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- ◆ **Quality Delivery to Augment Customer Contentment: An Empirical Evidence of Co-Operative Bank of Oromia, Ethiopia**

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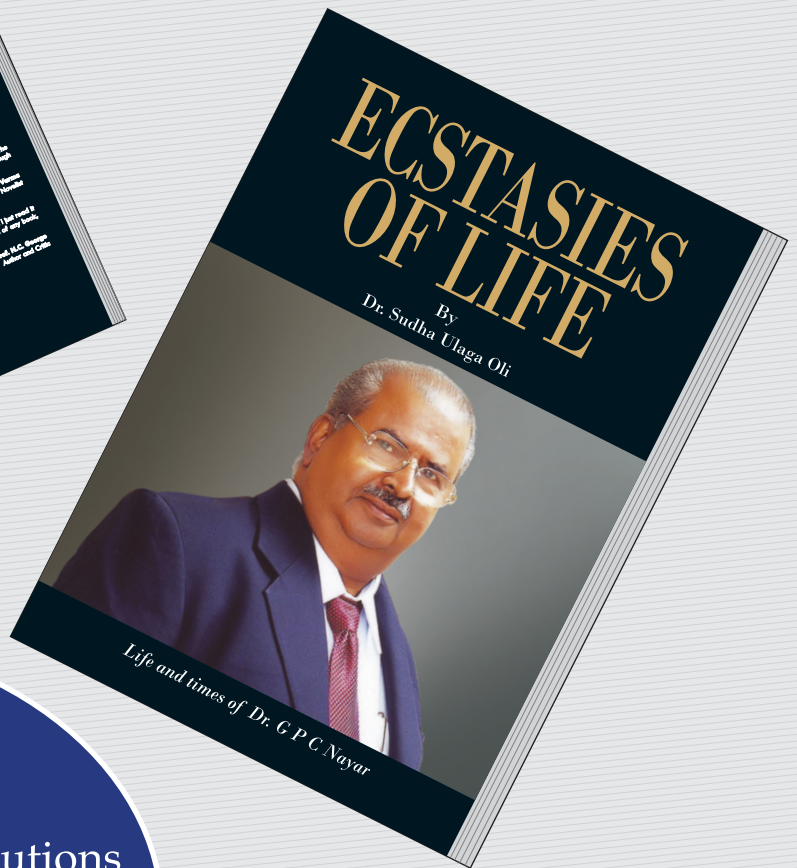
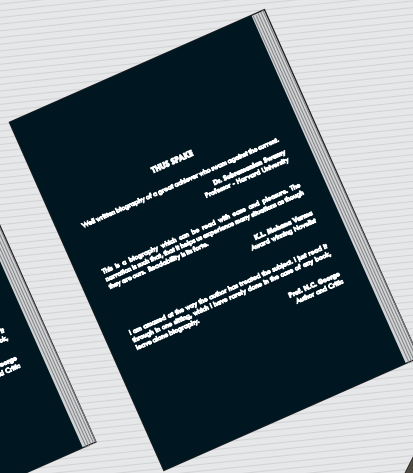
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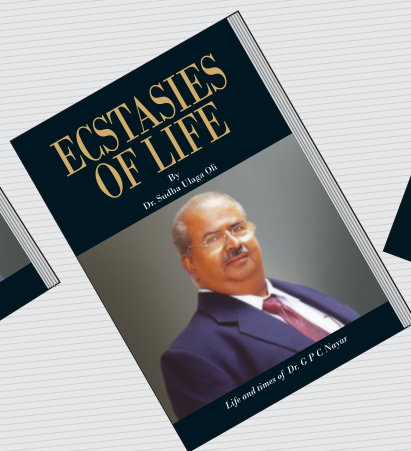
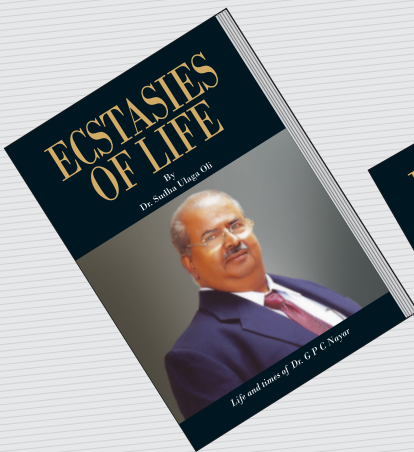


- ◆ **Designing a Suitable Strategic Model to Transform Iranian Universities into Entrepreneurial Universities**

*Amir Koosha Moghaddam, Kasra Taherkhani and Amirreza Alizadeh Majd*



Here's an entrepreneur  
who has created  
some excellent academic institutions  
in an unfriendly environment.  
It is a saga of trials and tribulations  
in an extremely readable manner  
by a consummate  
writer in English.



