incidence of poverty elimination. Kisan credit card programme is a significant source of short-term rural credit and its dominance and usage are also quite significant. The only drawback is that in this programme the grant is correlated with the size of land holdings and availability of assets with the borrowers. But because of its mass acceptance and prevalence it's one of the major programmes for rural credit.

## Analysis and Results

Graph-1



The graph above tells the year wise GDP per capita, and annual percent change in GDP since 1960. The trend is smooth and upward but the graph also suggests that the major increase in the GDP after 1991 and after 1991 there is uniformity in upward trend. The impact of economic reforms is quite visible and having significant contribution in the economic upliftment of the economy. The major changes that are visible is last two decade where the economic growth is exponential in nature. Indian economy has performed significantly well and nature of growth is quite inclusive as well. The direct bank transfer benefits, elimination of human involvement and account-based subsidy scheme have positive contribution in limiting the

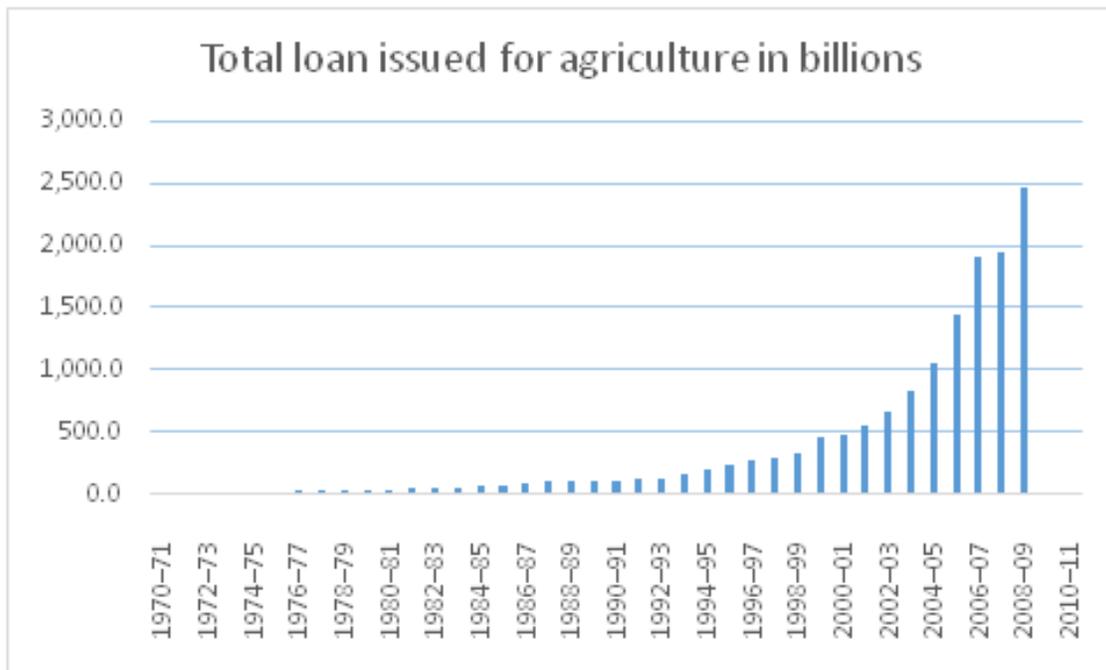
incidence of poverty in India. Not only the number of poor have declined but also the severity of poverty has also declined. The availability of rural credit combining with poverty elimination programme like MNREGA, PMKVY, PMGSY also helped to eradicate poverty at rapid rate in last two decade. We can say that availability of rural credit has significant impact on poverty elimination but social and economic reforms at rural level has cumulatively worked in the poverty elimination process. Reforms in policy implementation and creation of automatic routes for transfer of funds to beneficiary and awareness at village level has significantly reduced the corruption not only at basic level but also at higher hierarchy.

**Graph-2**



Whereas when we look at the poverty trend it is very much on expected trend that as GDP is increasing there is decline in the poverty in India and the major decline in poverty is a recent trend especially after 2000.

Graph-3



On comparing the two graphs there is clear indication that there is negative relationship between credit granted in rural areas and poverty. As per the data records the credit growth has increased around fivefold in the rural areas between 2001 to 2010 and the major decline in the poverty is also visible during this time period the major decline in the poverty is from 2002 to 2011. The decline in poverty during this time is quite significant. The availability of credit at right time from institutional sources is very crucial for rural sector because being marginal and small farmers they lack resources for even for affording seeds and

other inputs. The cheaper credit from institutional helps them to generate surplus over their cost in comparison to non-institutional credit as they charge very high rate of interest therefore generating surplus net of the interest becomes a difficult task for the farmers. Not only the availability of the credit but its timing is very crucial factor in eliminating the poverty. On verifying the state wise poverty rate with the allocation of fund under KCC (kisan credit card) scheme we find that those states that have higher coverage in KCC scheme has done well in comparison to their counterpart states.

Table-1: Progress in KCC Coverage

State/UT	% of agricultural households covered under the KCC scheme						
	2005-06	2010-11	2018-19	CAGR (%)	2005-06	2010-11	2018-19
Andhra Pradesh*	1345.8	1897.5	8473.0	14.0	11.2	14.4	54.6
Arunachal Pradesh	2.2	2.2	12.0	13.0	2.0	2.0	10.3
Assam	65.0	117.1	839.0	20.1	2.4	4.3	30.4
Bihar	209.2	567.3	2883.0	20.6	1.4	3.5	17.4
Chhattisgarh	238.5	272.3	1396.0	13.5	6.9	7.3	33.1
Gujrat	238.5	243.3	2420.0	18.0	5.1	5.1	41.7
Haryana	254.0	148.1	2104.0	16.3	15.8	9.2	128.6
Himachal Pradesh	35.2	56.6	357.0	18.0	3.8	5.9	34.8
Jammu and Kashmir	9.1	16.4	394.0	30.9	0.7	1.1	28.3
Jharkhand	126.6	154.6	996.0	15.9		5.7	34.6
Karnataka	505.0	650.3	3992.0	15.9	6.7	8.3	42.6
Kerala	240.1	300.5	1296.0	12.8	3.5	4.4	15.8
Madhya Pradesh	497.9	626.5	6732.0	20.4	6.3	7.1	61.5
Maharashtra	778.4	726.2	5795.0	15.4	5.7	5.3	34.9
Orissa	494.0	571.0	3940.0	16.0	11.3	12.2	78.5
Punjab	179.2	213.5	1946.0	18.6	17.8	20.3	173.2
Rajasthan	346.5	843.0	5726.0	22.2	5.6	12.2	69.1
Tamil Nadu	527.9	827.7	2065.0	10.2	6.4	10.2	26.5
Tripura	11.5	31.7	238.0	24.2	2.0	5.8	40.3
Uttar Pradesh	1333.1	1347.9	11137.0	16.4	5.9	5.9	45.4
Uttaranchal	60.0	73.2	481.0	16.0	6.5	8.0	56.0
West Bengal	479.7	448.6	2866.0	13.6	6.9	6.3	39.1
Eastern States**	2642.7	3089.5	21822.0	16.3	5.5	5.8	38.7
Total	8012.3	10168.6	66300.0	16.3	6.2	7.4	43.2

Note: \*Andhra Pradesh includes the Telangana State. \*\*Eastern states include Bihar, Eastern Uttar Pradesh, Odisha and West Bengal

Table 2: Number and Percentage of Population below poverty line by states – 2011-12 (Tendulkar Methodology)

S.No.	States	Rural		Urban		Total	
		%age of Persons	No. of Persons (lakhs)	%age of Persons	No. of Persons (lakhs)	%age of Persons	No. of Persons (lakhs)
1	Andhra Pradesh	10.96	61.80	5.81	16.98	9.20	78.78
2	Arunachal Pradesh	38.93	4.25	20.33	0.66	34.67	4.91
3	Assam	33.89	92.06	20.49	9.21	31.98	101.27
4	Bihar	34.06	320.40	31.23	37.75	33.74	358.15
5	Chhattisgarh	44.61	88.90	24.75	15.22	39.93	104.11
6	Delhi	12.92	0.50	9.84	16.46	9.91	16.96
7	Goa	6.81	0.37	4.09	0.38	5.09	0.75
8	Gujarat	21.54	75.35	10.14	26.88	16.63	102.23
9	Haryana	11.64	19.42	10.28	9.41	11.16	28.83
10	Himachal Pradesh	8.48	5.29	4.33	0.30	8.06	5.59
11	Jammu & Kashmir	11.54	10.73	7.20	2.53	10.35	13.27
12	Jharkhand	40.84	104.09	24.83	20.24	36.96	124.33
13	Karnataka	24.53	92.80	15.25	36.96	20.91	129.76
14	Kerala	9.14	15.48	4.97	8.46	7.05	23.95
15	Madhya Pradesh	35.74	190.95	21.00	43.10	31.65	234.06
16	Maharashtra	24.22	150.56	9.12	47.36	17.35	197.92
17	Manipur	38.80	7.45	32.59	2.78	36.89	10.22
18	Meghalaya	12.53	3.04	9.26	0.57	11.87	3.61
19	Mizoram	35.43	1.91	6.36	0.37	20.40	2.27

20	Nagaland	19.93	2.76	16.48	1.00	18.88	3.76
21	Odisha	35.69	126.14	17.29	12.39	32.59	138.53
22	Punjab	7.66	13.35	9.24	9.82	8.26	23.18
23	Rajasthan	16.05	84.19	10.69	18.73	14.71	102.92
24	Sikkim	9.85	0.45	3.66	0.06	8.19	0.51
25	Tamil Nadu	15.83	59.23	6.54	23.40	11.28	82.63
26	Tripura	16.53	4.49	7.42	0.75	14.05	5.24
27	Uttarakhand	11.62	8.25	10.48	3.35	11.26	11.60
28	Uttar Pradesh	30.40	479.35	26.06	118.84	29.43	598.19
29	West Bengal	22.52	141.14	14.66	43.83	19.98	184.98
30	Puducherry	17.06	0.69	6.30	0.55	9.69	1.24
31	Andaman & Nicobar Islands	1.57	0.04	0.00	0.00	1.00	0.04
32	Chandigarh	1.64	0.004	22.31	2.34	21.81	2.35
33	Dadra & Nagar Haveli	62.59	1.15	15.38	0.28	39.31	1.43
34	Daman & Diu	0.00	0.00	12.62	0.26	9.86	0.26
35	Lakshadweep	0.00	0.00	3.44	0.02	2.77	0.02
	All India	25.70	2166.58	13.70	531.25	21.92	2697.83

Note: Population as on 1st March 2012 has been used for estimating number of persons below poverty line

From table 1 and 2 we can analyse that those state with high CAGR in Kisan Credit Card has done well in poverty elimination than those with lower CAGR few states like Bihar, Jharkhand and Orissa are few exceptions because they have both the higher KCC disbursement and high poverty level as well but the pace of decline of poverty in these states is far superior then other states. For example, in Bihar poverty has declined from 77% to 35%. Similarly, Bihar, Jharkhand and UP has performed well over the national average. Hence there is clear evidence that in case of India the rural credit has played a very remarkable role in poverty elimination. There are some other issues associated with rural credit in the form rising NPA'S but there is positive side as well in the form of poverty elimination. The government need to address the issues in rural credit and make it available to the needy right on time. The various constraints like rigorous paper work, lack of collateral and high rates of default must be taken into considerations while planning the future course of actions. A more comprehensive and decentralised planning needs to be executed and effective remedies and alternative systems must be developed to address challenges in rural credit.

## Conclusion

In conclusion, the graph shows a significant increase in India's GDP per capita and annual percent change in GDP since 1960, with a major increase after the economic reforms of 1991. The growth has been inclusive, with direct bank transfers, account-based subsidy schemes, and poverty elimination programs helping to reduce both the number and severity of poverty in India. The availability of rural credit has played a significant role in poverty elimination, with a clear negative relationship between rural credit and poverty. The timing of credit disbursement is crucial for farmers, and states with higher coverage in the Kisan Credit Card scheme have seen better

poverty elimination results. While there are issues associated with rural credit, such as rising NPAs, the positive impact on poverty elimination cannot be ignored. The government needs to address the challenges in rural credit by executing more comprehensive and decentralized planning, developing effective remedies, and alternative systems to ensure that credit is available to those who need it.

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# Examining the relationship between emotion and academic motivation among students-A case of private university in India

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## Abstract

*Researchers in education have been interested in how students are motivated to study, and whether the affect (mood and emotions) is a component that impacts learning has also been investigated. This research tries to comprehend how affect is related to university students' drive to learn. It especially examines how emotion interacts with internal and external motivation as well as exam-related anxiety. At a university in India, undergraduate, graduate, and PhD students were given a questionnaire that was based on three measures from the standard Inspired Approaches for Education survey and the standard PANAS scale for measuring affect. Test anxiety and negative emotions were shown to be strongly correlated. Positive affect and intrinsic motivation were shown to be significantly correlated.*

**Keywords:** Affect, Motivation, Intrinsic, Extrinsic, Learning

## 1. Introduction

Due to the Covid epidemic, students have been studying online for more than a year already. The pupils' feelings and learning are probably impacted by the unpredictable environment, worry about the future, and adjusting to this new way of learning. In the past, researchers have looked at the relationship between feelings and motivating actions (Bandura, 1986). Researchers (Volet, 2001) have also emphasized the need for a multidimensional approach to understanding motivation, saying that it can be influenced by situational as well as individual contexts. They have also stressed the need to consider motivation as a dual phenomenon influenced by psychological and social influences. An intriguing issue that needs to be researched is the interaction between how pupils feel and how they learn. Teachers may be able to develop classroom tactics using mood interventions to assist students learn and cope better by researching the connections between mood and student learning motivation and test anxiety.

## Background

### Defining Affect

According to Watson and Clark (1984), the word "affect" is a general one that encompasses both a person's current feelings and propensity to behave or feel in certain ways. Both emotions

and moods fall within the category of affective states, although only emotions are strong and transient (Frijda, 1986; Lazarus, 1991). The term "mood" refers to a more ethereal, protracted good or negative emotion (Frijda, 1986; Tellegen, 1985).

Along with intellectual, conation or inspiration, and conduct, affect has been acknowledged as one of the three pillars in the tripartite theories of the mind (Isen, 1994). Additionally, it has been said that our first reaction to the environment is affective or mood-related, which in turn influences our behaviors and provides the motivation for them (Ittelson, 1973). The nuanced ways in which emotive emotions impact cognition. It is said that they "mildly color and redirect ongoing thought and actions, manipulating what will happen next, but almost without notice and definitely without apparently altering the setting or elementary action" (Isen, 1984). Thus, it is even more crucial to investigate in more depth how emotions impact students' desire for learning and behavior.

### Affect and Learning

Additionally, a great transaction of study has been done on how mood and emotions affect learning. Positive feelings have reportedly been linked to higher self-motivation and contentment with learning materials, which has a positive impact on academic performance. (2012) (Um et al.). According to Talland (1965), sad people lacked motivation, which may be a

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factor in their worse academic performance. Additionally, studies on schoolchildren with learning difficulties (Bryan & Bryan, 1991a, 1991b) have demonstrated that inducing a happy mood enhances their performance in performing addition and subtraction arithmetic problems in comparison to those with a neutral mood.

Unexpectedly, even negative emotional states have been shown to enhance learning by sharpening attention to the subject matter (D'Mello et al., 2014). However, pupils with negative affect score poorly on tests, which may be connected to their inability to complete memory-related activities (Ellis, Thomas, and Rodriguez 1984). The logical reason for this is that people in bad moods may devote more mental energy to unimportant aspects of the work at hand or they may be thinking primarily about things related to their own mood instead of the task. Given this finding, it has been proposed that course design should take emotional impacts into account in order to increase engagement and ensure that learners retain the most information possible, particularly in the setting of online learning (Shen et al., 2009).

### **Intrinsic and Extrinsic Motivation for Learning**

Inspired learning may be achieved by the combination of internal motivation and extrinsic reward (Topalov, 2011). An action that is intrinsically driven is one where the activity itself serves as the motivation (Deci, 1975). According to the self-will model of motivation (Deci & Ryan, 1985), the psychological demands of autonomy, competence, and relatedness must all be met for there to be intrinsic motivation. Students at the university level do want some flexibility in how and what they study; but, providing them with the proper tools for learning is crucial in a traditional classroom, and peer learning and instructor engagement are also crucial. If these issues are not addressed in the learning environment, dissatisfaction and decreased intrinsic motivation are probable. Extrinsic motivation arises from the possibility of receiving a reward for completing a task (Topalov, 2011). Students are encouraged to study both for immediate benefits, like as praise and grades, and for longer-term ones, such as obtaining a degree, a career, social standing, etc.

### **Research Methodology and Instruments**

A questionnaire with 30 items was sent to all students at Shoolini University for this descriptive research study. On the university LMS, the questionnaire was made available online. Three sections made up the survey. Two questions on gender and year of study were included in the first section, which focused on demographics. The Inspired Approaches for Learning Survey, which consists of 13 items, was next presented.

The MSLQ is a self-report tool created to evaluate the motivational positionings and utilization of various knowledge techniques in university students. There are fifteen distinct scales in all, which may be used together or separately, in the two parts, inspiration and learning techniques. The gauges may be used to match the requirements of the research since they are created to be modular. Students evaluate themselves for scoring using a seven-point Likert scale ranging from "not at all true of me" to "very true of me." The mean of the things that make up a scale is used to create it.

The motivation component of the exam contains 31 questions that measure pupils' objectives and values for the course, their confidence in their ability to prosper in the path, and their test-related worry. The Inherent aim positioning, Extrinsic aim orientation, and examination worry from the motivation part of the MSLQ were the three scales that were included in the questionnaire. Exploring a student's motivation for participating in the learning assignment is the goal of goal orientation. The student's level of intrinsic motivation to learn and involvement in it for the sake of "mastery, challenge, or curiosity" is measured by the intrinsic goal orientation. In other words, the student is merely studying for the sake of learning and is motivated by the act of engaging in the learning process. On the other hand, the extrinsic goal orientation concerns how much the student feels themselves to be engaged for things like "scores, prizes, performance, assessment by others, and rivalry." This means that the motivation for the learner to learn is the reward that awaits him or her after successfully completing the course of study.

It is only normal for students to experience some worry and tension linked to tests and examinations since evaluation impacts how well pupils learn. Academic success may be impacted by test anxiety. Understanding its link with mood may be intriguing since it might provide some insight into how learning and testing procedures can be developed to guarantee improved learning and performance results. It can also affect the effects of the pupils.

The PANAS scale was the third item on the survey for the research. The Optimistic and Bad Affect Agenda is a robust, accurate, and reliable tool for assessing these two significant aspects of mood. Twenty terms make up the PANAS, ten of which describe good personality characteristics and ten of which describe negative ones. On a five-point Likert scale, subjects rate each statement according to how they feel about it. With Cronbach alphas oscillating from 0.85 to 0.90, the measure has excellent psychometric qualities (Watson, 1988). Self-reporting affect may be done in the present or over a period using the PANAS scale. The pupils were asked to say if they had experienced the feelings evoked by the phrases at any point in the previous week.

To comprehend how the affect relates to student motivation and exam anxiety, hypotheses were developed. Intrinsic and extrinsic motivation were the two main types of student motivation. It was predicted that low motivation and high-test anxiety would be correlated with negative mood or emotions,

while strong motivation and low anxiety would be correlated with good affect. Table 1 lists the individual hypotheses that were put to the test.

**Table 1**

High Affect Score	Intrinsic Motivation Score	Extrinsic Motivation Score	Test anxiety Score
Negative	Low	Low	High
Positive	High	High	Low

It investigated how the test anxiety, extrinsic motivation, and intrinsic motivation scores correlated with the positive and negative affect scores.

### Results and discussion

There were 295 answers in all, 138 of which were from men and 157 from women students. There were 200 students in

undergraduate courses, 80 in graduate studies, and 15 were PhD candidates. The information was analyzed to identify patterns in the degrees of test anxiety and inherent as well as extrinsic motivation that pupils demonstrated, as measured on a scale of 7. Both intrinsic and extrinsic motivation's means scores—5.7 and 5.5, respectively—were judged to be quite high. The pupils' average anxiety level was 3.7, suggesting that they were not too concerned about tests or evaluations.

**Table 2**

Category	ItemNumber	7	6	5	4	3	2	1	Mean	StandardDev
TestAnxiety	7	53	31	36	34	17	39	84	3.69	2.29
	1	30	22	35	39	28	37	103	3.18	2.10
	5	47	45	42	49	24	20	67	4.03	2.14
	8	30	28	31	27	36	39	103	3.16	2.12
	13	83	39	40	36	19	23	54	4.48	2.24
ExtrinsicMotivation	3	117	50	32	29	14	10	42	5.10	2.15
	4	154	63	25	22	6	7	17	5.84	1.70
	9	121	53	38	40	10	9	23	5.39	1.86
	10	138	72	30	20	6	8	20	5.72	1.76
IntrinsicMotivation	2	89	48	54	43	21	9	30	4.98	1.93
	6	106	81	62	25	8	2	10	5.70	1.42
	11	119	82	39	28	10	5	11	5.72	1.53
	12	165	69	32	21	2	0	5	6.20	1.18

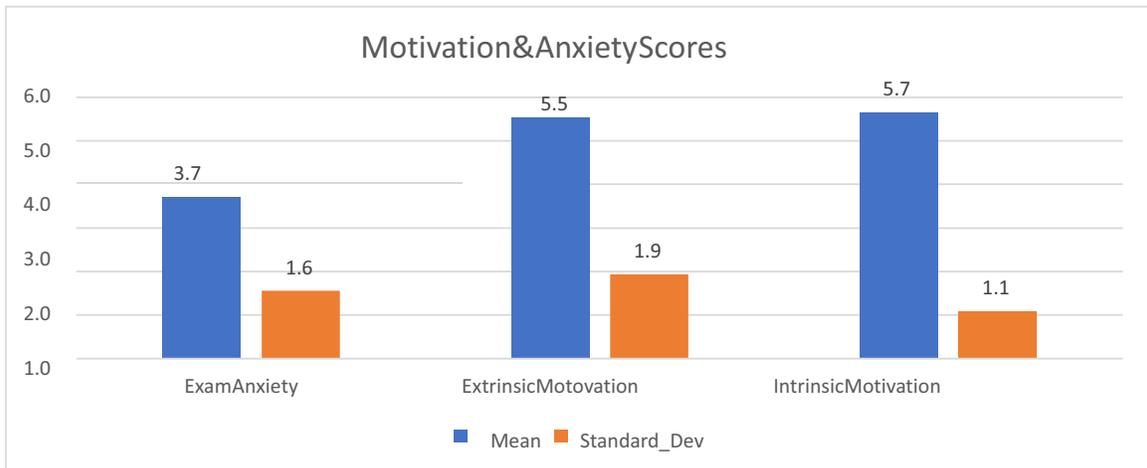


Figure 1

On a scale of 1 to 7, it was found that the average exam anxiety was 3.7, while the average levels of extrinsic and intrinsic motivation were 5.5 and 5.7, respectively. Extrinsic motivation

showed a larger standard deviation than intrinsic motivation, suggesting more variations of that characteristic across the participating students.

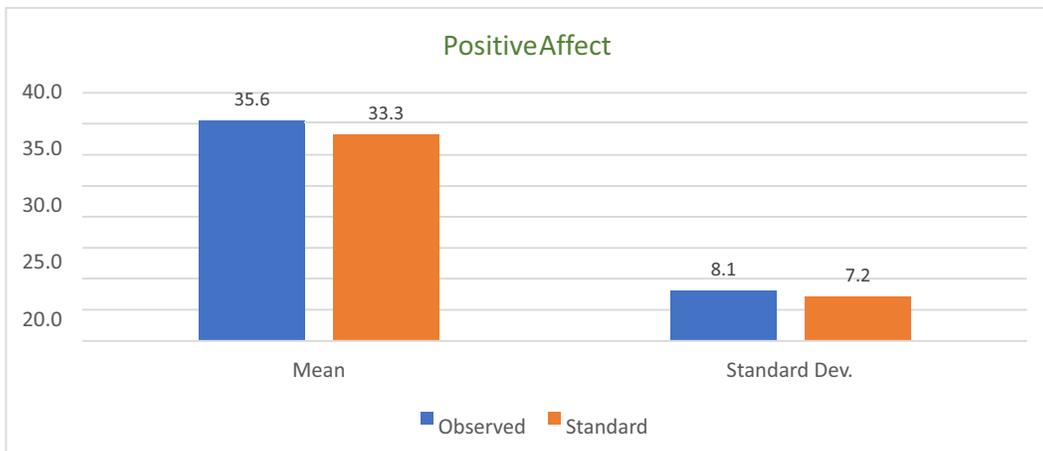


Figure 2a

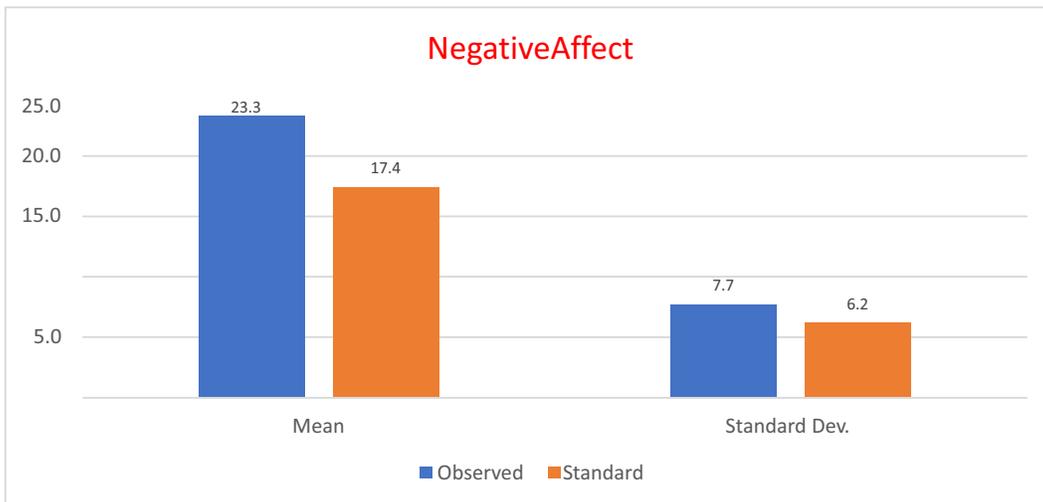


Figure 2b

Like this, the PANAS scale observations of optimistic and undesirable affect were assessed. On a gauge of zero to fifty, the observed positive affect levels had a average value of 35.6 and a standard deviation of 8.1. These are like, but very slightly higher than, the typical PANAS scale mean and standard deviation values of 33.3 and 7.2 (Watson, 1988). Additionally, the adverse impact has an average of 17.4 and a standard deviation of 7.7. The regular PANAS gauge's average of 23.3 and standard deviation of 6.2 also apply to them. Overall, the observed results were satisfactory and consistent with the findings made using the PANAS scale, however the negative impact was somewhat more pronounced than it was using the regular PANAS scale.

### Data Analysis

Calculating the relationships using linear regression between affect as the independent variable and the various issues, such as inherent and extrinsic inspiration, and test anxiety as the dependent variables, and then determining whether there is a relationship between these and whether the relationship is

statistically significant, was the analysis for testing the hypothesis. The analysis's findings are as follows:

### Exam Anxiety and Affect

Figures 3.1 and 3.2 show the plot and regression line of exam anxiety with both good and negative moods, with affect on the x axis and the dependent variable on the y axis:

While there is a link between the two dependent variables, it is only statistically significant for test anxiety and a bad mood. Exam anxiety and negative affect are positively correlated, as shown by the relationship's substantial coefficient of correlation R (0.41). The research did not include the association between negative affect and test anxiety, even though they are moderately negatively connected and do not have a substantial R. This demonstrates a link between depressive mood and test-related anxiety, proving that depressive mood directly affects exam anxiety.

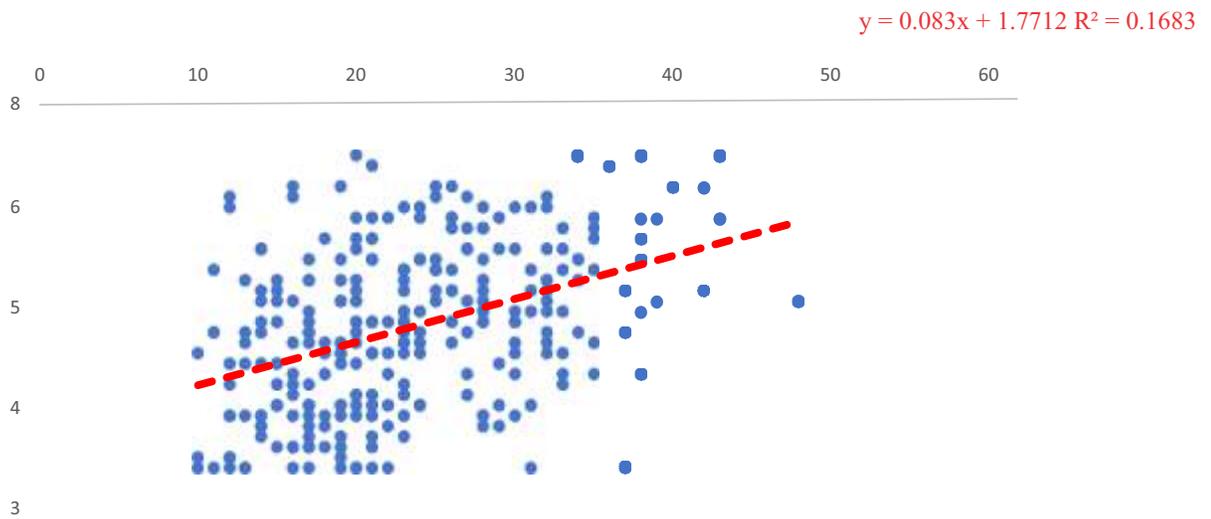


Fig 3.1 Exam Anxiety with Negative Affect

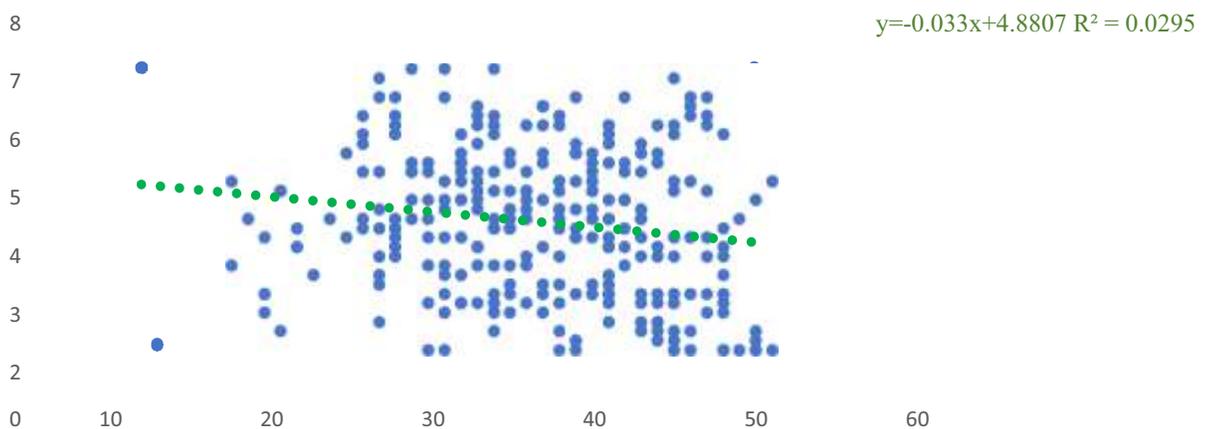


Fig 3.2 Exam Anxiety with Positive Affect

## Intrinsic Motivation and Affect

Figures 4.1 and 4.2 show the plot and regression line of intrinsic motivation with both positive and negative affect, with affect on the x axis and intrinsic motivation on the y axis:

The slope of the line shows a connection among inherent inspiration and happy mood, this relationship is statistically significant with an  $R = 0.17$ . On the other hand, there does not seem to be a substantial relationship between negative mood and intrinsic motivation; the extremely low  $R$  and flat slope line suggest that negative mood has no effect on intrinsic motivation. This research's discovery that there is a positive relationship between mood and intrinsic motivation suggested that instructors might enhance students' intrinsic drive for learning by fostering a happy environment and so fostering positive affect. This finding highlights the significance of the psychological handling of students as well as the role of empathy and teacher-led inspiration in educational institutions. This is

because there is a potential to impact intrinsic motivation, which is an indication of the inner drive of students to be achievers in careers and in life in general. However, more research may be necessary to confirm this finding.

## Extrinsic Motivation and Affect

Figures 5.1 and 5.2 show a plot and regression line for extrinsic motivation for mutually optimistic and undesirable affect, with affect on the x axis and extrinsic motivation on the y axis:

Extrinsic motivation is not associated with either a high or a negative mood, according to the findings. First off, the graphs' flat slopes (0.02 and 0.26, respectively) show that no association exists. Additionally, the exceedingly low Coefficient of Correlation ( $R$ ) shows that they cannot be associated. This section of the study suggests that extrinsic drive originates from sources other than good or negative mood. In the following study, it may be examined further how aspects like social and other psychological factors affect students' intrinsic motivation.

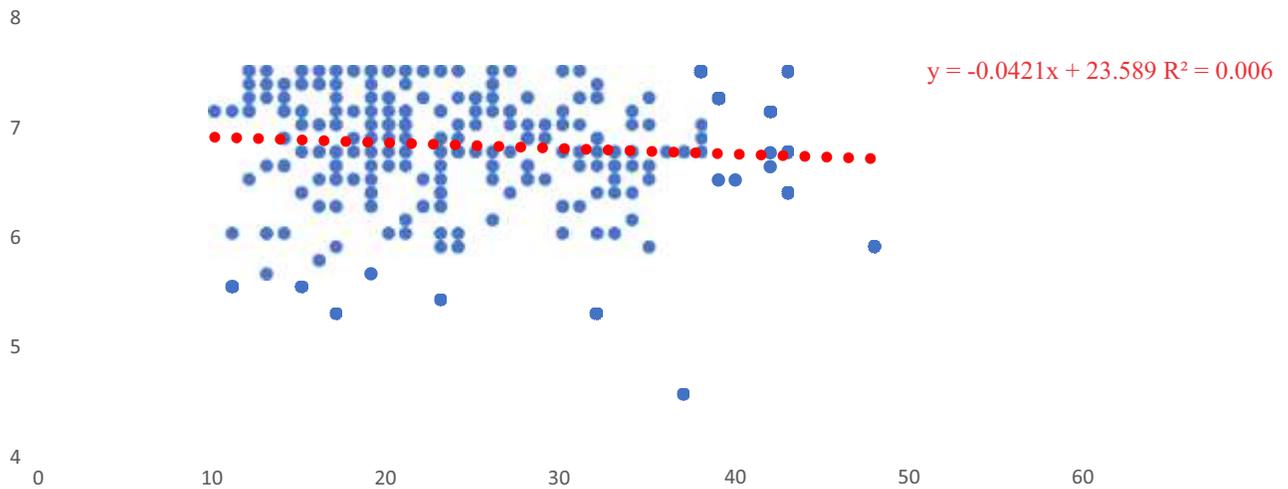


Fig 4.1 Intrinsic motivation with negative affect

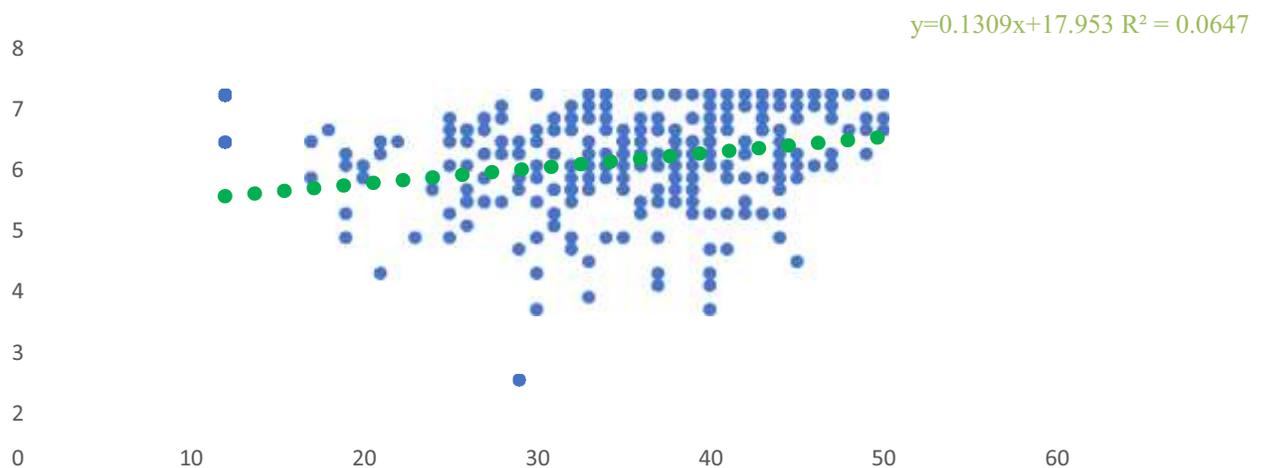


Fig 4.2 Intrinsic motivation with positive affect

## Conclusion

This research demonstrates how intrinsic drive, or the desire to learn for its own sake rather than as a method of achieving some other goal, may be associated with pleasant emotion. Higher levels of test anxiety are also linked to unpleasant emotions, which may prevent students from performing to their fullest during tests. Therefore, creating learning settings that promote good emotion may be more favorable to learning and less performance focused. The findings indicate that further study is needed in this area, as it will be useful for educators to develop instructional techniques that include mood treatments to encourage students to learn more effectively and do better on tests.

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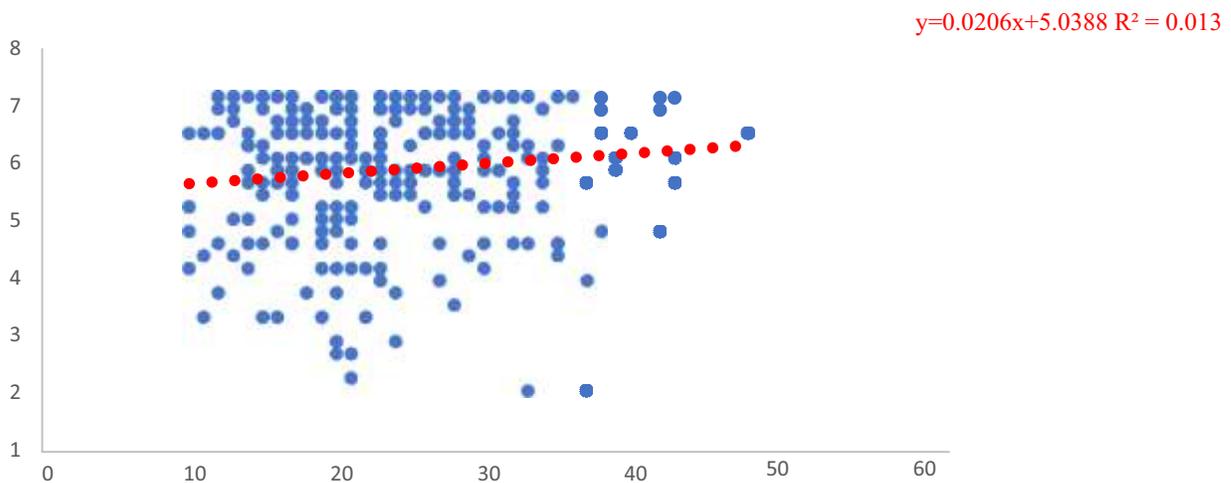


Fig 5.1 Extrinsic Motivation & Negative mood

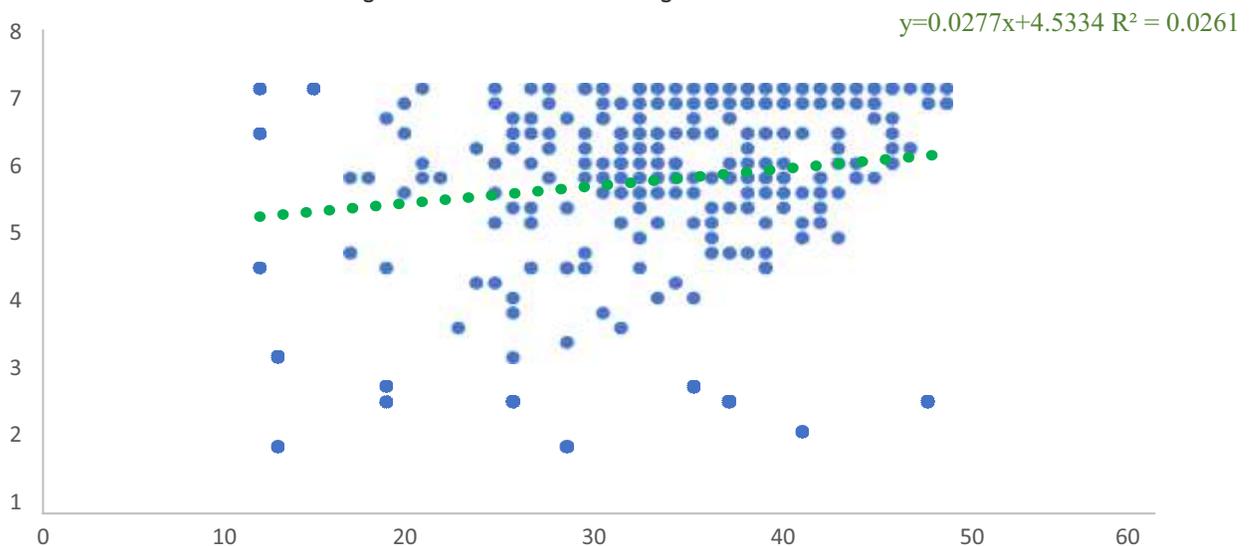


Fig 5.2 Extrinsic & Positive Mood

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## Appendix

### Questionnaire

#### Section 1 (Basic Information)

I am a student

1. UG
2. PG
3. PhD

Gender

4. Male
5. Female
6. Other

**Section 2:** On a scale of 1 to 7, with 1 being "not at all true of me" and 7 being "very true of me," assess each of the following statements about yourself.

1. I consider how badly I am doing in comparison to other students when I take a test.
2. When given the chance in class, I pick course tasks that will benefit me even if a passing mark isn't a certainty. I want to do well in class because I want to impress my family and friends.
3. My primary worry is earning a decent score since my total grade point average is now what matters the most to me. When I take a test, I consider the questions on other sections that I am unable to answer.
4. I appreciate challenging course content in a classroom so that I may learn new things.
5. When I take exams, I consider the repercussions of failing.
6. When I take a test, I feel anxious and unhappy.

7. The thing that makes me the happiest right now is getting a decent grade.
8. If I can, I want to outperform most of the other kids in terms of grades.
9. Even though the course content is challenging to master, I like it when it sparks my interest.
10. I find the greatest satisfaction in making an effort to fully comprehend the course material. When I take a test, my heart starts to race.

**Section 3:** How much have you experienced each of the following emotions during the last week? Select the appropriate option for each.

1. Very Slightly or Not at All

2. A Little

3. Moderately

4. Quite a Bit

5. Extremely

1. Interested

2. Distressed

3. Excited

4. Upset

5. Strong

6. Guilty

7. Scared

8. Hostile

9. Enthusiastic

10. Proud

11. Irritable

12. Alert

13. Ashamed

14. Inspired

15. Nervous

16. Determined

17. Attentive

18. Jittery

19. Active

20. Afraid

# Analyzing the Barriers to Women Entrepreneurship in India

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Devesh Kumar\*\*

## Abstract

*In this age of globalisation, liberalisation, and economic change, women are getting more power by working in different areas of the economy, like starting their own businesses. But in a social, cultural, and business environment that is always changing, entrepreneurship is one of the hardest things for women to try and keep going in. It is a very important part of women's and the country's economic growth and progress. Furthermore, women-led businesses are well-known for their importance in a country's economic growth and competitiveness. Policy and institutional frameworks have taken a number of steps to encourage entrepreneurship, especially among women. This has opened up more opportunities for women's economic empowerment. Even though the Indian government continues to support women's development and progress as entrepreneurs, only one-third of all businesses are owned by women. This is a bad situation for women. People think that in Indian society and culture, women have to deal with a lot of problems and issues that make it hard for them to get ahead in business. The proposed assessment is split into three parts: sociocultural constraints, personal and motivational constraints, and financial and institutional constraints. Secondary sources are used for the study. The government has always had a number of programmes to help and encourage women who want to start their own businesses. Lastly, the research can be used to come up with ways to improve existing programmes and make new ones to help and empower women entrepreneurs, given the many challenges they face.*

## 1. Introduction

Dynamic world now a days is experiencing political and economic transformations that are taking place everywhere as countries move from command to demand economies, autocracies transition to democracy, and monarchs establish new civil institutions. Social, political and economic development has also focused their attention towards women empowerment by providing them several opportunities in economic field including entrepreneurship, which is regarded as a forward-thinking and developing concept in the business world Scott (1986). Women entrepreneurs are one of the fastest growing entrepreneurial demographics in the world today (Brush and Cooper, 2012). In every economy, women contribute significantly to innovation, job generation, and wealth creation (Reynolds, 2000; Brush and Cooper, 2012). Women entrepreneurs are defined as women or a group of women who start, organize, and run a business (Vatharkar, 2012). Women entrepreneurship is defined by As per definition of the Government of India, as a firm or enterprise owned and controlled by women with a minimum financial investment of

51 per cent in the capital and at least 51 per cent female employees. This is an acknowledged and frequently used concept in India for identifying and distinguishing women-led businesses. With this definition, the contribution potential of female-run businesses to the Indian economy is enormous. Despite the apparent economic benefits of female entrepreneurs, the sector's full potential has yet to be achieved. Women entrepreneurs are at a fork in the road today.

A female entrepreneur, like a male entrepreneur, performs a variety of functions. They investigate the possibility of launching a new business; take risks; introduce new innovations; coordinate the administration and control of the firm and provide effective leadership in all elements of the business. The fact that over half the world's women are in charge of their own enterprises shows how large a number of women worldwide have started and run their own companies. To be successful, they have endured many hardships and conquered numerous barriers. Society rejected them, dealt with discrimination and suspicion, also had to work harder than males to prove their legitimacy to others. According to the Government of India's

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annual report on Micro, Small and Medium Enterprises (MSME) for the year 2020-21, the percentage distribution of enterprises owned by Male/ Female entrepreneurs (category wise) paints a bleak picture, with males owning 79.56 percent of micro enterprises and females owning only 20.44 percent. Further, in case of small enterprises 94.74% were male owned while only 5.26% enterprises were female owned, more over, in case of medium enterprises where 97.33% enterprises were owned by men, only 2.67% enterprises were owned by women. This certainly projects a challenging scenario where not only women led enterprises are less in number, it also proves that scaling up of the existing women led enterprises suffer from bottlenecks and several impediments. The reports shows that despite several changes and initiatives taken by government of India, entrepreneurship seems still a male-dominated phenomenon. Women's education has undoubtedly given them enormous self-reliance and reassurance to serve and explore new business opportunities. Nevertheless, the facts on the ground differ significantly. In this context, the present study is an attempt to identify the issues and challenges faced by women entrepreneurs in India with the help of secondary data collected from the available reports of NABARD, Census Surveys, journals, websites, etc.

### **Women Entrepreneurs**

As per report of ILO (2009), women share around half of the world's population, perform two-third of all work, earn ten percent of global revenue, and possess less than one percent of global property. In the emerging social scenario, women are playing a vital character in every sphere of society and they must be treated as equal partners in the development process. Improving women's status in society and accelerating women women's entrepreneurial activities will have a significant impact on women's empowerment (Storey 2010).

Women entrepreneurs in the twenty-first century are potentially motivated to improve their family's living conditions, assist their spouse in income generation, provide value education to their children, subsidize positively by creating job opportunities, empowering other women, and lifting society out of economic disparity and employment crisis. These motivating reasons enable women to participate in all aspects of economic growth, and women entrepreneurship has received a lot of attention in recent years (Acs et al., 2005; Langowitz and Minniti, 2007). Women's entrepreneurship is increasingly recognised for contributing to economic growth and job creation, as well as expanding entrepreneurship variety in any economic system (Verheul et al., 2006) and providing opportunities for female expression and potential fulfilment (Eddleston and Powell, 2008).

A woman entrepreneur is someone who takes on challenging job in order to realise her goals become economically self-

sufficient. Entrepreneurial women are born with a strong drive to make a positive difference. They possess some essential characteristics such as strong communication skills, intuitive people skills, consensus-building abilities, and nurturing, integrating talents. Women must employ all of these abilities in order to make sound decisions for their families and for themselves (Jalbert and Susanne, 2000).