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## Chairman's Overview

### **Business Education- Metamorphosis of the Future Workplace**

In a time when technology is developing quickly, the skills that employers are looking for are changing drastically. With automation and artificial intelligence redefining entire industries, soft skills are more important than ever. These abilities, which range from cultural competency to emotional intelligence, are what distinguish people from machines, and are likely to be the skills that will keep you relevant and employable in the job market of the future.

The ability to think critically and solve problems creatively are ageless abilities that will not be replaced by automation. Business schools must create cultures that support these abilities, pushing graduates to tackle problems creatively and with a critical mentality. In the increasingly interconnected global landscape, collaboration is essential. Cultural competency, communication, and teamwork should be prioritized in management education. Graduates must negotiate a variety of settings and grasp the subtleties of collaborating with people from various backgrounds.

Being adaptive and flexible is essential given how quickly the corporate environment is changing. Business education ought to foster an attitude of lifelong learning, motivating graduates to maintain their curiosity, welcome change, and pick up new skills throughout their professional lives. A variety of qualities are included in leadership skills, such as decision-making, effective communication, and emotional intelligence. Programs that foster these abilities must be created by business schools in order to produce graduates who can motivate and guide groups in fast-paced work settings.

Digital and data literacy are essential competencies in the modern workplace. Graduates must be able to effectively navigate the enormous ocean of information and make decisions based on facts in order to support organizational success. Skills such as basic coding have become vital for professionals in a wide range of fields. By providing courses that teach coding as a problem-solving tool rather than a specialized talent, management schools may play a crucial role in empowering graduates to use it in a variety of business contexts.

Similarly, proficiency in blockchain technology and cybersecurity are essential as organizations increasingly depend on digital platforms. Blockchain and cybersecurity training ought to be included in business schools' curricula so that graduates can protect confidential data and recognize the possibilities of decentralized technologies. These days, cloud computing is the foundation of modern company operations. A thorough understanding of cloud platforms is required for data accessibility and smooth cooperation.

In summary, business schools need to change in order to accommodate the needs of the future workforce, giving soft skill development equal weight with technical competency. In an era where technology is king, graduates with a broad skill set will not only survive, but flourish.

**Dr. G. P. C. NAYAR**

Chairman, SCMS Group of Educational Institutions.



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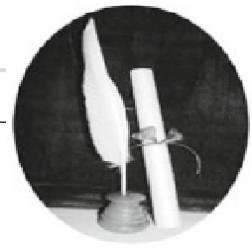
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## Editorial



This issue presents a compilation of scholarly works that delve into multifaceted realms across diverse industries, countries, and methodologies. Using the Ordered Logit Model, the lead article elucidates the symbiotic relationship between Fintech adoption, service quality, and customer satisfaction in the Co-operative Bank of Oromia, Ethiopia. The authors conclude by proposing the Banking Service Quality Recovery Strategy Model, which helps augment customer contentment.

The second article featured in the issue uses an innovative Data Envelopment Analysis (DEA) approach to benchmarking digital marketing efficiency measurement for B2B organizations in India. This will help contribute to informed decision-making and optimizing digital marketing strategies.

The interplay between personality traits, coping behaviors, and work-family conflict among Indian journalists is examined in the following contribution. Results showed different association patterns between the variables studied. The study concluded by advocating targeted interventions to alleviate work-family conflict.

Then, we have a study that uses the gravity model approach to critically evaluate India's trade dynamics with RCEP nations, debunking myths surrounding regional trade agreements and emphasizing influential bilateral trade factors such as Distance, Capita Income, and Border and Per Capita Income.

A study from the consumer behavior area unravels consumer behavior patterns and sheds light on the dominance of convenience in purchasing frozen foods. The results suggest that using health benefits to market frozen foods in the Indian market can help the marketer and other key stakeholders.

Following this, we have a paper elucidating the interplay between e-HRM strength, organizational effectiveness, and sustainable competitive advantage, providing pivotal insights for strategic HRM decisions.

The adoption of G2B e-marketplace in Indian public sector procurement is meticulously analyzed in the following contribution, emphasizing factors influencing its uptake and avenues for enhancing usability.

Then, we have a paper that offers a unique analytical perspective on justice agents' behavior and its correlation with social recognition. The findings confirmed a mediation effect of Justice Enactment between the agent's fairness motives and the social recognition of the agent, thereby laying the groundwork for organizational justice research.

A qualitative study based on the thematic analysis of in-depth interviews with a sample of female academicians from Pakistan sheds light on the stimuli propelling female academicians towards hybrid entrepreneurship amid socio-economic constraints and the effects on their work-life balance and income stream.

Lastly, we have a paper that charts a roadmap for Iranian universities to embrace entrepreneurial ethos, aligning academic institutions with societal and economic advancements.

We wish our readers an enriching and educative reading experience!