The study of women entrepreneurship in Asian developing countries states that the factors which influencing women entrepreneurship can be categorized into two; push factors and pull (Tambunan, 2009). Factors like inadequate family income, frustration with salaries, difficult to manage work life and need of flexible work schedule because of family responsibilities push women to start their own business. At times, a drive to be self-sufficient, self-fulfillment, and self-achievement, as well as a wish to turn a apparent opportunity into a saleable notion stated interms of difficulties, which assists women in starting their own business and turning it into a profitable endeavor.

Women's participation in economic activities world over has seen an upward trend in the past three decades (Brush & Cooper 2012, Minniti et al 2005, Roomi et al 2009). Women entrepreneurs are making significant contributions in creating employment opportunities and wealth in economies (Aes & And retsche 1990, Reynolds et al 2002). However, in contrast to their male counterparts, it has been demonstrated that in developing nations such as India, male rates of entrepreneurial engagement is about three times that of females. (Reynold setal., 2003).

Even if entrepreneurship has attracted several women in this field, they face numerous constraints and hurdles in establishing new enterprises. The proposed study is an attempt to analyze the challenges faced by women entrepreneurs in order to enhance their working condition and encourage more women to start their own business.

### **Methodology**

Women in Indian social and cultural context, confront range of impediments and challenges preventing them from progressing in the economic world. The proposed assessment aims to provide a thorough examination of the deterrent factors and concerns from previous research that women entrepreneurs face in India, the same has been divided into three categories: socio cultural constraints, personal and motivational constraints, and financial and institutional constraints. The research is based on secondary sources. Government has always come up with several schemes to support and empower female entrepreneurs that are also discussed here. Concluding with various challenges women entrepreneurs face, the research can be used to design strategies to support the existing schemes and also to develop new schemes top support and empower women entrepreneurs.

## Constraints faced by women entrepreneurs

Women entrepreneurs face several challenges that affect their business activities and its enhancement. For instance, lack of social acceptability, low education level, financial limitation, limited contact outside prejudice, gender biasness, lack of market access, raw material, capital, marketing skills, poor infrastructure etc. The basic challenges that affect women entrepreneurs are broadly categorized into two social and economic (Tan, 2000 and Samiti, 2006). In addition, Hisrich (2005), Gemechis (2007) and the International Labour Organisation (2009) noted that Social and cultural attitude towards business activities; entrepreneurial education; administrative and regulatory framework; and business assistance; barriers to access technology are also play a crucial role in entrepreneurial success. The present study has divided all the issues and challenges faced by women entrepreneurs into three categories– Socio-cultural constraints, personal and motivational constraints, financial and institutional constraints.

### Socio-cultural Constraints:

Age old traditions and conventions dictate that the breadwinner in the family is the manor husband, while women are primarily responsible for taking care of home and children (Roomi & Parrot 2008). Due to gender-based disparities and prejudices, women faced hurdles in setting up enterprises as a result of this cultural bias (Barwa 2003, Afza et al 2010). Women's role as the family's cornerstone in terms of child-rearing and homemaking has largely remained constant, despite tremendous advances toward gender equality in fields such as education and employment (Winn, 2004 cited by McGowan et al., 2012). Women, even if they engage in some sort of entrepreneurship, have a different perspective on the need for economic growth than men, and are more inclined to seek non-profit endeavours (Ghosh & Cheruvalath, 2007). The growth trajectory of women-run businesses in India has also been studied, with findings indicating that women-run businesses are motivated by a need for self-fulfillment rather than profits (economic vs non-economic goals) and frequently use non-organic growth strategies to keep their businesses small despite increases in profit and sales.

Further more, family responsibilities limit their ability to grow, as well as their choice of activity and/or desire to remain little. Conflicts between the work place and the home Commitments to children, the home, and elderly dependent family members hinder them from devoting their time and attention to their business (Starcher, 1996). Then, interms of socio-cultural gender settings, familial duties, traditional restrictions on movement and social interaction combine with women's low status in India to significantly limit the number of female-run businesses.

According to studies, nearly 75% of women entrepreneurs struggle to balance work and family duties (Morris et al. 2006 and Stoner et al 1990). Women are expected to take care of their homes first and foremost, according to social norms. In fact, many Indian women take on more responsibilities at home and spend, on average, five times as much time on housework, household care, and other unpaid activities than males. Family support is considered a key success factor for Indian female entrepreneurs because juggling both home and business can be difficult (Calas and Smirnich, 1992; Stoner et al, 1990; Vishwanathan Renuka, 2001; Barwa, 2003; Morris et al, 2006; Nayyar et al., 2007; Das, 2007; Global Gender Gap Report 2018). The progress of female executive with young children depends on the family support. (McGowan et al., 2012). Multiple demands on many women's time are shown to restrict the amount of time, they can dedicate to business (Fasci and Valdez, 1998). Few women can commit all of their time and energy to their business since they are responsible for their children, home, and older dependent family members (Starcher, 1996).

According to studies, the work-home conflict, or the strain produced by the dual obligation of running a business and managing a family, is the most significant stumbling block for female business owners. Balancing time between the business and the family is a major difficulty for new businesses (Karim, 2001). Women's mobility is hampered by a variety of factors, many of which are related to their dual duties and obligations (Ayadurai, 1987). This has a detrimental impact on their business skills, abilities, and experiences. Failure to strike the right balance has resulted in high levels of stress and slowed the company's economic growth.

Women have been hindered from gaining both mobility and confidence in dealing with the outside world due to social constraints (Starcher, 1996). Women have less confidence than men in travelling at all hours of the day and night, as well as between different areas and states. This demonstrates how women entrepreneurs have limited freedom of expression and mobility. Women have highlighted exclusion from male-dominated networks as a major impediment to their advancement into executive positions (Knouse and Webb 2001; Robinson and Stubberub, 2009 cited by McGowan et al., 2012). In India, women's mobility is severely restricted, and it has become an issue some times as a result of traditional norms and sometimes due to lack of driving ability. Moving alone and asking for a room to remain out late at night for professional purposes is still frowned upon. Inexperienced women may feel uncomfortable interacting with guys who are interested in them for reasons other than employment. And not only during commutes, but also at the workplace women's safety is a major challenging issue. Delhi, in particular - which is considered one of India's four global startup cities- continues to be notoriously

poor in ensuring women's safety and has high rates of sexual crimes (Soni, 2016; Florida and Hathaway 2018).

Business information is critical if you want to start a new business. One of the most important entrepreneurial characteristics is curiosity in acquiring information (Singh and Krishna, 1994). The frequency with which an individual contacts multiple sources of information is referred to as information seeking. The outcome of this activity is frequently determined by information accessibility, which can be achieved through individual efforts and human capital or as part of a social capital and networking system. Firms must have access to new knowledge in order to start, survive, and grow (Mead and Liedholm, 1998; Kristiansen, 2002; Swierczek and Ha, 2003 cited by Indarti and Langenberg, 2005).

Kristiansen (2003), cited by Indarti and Langenberg (2005), discovered that social network had a substantial association with business flexibility in Tanzanian small-scale textile and carpentry businesses. A social network is made up of a series of formal and informal links between the primary actor and other actors in a circle of friends, and it serves as a conduit for entrepreneurs to acquire the resources they need to start, expand, and succeed their businesses (Kristiansen, 2003 cited by Indarti and Langenberg, 2005). Social networks have an impact on the likelihood of a successful entrepreneurial enterprise. Many of the problems that women face appear to be due to their lack of business experience. Women's business networks have been observed to be underdeveloped as social assets, despite the fact that effective networking can provide major benefits for women entrepreneurs (Linehan and Scullion, 2008) by assisting in the development of new companies seeking business opportunities (Farr-Wharton and Brunet, 2007 cited by McGowan et al 2012), and gaining credibility and legitimacy for themselves and their businesses (Farr-Wharton and Brunetto, 2007 cited by McGowan et al. (Carter and Shaw 2006, cited by McGowan et al., 2012). In general, women entrepreneurs who associate and network with others in business are viewed negatively by society (Ayadurai, 1987). However, entrepreneurship research has increasingly reflected the popular consensus that entrepreneurs and new businesses must form networks in order to succeed (Huggins, 2000 cited by Indarti and Langenberg, 2005).

### **Personal and Motivational Constraints:**

Studies also reveal that education and skill is closely linked with the success of entrepreneurship (Charney and Liebecap, 1999). Education enhances the potential to create money and make various breakthroughs, resulting in self-reliant creative individuals, successful professional and industry leaders (ibid). Unequal education is an issue holding women back, and it is not a coincidence that states with relatively higher literacy rates also have more women entrepreneurs (Mathew 2019).

Besides, lack of managerial skill and lack of business related information are also challenges in front of women entrepreneurship (Singh S. & Saxena, S. C. 2000). Tamil Nadu, Kerala, Andhra Pradesh, West Bengal, and Maharashtra are the top five states with the greatest percentage of female entrepreneurs (Samantary and Tomar 2018). Women are often less confident in their own entrepreneurial abilities. In reality, extremely successful women frequently experience self-doubt and under estimate their abilities and performance, where as males experience the opposite (Kayand Shipman 2013). Women entrepreneurs are frequently unaware of the many laws, government organisations, formalities, and regulations that apply in their state. Many of them are unaware with marketing strategies or lack the skills and capacity to grow their enterprises (Vinze, 1987, Bowen and Hisrich 1986).

Another element influencing women's decision to start a business is their aversion to take risks. Women with a low degree of education lack the confidence and self-reliance needed to engage in business and take constant risks. According to Yordanova (2011; Md. Islam et al. 2020), an entrepreneur's aspiration to tap the physical, material, financial, and intangible resources required for business success is influenced by their willingness to take risks. Women with low levels of education lack confidence and self-reliance, making it difficult for them to participate in business, which necessitates frequent risk taking. Low self-confidence also resists them to enter into male dominated networks (Tonge, 2008) which help them to enlarge their business. Investing money, maintaining the operations and getting back money for surplus generation requires high risk taking attitude, courage and confidence. Women, on the other hand, are more risk cautious (Cooper, 1993; Anna et al., 1999; Robinson, 2007) and less interested with financial gain (Brush, 1992; Rosa et al., 1994). As a result, it is considered that women's enterprises do not flourish because they do not take risks, which is a necessary trait for successful entrepreneurship. The above section reveals that expertise, experience and relationships are required to tap into new markets. Women frequently lack knowledge and skill on how to operate in the marketplace, preventing them from strategically selling goods and services. As a result, many women-owned SMEs struggle to manage both production and marketing. Furthermore, they are frequently unacquainted with the worldwide market and hence lack knowledge about what is internationally acceptable. For many SMEs, particularly women-owned enterprises, the high expense of creating new business contacts and partnerships in a new region or market is a significant disincentive and impediment (Tovo, 1991).

Women may also be afraid of or encounter racism or sexual harassment, and their ability to travel to meet new people may be limited (UNECE, 2004). Tovo (1991) states that since most women are unable to move around for marketing, distribution and

money collection, they have to depend on middle men to perform these activities. And they are frequently exploited by middlemen who appear to be assisting them. They seek to increase their own profit margin, which means fewer sales and profits for women entrepreneurs and often exposing them to exploitation.

#### **Economic & Institutional Constraints:**

Numerous empirical investigations have revealed that a lack of access to finance and credit schemes, as well as financial system limits, are seen as major barriers to firm innovation and success in very small businesses by potential entrepreneurs (Indarti and Langenberg, 2005). The difficulties women entrepreneurs have in obtaining finance from formal institutions are exacerbated by their lack of or mal education, property ownership, and social mobility (Ayadurai, 1987). According to a study conducted by Karim (2001), monetary issues are the most common obstacles met by women entrepreneurs in Bangladesh, with insufficient financing ranked first. Several research (Boden and Nucci, 2000; Du Rietz and Henrekson, 2000; Watson, 2003) indicated that women are more likely to close their firms due to financial restrictions rather than commercial failure. In addition, about 79 percent of women-owned ventures are self-financed, but families are often diffident to support their daughters' entrepreneurial ventures financially (Mathew 2019). Women in developing countries have limited access to funds because they are concentrated in poor rural regions with little options to borrow money (Starcher 1996).

Potential entrepreneurs see a lack of access to finance and credit programmes, as well as financial system limits, as the biggest barriers to business innovation and development in emerging nations (Marsden, 1992; Meier and Pilgrim, 1994; Steel, 1994, Indarti and Langenberg, 2005). In a study, Papisetty Rama & Mohana Rao (2004) also found that inadequate infrastructure, excessive labour mobility, electricity shortage and delayed debtor realization of are the key issues faced by women entrepreneurs.

According to Ayadurai, females face challenges in acquiring loans due to their lack of experience interacting with banks and their lack of financial confidence to advocate for what they are entitled to (1987). Women's loans are regarded as risky by bankers as many financial institutions are sceptical of women's entrepreneurial ability, and believe that it is a major risk to fund their ventures. Despite evidence indicating women's loan repayment rates are greater than men's, as per a report of United Nations Industrial Development Organization (UNIDO, 2003), women still have more difficulty acquiring credit, owing to discriminatory attitudes of banks and lending groups.

Women in underdeveloped countries have limited access to cash Starcher (1996) as they are located in rural impoverished

areas where they have limited opportunities to borrow money. Due to their inability to provide physical assets, women entrepreneurs also face a shortage of external funding, which forcing them to rely on their own funds and loans from family and friends. Banks over state the likelihood of women entrepreneurs defaulting, resulting in unreasonably high collateral requirements and credit rationing (Garlad, 2006). A lack of access to money and credit schemes, as well as financial system limits, are seen as important hurdles to business innovation and development in emerging nations, according to several empirical research (Marsden, 1992; Meier and Pilgrim, 1994; Steel, 1994, cited by Indarti and Langenberg, 2005). Personal savings, extended family networks, community saving and credit systems, as well as financial institutions and banks, are all potential capital sources. Robinson (1993) revealed that, despite their high interest rates, informal sources of finance play a substantial role in business start-ups in developing countries.

In addition, women-owned enterprises had a higher rate of failure (Boden and Nucci, 2000; Du Rietz and Henrekson, 2000; Watson, 2003). According to one argument pointed out by Watson (2003) women hold a disproportionate share of businesses in low-return industries like services and commerce. Another aspect is that women's enterprises are typically younger, whereas older, more established businesses have a lower rate of termination (Rosa et al., 1996). While women are highly represented in traditionally female sectors such as retail, studies reveal that they are still under represented in fields such as science, engineering, and technology (All enetal., 2008; Annaetal., 2000; Hamptonetal., 2009; Mayer 2006, cited by McGowan, 2012).

In addition to the aforementioned reasons, most of the times a combination of factors create hurdles. Several variables such as degree of assurance, entrepreneurial challenges, and forth coming plan for expansion based on demographic variables were identified in a study conducted by Lall & Sahai, (2008) for a comparative assessment of multi-dimensional issues and challenges of women entrepreneurship and family business. While there has been a significant increase in the number of women choosing to work in family-owned businesses, the study found that their lower status in entrepreneurship is due to a number of socio-cultural, motivational, economic, and institutional factors such as business licensing, capital availability, parental leave in wage employment, and so on.

#### **Government Support to Women Enterprises:**

Since independence, the government of India has made women's empowerment a priority. Until the 70s the concept of women's development was mainly welfare oriented. In 1970s, there was a transition from welfare to development approach which recognized the jointly re in forcing nature of the development process. Women's empowerment has gotten a lot

of attention and activity since the "UN Declaration of the Decade of Women" in 1975. Various government institutions, national and international organisations, and donor agencies, among others, have made women's empowerment a priority. Since the 1970s, federal and state governments have used legislative instruments and institutional assistance to boost women's business and economic contribution to the country (Coad and Tamvada, 2011). The federal and state governments, in partnership with non-governmental groups, assist women entrepreneurs (NGOs). A multi-disciplinary approach was adopted in the 1980s, with a focus on three important areas: health, education, and employment. In every field, women were given first attention. Government and non-government organizations are increasingly recognizing women's economic achievements through self-employment and industrial programs. A new standing committee of female entrepreneurs and legislators was formed in 1986 to provide economic and financial incentives such as marketing, training, and exposure. The empowerment and equality of women through self-employment and enterprises were later emphasized in the Seventh Five-Year Plan, which was executed between 1987 and 1992. In consideration of the fact that women made up almost half of the Indian population, the following Five-year Plan expanded on the same goals. In 1992, the National Perspective Plan (NPP) and the National Commission for Women Entrepreneurs (NCWE) were both adopted. The support and development of women entrepreneurs in the informal sector was a major focus of these plans and commissions, as was the organisation and coordination of research and training through a network of national and state-level resource centres.

These efforts resulted in the following notable national and state-level programmes, schemes, and initiatives: The Support to Training-cum-Employment Program (STEP) was formed in 1987 with the goal of developing skills in women, particularly those who are economically disadvantaged, based on local and sectoral needs. In 1993, the Rashtriya Mahila Kosh (RMK) was established as a specific fund to meet the credit needs of underprivileged women. A variety of employment-generation initiatives, like as the Nehru Rozgar Yojna, the Prime Minister's Rozgar Yojna, and others, were established to create jobs through micro firms, with women and the poor getting priority. TREAD (Trade Related Entrepreneurship Assistance and Development for Women) was founded in 1995 with the goal of strengthening institutional capacities and expanding market opportunities. Furthermore, national training institutions such as the National Institute for Entrepreneurship and Small Business Development (NIESBUD) were established to promote women's entrepreneurial activity in small enterprises and small industries through education, training, and research.

At present, the Indian Government of India has several schemes for women initiatives run by several departments and ministries such as Khadi And Village Industries Commission (KVIC), Entrepreneurial Development programme (EDPs), Prime Minister's Rojgar Yojana (PMRY), Women's Development Corporations (WDCs), Marketing of Non-Farm Products of Rural Women (MAHIMA), Trade Related Entrepreneurship Assistance and Development (TREAD), Assistance to Rural Women in Non-Farm Development (ARWIND), schemes Micro Credit Scheme Rashtriya Mahila Kosh, Mahila Udyam Nidhi, SBI's Stree Shakti Scheme, Micro & Small Enterprises Cluster Development Programmes (MSE-CDP), National Banks for Agriculture and Rural Development's schemes, Rajiv Gandhi Mahila Vikas Pariyojana (RGMVP).

Several initiatives are currently in operation through which the Indian government provides money and support to women entrepreneurs. (i) Women Entrepreneurship Platform (WEP), which was launched by NITI AYOJ with the goal of creating an ecosystem for aspiring young women entrepreneurs across the country; (ii) Bharatiya Mahila Bank, which merged with SBI in 2017 with the goal of providing financial assistance to underprivileged women who want to start their own business; and (iii) Dena Shakti Scheme, which is a loan scheme for all women entrepreneurs who want to start a business in the manufacturing and food processing sectors and women entrepreneurs in sectors of agricultural business, retail stores, education and housing etc.

(iv) Mudra Yojana Scheme, which was launched in 2000 with the purpose of improving the status of women entrepreneurs in India. Currently, the scheme is offered by the Bharatiya Mahila Bank to provide loans to women entrepreneurs in the food, beverage, and catering industries; (v) Shree Shakti loan for women entrepreneurs, a one-of-a-kind scheme administered by SBI to support women entrepreneurs by granting specific concessions. All of these efforts have the goal of improving the status of women entrepreneurs in India.

Non-governmental organisations (NGOs) in India also collaborate with government agencies to help women-owned enterprises with financial, technical, and training assistance. These organisations offer women entrepreneurs networking opportunities as well as training, education, and financial assistance. Many of these non-governmental organisations, such as the Self-Employed Women's Association (SEWA), focus on women-owned informal companies and provide grants and loans to help them start and run their businesses. There are certain gaps, despite the efforts of government and non-governmental organisations, and we have come a long way in terms of women's empowerment by scaling them up in the economic and commercial sectors.

## Conclusion

Empowering women remains a primary focus for addressing the social, economic, and political difficulties women confront around the world. With inadequate access to economic opportunities, poor female labour force participation, and other obstacles, India has never been a global leader in gender equality (Datta, K., 2020). Only 13.76 percent of entrepreneurs in India are women, or 8.05 million out of a total of 58.5 million. 13,45 million individuals are employed by these female-owned firms (Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, 2022). Despite the facts, women entrepreneurs encounter numerous obstacles due to societal norms and the inefficiency of the government and associated institutions. Social acceptance of working women comes with a proviso, and as a result, women entrepreneurs confront hurdles in the areas of financing, marketing, and promotion. In a society dominated by men, it is extremely difficult to recognise a number of the obstacles that women entrepreneurs face. This is revealed by a thorough analysis of their concerns, which reveal that they face more than just a lack of cash resources. In patriarchal societies, women are viewed as housewives whose major responsibility is the home. Their contribution to the business is frequently regarded as secondary. In this situation, a lack of work-life balance is one of the most significant obstacles women entrepreneurs confront. In addition, their lack of financial freedom, low risk tolerance, lack of self-confidence (occasionally due to a lack of skill and education, sometimes due to a lack of self-esteem), issues with male employees, financial institution negligence, low social networking, and lack of interaction with successful marketers have been identified as major barriers to the development of women entrepreneurs in India.

Each nation should encourage women to become entrepreneurs and utilise them as agents of economic growth and development. It is time for them to leave their traditional way of thinking and embrace their creativity and enterprise. The status of women in an evolving Indian society has also been impacted by social and political changes. Via a variety of programmes, the government has also taken initiatives to encourage women entrepreneurs by offering support measures. Undoubtedly, there is a substantial amount of knowledge among women that they are self-employed, resulting in a shift in women's social roles. There is a need to support entrepreneurship training programmes for women in rural and urban regions so that they can increase their capacity to start their own businesses, not only for their own survival, but also for the economic growth and development of the state and ultimately the nation.

The purpose of this research is to identify the obstacles and problems faced by women entrepreneurs in both rural and urban areas of the state of Himachal Pradesh so that the government can take more comprehensive measures to promote and encourage a large number of rural and urban women to become successful entrepreneurs.

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# Sustainability Practices and Challenges in Higher Education Institutions: An Exploratory Study

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## Abstract

*The increasing concern over the impact of human activity on the environment has led to a growing interest in sustainability practices across different sectors, including higher education institutions (HEIs). The need to apply business process improvement principles to colleges and universities has arisen as a result of the ever-growing commercialization and marketing of higher education. Public and private university representatives were surveyed using an open-ended qualitative questionnaire. The study aims to identify the factors that influence the sustainability practices and challenges in implementing Sustainability Practices by HEIs. The research highlights the need for HEIs to adopt a comprehensive and integrated approach to sustainability that encompasses both their internal operations and external partnerships. The study employs an exploratory research design, combining a survey and semi-structured interviews in the selected HEIs. The interviews provide insights into the factors that influence the adoption of sustainability practices, such as leadership commitment, partnership and collaboration, and student engagement. The findings also highlight the challenges faced by HEIs in implementing sustainability, such as financial constraints, lack of institutional support, and awareness and engagement. Overall, the study suggests that sustainability practices in higher education are essential for advancing sustainable development and that HEIs have a critical role to play in promoting sustainability at local and global levels. The study recommends that HEIs should adopt a holistic and integrated approach to sustainability, involving all stakeholders in the design, implementation, and evaluation of sustainability initiatives. Moreover, HEIs should develop sustainability leadership and capacity-building programs to promote sustainability literacy and foster a culture of sustainability. The study concludes by calling for further research to explore the effectiveness and impact of sustainability practices in HEI.*

**Keywords:** Sustainability, Higher Education Institutions (HEIs), Practices, Factors, Challenges.

## 1. Introduction

The increasing concern over the impact of human activity on the environment has led to a growing interest in sustainability practices across different sectors, including higher education institutions (HEIs). As institutions of higher education aim to prepare students for the challenges of the future, sustainability practices have become a significant area of focus for many universities and colleges worldwide (Audretsch et al., 2012; Lehmann, 2015; Bonaccorsi et al. 2013; Pinheiro et al., 2015. As centers of learning and research, HEIs have a critical role to play in promoting sustainable development and addressing environmental, social, and economic challenges (IISD, 2020). The higher education sector has responded to the sustainability challenge by embracing sustainability practices in their

operations, curriculum, research, and community engagement. Sustainability is increasingly becoming a critical issue for higher education institutions (HEIs) globally. HEIs have a significant role to play in promoting sustainable development through their teaching, research, and community engagement activities. The concept of sustainability in higher education is closely linked to the idea of sustainable development, which is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). The higher education sector has been called upon to contribute to sustainable development by providing leadership in promoting sustainable practices and educating students to become responsible global citizens (IISD, 2020). HEIs are also expected to be role models in their sustainability practices, given their significant environmental,

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social, and economic impacts. Despite the growing interest in sustainability in higher education, research on sustainability practices in HEIs remains limited, particularly in developing countries (Yusuf et al., 2019). Previous studies have focused on specific aspects of sustainability, such as energy efficiency, waste management, and green procurement (Geng et al., 2017; Hsu et al., 2017; Lozano et al., 2016). There is a need for more comprehensive and integrated approaches to sustainability in HEIs, which consider the social, economic, and environmental dimensions of sustainability (Wright et al., 2017). Moreover, there is a need to explore the factors that influence the adoption of sustainability practices, the challenges faced by HEIs in promoting sustainability, and the outcomes and impacts of sustainability initiatives (Dillard et al., 2016; Yusuf et al., 2019). Sustainability has emerged as a critical global issue, urging organizations and institutions to adopt sustainable practices to address social, economic, and environmental challenges (United Nations, 2015). Higher education institutions (HEIs) play a significant role in shaping the leaders and professionals of the future and have a responsibility to incorporate sustainability practices into their operations, curricula, and research to foster sustainability-oriented mindsets and behaviors among their stakeholders (Barth et al., 2018; Leal Filho et al., 2020). However, HEIs face unique challenges in integrating sustainability practices into their operations and curricula, which may include financial constraints, resistance to change, lack of awareness or understanding of sustainability concepts, and the need to balance competing priorities and demands (Lozano, 2017; Martinez-Fernandez et al., 2018; Razzaq et al., 2019). Despite these challenges, many HEIs around the world are taking steps towards sustainability by implementing various sustainability initiatives. These initiatives may include adopting sustainable campus operations, integrating sustainability into curricula, engaging in sustainability research, and promoting sustainability awareness and engagement among their stakeholders (Barth et al., 2018; Leal Filho et al., 2020). However, there is a need to systematically investigate the current state of sustainability practices and challenges within the higher education sector to provide insights for policy-makers, administrators, faculty, and other stakeholders to develop effective strategies for advancing sustainability in HEIs. The concept of sustainability in higher education has gained traction in recent years, with scholars and practitioners recognizing the role of HEIs in addressing sustainability challenges (Lozano, 2017; Barth et al., 2018). Sustainability practices in HEIs encompass a wide range of activities, including sustainable campus operations, sustainability-focused curricula, research and innovation for sustainability, and community engagement for sustainability (Barth et al., 2018; Leal Filho et al., 2020). These practices are aligned with the three dimensions of sustainability: economic, social, and environmental.

HEIs face several challenges in implementing sustainability practices. One significant challenge is financial constraints, as sustainability initiatives may require additional resources for implementation and maintenance (Lozano, 2017; Martinez-Fernandez et al., 2018). Another challenge is resistance to change, as stakeholders within HEIs may be hesitant to adopt new practices or modify existing ones (Razzaq et al., 2019). Lack of awareness or understanding of sustainability concepts among faculty, staff, and students can also impede the integration of sustainability practices in HEIs (Lozano, 2017). Additionally, HEIs need to balance competing priorities and demands, such as meeting academic standards, research goals, and stakeholder expectations, which can pose challenges in prioritizing sustainability practices (Martinez-Fernandez et al., 2018).

This study aims to explore sustainability practices in HEIs, including their extent, nature, and barriers to implementation. The paper begins by providing a background to the study and outlining the research hypothesis, reviews the literature on sustainability practices in higher education, including the factors influence to adopt the sustainability practices by HEIs and challenges of sustainability initiatives. Finally, it presents the research design, methods, and data analysis, followed by a discussion of the study's findings and implications for practice and future research.

## **2. Review of Literature and Hypothesis Development**

### **Factors influence the adoption of sustainability practices in HEIs**

#### **2.1. Conceptual Framework and Development of Hypothesis**

The literature review presents several factors that influence the adoption of sustainability practices in higher education institutions (HEIs). The commitment of leaders to sustainability practices can influence the behavior and attitudes of staff and students towards sustainability (Laitala et al., 2019). Leaders can set an example and provide resources and support for sustainability practices, which can encourage their adoption by the wider institution. However, it is important to note that the effectiveness of leadership commitment may depend on various factors, such as the level of authority and influence of the leaders and the institutional culture.

Another factor identified in the literature is partnership and collaboration with external organizations (Munoz et al., 2019). Partnerships can provide HEIs with access to expertise, knowledge, and resources that they may not have internally. However, the literature does not explore the potential challenges that may arise in forming and maintaining partnerships, such as conflicting priorities or power imbalances,

which could be important to consider in future research.

Overall, the hypotheses proposed in the study are supported by the literature, and they provide a useful framework for investigating the factors that influence the adoption of sustainability practices in HEIs. However, it is important to acknowledge that the relationships between leadership commitment, partnerships and collaborations, and the adoption of sustainability practices may be complex and multifaceted, and may depend on various institutional and contextual factors. Therefore, future research may need to further explore and refine these relationships to provide a more indepth understanding of the dynamics of sustainability adoption in HEIs.

Therefore, the hypotheses were framed in light of the literature as depicted in the hypothesized model in Figure 1.

**Hypothesis 1:** Leadership commitment (LC) has a direct and positive relationship with adoption of sustainability practices by HEIs.

**Hypothesis 2:** Partnership and collaboration (PC) have a direct and positive relationship with adoption of sustainability practices by HEIs.

Geographic location is another factor that influences the adoption of sustainability practices in HEIs. HEIs in developed countries are more likely to adopt sustainability practices due to the availability of resources, awareness, and institutional support (Muttarak and Pothisiri, 2013). However, this suggests that HEIs in developing countries may face greater challenges in adopting sustainability practices, which could have important equity implications that should be explored in future research.

Involving students in sustainability-related activities can create a sense of ownership and responsibility towards sustainability, which could lead to increased adoption of sustainability practices (Dutt et al., 2020). However, the literature does not explore the potential challenges or limitations of student engagement, such as the potential for student burnout or the limited representation of certain student groups in sustainability initiatives.

Institutional size is another factor that influences the adoption of sustainability practices in HEIs. Smaller institutions are more likely to adopt sustainability practices due to their flexibility and agility (Mader and Scupin, 2020). This suggests that larger institutions may face greater challenges in implementing sustainability practices due to their size and complexity. However, the literature does not explore the specific strategies that smaller institutions use to be more agile or how larger institutions can overcome their challenges, which could be important to consider in future research.

Finally, student activism has been found to influence the adoption of sustainability practices in HEIs (Hossain et al., 2019).

Student activism can create awareness and put pressure on HEIs to adopt sustainability practices, which could lead to increased adoption. However, the literature does not explore the potential drawbacks or limitations of student activism, such as the potential for conflict or the potential for certain student groups to be marginalized in the activism process.

**Hypothesis 3:** Geographic location (GL) has a direct and positive relationship with adoption of sustainability practices by HEIs.

**Hypothesis 4:** Student engagement (SE) has a direct and positive relationship with adoption of sustainability practices by HEIs.

**Hypothesis 5:** Student activism (SA) has a direct and positive relationship with adoption of sustainability practices by HEIs.

The inclusion of technological advancements and infrastructure in this study adds an important dimension to understanding the adoption of sustainability practices in HEIs. Løvschal et al. (2019) highlight that the availability of technology and infrastructure can facilitate the implementation of sustainability practices, while the lack of resources can hinder their adoption. This underscores the importance of ensuring that HEIs have adequate technological resources and infrastructure to support sustainability practices.

The consideration of student demographics is also important in understanding the adoption of sustainability practices. Padaki et al. (2019) note that students from different disciplines and backgrounds may have varying levels of awareness and interest in sustainability practices. This suggests that HEIs should tailor their sustainability initiatives to different student populations to increase their effectiveness.

The staff training and development as a factor influencing the adoption of sustainability practices is also significant. Wals and Bawden (2019) highlight that providing staff with training and development opportunities can improve their knowledge and skills in sustainability practices, which can in turn positively impact the adoption of sustainability practices in the institution.

Overall, the inclusion of these factors in the study provides a more comprehensive understanding of the complex factors that influence the adoption of sustainability practices in HEIs. However, it is important to note that the literature review presented in this study is not exhaustive, and there may be other factors that also influence the adoption of sustainability practices in HEIs that have not been considered in this study. Additionally, while the literature review provides a theoretical basis for the hypothesized model, further empirical research is needed to test the validity of the model and its individual hypotheses.

**Hypothesis 6:** Technology and infrastructure (TI) have a direct and positive relationship with adoption of sustainability practices by HEIs.

**Hypothesis 7:** Student demographics (SD) has a direct and positive relationship with adoption of sustainability practices by HEIs.

Hypothesis 8: Staff training and development (STD) has a direct and positive relationship with adoption of sustainability practices by HEIs.

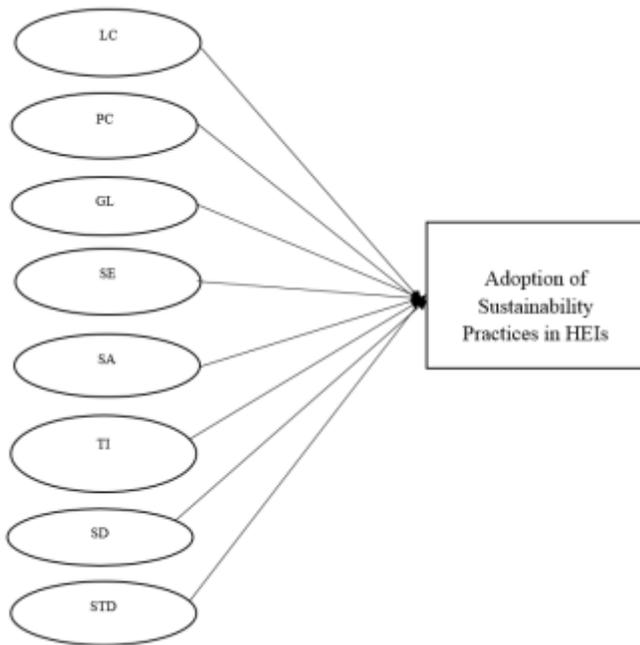


Figure 1. Hypothesized model  
(Source: Author's own architecture)

## 2.2 Challenges in Implementing Sustainability Practices in Higher Education

Despite the importance of sustainability practices, higher education institutions face several challenges in implementing them. Financial constraints are a significant barrier to implementing sustainability initiatives, as they require upfront investments (De Weerd-Nederhof et al., 2017). Limited resources and competing priorities within the institution can also impede the implementation of sustainability practices (Gulikers & Wesselink, 2016). Institutional culture and leadership also play a crucial role in implementing sustainability practices.

Van Lente et al. (2013) argue that the adoption of systemic instruments, such as policies, regulations, and guidelines, can be challenging due to resistance from the institutional culture. The attitudes and beliefs of institutional leadership towards sustainability practices can also affect their implementation (Shriberg & Sharma, 2020). Implementing sustainable practices in HEIs can be challenging due to various factors. One of the

main challenges is the lack of awareness and understanding of sustainability among students, faculty, and staff. Studies have shown that many individuals do not fully understand the concept of sustainability and its implications for society (Bartels et al., 2016; Leal Filho et al., 2015). Moreover, the implementation of sustainable practices may require significant financial and institutional resources, which may be a challenge for some institutions, especially those with limited budgets (Caeiro et al., 2018; Jones et al., 2016). Additionally, the complexity of sustainability issues and the need for interdisciplinary collaboration may pose challenges for some institutions (Wals & Corcoran, 2012).

Higher Education Institutions (HEIs) play a significant role in promoting sustainability by educating students, conducting research, and implementing sustainable practices. However, HEIs face various challenges in promoting sustainability, such as financial constraints, lack of institutional support, and inadequate policy frameworks.

It is well presented in the literature that HEIs often face financial constraints, making it challenging to invest in sustainability initiatives. Funding for sustainability projects may be limited or insufficient, leading to difficulties in implementing sustainable practices (Maddocks, 2016). In addition, sustainability initiatives may require additional resources and infrastructure, which can be expensive (Martín & López-Sáez, 2021). Financial resources can also influence the adoption of sustainability practices in HEIs. According to Boiral et al. (2019), lack of financial resources can hinder the adoption of sustainability practices, while sufficient financial resources can facilitate their implementation.

One of the most significant challenges that HEIs face in promoting sustainability is financial constraints. Funding for sustainability projects may be limited or insufficient, leading to difficulties in implementing sustainable practices (Maddocks, 2016). Sustainability initiatives may also require significant financial and institutional resources, which can be expensive, making it challenging for some institutions, especially those with limited budgets (Caeiro et al., 2018; Jones et al., 2016). However, sufficient financial resources can facilitate the adoption of sustainability practices in HEIs (Boiral et al., 2019).

Another challenge that HEIs face is a lack of institutional support. This may be due to a lack of understanding or interest in sustainability issues among university leaders and administrators, and a lack of policies and guidelines to support sustainability initiatives (López-Gamero et al., 2020).

The literature review provides evidence to support the two hypotheses that were developed. The first hypothesis suggests that financial constraints have a direct and positive relationship with sustainability practices by HEIs. This hypothesis is

supported by studies that highlight financial constraints as a significant barrier to implementing sustainability initiatives in HEIs (De Weerd-Nederhof et al., 2017; Gulikers & Wesselink, 2016; Maddocks, 2016).

The reviewed literature highlights the challenges that HEIs face in promoting sustainability, including financial constraints, limited resources, competing priorities, lack of institutional support, and a lack of awareness and understanding of sustainability. The two hypotheses developed from the literature review suggest that financial constraints and lack of institutional support have a direct and positive relationship with sustainability practices by HEIs. These findings have implications for HEIs and policymakers who aim to promote sustainability practices in higher education institutions.

Therefore, the hypotheses were framed in light of the literature as depicted in the hypothesized model in Figure 2.

**Hypothesis 1:** Financial Constraints (FC) has a direct and positive relationship sustainability practices by HEIs.

Similar to the study by Grunwald & O'Rourke, (2017) that HEIs may also face a lack of institutional support, which can hinder their efforts to promote sustainability. This lack of support may be due to a lack of understanding or interest in sustainability issues among university leaders and administrators. Furthermore, there may be a lack of policies and guidelines to support sustainability initiatives, which can make it difficult for HEIs to implement sustainable practices (López-Gamero et al., 2020). The literature suggests that lack of institutional support is a significant barrier to the implementation of sustainability practices in HEIs. Grunwald & O'Rourke (2017) argue that a lack of leadership support can hinder the promotion of sustainability in higher education institutions. The study found that sustainability initiatives were often considered peripheral to the core mission of the institution, leading to limited institutional support. Additionally, institutional leaders and administrators may lack understanding or interest in sustainability issues, which can impede the development and implementation of sustainability initiatives.

López-Gamero et al. (2020) also highlight the importance of institutional support for promoting sustainability in HEIs. The study found that the lack of policies and guidelines to support sustainability initiatives can make it difficult for institutions to implement sustainable practices. Furthermore, the authors suggest that institutional support is crucial for the success of sustainability initiatives, as it can influence the allocation of resources, the adoption of sustainable practices, and the integration of sustainability into the curriculum.

In summary, the literature supports that the Institutional support can influence the development and implementation of sustainability initiatives, and a lack of support can hinder their

success. Therefore, it is essential for HEIs to establish policies and guidelines to support sustainability initiatives and for institutional leaders and administrators to show a commitment to sustainability.

**Hypothesis 2:** Lack of Institutional Support (LIS) has a direct and positive relationship sustainability practices by HEIs.

The literature suggests that inadequate policy frameworks can impede HEIs' efforts to promote sustainability. Li et al. (2018) argue that the absence or ineffective enforcement of policies that promote sustainability can result in a lack of accountability and commitment to sustainability. Martín and López-Sáez (2021) also note that inconsistent or unclear policies may make it challenging to implement sustainable practices across different departments and areas of an institution. Therefore, it is hypothesized that inadequate policy frameworks have a direct and positive relationship with sustainability practices by HEIs.

In addition, HEIs may face challenges in promoting sustainability due to limited awareness and engagement from students, faculty, and staff. Bragança et al. (2018) note that the lack of awareness and engagement can hinder efforts to promote sustainability, as it may be difficult to gain support and participation in sustainability initiatives. Moreover, sustainability education may not be integrated into all academic programs, making it challenging to educate students about sustainability issues and promote sustainable practices (Grunwald & O'Rourke, 2017). Thus, it is hypothesized that awareness and engagement have a direct and positive relationship with sustainability practices by HEIs.

Furthermore, inadequate infrastructure and technology may be a barrier to implementing sustainable practices in HEIs. Maddocks (2016) suggests that sustainable practices may require new infrastructure and technology, which can be costly and difficult to implement. Additionally, outdated or inefficient infrastructure and technology may not be compatible with new sustainability initiatives, hindering their implementation (Martín & López-Sáez, 2021). Thus, it is hypothesized that inadequate infrastructure and technology have a direct and positive relationship with sustainability practices by HEIs.

In conclusion, the literature highlights several challenges that HEIs face in promoting sustainability, such as financial constraints, lack of institutional support, inadequate policy frameworks, limited awareness and engagement, and inadequate infrastructure and technology. It is essential for HEIs to address these challenges to successfully promote sustainable practices. The hypotheses presented in this review can provide a framework for future research to investigate the relationship between these factors and sustainability practices in HEIs.

**Hypothesis 3:** Inadequate Policy Frameworks (IPF) has a direct and positive relationship sustainability practices by HEIs.

**Hypothesis 4:** Awareness and Engagement (AE) has a direct and positive relationship sustainability practices by HEIs.

**Hypothesis 5:** Inadequate Infrastructure and Technology (IIT) has a direct and positive relationship sustainability practices by HEIs.

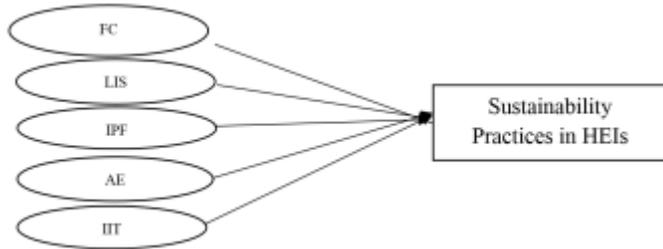


Figure 2. Hypothesized model  
(Source: Author's own architecture)

### 3. Research Methodology

The survey asked about the factors influences the sustainability practices by HEIs and the challenges faced in implementing these practices. The survey also included a section for respondents to provide additional comments on their sustainability practices. Both qualitative and quantitative research methods employed using both closed-ended and open-ended questions where the items were measured on a 5-point Likert's scale from strongly disagree (5) to strongly agree (1).

Qualitative data collected through interviews and focus group discussions with key stakeholders such as university officials, faculty members, and students. On the other hand, a survey conducted to collect quantitative data from a sample of higher education institutions. The survey distributed online to ensure a larger reach and participation. The data collected from both qualitative and quantitative methods analyzed using content analysis and descriptive statistics. The findings from the study presented in a narrative format using themes and patterns that emerged from the data. The themes will be used to answer the research questions and objectives. The sample for the study selected using a purposive sampling technique. This method ensured that institutions with diverse characteristics and sustainability practices are included in the study.

The study ensured confidentiality and anonymity of the participants. The survey was administered to a sample of HEIs in the Gulf countries. The study surveyed 45 higher education institutions.

The research scale was assessed for its reliability, validity, and one-dimensionality before being utilized for the structural model. The study focuses on the quality of respondents; therefore, the sampling criteria filter those people who can access Islamic financial technology services with a smartphone

in various sectors and across many cities in Gulf countries. The finalized questionnaire was administered on a population of 1388 respondents from the period of September–December 2022. In total, 821 research instruments were collected, and only 534 sustainability practices following in HEI's were identified and qualified for data analysis. From this record, 33 questionnaires were found to be incomplete and were discarded in the next stage.

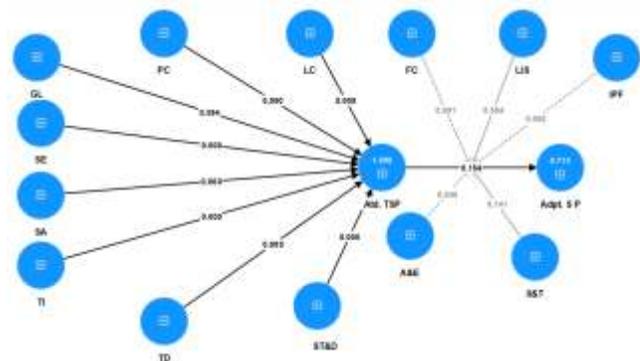
The use of Partial Least Squares Structural Equation Modeling (PLS-SEM) in this study was justified based on its usefulness and flexibility in developing statistical models for research in the field of interest. PLS-SEM is capable of handling large sample sizes, making it suitable for the dataset with 429 instruments used in the final data analysis. Additionally, PLS-SEM is well-suited for weak theoretical models, meaning that it can effectively analyze relationships between variables that may not have strong theoretical foundations.

Furthermore, the use of PLS-SEM does not require the assumption of normality of data, which can be beneficial in cases where data may not follow a normal distribution. This allows for more robust analysis of the data without the need for data transformation or assumptions about the distribution of variables.

In summary, the use of PLS-SEM and LISREL 8.80 in this study was justified based on their usefulness for developing statistical models, handling large sample sizes, accommodating weak theoretical models, and being suitable for small sample sizes without requiring normality assumptions. Aguirre-Urreta and Ronkko (2015) and Hair et al. (2014) supported this methodology. Finally, the study utilized 429 instruments for final data analysis. PLS-SEM was utilized for data analysis, as it is a useful and flexible tool for the development of statistical models used in the searches in this area. Therefore, this study utilizes structural equation modelling through the use of LISREL 8.80. Initially, the measurement model was assessed, and a further structural model was finalized with all the variables being run in a single model.

## Result

### Measurement Model



The measurement model in structural equation modeling (SEM) to assess the quality and reliability of our measurement instruments, such as questionnaires, surveys, or other assessment tools. The measurement model evaluates how well the observed variables (indicators) that used to measure the latent constructs (factors) of our model actually measure those constructs.

By assessing the measurement model, we can determine the reliability and validity of our measures, which in turn affects the quality and accuracy of our structural model. A good measurement model is essential for making accurate predictions and testing hypotheses in SEM.

The values obtained from a measurement model in SMART PLS include the factor loadings, composite reliability, average variance extracted (AVE), and cross-loadings. These values are used to assess the reliability and validity of the measures, as well as to identify any potential issues such as item redundancy, measurement error, or construct validity problems.

As we have used moderator as a variable to understand attitude towards sustainability and intention to practice sustainability to understand the relationship between the variable and a dependent variable. Hence it can either strengthen or weaken the relationship. The effect of a moderator is measured by examining the interaction effect between the independent variable, the moderator, and the dependent variable.

### Construct Reliability

	Cronbach's alpha	Composite reliability (rho_c)	Composite reliability (rho_omega)	Average variance extracted (AVE)
Att. S.F	0.833	0.833	0.643	0.600
Att. TSP	0.778	0.779	0.603	0.618
FC	0.803	0.807	0.654	0.664
SA	0.846	0.849	0.828	0.782
SR	0.883	0.887	0.907	0.684
TI	0.905	0.905	0.831	0.731

Construct reliability refers to the extent to which a measurement tool (e.g., a survey questionnaire) consistently measures the same underlying construct (e.g., customer satisfaction). It assesses the degree to which the observed scores on a set of items (indicators) accurately and reliably represent the latent construct being measured. The Cronbach's Alpha, Composite Reliability and Average Variance Extracted (AVE) were used for measures the underlying construct. The alpha values observed to be above 0.778 and composite reliability observed to be 0.779 indicating higher reliability. On the other hand, values above 0.5 considered acceptable hence the AVE value notices are above 0.664 which represents greater reliability.

### Discriminant Validity

Discriminant validity is a statistical concept that is used to determine whether two or more constructs are distinct from one another. It ensures that a measure is not measuring the same underlying concept as another measure. The purpose of discriminant validity is to demonstrate that the measures used

to assess different constructs are indeed measuring different things. Fornell-Larcker criterion used that involves comparing the square root of the average variance extracted (AVE) for each construct with the correlation between constructs. If the AVE of each construct is greater than the correlation between the constructs, then discriminant validity is established. Hence the values in the Fornell-Larcker criterion qualifies discriminant validity.

	Att. S.F	Att. TSP	FC	SA	SR	TI
Att. S.F	0.600	0.242	0.208	0.262	0.262	0.262
Att. TSP	0.242	0.618	0.208	0.262	0.262	0.262
FC	0.208	0.208	0.664	0.664	0.664	0.664
SA	0.262	0.262	0.664	0.782	0.782	0.782
SR	0.262	0.262	0.664	0.782	0.828	0.828
TI	0.262	0.262	0.664	0.782	0.828	0.831

### Hypothesis Testing

Hypothesis testing in Smart PLS involves testing the significance of the relationships between constructs in the structural model. This can be done by conducting a bootstrapping analysis, which estimates the standard errors and confidence intervals of the path coefficients. The following steps can be taken to write a hypothesis test in Smart PLS: State the null and alternative hypotheses for each path coefficient in the structural model. By conducting a bootstrapping analysis, we estimate the standard errors and confidence intervals of the path coefficients. Hence by examining the t-values and p-values of the path coefficients to determine their significance. If the p-value is less than the chosen significance level (e.g., 0.05), then the null hypothesis can be rejected in favor of the alternative hypothesis. Therefore it can be concluded that alternative hypothesis for H7, H9, H10, H11, H12, H13, H14 are accepted and the rest hypothesis are rejected since the p value is more than 0.05

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T-statistic (O/STDEV)	P value
Att. S.F → Att. S.F	H1	0.000	0.127	0.127	0.921
Att. TSP → Att. S.F	H2	0.281	0.302	0.204	0.420
FC → Att. S.F	H3	-0.079	-0.068	-0.116	0.670
SA → Att. TSP	H4	0.025	0.024	0.027	0.632
SR → Att. S.F	H5	0.172	0.200	0.252	0.355
TI → Att. S.F	H6	0.044	0.057	0.178	0.344
Att. TSP → Att. TSP	H7	-0.333	-0.334	-0.002	0.998
FC → Att. S.F	H8	0.150	0.143	0.157	0.956
SA → Att. TSP	H9	4.250	4.219	0.327	12.047
SR → Att. TSP	H10	4.350	4.305	0.134	18.362
TI → Att. TSP	H11	0.000	-0.000	0.000	0.000
Att. TSP → Att. TSP	H12	-0.000	-0.000	0.000	0.000
TI → Att. TSP	H13	-0.000	-0.000	0.000	0.000
TI → Att. TSP	H14	-0.850	-1.850	0.143	12.062
Att. TSP → Att. S.F	H15	0.238	0.219	0.102	1.472
FC → Att. TSP → Att. S.F	H16	-0.004	-0.002	0.114	0.124
SA → Att. TSP → Att. S.F	H17	-0.125	-0.068	0.208	0.651
SR → Att. TSP → Att. S.F	H18	0.275	0.219	0.157	2.000
TI → Att. TSP → Att. S.F	H19	-0.485	-0.529	0.188	2.740

### Slope Analysis

Slope analysis in Smart PLS is a method of examining the relationships between variables in a structural equation model by visualizing the change in the dependent variable as the independent variable changes. It can help to identify the

strength and direction of the relationships between variables in the model. In slope analysis, the arrows indicate the direction and strength of the relationship between the constructs, and the numbers on the arrows represent the path coefficients, which are standardized regression coefficients. The thicker the arrow, the stronger the relationship between the constructs.

Interpret the direction of the arrows: A positive arrow indicates a positive relationship, whereas a negative arrow indicates a negative relationship. Interpret the size of the path coefficients: The path coefficient indicates the strength of the relationship between the constructs. A larger path coefficient indicates a stronger relationship. Analyze the statistical significance of the path coefficients: The significance level of the path coefficient indicates whether the relationship is statistically significant or not. A statistically significant relationship implies that the relationship between the constructs is not due to chance. Interpret the total effect of each construct: The total effect of a construct is the sum of its direct and indirect effects on the dependent variable. Indirect effects occur through the mediating constructs.

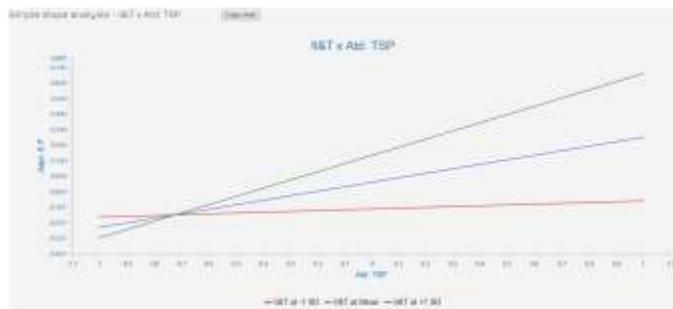


Fig1:

Figure 1 shows that without the moderating effect of II&T, a person's attitude towards sustainable practices has a negative effect on the adoption of such practices, but that this is not the case when the effect is taken into account. Simply put, II&T help the bond grow stronger.

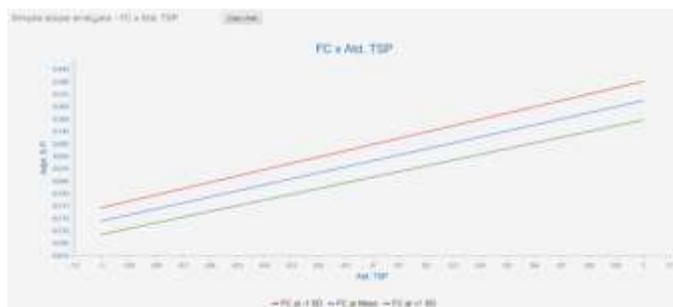


Fig 2:

FC do not have any significant moderation effect between Attitude towards Sustainable Practices and between Adoption of Sustainable practices.

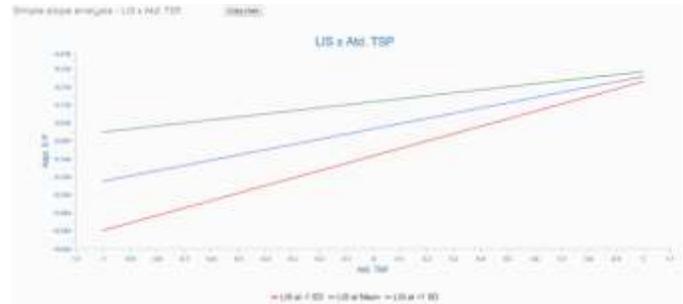


Fig 3

In figure 4 it can be observed that LIS weakens the relationship between Attitude of Sustainable Practices and Adoption of Sustainable Practices.

## Conclusion

The literature review presents several factors that influence the adoption of sustainability practices in HEIs. While the identified factors have been found to have a positive relationship with the adoption of sustainability practices, the literature does not fully explore the potential challenges or limitations of these factors. Future research could explore these potential challenges in greater depth to provide a more nuanced understanding of the factors that influence the adoption of sustainability practices in HEIs.

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# Unprecedented Influence of Confirmed Covid-19 Death Cases on Indian Stock Market

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## Abstract

*In the present learning, an effort has been made to study the impact of independent variables such as total confirmed cases, new confirmed cases, total death cases, and new death cases on the stock prices of NIFTY-50 the leading Indian stock market index. The secondary data for the period from 1st January 2020 to 31st August 2021 for COVID 19 daily total confirmed cases, new confirmed cases, total death cases, and new death cases have been collected from the website and the data for the stock prices for NIFTY-50 has been collected from the website. It was found that every independent variable importantly the confirmed covid cases and death rates undertook in the study have impacted the stock volatility of NIFTY 50. The application of RSI exhibited that stock prices entered the oversold zone in March 2020 since then, Indian stock markets have been in an optimistic rally from October 2020 to August 2021. The results of the study will be beneficial for investors in the future, as the stock market is dynamic and variables impacting stock returns should be studied to predict the fluctuations in the stock prices.*

**Keywords:** COVID 19, Confirmed Cases, Death Rates, Stock prices, Nifty-50.

## 1. Introduction

Indian stock markets are often impacted by the global events and stimuli in international stock markets. Earlier also the technology bubble burst of 2000 crashed the NASDAQ which had spillover effects on the Indian stock market. During this situation, the IT companies such as Infosys, Wipro, etc., crashed miserably due to which SENSEX lurched. The terrorist attack on the World Trade Center led to a downfall in the leading international stock indices such as Dow Jones Industrial Average (DJIA), S&P 500, and NASDAQ which impacted the Indian stock market on a large scale. The Subprime crisis of the year 2008, the year of the great depression caused the recession in the market to affect the Indian stock market wretchedly. Currently, the world is fighting with health crises caused by the COVID 19 pandemic, the unexpected and unfortunate event that had impacted the lives of people badly and caused fear of losing a livelihood. The pandemic has impacted the national and international stock markets. The empirical studies found that the confirmed COVID 19 cases and death rate have negatively impacted the returns on financial assets. Drastic changes have

been noticed in the wake of a pandemic such as changes in monetary and fiscal policies by the government. Initially, the pandemic outbreak was noticed in the city of China namely Wuhan. The pandemic soon entered the other countries and ended up causing deaths and fear in the general public. No one has ever heard of such a deadly disease before. With the spillover effects of COVID 19 in nearby nations, the pandemic revolutionized the world economy. The first case of COVID 19 was seen in India on 30th January 2020 and the first death happened on 11th March 2020 due to which the market lost about 30% in March 2020. With time there has been a continuous surge in the confirmed COVID 19 cases and death rates. The upward movement on the graph of confirmed cases and daily deaths was witnessed by leading research agencies. There has been a drastic fall in the stock prices due to ongoing COVID 19 pandemics. Different sectors of the economy were badly impacted. Many empirical studies were undertaken to analyze the downfall in the stock prices globally in the wake of the corona virus. Researchers considered this pandemic as a Black Swan event that has shaken the volatility of the stocks. In the literature, many factors were noticed such as fear of losing

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invested money, negative media news, COVID 19 most googled word, halt in business operations, trade war, liquidity issues, panic buying, and selling which have brought the economy to the period of recession and standstill. It was found in the studies that two sectors namely information technology and medication engineering sectors had outperformed in comparison to other sectors. There has been almost a 40% decline in the travel and transportation business, and stock prices of air, highway transportation, hotel, and beverage were significantly impacted by the deadly disease outbreak. The present study attempted to study the COVID 19 impact on the leading stock index of India i.e., NIFTY 50 in four domains namely the Confirmed COVID 19 cases, New COVID 19 cases, Total Death rates, and New Deaths cases. These independent variables have an immediate impact on the stock returns in the Indian economy. In light of the pandemic, several precautionary measures were undertaken by the government and the Reserve Bank of India. The government enforces a complete nationwide lockdown to curb the transmission rate of the menace and RBI liberalized many policies to support people in the period of liquidity crunch. Business houses transform their operations to sail through the tough wave of pandemics. The pandemic phase is yet not over, researchers have predicted new mutants of this virus can arise in the future, so there is a need to understand the stock market volatility to save the capital invested by the investors in the market.

### Inspiring Literature

**Akhtaruzzaman et al. (2020)** studied how the financial infection occurred through economic and non-economic companies between China and G-7 countries throughout the COVID-19 crisis period. The results of the study showed that listed firms across these countries faced major qualified correlations between their stocks and their returns. The degree of increase was more for the financial firms in comparison to non-financial firms succeeding the outburst of COVID-19 contagion. The conclusions of the study also showed that it has resulted in increased hedge ratios during the financial crisis period.

**Zaremba et al. (2020)** examined the influence of a contagion on stock market volatility and it was based on 67 nations covered by DataStream Global Equity Indices. The period of the study was from 1st January to 3rd April 2020. It was found in the study that government intervention affected the volatility in the stock market to a higher level.

**Alaoui et al. (2020)** considered depth and tightness as a criterion to measure the liquidity considering the influence of novel deadly disease COVID-19 contagion. The timeframe of the study was from February to May 2020, data was selected from the 320 listed companies in the six MENA countries. The regression model was used in the paper which has measured the liquidity using both tightness and depth growth together and

how positively stocks were correlated to confirmed cases of death and growth rate. It was found in the study that small-cap companies are more prone to the confirmed number of deaths and cases both and it was not much relevant for big companies. The health care sector showed insignificant results in comparison to other sectors.

**Al-Awadhi et al.(2020)** examined the stock movement concerning global contagion by applying panel testing. The upsurge in the total figure of established cases and the total number of demises have negatively affected the stocks across nations from January 10 to March 16, 2020, on the Shanghai stock exchange and Hang Sang Index. In the study, it was found that two sectors namely information technology and medication engineering sectors had outperformed other stocks of other sectors. It has severely influenced the B-shares which were meant for foreign traders.

**Aravind & Manojkrishnan (2020)** conducted a study on the medical sector in respect of the influence of novel coronavirus on the stock market. The present study was based on stocks of the top 10 pharmaceutical companies that are listed on the National Stock Exchange (NSE). The criteria of selection of the top 10 companies were based on market capitalization. The study was divided into two parts pre and post COVID-19 insinuations for 123 day-to-day price annotations from 3rd September 2020 to 28th February 2020. The study was based on the assumption that the stocks of pharma companies will move in the opposite direction in comparison to the general index. Besides two companies namely Lupin Ltd and Aurobindo Pharma Ltd reported, others agree with the movement of the general Index. The study suggested that there is a requirement for more research and development in the medical sector and backward integration should be explored in the future.

**Ashraf (2020)** scrutinized the bearing of COVID-19 contagion on stock market earnings of data collected from 64 countries from January 22, 2020, to April 17, 2020. It was found in the study that there is a negative influence on stocks due to an upsurge in figures of confirmed cases and deaths due to contagion. The author analyzed that the stock market reacted rapidly to the bulletin of the financial crisis but its influence fluctuates bestowing to the phase of the eruption.

**Aslam et al. (2020)** scrutinized the stimulus of coronavirus COVID-19 on the European financial market using the Multifractal detrended fluctuation analysis (MDFFA) technique. The study assessed the influence on intraday trading of eight European stock markets with the help of five-minute directory statistics from 1st January 2020 to 23rd January 2020. The discoveries of the study deep-rooted the existence of multifractal chattels, in stock markets of Europe during the eruption of deadly disease COVID-19. It was found that Spanish Market was the most efficient and that of Austria was the least.

Such epidemics required a well-planned course of action to sustain the stock market in times of variability and uncertainty.

**Baig et al. (2020)** showed the harsh stimulus of COVID-19 on the US equity market. The paper examined the liquidity and variability with the help of indexes. The outcome of the study showed that there was a remarkable influence on market liquidity and volatility due to an increase in several causalities and cases in the economy. The implementation of lockdowns and restrictions had worsened the situation a bit more.

**Baker et al. (2020)** inspected the influence of deadly disease in the contagion disease episodes. The study used text-based techniques in respect of large stocks back to 1900 and overall stock market variation back to 1985. The policy measures taken by the administration, make available the furthestmost convincing elucidation for the stock market instability.

**Citak et al. (2020)** applied the method (i.e. Quantile-on-Quantile Regression) formulated by Sim and Zhou in the year 2015. It was found in the study that firstly there existed short-lived market response on the stock market secondly, usually stock showed alike movements at the time of the outbreak of epidemics thirdly, it was noticed that there was adverse link athwart for all countries.

**Dev & Sengupta (2020)** pronounced the influence of COVID-19 on various sectors of the Indian economy and the implications of reforms and policies formed by the Reserve Bank of India (RBI) and the government of the nation. This phase of contagion is extremely thought-provoking for the Indian Government due to the large size of the population and unexpected movement of labor and lockdowns. The policymakers should be focused on V-shaped recovery to avoid everlasting destruction to the economy. The policy measures should be aimed at the fastest recovery as it is difficult to forecast the situation in the outbreak of COVID-19 contagion.

**Fernandes (2020)** examined the financial implication of COVID-19 Contagion on different countries, economies and measured the expected cost of contagion and GDP growth rate of various countries. The study showed that financial implications of the virus were not correctly examined due to excessive reliance on precedent comparisons with SARS and the 2008 global financial crisis. The service industry will be severely affected due to heavy turnover. Countries more dependent on tourism will be harder hit due to negative spillover effects over the supply chains. Similarly, nations more hooked on foreign trade are more destructively exaggerated.

**Goodell (2020)** examined the financial and communal stimulus of the COVID-19 on the financial environment, its repercussions and has also analyzed the influences of other epidemics and catastrophes.

**Khanthavit (2020)** employed the event study method to study the stocks of different nations namely Spanish, Chinese, French, UK, Thai, and German stocks. It was found in the study that stocks reacted negatively to the contagion. As per the study, the market was driven by old news instead of new and fresh information.

**Murthy and Rajesh (2020)** considered the influence of the COVID-19 plague on the sources of Oil Price tremor on Indian Stock Earnings. The structural VAR approach was used in the study which showed that there was no remarkable adverse influence on the Indian Stock Market.

**Ru et al. (2020)** contended that the answer to the COVID-19 catastrophe was delayed in the country which didn't face SARS disease in 2003. The findings of the paper suggested that the pecuniary experience of earlier viruses was vital to a proper response to COVID-19 contagion.

**Sansa (2020)** surveyed the influence of COVID-19 on the economic souks of the USA and China for the period starting from 1st March 2020 to 25th March 2020. A simple regression model and time-series data were employed by the researcher. The outcomes of the study showed that COVID-19 has a momentous influence on the financial market of both these countries as there was a significant relationship between COVID-19 inveterate cases and economic markets of the USA and China.

**Liu et al. (2020)** examined the stock term influence of a contagion on 21 leading stock market indices in significantly impacted nations such as the USA, Singapore, Japan, Korea, Italy, Germany, and the UK, etc. The study employed a combination of event study and panel fixed effect regressions. It was found in the study that Asian Countries were experiencing abnormal inverse returns in comparison to other countries.

**Haroon & Rizvi (2020)** investigated how the equity stock market was affected due to a pandemic outbreak. It was found that the news related to the pandemic was highly broadcasted which affected the investor's psychology. The results of the economic sectors showed that pandemic-related news has impacted volatility in the stock market.

**Zhang et al. (2020)** focused on mapping the systematic risks in worldwide economic markets and the general pattern of company-specific risks. The study examined the influence of economic and monetary policies which brought uncertainties into the worldwide economic markets.

**Shaikh (2021)** analyzed the impact of pandemic COVID 19 on the energy markets especially concerning stock markets of energy futures, Exchange Traded Funds, Futures, and unprecedented influence on the variability of stock market indices. The study evaluated the impact on the energy market phases-wise

concerning COVID 19 pandemic situations on the energy market. It was highlighted in the study regarding the uncertainty factors such as financial policy uncertainty, increasing rate of infection, infected ailment volatility, all these have shown impact on the past prices of energy markets. It was found in the study that variability of energy Exchange Traded Funds (ETFs) seems to be more buoyant in terms of Standard and Poor (S&P) 500 energy stock prices. It was figured out in the study that the West Texas Intermediate (WTI) crude oil market had shown overreaction while COVID 19 pandemic and trading was highly volatile. The study also analyzed the behavior of investors in the energy market and it was found that investors' sentiments were higher on tail events, conservative investors were moving towards put options and also paid an extra premium to shield from risk in the energy market.

**Giglio et al. (2021)** studied the impact of a pandemic on the stock market concerning the initial period of February till March 2020. It was found that the stock market was wornout during this period and even during the initial recovery phase stock market was not performing well. In the study, the clients of Vanguard were surveyed who were the retail investors at 3 points of time a) from 11-12 Feb, the stock market was high, b) from 11-12 March, the stock market crashed by over 20% approx. c) from 16-17 April, the market improved 25 % from its minimum point. Due to stock market poor performance, the average investors become more doubtful about the short-term performance of both the economy and stock market. Investors were presuming that the stock market will remain like this for a short period and will see a further decline in the stock indices in near future. Investors in a larger perspective viewed that the stock market will be stable in the long run.

**Hassan (2021)** stated that pandemic has severely impacted the financial economies. After the outburst of COVID 19, stock markets were the first to be impacted and both national and international stock markets had been impacted severally with fall down similar to that faced during the crisis of financial instability in the year 2008. In the paper, daily prices were used to study the impact of a pandemic on the financial markets and initial countries which were affected due to COVID 19 and their product markets as well. The VAR model finalized that there is a negative short-term impact on the returns of market indices. Due to the outburst of coronavirus, there were important reflections on the prices of silver, Brent Crude Oil, and WTI.

**Insaidoo (2021)** stated that due to the pandemic there has been an increase in the volatility in the returns of shares and that too raised by 8.23% approx. The monetary policies were effective in the period of crisis as they can affect the financial market and economy as a whole. In the post-crisis period, if monetary policy is used to foster financial markets and fiscal policies of the government desired objectives can be obtained in the long run.

**Smales (2021)** used the Google Search Engine (GSV) as a substitution for stockholder consideration. The pandemic has devastated the financial market due to health predicament. The word COVID 19 has been the most searched text on google and it was found that investors' undue attention towards COVID 19 rising cases leads to an inverse impact on returns of stock markets during the period of a pandemic. The people across the globe were inquisitive to know about the pandemic-related information and COVID 19 became the most searched topic on the internet. The rise in searches online resulted in a faster infusion of virus-related information in the financial market leading to instability in the stock market. Due to increased search online lead to lessor impact on government bonds. The findings of the study suggested that people were more concerned about how to overcome domestic fears during the pandemic period instead of searching for which stocks to purchase and sell in the stock market.

**Corbet (2021)** talked about the impact of coronavirus on the Chinese stock market. The impact of this pandemic has been disastrous in comparison to previous and traditional influenza in the Chinese stock market. Using the data developed by Chinese stock markets to specifically measure the performance of companies of China that were researching manufacturing of products and equipment to reduce the impact of a pandemic. It was instituted in the study that it had impacted the Bitcoin Market as well.

**Lee & Lu (2021)** examined the impact of the virus on Taiwan's financial and stock market and inspected that if companies are fulfilling their social responsibilities seem to be less impacted by COVID 19. In the study, the data for CSR and non-CSR companies was provided by Common Wealth Magazine and it was confirmed that the existence of volatility clustering and asymmetric effect had impacted the stock market in comparison to unwanted newscasts of identical magnitude.

**Zhang & Hamori (2021)** found in the study that variability in the stocks of oil has been more volatile in comparison to the 2008 financial crisis. With help of moving window analysis, it was analyzed that plummeting oil prices have severally affected the US stock market which resulted in huge financial loss for the United States of America (USA) investors.

**Yarovaya et al. (2021)** examined the impact of Human Capital Efficiency (HCE) on the owner's fund i.e. equity fund's performance during the phase of the COVID 19 pandemic. In the study, data was collected for 799 open-ended equity funds across 5 European Union nations and ranked them in five categories as well. The comparison regarding risk-adjusted performance was also undertaken in the study. The results of the paper showed that equity funds that were ranked high had outperformed and the study suggested that managers of funds

should judiciously invest corpus of investors in human capital to earn good returns.

**Zheng & Zhang (2021)** examined the impact of COVID 19 on the financial and economic activities of Microfinance Institutions (MFIs). It was found in the study that due to COVID 19 there has been a decrease in the financial efficiency of microfinance institutions and on the other there has been an increase in the social efficiency of MFIs. In the study, the supply and demand side of MFI's funding were examined. It was found in the study, that the lending rate mediates the relationship between MFI efficiency and COVID-19, on the other hand facilitating role of funding rate is insignificant.

**Wei & Han (2021)** studied the event-study methodology to investigate the influence of the COVID 19 pandemic based on a sample of 37 nations regarding the transmission of monetary policy to financial markets. Government bonds, shares, credit default swap markets, and exchange rates are part of financial markets. In the study, it was found that coronavirus had weakened the transmission of monetary policy to financial markets to a very high degree. During the sample, the study pandemic has a major impact on the financial markets. It was signified in the study that there is a need for strong macro-economic policies to achieve desired results.

**Heyden & Heyden (2021)** examined the short-term market reactions of the European Union and the United States of America during the initial COVID 19 period. It was found that in the study stocks reacted negatively to the outbreak of COVID 19. The findings of the study showed that nation-specific policies affected the returns of the stock market negatively.

**Naseem (2021)** analyzed the impact of COVID 19 on three stock markets namely Nikkei, Dow Jones, and Shanghai stock market from 20th January to 27th April 2020. The selection of the market was based on 2 different factors. The first is the impact of the COVID 19 pandemic on investors' sentiments with the rest to Shanghai Stock Exchange and the other one is to analyses global impact using Nikkei and Dow Jones. The data has been extracted from the stock markets of the United States of America, China, and Japan using Bloomberg and WHO websites. The study examined the relationship between the financial market and stockholders' sentiments during the period of pandemics. It was found in the study that there has been a negative impact on investors' psychology and a downward trend across the globe has been observed. It was concluded in the paper that every individual investor across the globe has been affected due to the outbreak of pandemics and health crises impacted the economic and financial position of the country.

**Factors Influencing Stock Price Volatility During COVID 19 pandemic**

S.No.	Factors	Sources
1	Lockdown-Restriction in Internal Movement	Di et al., 2020; Radha et al., 2020; Alam et al., 2020; Anh & Gan 2020; Huo & Qiu 2020; Eleftheriou & Patsoulis 2020; Hanspal et al., 2020; Vala & Abbasbhai 2020; Onali 2020; Lamba & Jain 2020; Toda 2020; Rahmi 2021; Baig et al., 2021; Alaoui et al., 2021; Dhillion & Tyagi 2021, Narayan et al. 2021; Nicola et al., 2020; Onour 2020; Robin 2021; Rajesh 2021; Aljawaheri et al., 2021; Scherf et al., 2021.
2	Panic Buying, Panic Selling	Kostey & Lauterbach 2020; Nicola et al., 2020; Loxton et al., 2020; Arafat et al., 2020; Rosita 2020; Olds 2020; Prentice et al., 2020; Aslam et al., 2020; Haddal et al., 2020; Zhou & Jingxin 2021 Ibikunle & Rzaev 2020; Rahmi 2021; Shaikh 2021; Baig et al., 2021; Alaoui et al., 2021; Rajesh 2021; Naeem & Ozuem 2021; Leung et al., 2021; Islam et al., 2021.
3	Increased Mortality Rate	Ashraf 2020; Baig et al., 2020; Khanthavit 2020; Murthy & Rajesh 2020; Heyden & Heyden 2020; Yilmazkuday 2020; Yousef 2020; Sansa 2020; Alaoui et al. 2020; Al-Awadhi et al. 2020; Alfaro et al. 2020; Elsayed & Elrhim 2020; Rahmi 2021; Robin 2021, Senol & Zeren 2021; Zeren & Hizarci 2020; Shaikh (2021)
4	Investors Psychology/Sentiments	Salvi et al., 2020; Giglio 2020; Wagner 2020; Hanspal et al., 2020; Ramelli & Wagner 2020; Naseem et al 2021; Haroon & Rizwi 2020; Giglio 2021; Mahajan et al., 2021; Hartono 2021; Atassi & Yusuf 2021.
5	Government Policy (Monetary & Financial Policy-Fiscal Measures)	Liu et al. 2020; Sergi & Harjoto 2020; Wang et al., 2020; Baker et al. 2020; Barua 2020; Dev & Sengupta 2020; Wei & Han 2021, Kizys et al., 2020; Jain & Lamba 2020; Atassi & Yusuf 2021; Zarembo 2021; Albulescu et al., 2021

6	Commitment to CSR	Manuel & Herron 2020; Abdullah et al., 2020; Aquinis et al., 2020; Ding et al., 2020; Crane & Matten 2020; Huang & Liu 2020; Mao et al., 2020; Bae et al., 2021; Cyfert et al., 2021; Choi & Choi 2021; Lee et al., 2021
7	Financial Efficiency of Micro Finance Institutions	Gunay 2020; Goodell 2020; Zheng & Zhang 2021; Seven & Yilmaz 2020; So et al., 2021; Akhtaruzzaman et al., 2021; Albulescu et al., 2021; Choi 2020; Duro et al., 2020; Corbet et al., 2021.
8	Government Intervention	Haldar & Sethi 2020; Zaremba et al. 2020; Lovari 2020; Duan et al 2020; Doherty et al., 2020; Yang & Deng 2021; Hunjra et al., 2021.
9	Google Search Engine	Costola et al., 2020; Cousins et al., 2020; Higgins et al., 2020; Lippi et al., 2020; Makholykh et al., 2020; Lin et al., 2020; Shoib et al., 2020; Guzman & Barbieri 2020; Citak et al., 2020; Papadamou et al. 2020; Smales 2021; Fontana 2021; Shams et al., 2021.
10	Covid 19 Vaccine	Rouatbi et al., 2021; Haleem et al., 2020; Vala & Abbasbhai 2020; Do et al., 2021; Hartono 2021; Khalfaoui et al., 2021; Chan et al., 2021.
11	Restriction in International Travel	Devi 2020; Chu et al., 2020; Akter 2020; Zhang et al., 2020; Pomponi et al., 2020; Parr et al., 2020; Memish et al., 2020; Sharun et al., 2020; Sharma et al., 2020; Lamba & Jain 2020; Barua; 2020; Brouder 2020; Narayan et al 2021; Skare et al., 2021; Li et al., 2021; Wang & Pagan 2021; Ji et al., 2021.
12	Global Market Situation	Ru et al., 2020; Dunford 2020; Alaoui et al., 2020; Zang et al.; 2020; Zeren & Hazarci 2020; Insaideo et al., 2020; McKibbin & Fernando 2020; Pavlyshenko 2020; Ozili & Arun 2020; Gunay 2020; Uddin et al., 2020; Zang et al., 2020; Zaremba et al., 2020; Smales 2020; Senol & Zeren 2021; Sergi & Harjoto 2021; David et al., 2021; Choi 2021; David et al., 2021.

## Objectives of the study

The primary objective of the study is as follows:

1. To study the impact of COVID 19 Total Confirmed Cases on the Indian Stock Market Index Nifty 50.
2. To study the impact of COVID 19 Total Death Cases on the Indian Stock Market Index Nifty 50.
3. To study the impact of COVID 19 New Confirmed Cases on the Indian Stock Market Index Nifty 50.
4. To study the impact of COVID 19 New Death Cases on the Indian Stock Market Index Nifty 50.
5. To study the impact of COVID 19 on stocks volatility of Indian Stock Market Index Nifty 50 using RSI technique barometer.

## Research Methodology

The secondary data of COVID 19 total confirmed cases, new confirmed cases, total death cases, and new death cases have been acquired from the website <https://ourworldindata.org/> and the data for the stock prices for the Indian Stock Market Index NIFTY 50 has been collected from the website

[www.yahoo.finance](http://www.yahoo.finance). The present study has covered the period from 1st January 2020 to 31st August 2021. The study employed a simple regression analysis model to study the impact of independent variables namely, COVID 19 Total Confirmed Cases, New Confirmed Cases, Total Death Cases, and New Death Cases on the NIFTY 50 stock prices the dependent variable. Further, to study the impact of COVID 19 on the volatility of NIFTY-50, the Relative Strength Model has been employed.

### Hypothesis framed for the study are as follows:

Two hypotheses were anticipated to determine the correlation between NIFTY 50 stock prices and total COVID 19 confirmed cases.

**H0:** There is no substantial influence of COVID 19 Confirmed Cases on Stock Volatility.

**H1:** There is a substantial influence of COVID 19 Confirmed Cases on Stock Volatility.

Two hypotheses were anticipated to determine the correlation between NIFTY 50 stock prices and COVID 19 confirmed new cases.

**H0:** There is no substantial influence of COVID 19 Confirmed New Cases on Stock Volatility.

**H1:** There is a substantial influence of COVID 19 Confirmed New Cases on Stock Volatility.

Two hypotheses were anticipated to determine the correlation between NIFTY 50 stock prices and total COVID 19 death cases.

**H0:** There is no substantial influence of COVID 19 Death Cases on Stock Volatility.

**H1:** There is a substantial influence of COVID 19 Death Cases on Stock Volatility.

Two hypotheses were anticipated to determine the correlation between NIFTY 50 stock prices and COVID 19 new death cases.

**H0:** There is no substantial influence of COVID 19 New Death Cases on Stock Volatility.

**H1:** There is a substantial influence of COVID 19 New Death Cases on Stock Volatility.

**Table 1: Showing correlation between NIFTY 50 stock prices and total COVID 19 confirmed cases.**

<i>Regression Statistics</i>						
Multiple R	0.864068725					
R <sup>2</sup>	0.746614762					
Adjusted R <sup>2</sup>	0.745996749					
Standard Error	1166.915948					
Observations	412					
	<i>Coefficients</i>	<i>SE</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	10903.90796	78.32939514	139.2058	0	10749.93063	11057.89
Total Confirmed COVID 19 Cases	0.000184345	5.30373E-06	34.75758	2.7136E-124	0.000173919	0.000195

The employment of simple regression analysis on the given data exhibited the inspiring relationship between COVID 19 confirmed cases and NIFTY-50 as value of R Multiple is positive, therefore if total confirmed cases will upsurge, then NIFTY 50 will also upsurge at the rate of 86.40%. The value of R<sup>2</sup> is 0.75 which signifies that 75% of the Stock movements of NIFTY-50 is predicted by the Confirmed COVID-19 cases. The value of

adjusted R square is .75 which signifies the added input has a fore most influence on NIFTY-50 stock prices. It has been found that there is a substantial influence of COVID 19 confirmed cases on NIFTY-50 with the following equation:

$$Y=10904+0.00018X_1+E$$

**Table 2: Showing correlation between NIFTY 50 stock prices and total COVID 19 confirmed new cases.**

<i>Regression Statistics</i>						
Multiple R	0.33143					
R <sup>2</sup>	0.109846					
Adjusted R <sup>2</sup>	0.107675					
Standard Error	2187.165					
Observations	412					
	<i>Coefficients</i>	<i>SE</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	12241.72	129.5337	94.5060	1.9554E-280	11987.09	12496.3
COVID 19 New Cases	0.009603	0.00135	7.11299	5.09429E-12	0.006949	0.01225

The employment of simple regression analysis on the given data exhibited the inspiring relationship between COVID 19 new confirmed cases and NIFTY-50 as value of R Multiple is positive, therefore if new confirmed cases will upsurge, then NIFTY 50 will also upsurge at the rate of 33.14%. The value of R2 is 0.1098 which signifies that 10.98% of the Stock movements of NIFTY-50 is predicted by the Confirmed new COVID-19 cases. The value of

adjusted R square is .1076 which signifies the added input has a foremost influence on NIFTY-50 stock prices. It has been found that there is a substantial influence of COVID 19 new confirmed cases on NIFTY-50 with the following equation:

$$Y=12242+0.00960X_1+E$$

**Table 3: Showing correlation between NIFTY 50 stock prices and total COVID 19 death cases.**

<i>Regression Statistics</i>						
Multiple R	0.868103961					
R <sup>2</sup>	0.753604487					
Adjusted R <sup>2</sup>	0.753003522					
Standard Error	1150.70849					
Observations	412					
	<i>Coefficients</i>	<i>SE</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	10779.62759	79.49569727	135.6001	0	10623.36	10935.9
COVID 19 TotalDeaths Cases	0.014610957	0.000412602	35.41174	8.7315E-127	0.0138	0.015422

The employment of simple regression analysis on the given data exhibited the inspiring relationship between COVID 19 death cases and NIFTY-50 as value of R Multiple is positive, therefore if total COVID 19 death cases will upsurge, then NIFTY 50 will also upsurge at the rate of 86.68%. The value of R2 is 0.7536 which signifies that 75.36% of the Stock movements of NIFTY-50 is predicted by the total COVID-19 death cases. The value of

adjusted R square is 0.7530 which signifies the added input has a foremost influence on NIFTY-50 stock prices. It has been found that there is a substantial influence of COVID 19 death cases on NIFTY-50 with the following equation:

$$Y=10780+0.01461X_1+E$$

**Table 4: Showing correlation between NIFTY 50 stock prices and total COVID 19 death cases.**

<i>Regression Statistics</i>						
Multiple R	0.359227					
R <sup>2</sup>	0.129044					
Adjusted R <sup>2</sup>	0.126919					
Standard Error	2163.451					
Observations	412					
	<i>Coefficients</i>	<i>SE</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	12161.98	130.8128	92.9724	1.2E-277	11904.83	12419.13
COVID 19 NewDeath Cases	0.800657	0.102727	7.794032	5.4E-14	0.59872	1.002594

The employment of simple regression analysis on the given data exhibited the inspiring relationship between COVID 19 new death cases and NIFTY-50 as value of R Multiple is positive, therefore if new death cases will upsurge, then NIFTY 50 will also upsurge at the rate of 25.93%. The value of R<sup>2</sup> is 0.1290 which signifies that 12.36% of the Stock movements of NIFTY-50 is predicted by the new death COVID-19 cases. The value of

adjusted R square is 0.1269 which signifies the added input has a foremost influence on NIFTY-50 stock prices. It has been found that there is a substantial influence of COVID 19 new death cases on NIFTY-50 with the following equation:

$$Y = 12162 + 0.80065X_1 + E$$

### Data Analysis and Interpretation

**Table 5: Summary of the Simple Regression model**

Particulars	Total Confirmed COVID 19 Cases	New COVID 19 Cases	Total COVID 19 Death Cases	New COVID 19 Death Cases
R <sup>2</sup>	0.7466	0.1098	0.7536	0.129
Intercept (α)	10904	12242	10780	12162
Slope (β)	0.00018	0.0096	0.01461	0.80065
Regression Equation	Y = 10904 + 0.00018X	Y = 12242 + 0.00960X	Y = 107780 + 0.01461X	Y = 12162 + 0.80065X
Standard Error (α)	78.3293	129.5336	79.4956	130.8127
Standard Error (β)	5.30373E-06	0.0014	0.00041	0.10272
P value (α)	0	1.9554E-280	0	1.1885E-277
P value (β)	2.7136E-124	5.09429E-12	8.7315E-127	5.39909E-14
t statistic (α)	139.2058	94.506	135.6001	92.9724
t statistic (β)	34.7575	7.1129	35.4117	7.79403
Confidence Interval (α)	10750-11058	11987-12496	10623-10935	11905-12419
Confidence Interval (β)	.00017-.000195	0.0069-0.1225	0.0138-.0154	0.5987-1.0025

The above table shows the regression result of the COVID 19 confirmed cases, new cases, death cases, and new death cases and stock prices of NIFTY 50. In the present study, the independent variables were COVID 19 confirmed cases, new cases, death cases, and new death cases and the dependent variable was stock prices.

#### Relationship between Total COVID 19 confirmed cases and Stock prices of NIFTY 50

The table shows that there is a constructive association between COVID 19 confirmed cases and stock prices of NIFTY 50 as the value of the coefficient is 0.00018. It means that the confirmed case of one patient has increased the stock volatility by 0.00018. The value of R<sup>2</sup> is 0.1098 which means 10.98% of the variation in stock prices is explained by the COVID 19 Confirmed cases. We are 95% confident that the real underlying value of the intercept lies between 10750-11058 and that the real underlying value of the slope lies between 0.00017- 0.000195. The P-value is less than 0.05 (1.9554E-280 which equals 0) that's why we reject the Null Hypothesis as the coefficients equal 0. Both the coefficients are statistically significant. So, it can be said that there is a

association between COVID 19 confirmed cases and NIFTY 50 stock prices.

#### Relationship between COVID 19 new confirmed cases and Stock prices of NIFTY 50

The table shows that there is a constructive association between COVID 19 confirmed cases and stock prices of NIFTY 50 as the value of the coefficient is 0.0096. It means that the confirmed new case of one patient has increased the stock volatility by 0.0096. The value of R<sup>2</sup> is 0.7536 which means 75.36% of the variation in stock prices is explained by the COVID 19 new confirmed cases. We are 95% confident that the real underlying value of the intercept lies between 11987-12497 and that the real underlying value of the slope lies between 0.0069-0.1225. The P-value is less than 0.05 (2.7136E-124 which equals 0) that's why we reject the Null Hypothesis as the coefficients equal 0. Both the coefficients are statistically significant. So, it can be said that there is a association between COVID 19 confirmed new cases and NIFTY 50 stock prices.

### Relationship between COVID 19 total death cases and Stock prices of NIFTY 50

The table shows that there is a constructive association between COVID 19 total death cases and stock prices of NIFTY 50 as the value of the coefficient is 0.01461. It means that the death case of one patient has increased the stock volatility by 0.01461. The value of R2 is 0.7466 which means 74.67% of the variation in stock prices is explained by the COVID 19 death cases. We are 95% confident that the real underlying value of the intercept lies between 10623-10935 and that the real underlying value of the slope lies between 0.0138-.01540. The P-value is less than 0.05 (8.7315E-127 which equals 0) in both that's why we reject the Null Hypothesis as the coefficients equal 0. Both the coefficients are statistically significant. So, it can be said that there is a association between COVID 19 total death cases and NIFTY- 50 stock prices.

### Relationship between COVID 19 new death cases and Stock prices of NIFTY 50

The table shows that there is a constructive association between COVID 19 new death cases and stock prices of NIFTY 50 as the value of the coefficient is 0.80065. It means that the new death case of one patient has increased the stock volatility by 0.80065. The value of R2 is 0.129 which means 12.90% of the variation in stock prices is explained by the COVID 19 new death cases. We are 95% confident that the real underlying value of the intercept lies between 11905-12419 and that the real underlying value of the slope lies between 0.5987-1.0025. The P-value is less than 0.05 (1.1885E-277 which equals 0) in both that's why we reject the Null Hypothesis as the coefficients equal 0. Both the coefficients are statistically significant. So, it can be said that there is association between COVID 19 death new cases and NIFTY- 50 stock prices.

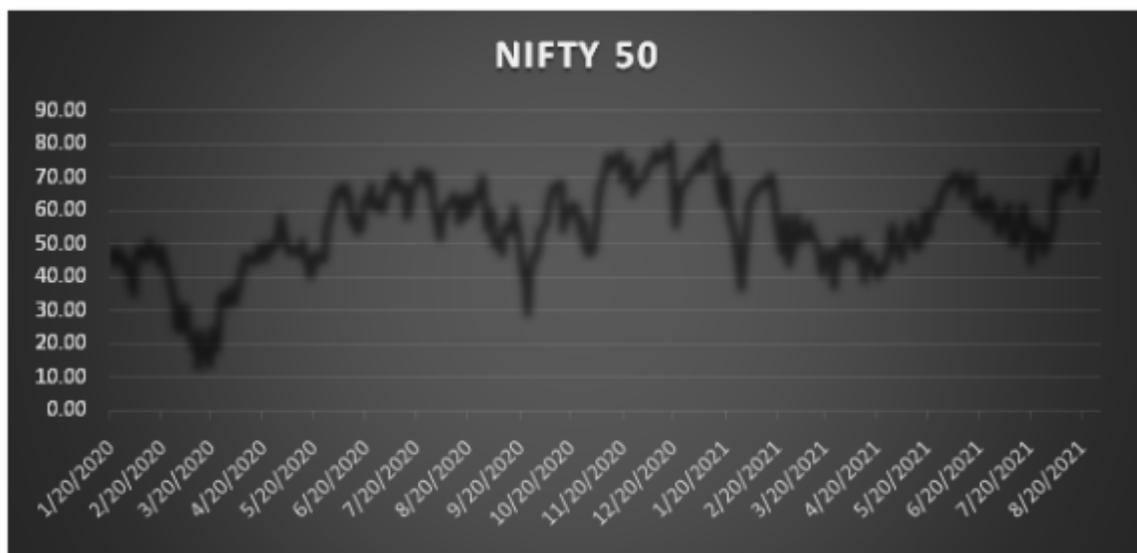


Figure 1: Shows the Relative Strength Index of NIFTY 50

After the news of the COVID-19 pandemic in Wuhan, China the first quarter of 2020 saw various fluctuations in the stock prices. In January month the stock prices for NIFTY-50 were between the overbought and oversold zone. But at the end of February month on 28th February the stock prices entered the oversold zone as the RSI value was 26.14. In March, the stock prices were in the oversold zone only with minor fluctuations as the RSI value was 27.08 on 6th March 2020 and 22.67 on 24th March 2020. On 6th July for the first-time stock prices enter the overbought zone as the value of RSI was 71.30 and 72 on 7th July 2020. Thereafter on 24th September 2020, the stock price just touched the RSI value of 30.30 but did not enter the oversold zone. On 9th November 2020 RSI value i.e., 72.57 entered the overbought zone and stayed there till 24th November 2020. Thereafter stock prices were increasing continuously with minor ups and downs. Due to the continuous surge in demand for medicine in the nation the value of RSI remains in between

support and resistance levels. There were instances of bullish and bearish stock prices throughout the study. Due to the absence of medicine for deadly virus stocks of NIFTY 50 fell initially but over time the research and development of medicine for COVID-19 increased leading to an upward trend in the share prices. Figure 1 indicates that stock prices have not fallen below 30 besides during the March Month as the nationwide lockdown was announced then and RSI value was minimum at 13.95 on 12th March 2020. At the end of August month, the stock prices of NIFTY 50 entered the overbought zone.

### Findings of the study

Prediction of stocks movement will be crucial for the investors to derive financial gains from the stock market and also help them in hedging the market risk. The present research effort attempted to study the influence of COVID 19 on the Indian

Stock Market with special reference to NIFTY 50. By employing a simple regression analysis model, the results of the study disclosed that all four Null Hypotheses were rejected as the P-value was coming less than 0.05. It was found that every independent variable importantly the confirmed covid cases and death rates undertook in the study have impacted the stock volatility of NIFTY 50, the leading Indian stock market index. The application of RSI the technical barometer exhibited that stock prices entered the oversold zone in March 2020 as the arrival of the pandemic was noticed then and the stringent and longest nationwide lockdown was imposed by the government to break the transmission of disease. On 12th March 2020, the RSI value was the lowest i.e., 13.95 in 20 months as on this day World Health Organization declared the outbreak as a pandemic. On this day stock markets suffered their worst crash since June 2017. Since then, Indian stock markets have been in an optimistic rally from October 2020 to August 2021. The results of the study will be beneficial for investors in the future, as the stock market is dynamic and variables impacting stock returns should be studied to predict the fluctuations in the stock prices.

## Conclusion

The determination of the learning was to analyze the impact of different independent variables such as confirmed COVID 19 cases, daily new COVID 19 cases, COVID 19 death cases, and New COVID 19 death cases on the Indian Stock Market Index i.e., NIFTY-50 during the corona pandemic period. The outcome of the study is based on the data from 1st January 2020 to 31st August 2021. The results of the study have shown that COVID 19 confirmed cases and death rates have significantly impacted the stock market, whereas the impact of daily new cases and new death cases was not that much significant as people were aware of the ongoing pandemic ill effects. The regression analysis adopted in the study showed the positive and noteworthy impact of an upsurge in COVID 19 confirmed cases and death rates on the stock market volatility with specific reference to stock prices of NIFTY-50, the leading stock market index of India. Based on the results the all four Null hypotheses were rejected as the P-value was less than 0 in every case and it has been concluded that overall stock price volatility in India reacted quickly to the COVID 19 confirmed cases and death rates. But there has been variation in the reaction depending on the brutality of COVID 19 layers in India. In light of the ongoing faster transmission of COVID 19 across nations, India went under the longest nationwide lockdown from 22nd March 2020. The stock prices of NIFTY 50 in March 2020 were under the oversold zone due to the fresh announcement of the pandemic in the overseas nations.

## Implications of the Study

In the study, the Simple Regression Analysis Model and Relative Strength Index (RSI) method have been deployed to analyze stock performance during the COVID 19 pandemic. The various other technical indicators can be applied to the stocks of NIFTY 50 and a correlation study can be undertaken in the future which will provide more accurate information related to investment in the Indian Stock Market in the pandemic period. Econometric tools such as the Panel Fixed effect regression method, GARCH model can be applied to understand the volatility of stock returns in depth. Hopefully, this research will be helpful for investors in the stock market.

## Limitations of the Study

The period of the study was from 1st January 2020 till 31st August 2021 (20 months daily closing prices of the stocks of NIFTY-50). In the study, we have employed simple regression analysis and one of the technical analysis tools i.e., RSI barometer which does not consider the factors such as state of the economy and company performance, etc., and the study is limited to cost and time constraints.

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# Cost benefit analysis of IOT based green building technology for residential sector of India

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## Abstract

*In the era of green revolution and green energy sources deployment, green building is one out of the seven initiatives to combat the challenge of carbon intensity to achieve sustainable development goals. The efficacy of the green building implementation could be elevated through felicitous and channelized integration with Internet of Things (IOT). The residential sector of India contributes majorly in CO<sub>2</sub> and other greenhouse gas (GHG) emissions with rise in anthropogenic activities causing rise in earth temperature. The level of global warming in India is increasing which is predicted to worsen more in near future, alarming a situation for rise in implementation of green energy system installations. India started constructing green buildings on a larger scale and factors such as greenhouse gases emission and carbon footprints levels has observed a reduction, with more use of clean and green sources for energy. The paper discusses to find out how investment in green building with internet of things could be beneficial while performing cost benefit analysis (CBA) focusing on the residential sector of India. From the previous studies, it was found that green buildings have high upfront cost in comparison with conventional buildings. The cost benefit analysis will help to check the economic feasibility of the IOT integrated green buildings in comparison with conventional buildings. Thus, the objective of the paper is to find whether investment in IOT integrated green building business are feasible or not. To perform cost benefit analysis, both monetary and non-monetary aspects will be taken into account. The data will be collected efficiently from the prominent sources which is been analyzed by using life-cycle cost (LCC) analysis. The roles of IOT in green building construction along with the various drawbacks are also been highlighted by performing the SWOT analysis of the integrated system. The paper concludes with analysis and limitations of the studied carried out.*

**Keywords:** Internet of things (IOT), green building, sustainable development goals (SDGs), green energy, NPV (net present value), Cost benefit analysis (CBA), life cycle costs, CO<sub>2</sub> and GHGs emission.

## 1. Introduction

India, a developing economy country has housing industry as one of the fastest growing sectors. The real estate sector of India is growing at a faster pace integrated with smart city mission aiming to promote clean and sustainable environment for the citizens of India. As per Ministry of Housing & Urban Poverty Alleviation (MoHUPA), during the 12th five year plan there is an estimated housing shortage of 18.78 million specifically for Economically Weaker Sections (EWS) and Low Income Group (LIG) categories. The main reason behind rapid development of real estate sector is rapid urbanization, increasing the requirement of substantial and affordable housing facilities. The total carbon emission from building sector of India accounts for 24 percent. Thus, while creating new houses factors such as proficient usage of energy & water, effective waste handling and control over emission levels, are taken into considered as

described under smart city mission, emerging the concept of green buildings. The construction of such sustainable buildings considers various social, economic and cultural attributes alongside design parameter IGBC Rating System, (2017). India with colossal population have approximately 220 million households with 8000 towns and 6,00,000 villages, leading to a average consumption of 900 kWh/year, releasing large amount of GHGs and other pollutants in environment Shukla et al. (2015). The Indian green building council set an ambitious target of net zero carbon emission by the end of 2050 with an increase of decarbonisation of buildings value chain by almost five folds. The green energy buildings construction in India saves energy and water by about 20-30 percent and 30-50 percent respectively, striving to reduce the level of greenhouse gases emission by 33- 35 percent in comparison to the current emission level.

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The green buildings make extensive use of green energy sources such as solar energy or wind energy. The integration of renewable or green sources of energy in green building technology and development is performed for fulfillment of electricity needs while reducing the emission level in the environment. The rise in investment in real estate market of India also increases the percentage for green building adoption across the region. For urban area development, the central government aims to build 20 million affordable houses which imply rapid growth of residential sector of India. This would lead to rise in electricity demand, cooking fuel demand, heating demand and among others from the stated sector, leading to increase in GHGs emission level. GRIHA is India's rating system, developed to check how green buildings are efficient and considering environmental impacts of green buildings, assessed on more than 30 criteria as listed by United Nation sustainable development goals. Many countries are taking their feet forward in construction of green buildings across the world. The top five countries with highest number of green buildings are United States (124,212), China (5,678), Canada (3066), India (2,246) and UAE (2,029). From the data it can be clearly observed that the gap between the first position and second positioned country is almost of 100,000 green buildings and for India in comparison to United States, the numbers of fewer green buildings are 121966, which need to be addressed to know about the halting factors for green building construction.

### **What makes buildings Green?**

The conventional buildings are ones which uses energy inefficiently with generation of large amount of waste at the time of construction and operation, emitting high level of pollutants and greenhouse gases in environment. Considering these challenges of conventional buildings, green building concept was framed which make effective use of land, water, building material and energy with no or less deleterious impact on human health and environment. Comparing green buildings to conventional buildings, the indoor and outdoor air quality is cleaner with increased use of recycled and renewable materials. As per the Environmental Protection Agency (EPA), green building is defined as "the practice of using processes for that are responsible for environment and resource efficient during the entire buildings life cycle consisting of design construction, operation, maintenance, and renovation and deconstruction phases. The buildings are constructed considering factors such as durability, comfort, economy and utility" Howe (2010). The main purposes of green buildings adoption in residential segment are:

- a. Increase in energy efficiency by adopting renewable energy sources.
- b. Increase use of water efficient products and services

- c. Reducing the amount of waste and greenhouse gas emission
- d. Improve the indoor air quality level.
- e. To achieve sustainable development goals meet through smart growth Components of Green Building, (2016).

### **What is IoT?**

The Internet of things (IoT) is defined as a world where number of physical devices are connected together while make use of private or public Internet protocols (IP) networks helping in data analysis and ease of doing things. The implementation of IoT reduces the chance of error for planning and taking decisions. Under IoT, not only computer devices are connected together, but objects such as home appliance, phones and buildings of different types and size. The main objective of internet of things is to make objects connected with anything and anyone by using IP networks Patel and Patel (2020). The smart home environment IoT applications deals with lightning control, temperature control, smoke detection, motion server, humidity control, alarm system and other devices hub, which are few important parameters for green building working.

### **Benefits of IOT and green building integration:**

The IoT enabled green buildings are complex intersection of electrical, mechanical, structural and IT components, aiming to improve the efficacy of the buildings. The use of IoT in buildings helps in channelizing of heat, ventilation and air-conditioning systems through proper control on flow of air inside the buildings Jabez (2022). Also, the IoT integrated green renewable energy sourced buildings measures the variation in voltage and electric variables fluctuations which is been fed into the grid. The use of IoT based sensing technologies measures the equipment health with proper management of power. The real time demand and supply of electricity assessment is performed which proofs helpful in future prediction and reduction in wastage of energy at dissemination point. Another benefit of IOT integrated green buildings is energy saving by making use of lights as per the demand with control over demand and supply fluctuations Santhaiah et al. (2019).

### **Literature Review**

Green buildings are sustainable buildings, the construction of which gives a way for solid financial investment. As per Kats et al. (2003), green buildings have number of financial benefits such as lower energy cost, waste disposal cost, and water usage costs, lower environmental and emissions costs among the few. Along with financial benefits, the construction of green buildings also includes productivity and health benefits. The paper of Kats et al. (2003) depicts the correlation in order to evaluate and quantify the benefits of green building designs. Gujarathi (2016) paper studied and focus on the green building cost parameters

for residential sector of city of Pune, India. In the study the author aims to determine the cost factors for green buildings, by comparing it to the conventional building construction. The paper suggests that for energy-efficiency investments, sufficient economic returns are required with adoption of number of policies and framework to increase investment in green buildings for sustainable future. Shabrin and kashem (2017), studies the cost benefit analysis of green buildings considering the economic aspects of green building taken into consideration the monetary and non-monetary values. The research findings of the paper suggest that, the cost of the green buildings varies in the range of 0-10 percent in different countries. The SWOT analysis helps in external as well as internal analysis of green building adoption. Also, from the research it was found that calculation of exact theoretical values for cost benefit analysis is quite challenging due to limited availability of data. The initial cost of investment for green buildings is one of the major parameter for green building development for public and private sector. Thus, Neupane et al. (2020) in their study analyze the cost and potential benefits of green building using life cycle cost analysis for public office (commercial sector) in Nepal. The result of the paper suggests that a green building improves the energy and water efficiency level, increasing the value of money for investment in long run. The paper also suggests the benefits of green energy for long run helping the government of Nepal in formulation of policies and guidelines. The content analysis of the green buildings helps in identification of parameters, for better understanding of green buildings property value. The content analysis carried out in the research work of Wen Ken et al. (2020) helps the industry players, policy makers and academicians in better understanding the green building property assets, with a discussion on several related green building factors such as green building certification, energy saving, rental rate, site location, raw material cost, environmental and social benefits, policies and guidelines for green buildings.

From the review of literature, it was found that designing of green buildings is quite different from non-green buildings with appropriate analysis of data collected. Thus, after reading and understanding number of research articles, the objective of the paper is been postulated as no work is been done on IoT integration in green buildings from cost analysis perspective. The presence of IoT in green buildings helps in easy detection of substandard working of green building components and more effective and efficient water and energy management.

### **Cost Benefit Analysis (CBA)**

Cost benefit analysis is a methodical procedure to measure the long term and short term cost and profits consequences of any investment project, considering both qualitative and quantitative factors. The cost benefit analysis focuses more on

the monetary values to check the economic value of the project by converting all monetary values into present value (PV). These present values calculations is performed through net present value (NPV) analysis and in general projects with positive value of NPV ( $NPV > 0$ ) is selected Common (2016) . The life cycle cost (LCC)

### **Green building parameters**

It is very quite difficult to calculate the actual and overall cost for green buildings which keeps on changing depending on various considerations. But in general the cost component is fragmented under two headings as monetary and non-monetary costs. For cost benefit analysis, the monetary costs are considered and the monetary parameters for green buildings development are listed below:

**Site selection and landscaping:** The dimension or size of the building is defined as the space requirement for construction of building and installation of various equipments for proper lighting and ventilation. The dimension of the building defines the standard construction and non-construction area to follow the green building specifications Arora (2006) .

**Equipment costs:** The equipment costs are calculated by estimating the sum of direct and indirect costs include under the heading of fixed capital investment. The cost of high performance glazing and windows, insulation cost, green roofs costs, shading devices costs, solar panel costs and among others are determined.

**Infrastructure construction and installation cost:** For green building development, the two important aspects are decentralized rainwater harvesting and decentralized renewable energy. The implication of decentralized rain water harvesting with green buildings proves efficient in energy demand management with economic, social and environmental benefits. Another aspect which improves the efficiency of green building is investment in rooftop solar PV project. The system of decentralized rainwater harvesting and rooftop solar can be easily installed in any of the single-family and multi-family residential buildings. Thus, the infrastructure and installation cost calculation for decentralized rainwater harvesting and solar rooftop PV are mandate for green building adoption Crawford and Lawson (2009).

**Labor cost (Including training and development cost):** For efficient and effective development and installation of green buildings, it is required to use technically sound labors, making labor costs as one of the prime cost driver for green buildings. The total labor cost is calculated under two segments i.e. direct labor costs and indirect labor costs. It has been found that the total labor costs is minimum of 30 percent of the total revenue of the projects, creating labor cost calculation an important

parameter. It should be noted that the cost of labor varies with change in location, work requirement, production demand and economic conditions Indeed Editorial Team,(2023).

**Operation and maintenance cost:** Operation and maintenance costs are the cost associated in operation and maintenance of components used for systematic working of green buildings. The total O&M costs is calculated considering the sum total of all individual components used. The O&M parameters are one of the important phase of total life cycle costs cycle (LCC) which includes construction, operation, maintenance and end of life.

**Tax and incentives (subsidy):** Taxes are the tariff which is been imposed on the movement of goods within or outside the country. The indirect taxation falls under the current regime of GST. The exemption and imposition of tax, affects growth and decline of investment in any business making the import and export market highly fluctuating in nature. Also, the subsidies amount paid by government promotes number of individual participation for growth of business.

**Design cost:** The total cost required in designing, construction, operation and maintenance and demolition i.e. the time in pre building, post building and post building phase falls under the category of design cost of the green building. It also includes the cost incurred in the energy, water, material and systems and waste management.

**Utility bills:** The utility bills for solar rooftop energy systems used in green buildings are almost 50 percent lesser in comparison to convenient style of energy systems. The government is also providing incentives and financial support to the residential rooftop consumers such as high amount of loan in percentage of total cost of the project, high rate of interest and high loan repayment period. These financial supports increase the flexibility for ultimate investment in green buildings.

**Green mortgage value :** To attract more number of real estate investors in the green building construction segment, the government has announced green mortgage and green construction loans from commercial banks and non- banking finance companies. Along with the construction of new buildings, bigger loan amount is also provided for house retrofitting and conventional building conversion at a higher rate of interest, bringing together the investors, debt and equity shareholders, green rating agencies, developers as well as the end-users Jain (2020).

### **IoT parameters**

For installation of IoT integrated infrastructure and to tap full investment potential of IoT architecture, in general there are 8 components of IoT infrastructure which need to be considered and are listed below:

- a. IoT sensors and actuators
- b. Internet gateways
- c. Edge IT systems
- d. Cloud data center
- e. IoT cyber security
- f. IoT communications platform
- g. Analytics and aggregation platform
- h. Cloud facility

The installation of Internet of Things (IoT), the total installation cost is segmented into three major categories such as development cost, production cost and operational costs. The each cost component for IoT will add in the total cost of green building development cost in the IoT integrated green buildings. The three major categories of IoT cost parameters are:

- a. **Development costs:** The integration of hardware and software are done for proper functioning of IoT devices. The commonly used hardware device for development of IoT device includes sensors, micro controllers, wearable devices, desktops, laptops, mobile phones and integrated circuits. The IoT software is set of programs developed in order to perform activities/ functions for evaluation of data or analysis. Some of the software used is operating systems, middleware and firmware Mishra (2022). It was found that the hardware cost is almost 30 percent of the total IoT technology cost.
- b. **Production and operation costs:** The production cost includes the chip cost or bill of materials (BOM) cost, testing cost of the devices and component in their production cost. Whereas the operational costs include costs for cloud hosting and software licenses (IoT running solution costs).

### **Cost Benefit analysis (CBA)**

To check the financial feasibility of green buildings integrated with internet of thing (IoT), the cost benefit analysis (CBA) and Life cycle cost (LCC analysis) is performed and analyzed based on the data collected from major sources and websites. The life cycle cost analysis quantifies the financial benefits of initial cost of the material, considering the expected life span of the material and maintenance and replacement costs of the materials used Nielson et al. (2009). The Net Present value analysis is performed to check the financial viability of the project. The below are the parameters to perform cost benefit analysis (CBA) through NPV.

- **Project Details of Green buildings implementation**

**(Monetary components):**

**1. Architecture and designing cost:** The architecture cost generally falls within 5 percent to 20 percent of the building construction cost. The approximate cost of architecture for building a 12 decimal or 5227.2 square feet green building is Rs 114223.363 assuming per square feet cost equal to Rs. 21.85 respectively. Construction Cost Estimation (2016).

**2. Equipment costs:**

**a. Cost of high performance glazing and windows:** The cost ranges between Rs. 26,606 to Rs. 90,071 for installation of high performance glazing window in green buildings.

**b. Solar panel costs:** The solar panel costs vary across the states with variation in the state subsidies offered, solar policies and net metering regulations. The average cost of solar panel in India is approximately Rs. 25715 per Kilowatt of energy generation.

**c. Solar water heater costs:** There are generally two types of solar water heater namely Flat Plate Collector solar water heater and Evacuated Tube Collector Solar water heater which saves up to 1400 units of electricity per day. The minimum cost for installation of solar water heater is Rs. 25000 (Solar Water Heater Price).

**d. Rain water harvesting system costs:** As the rainwater harvesting system costs are site specific, making it quite difficult to generalize the installation cost value. But in general, the installation cost for rain water harvesting for already constructed residential building lies between Rs. 2000 to Rs. 30,000 for 3229 square feet carpet area building. Thus, the given calculation shows the required cost for 5227.2 square feet building (How Much Will It Cost to Catch Rain):

For 3229 square feet the value lies between Rs. 2000 to Rs. 30,000. So, the average cost for installation of rainwater harvesting =  $\{(2000+30000)/2\} = 16000$ . Therefore, the average cost for 5227.2 square feet area rainwater harvesting system is equal to  $\{(16000/3229)*5227.2\} = Rs. 25901$ .

**3. Labor cost:** The labor rate market value for construction of 1000 square feet building is around 160 -200. Under the total labor cost, the cost is segmented into civil contractor cost, plumbing cost, electrician cost, carpenter cost and painter cost. For one day, basis labor charge for 5227.2 square feet is approximately 25,610 as per the labor rates for construction work in India Handeep (2021).

**4. Operation and maintenance cost:** The operation cost is defined as the cost incurred to perform the day to day operation of the business. The operation cost predicted by Weerasinghe et al. (2021), for net internal area (NIA) of

3809 meter square or 41000 square feet was 8063.243 INR/feet square. Thus, calculating the operating cost for 5227.2 square feet area green building would be 1028.004 INR. Similarly, the maintenance cost for 5227.2 square feet area green building would be 205.59 INR.

**5. Solar rooftop panel installation cost:** The generic cost for installation of solar rooftop plants panels for upto 10 kilowatt plants costs Rs. 6,024 per KW, which reduces with increase in the capacity increase of solar rooftop plant. Therefore for 4 kW solar rooftop plant installation, the amount required is equal to  $(Rs. 6024*4 = Rs. 24096$

**6. Energy bill:** Consider installation of 4 Kilowatt of solar rooftop panel in the residential building of 5227.2 square feet area, which generates 16 units of electricity daily. On an average solar rooftop tariff for first 50 units is Rs. 3.20 per unit, for next 150 units the tariff rate is Rs. 3.90 per unit and for above 200 units, the rate of tariff is Rs. 4.90 per unit respectively Vasita and Magal (2018). Thus, for 5227.2 square feet 16 units' consumption resident, the average electricity bill will be Rs. 1,536 {Energy/ Electricity bill =  $3.20 * 16 * 30 = Rs. 1,536$ }.

**7. LEED Administration Fees:** The construction of green building requires registration of green building project. The registration fee for green building is Rs. 80,000.

**8. Green roof cost:** The cost of green roof use in green building ranges between Rs. 819.66 to Rs. 2,049.14 for simpler extensive roofing to intensive roofing. Thus, the average costing for green roofs is equal to Rs.1434.

**9. Solar rooftop installation cost:** For installation of 1 kilo watt peak, solar rooftop plant, the cost breakdown of different components used for solar rooftop PV installation is listed in the table below. It was observed that the major cost contributors of rooftop solar plant are PV modules and inverter respectively(table1).

**Table 1: Component cost of 1 kW solar rooftop PV project**

Component	Rs.	% total cost
<b>PV modules (Crystalline)</b>	52,000	52
<b>Inverters</b>	23,000	23
<b>Balance of System (cables, etc.)</b>	17,000	17
<b>Installation</b>	8,000	8
<b>Total</b>	1,00,000	100

Thus, for installation of 4 kilo watt peak of solar rooftop plant is four times the cost of 1 kilo watt peak value i.e. Rs.4, 00,000. The above calculation is without subsidy and accelerated depreciation (AD) calculation as per the ministry of new and renewable energy (MNRE). Thus, the final cost for 4 kW rooftop solar plants is calculated below which is equal to Rs. 2, 01,600 Cost of Roof Top Solar, (2022).

**Table 2: Installation cost of solar rooftop PV for 4 kW plant**

Item	Rs.
<b>Cost of a 4 kW rooftop solar plant</b>	4, 00,000
<b>Subsidy @ 30%</b>	1,20,000
<b>Net cost after subsidy</b>	2,80,000
<b>Accelerated depreciation@80%</b>	2,24,000
<b>Tax rate</b>	35%
<b>Tax saved through depreciation</b>	78,400
<b>Net cost after both AD and Subsidy</b>	2,01,600

**Table 3: Types of sensor and its cost**

Sensor Type	Cost Range (Euro)	Average price of sensor (Euro)	Average price of sensor considering the lowest price (Rs. Equivalent)
<b>Current &amp; Electricity Monitoring Sensors</b>	71- 849	460	6166.35
<b>Humidity &amp; Temperature Sensors</b>	52-887	469.5	4516.2
<b>Light sensors</b>	56-424	240	4863.6
<b>Noise detectors</b>	67-2295	1181	5818.95
<b>CO2 Sensors</b>	91-420	255.5	7903.35
<b>Soil Moisture Sensors</b>	68-314	191	5905.8
<b>Smoke Detection</b>	50-179	114.5	4342.5

Source: Buy Online IoT & LoRaWAN Devices & Sensors |

- **Camera cost:** The type of IoT camera selection depends on size and pixel required in different IoT appliances. The increase in clarity/ pixel value, the price of IoT camera increases. The camera cost for IoT ranges between Rs. 200 to Rs. 8149 (IoT Cameras).
- b. **Cloud hosting operational cost:** Cloud hosting is a facility that enables a websites server to get information from several sources, increasing the speed and efficiency of the performance. Depending on the memory availability, the price of cloud hosting varies between Rs. 6499 to 44,999 per month for unlimited bandwidth Chandrasekhar (2023).

• **Project Details of IOT implementation:**

**(Monetary components):**

- a. **IoT App development cost:** The development cost for IoT App totally depends on the size of the project or size of the green building constructed and the complexity of the technology ranging the development cost between \$ thousands to dollar millions. The cost of IoT development also depends on the software and network area to be served. There are in general three level of complexities namely, low level of complexity, medium level of complexity and high level of complexity.

**Upfront development cost for hardware and software:**

- **Sensors cost:** The total sensor cost depends on the required types of sensors for proper functioning of IoT. There are different types of sensors which are been used in IoT integrated green buildings. The table 3 below shows the price range for different type of IOT sensors. Thus, the total cost of sensors installation is equal to Rs. 39,516 considering the sensors lowest price available in market.

Now, considering the bandwidth speed requirement of 40 Mbps for home, the minimum cloud hosting price for a year is equal Rs. 77988{Minimum cloud hosting price = 6499\* 12 = Rs. 77988}.

- c. **Chip production cost/ bill of material used:** The expected rise in number of IoT devices reduces the overall production cost of chips used. The cost of IoT chip per piece is equal to Rs. 250 with multi protocol capabilities.

## VII. NPV analysis for IoT integrated Green buildings:

The NPV analysis helps in determining whether investment in IoT integrated green buildings are feasible or not. Firstly, we will be considering what the parameters that make composition of initial investment. Considering significantly the assumptions of constructing a residential green building with IoT integration on 12 decimal or 5227.2 square feet area, the table 4 shows the project construction cost and table 5 shows the IoT installation cost. The table 6 shows the components values through which the project has cash inflows for stated period of 3 years.

The calculation of financial viability of IoT integrated green buildings is performed through life cycle cost (LCC) analysis to assess and observe the total working capital requirement, owning cost and disposing cost. The Life cycle cost (LCC) analysis consists of the sum of the initial cost of each components and for the project the value of LCC analysis found = 6, 33,098.363 for initial investment requirements. In order to calculate the expected return and present value worth, we look at the net present value (NPV) analysis. We used the discount rate or the interest rate as 8.90 percent at which loans are provided by financial institutes and banks and time period of 3 years provided for construction and development of green building. The interest rate as discount rate considered for NPV analysis ideally has to be calculated from WACC calculation, which is one of the limitations of the study. Thus, bearing the above made assumptions, form the calculation of NPV  $\{(Cash\ flow)/(1+i)^t\}$  the value found = Rs. 2, 96,456.368. The positive value of NPV suggests that project is financial feasible or the decision for investment in the project is financially reasonable decision.

**Table 4: Project construction costs for green building construction.**

Project construction costs	Estimated Budget (Rs.)
Architect and designing cost	114223.363
HP glazing and window cost	26,606
Solar panel cost	25,715
Solar water heater cost	25,000
Rain water harvesting system cost	25,901
Electrician cost	13000
Plumbing cost	12000
Asset purchase cost/Equipment cost	109053
4 kW solar rooftop installation cost	2,01,600
LEED Administration cost	80,000

**Table 5: Project costs for IoT components**

IoT Components	Estimated Budget (Rs.)
Sensors development cost	39,516
IoT camera cost	4174.5
Cloud hosting price	77988
Chip production cost (per chip)	250

**Table 6: Project costs inflows components**

Cash flow Components	Estimated Value (Rs.)
Operation cost	36,864.144
Maintenance cost	7,401.24
House Rent	10,80,000
Energy Bill	55,296
Net metering surcharge cost	20,865

## Non-monetary analysis {SWOT Analysis}:

The project non-momentary viability and feasibility is assessed through SWOT analysis. The word SWOT is an abbreviation of Strength, weakness, opportunity and threats. Below are the details of SWOT analysis performed for IoT integrated green buildings.

Table 7: SWOT analysis of IoT integrated green buildings

Particulars	Total Confirmed COVID 19 Cases	New COVID 19 Cases	Total COVID 19 Death Cases	New COVID 19 Death Cases
R <sup>2</sup>	0.7466	0.1098	0.7536	0.129
Intercept (α)	10904	12242	10780	12162
Slope (β)	0.00018	0.0096	0.01461	0.80065
Regression Equation	Y = 10904 + 0.00018X	Y = 12242 + 0.00960X	Y = 107780 + 0.01461X	Y = 12162 + 0.80065X
Standard Error (α)	78.3293	129.5336	79.4956	130.8127
Standard Error (β)	5.30373E-06	0.0014	0.00041	0.10272
P value (α)	0	1.9554E-280	0	1.1885E-277
P value (β)	2.7136E-124	5.09429E-12	8.7315E-127	5.39909E-14
t statistic (α)	139.2058	94.506	135.6001	92.9724
t statistic (β)	34.7575	7.1129	35.4117	7.79403
Confidence Interval (α)	10750-11058	11987-12496	10623-10935	11905-12419
Confidence Interval (β)	.00017-.000195	0.0069-0.1225	0.0138-.0154	0.5987-1.0025

### Conclusion

Green building demand nowadays is observing a growth across the world and so in India. The importance of fresh air, improved indoor environment, water savings and green energy has been recognized. The environmental and cost benefits of green buildings have gained its recognition among the residential sector. The popularity of Internet of things (IoT) has also increased with identification of benefits of its installation. Initially, the uses of IoT devices were limited to the residential sector, but gradually many residents have started using IoT devices in their conventional residents. Thus, the conclusion section discusses few important points of the research work performed. The objective or mission was to find whether it's financial viable to go for investment in IoT integrated green buildings or not using cost benefit analysis (CBA) focusing the residential sector. The LCC analysis's one of the important parameter is NPV calculation which helps to spot basic information regarding capital requirement and return of investment. It has been found that IoT integrated green buildings have positive value of Net Present value (NPV) that makes the project financially viable for investment. It has been observed that one of the prime parameter helping green building investment feasible is rooftop solar PV plant and rainwater harvesting system, which adds the additional cost input. The study also suggests that there is an additional inflow of cash from net metering surcharges in the IoT integrated green buildings helping in proper channelization and regulation of energy. The SWOT analysis performed helps estimating the overall market analysis for IoT integrated green buildings. The

unavailability of standards for costing and selling of IoT and green building components are one of the major challenge for implementation. The operation and maintenance cost for an IoT integrated green buildings are not very high in comparison to the conventional building as IoT devices reduces the wastage of water and energy, decreasing the energy and water bill of the residential houses. The uses of materials in green buildings development are also environmental friendly and are reusable in nature. Not only energy and water segment of green buildings which get benefitted from IoT implementation, but the air quality and environment emission level can also be maintained. But the numbers of green buildings with IoT integrated devices are quite low in India, specifically in the residential segment. The energy efficient buildings are not only good for environment but have cost benefit as well. Lastly, it can be concluded that IoT integrated green buildings have prosperous future with high degree of financial feasibility for investment.

### Recommendation:

The research work has certain limitations and recommendation discussed in the following paragraph. The objective of the work is limited to find whether investment in IoT integrated green buildings are feasible or not for construction of new buildings but can be expanded to implementation of IoT in conventional buildings which is going to be converted to green buildings. This will remove the land purchase cost from the initial investment value, increasing the use of IoT devices on larger scale. Also, the study focuses only on the solar rooftop plant for green energy generation which can be replaced by small scale wind plant and

biomass plant. The study can be elaborated by performing the comparative feasibility analysis of different energy generation source incorporated IoT integrated green buildings. In the study, the green building project cost analysis is done for 12 decimal areas for ease of calculation which can be generalized in future works. The study focuses only on few parameters of IoT implementation, as there are no standard made for IoT platforms and IoT clouds software licensing. Thus, in order to make implementation rate higher, more awareness concerning IoT and green buildings benefits should be made available with proper backing up by government.

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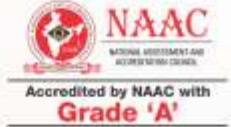
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# A Study on Employees Retention of Self-Finance Institutes in Lucknow

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## Abstract

*The goal of the study is to comprehend and assess the aspects that currently influence employee engagement at the Self finance institutes. With reference to the Self-financing institutes, it attempts to cover the employee engagement variables and their effect on retention. This research scope is constrained since it is sector-specific. Yet, during the past several decades, the education sector has emerged as one of India's fastest-growing economic sectors and a significant employer. The study's focus is only on the Self Finance Institute in the city of LUCKNOW. The higher education teachers chosen for the research was affiliated with AKTU University and University of Lucknow. 100teachers were designated as the sample size. We utilise Information that aims to describe a topic rather than quantify it is gathered through qualitative research. The researcher is examining employees' perspectives on involvement, which cannot be measured; nonetheless, in order to draw conclusions, quantification is done. This does not, however, constitute the study qualitative. The primary goal of the study is to examine the effect of employee engagement on staff retention at self-financing institutes affiliated with University of Lucknow and AKTU University in LUCKNOW.*

**Keyword:** Employee Engagement, Employee Retention, Self-finance College, HR Practices

## 1. Introduction

Talented workers must be completely engaged, winning their hearts and minds at every level of their careers, in order to be retained. The term "employee engagement" is popular right now. Employee engagement is a major factor in an organization's success. Not Employee engagement is a crucial relationship to customer happiness, brand reputation, and total shareholder value since it promotes employee retention, improved productivity, and loyalty. As a result, firms are searching for ways to boost employee commitment and engagement in order to acquire a competitive edge. Employee engagement refers to an employee's emotional connection to their company, as well as how hard they work and how long they remain as a result of that connection.

### Employee Engagement & Retention

Employee engagement is a hot topic in today's businesses since it has been repeatedly shown that motivated staff members

benefit their companies not just in terms of productivity but also in terms of client retention, profitability, and other factors.

### Definition of Employee Engagement

Employee engagement is a multifaceted term, and several studies have revealed various definitions of it. Nevertheless, only a few of these definitions are discussed in the following part because it is outside the purview of the research to describe all of them.

- Employee engagement was initially conceptualised by William A. Kahn in 1990. Employee engagement, according to him, is the "harnessing of organisational members to their job duties."
- Employee engagement was described by Harter et al. (2002) of the Gallup organisation as "an individual's participation and contentment with as well as excitement for work."

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- Employee engagement was defined as "an employee's participation in, dedication to, and contentment with work" by Schmidt et al. in 1993.

## Employee Retention

Workers are an organization's most valuable asset, thus strong performers are constantly protected. Employee retention refers to a variety of organisational methods that encourage employees to stay with the company for an extended period of time. Employers make a concerted effort to ensure that their workplaces are pleasant places to work, which in turn motivates their staff to stick around.

Employee retention is crucial since, in the twenty-first century, a company's "People Resources" are its only reliable source of competitive advantage. Employers must consciously participate in retention strategies if they want to keep a steady staff. The profitability and performance of a company are directly impacted by its ability to retain the type of personnel it needs.

Numerous employee retention strategies are designed to meet the demands of the employees in order to increase their job satisfaction and lower the expense of recruiting and training new personnel.

Employee retention, in Armstrong's words, is "the capacity of a company to keep its best people and so sustain a reduced turnover." A company can do this by using several staff retention initiatives.

## Self-Finance Institutes

A self-financing institution is one that does not get financial assistance from either the Indian State Government or the Central Government. However, they do not receive any cash awards or other perks from the UGC.

Good education is also provided by self-financing colleges, but there is a distinction in that the costs might occasionally be rather expensive compared to other institutions.

A college that is self-financing is one that was founded, is under the control of an educational organisation, offers courses that are approved by the university, and is affiliated with the university; it does not include government colleges or private colleges that have direct payment agreements with the government.

## Literature Review

1. **Baumruk (2004)** described employee engagement as an emotional and intellectual commitment to the business or the amount of spontaneous effort individuals put forth while performing their jobs (Richman (2006) and Shaw (2005). (Frank et al 2004). Although Kahn (1990) stated that employee engagement is a multifaceted concept, Truss et al. (2006) describe it simply as "passion for work," a

psychological state that is thought to incorporate the three elements of engagement mentioned by Kahn (1990) and captures the consistent theme running through all these definitions.

2. **According to Ferguson (2007)** the existence of a diversity of definitions makes it challenging to assess the current level of knowledge about employee engagement because every study approaches the topic from a different angle. Also, without being universally defined and quantified, employee engagement cannot be managed, nor can attempts to develop it be determined to be effective (This explains the challenges with comparability brought on by discrepancies in definition). Also, it is said that although employee engagement has been described in a variety of ways, many of the definitions sound similar to other concepts that are more well-known and well-established, such as "organisational commitment" and "organisational citizenship behaviour" (OCB) (Robinson et al 2004). Employee engagement is thus described by Robinson et al. (2004) as "one level up from commitment." Employee engagement appears to be just another trend as a result.
3. **According to Saks (2006)** organisational commitment differs from engagement in that it refers to a person's attitude and attachment towards their organisation, whereas engagement could be argued to be more than just an attitude and instead refers to how focused and involved a person is in carrying out their job. Also, while OCB includes informal and volunteer behaviours that benefit coworkers and the business, the focus of engagement is on an individual's performance in their official function rather than their extra-role and voluntary behaviour.
4. **According to May et al. (2004)**, the terms "work participation" and "flow" are most strongly related to engagement (Csikszentmihalyi 1990). A cognitive or belief condition of psychological identification is what is meant by "job participation" (Kanungo 1982:342). This is different from engagement in that it focuses more on how each individual performs while carrying out their work. Additionally, whereas work participation places a greater focus on cognitions, engagement, by most definitions, also includes emotions and behaviours. The level of one's participation in his or her work is determined by how busy they are (Paullay, et al., 1994)
5. **Nagar, N., & Srivastava, S. K. (2020)** This study highlights the importance of employee engagement and its determinants, emphasizing the need to build organizational trust and enhance collaboration to foster it. It also has a direct social implication, as a healthy working atmosphere has a direct bearing on employee engagement and builds a positive brand image.

6. **Osama, M. D. 2017** the most important details in this text are the importance of teacher education in modern society, the commercialization of education, and the need for teachers trainers and management agencies to think above the present requirement and implement teachers training programmes to keep their own position and sustain.
7. **Sathish Kumar, B., & Aswin Prakash, P 2017** Work life balance practices are not widely practiced among the teaching fraternity, and employers have not taken steps to design and implement WLB policies. This has caused teachers to feel a sense of missing life, and the majority of institutions do not have policy for work life balance. To address this, flexible timings should be provided to teachers.

## Research Gap

After reading numerous publications and studies on the three linked sub-themes of faculty engagement and retention, higher educational institutions, and employee engagement and retention, one can conclude that there is no literature on the topic of employee engagement and retention of faculty members in Uttar Pradesh. Additionally, no research has been conducted to ascertain whether the faculty members of Lucknow city's higher educational institutions are engaged and content in their work, as well as whether they intend to remain with their current employers or are looking for other, more lucrative employment opportunities. Therefore, this study aims to fill the knowledge gap.

- What engages an employee is the sole factor covered by the entire study. Employees, employers, or both should make decisions on the engagement aspects,
- There hasn't been any research on what should engage employees and how much engagement is appropriate.
- There aren't many studies that say money matters. Employees supposedly contribute more than they receive in terms of financial and social perks. It has not been studied how much money may motivate or demotivate an employee or how.

## Challenges to Retention of Employees

Retaining valued and talented personnel is a key difficulty for a firm in the present environment. The issue of employees leaving the company abruptly can be greatly controlled by management, but it cannot be fully eliminated. There are numerous difficulties with it.

The following are the difficulties in retaining employees:

- Every employee has high pay expectations, and this is one of the main causes of employee departures from a firm. When an employee requests a pay that is far above what

the company can afford, retention becomes a challenge. Every firm has a salary budget that can be increased up to a point but not past a particular point for each employee.

- There are many job opportunities available, and there is fierce rivalry to hire the best employees. Businesses go to great lengths to entice bright personnel away from their rivals. It is challenging to keep good resources for a long time when such enticing offers are available.
- Hiring the Wrong Person Recruiting is crucial to any organization's future success. A bright future will result from selecting the appropriate candidate, whereas a negative future will result from hiring the incorrect candidate. When interviewing for a job, candidates tell all kinds of lies. People don't first see that there is a mismatch and begin looking for a change. And issues develop when the proper candidate is placed in the incorrect position.
- No Work Rotation Any employee will grow bored if they stay in the same position for an extended period of time. In the beginning, the job might be enjoyable and engaging, but eventually it might get boring. In this case, management must implement a job rotation and provide these workers the chance to try something new. And if there isn't a job rotation, these workers might explore other options.
- Workers' unrealistic expectations An organisation cannot possibly live up to the expectations of every employee. An employee needs to be mature enough to realise that they can't have everything they want at work. When the employees' irrational expectations are not realised, they may occasionally look for a job move.

## Several Factors that Impact Employee Retention

Employee Retention is affected by the following factors:

- Workers anticipate a clear Career Path that will determine whether they will remain with the company for a longer period of time.
- Every worker desires a respectable wage and perks from their position. These expectations are rising steadily day by day. Hence, one of the key factors influencing employee retention in any firm is salary.
- Over time, relations between employees and their bosses become amicable. It resembles a comfort level. To promote employee retention, this professional relationship is essential.
- Every organisation has between 80 and 90 percent of workers that are from the middle class and want stable employment. Yet, in the current environment, layoffs, downsizing, and organisational restructuring are having an impact on employee retention and loyalty, which in turn

prompts people to explore for alternative employment options.

- A healthy and productive work atmosphere will make for a lovely place to work. Retention of employees will be impacted by the workplace or working environment. Employees who are valued as assets by their employers stay with them for a very long time.
- Every employee deserves to be commended and thanked for their excellent work output. The worker will feel pampered as a result and become more motivated. If not, the worker becomes unmotivated and starts looking for a new employment, which has an impact on employee retention.
- Every employee should receive equitable treatment, and data should be openly available. This will increase trust among the company's personnel. Employee unhappiness and job termination may result from a lack of openness and fair evaluations of the employee's performance.
- A long-term relationship with the company beyond receiving a paycheck can be established by every employee with the aid of effective HR activities. While providing a competitive wage is crucial, businesses must also go above and above to maintain a low attrition rate.

### **Research approach**

The current study is descriptive in nature, yet it is also empirical research. In higher education in Lucknow city, this study attempted to analyse the effect of organisational culture on staff retention. A blueprint has been created taking into account the sample region, sample size, data collection procedures, and techniques for data interpretation. Questionnaires are used to gather data while keeping the study's goals in mind.

### **Sample Design**

A sample of 100 employees from various Lucknow city self-finance higher education institutions was collected. Effect of organisational culture on employee retention in higher education in Lucknow was a topic covered in great detail in the survey questionnaire.

### **Formation of Questionnaire**

The development of the questionnaires was based on earlier studies, and the questions are quite pertinent and educational.

It is important to consider the employees' comfort and time when designing the questions.

### **Objectives of the Study**

1. To understand the theoretical Impact of organization culture on employee retention of self-finance higher education institutions in lucknow city.
2. To examine the impact of demographic factors on organization culture on employee retention of self-finance higher education institutions in lucknow city.
3. To examine the impact of socio economics factors on organization culture on employee retention of self-finance higher education institutions in lucknow city.
4. To examine the impact of return factors on organization culture on employee retention of self-finance higher education institutions in lucknow city.

### **Formulation of Hypothesis**

The hypotheses of the present study are:

**H01:** There is no significant relationship between demographic factors and organization culture on employee retention of self-finance higher education institutions in lucknow city.

**H02:** There is no significant relationship between, socio economic factors and organization culture on employee retention of self-finance higher education institutions in lucknow city.

**H03:** There is no significant relationship between return factors and organization culture on employee retention of self-finance higher education institutions in lucknow city.

The hypothesis testing results have been discussed in the chapter data analysis and interpretations. All hypotheses will be tested at a minimum of the .05 level of significance.

### **Analysis of Data**

SPSS (Statistical Package for social sciences) is used to analysis the collected data and descriptive statistical analysis (Mean, Standard Deviation, Skewness, Kurtosis) is used to find out the result. Skewness charts and P-P plots chart have been used to find out factors related to employee retention of self-finance higher education institutions in lucknow.

Statistics					
		I have the supplies, tools, and other resources I need to complete my work properly.	Every day at work, I get to practise do best work.	I have been praised or recognised for my hard work during the past seven days.	The director of my institute or someone else at work seems to be looking out for my best interests.
N	Valid	100	100	100	100
	Missing	0	0	0	0
Mean		2.4800	2.6600	2.6900	2.4300
Std. Deviation		1.01980	1.18253	1.14323	1.20818
Variance		1.040	1.398	1.307	1.460
Skewness		.318	.618	.430	.553
Std. Error of Skewness		.241	.241	.241	.241
Kurtosis		-.596	-.484	-.626	-.834
Std. Error of Kurtosis		.478	.478	.478	.478

Sources: calculated by author

Table 1 shows the descriptive analysis of all the variables of A Study on Employees Retention of Self-Finance Institutes in Lucknow . With the help of this analysis we can find the significant of the given variables. It shows the mean, standard deviation, kurtosis and variances of all the variable , like I have the supplies, tools, and other resources I need to complete my work properly is strongly significant with the mean of 2.4800, standard deviation is 1.01980, skewness is 0.318 and the value of Kurtosis is -0.596. Every day at work, I get to practise do best work. Mean of 2.6600, standard deviation is 1.18253, skewness is 0.618 and the value of Kurtosis is -0.484. I have been praised or recognised for my hard work during the past seven days mean

of 2.6900 standard deviation is 1.14323, skewness is 0.430 and the value of Kurtosis is -0.626 Someone at work or the director of my institute appears to have my best interests in mind mean of 2.4300, standard deviation is 1.20818, skewness is 0.553 and the value of Kurtosis is -0.834.

Based on the results of the above analysis, we can conclude that the main reason for Employees Retention of Self-Finance Institutes in Lucknow is hard work of the employees because the mean value is highest, 2.6900 and standard deviation in this case 1.14323 .As a result, the hard work of employees in self-finance institutes requires a good and effective environment within the institutes.

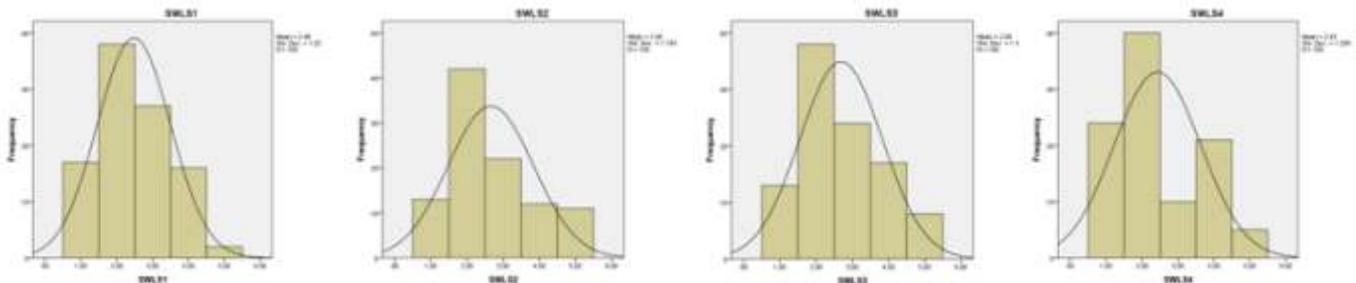


Chart 1 of normal distribution values of all variables the negative line which is deviation. The points which close to the diagonal side of histograms show long tail, which is negatively skewed result. On the Histogram chart all the data is not on the diagonal

line which is deviation. The points which close to the diagonal line, it shows less deviation. Histogram of shows that the data points are almost on the diagonal and deviation is negligible.

Statistics					
		At work, there is someone who supports my growth.	My opinions seem to matter at work.	My colleagues and I are committed to producing high-quality work.	I've had chances to learn and develop throughout the past year at work.
N	Valid	100	100	100	100
	Missing	0	0	0	0
Mean		2.5500	2.1700	2.3600	3.6200
Std. Deviation		1.14922	.82945	1.05906	1.08040
Variance		1.321	.688	1.122	1.167
Skewness		.670	.213	.689	-.660
Std. Error of Skewness		.241	.241	.241	.241
Kurtosis		-.376	-.574	-.281	.129
Std. Error of Kurtosis		.478	.478	.478	.478

Sources: calculated by author

Table 2 shows the descriptive analysis of all the variables of A Study on Employees Retention of Self-Finance Institutes in Lucknow. With the help of this analysis we can find the significant of the given variables. It shows the mean, standard deviation, kurtosis and variances of the entire variable and at work, there is someone who supports my growth is strongly significant with the highest mean of 2.5500, standard deviation is 1.14922, skewness is 0.670 and the value of Kurtosis is -0.376.

My opinions seem to matter at work. mean of 2.1700, standard deviation is 0.82945, skewness is 0.213 and the value of Kurtosis is -0.574. My colleagues and I are committed to producing high-quality work. mean of 2.3600, standard deviation is 1.05908, skewness is 0.689 and the value of Kurtosis is -0.281 I've had chances to learn and develop throughout the past year at work. Mean of 3.6200, standard deviation is 1.08040, skewness is -0.660 and the value of Kurtosis is -0.129.

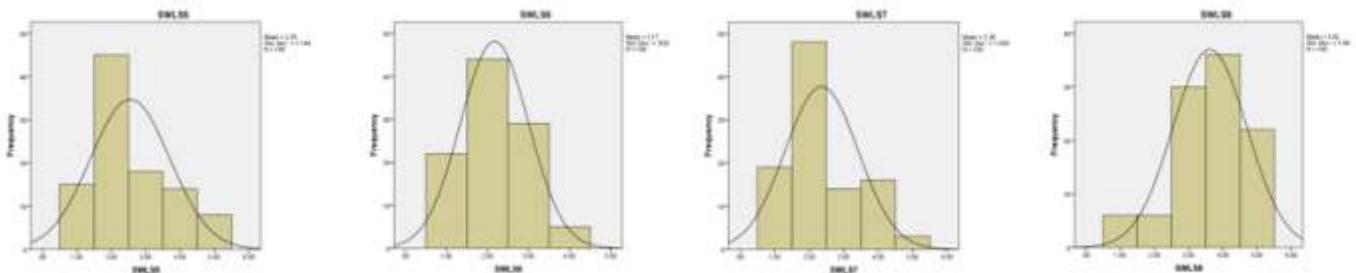


Chart 2 of normal distribution values of all variables the negative side of histograms show long tail, which is negatively skewed result. On the Histogram chart all the data is not on the diagonal line which is deviation. The points which close to the diagonal line, it shows less deviation. Histogram of shows that the data points are almost on the diagonal and deviation is negligible.

employees in self-finance institutes necessitates a good and effective working environment within the institutes.

### Conclusion and Findings

According to the above analysis, the main reasons for Employees Retention of Self-Finance Institutes in Lucknow are to learn and develop over the past year at work, according to the responses given by member respondents. Because the mean value is the highest, 3.6200 standard deviation in this case 1.08040 As a result, the learn and develop over the past year of

It is concluded that there is a need for a strong employee retention strategy in Self-Finance Institutes in Lucknow that is embarking on an expansion plan; however, the fact remains that the expansion plan will necessitate the hiring of more and more trained personnel. Four requirements for a Self-Finance Institutes in Lucknow to create a retention strategy for employees: first, measuring turnover rates, ways to attract the best talents, a reward system for exceptional performers, and finally, retention of a diverse workforce. The researcher

discovered that the Self-Finance Institutes in Lucknow under study had good practises, which made the institutes popular among employees. However, the rate of change in policies and procedures was excessive. The study's findings do point to a strong relationship between total reward and retention. The most appealing Institutes is to work are those that give their employees the freedom to be creative, offer flexible working arrangements and environments, and provide other benefits in addition to financial benefits. As a result, Uttar Pradesh higher education institutions must implement total reward strategies in order to not only retain competent and qualified faculty but also to compete in the regional and global higher education arena. The current study has some limitations. The most significant limitations are the sample size and the institutions chosen. The current study only looked at one university in one city i.e. Lucknow. Second, the study only used quantitative data. It is recommended that a mix methodology of quantitative and qualitative data collection and analysis be used to gather in-depth information and knowledge about Self-Finance Institutes in Lucknow retention policies. This would not only provide more information, but would also aid in generalising the study's findings.

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# JAIPURIA INSTITUTE OF MANAGEMENT

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