**Dr. Radha Thevannoor**

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# Quality Delivery to Augment Customer Contentment: An Empirical Evidence of Co-Operative Bank of Oromia, Ethiopia

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## A b s t r a c t

This research paper investigates the Fintech adoption by the Co-operative Bank of Oromia (CBO), handling risk and cyber security issues in practicing Fintech applications, and the effect on service quality delivery to enhance customer contentment. The CBO was selected purposively, and the survey method was adopted to elicit information on service quality dimensions and customer contentment. Sixteen (16) employees from the Digital Banking Operations unit were interviewed, and 600 customers from 10 branches of 5 operational districts were also the respondents. Descriptive statistics and the econometric model Ordered Logit were employed to analyse the data collected using a semi-structured questionnaire. The results indicate that the adoption of Fintech in banking operations and customer services by the CBO, like mobile banking, ATM, internet banking, and, to some extent, online customer support services, has improved the image of the CBO. Risks and cyber security issues are found, and the bank is trying to solve them to the maximum extent possible. As for service quality delivery, there has been an improvement in all dimensions of service quality compared to traditional banking, i.e., after the adoption of financial technology in banking operations and customer services. The authors have advocated a “Banking Service Quality Recovery Strategy Model” (BSQRSM) to deliver better services to augment customer contentment.

**Keywords:** Co-operative Bank of Oromia, Customer Contentment, Fintech, Ordered Logit, Service Quality

## 1. Background of the Study

Fintech, a term combining financial services and digital technology, refers to the rapid technological innovation that has transformed the financial services industry with new business models, products, services, and delivery channels (Ascarya & Ali, 2022). Fintech is a significant innovation in the financial sector and is quickly expanding, which is widely acknowledged (Lee & Shin, 2018). This was due to a decreased trust in traditional financial service providers, which increased the market appetite for alternative financial services. The majority of Fintech is being driven by technological advances such as increased infrastructure availability, accessibility, and affordability (Internet, mobile technology, and sensor systems). According to Lee and Shin (2018), payment, wealth creation and management, crowdfunding, peer-to-peer (P2P) lending, insurance services, and capital markets are among the six emerging Fintech business models. Fintech and the Internet of Things (IoT) are both widely recognized as examples of new technology. Fintech is giving birth to a slew of new products and services, such as accounting systems, that aim to provide more efficient and user-friendly versions of existing financial mechanisms (Nakashima, 2018). Fintech has significantly increased financial inclusion globally (Smith, 2022). This has particularly benefited individuals in developing countries who previously lacked access to basic banking services (Jones, 2022). Fintech advancements have revolutionised payment systems, making transactions more efficient and secure for consumers and businesses (Brown, 2023). These findings underline the transformative impact of fintech on the global economy and the need for traditional financial institutions to continually adapt and embrace technological advancements (Smith, 2022; Brown, 2023). From online banking and mobile payment apps to robo-advisors and blockchain technology, Fintech has reshaped the landscape of the financial industry. With its ability to streamline processes, improve efficiency, and enhance user experience, Fintech has become a driving force behind the digital transformation of financial services. As a result, traditional financial institutions are now faced with the challenge of adapting to this rapidly evolving industry or risk becoming obsolete.

The co-operative banking models of Germany, France, the Netherlands, and Italy are representative models and played a big role in pushing the development of trade, small industries, and agricultural activities. Co-operative banks act as co-operative and credit institutions which provide financial services to their members. Its governance is based

on participatory and democratic decision-making by its members. Co-operative banks connect with local producers, customers, and economic agents and provide services to specific sectors (European Association of Co-operative Banks (EACB, 2004).

Co-operative banks follow the Specialist Banking model, which provides the necessary functions to support the real economy in a competitive and globalized environment. These banks supply credit to small and medium-sized enterprises (SMEs) and households (International Monetary Fund, 2010). Co-operative banks play a significant role in the financial systems of various countries. These banks are vital sources of credit intended for individuals and small and medium-sized businesses, as well as a secure place for deposits. A non-profit orientation focuses on maximizing member benefits and the sustainability of financial co-operatives. That was especially true during the world economic crisis, when co-operative banks continued to lend money to their members, whereas many commercial banks limited credit to households and businesses. The structural and behavioural characteristics of financial co-operatives are the overarching themes of the first part of this review. This section examines the origins and spread of financial co-operatives, the business model, network arrangements, relationship banking, tax treatment, balancing member interests, and the regulatory framework. The second part is about performance and contribution to the real economy, and this part considers mergers, acquisitions, benefits and failures, efficiency and sustainability of Fintech, and the role of financial co-operatives in the real economy.

The emergence of Fintech has significant benefits for the co-operative industry, as it offers products and services similar to banks but focuses on co-operative members. This sector can catalyze the economy of co-operative members, contributing to the national economy if they have access to good products and services (Karthika et al., 2022).

Service Quality of a bank is often shown through service delivery. Service provided in a bank with high content is heterogeneous, as their performance often varies from customer to customer, from place to place, and from day to day. The services that satisfy and surpass the customer's expectations will compel the customer to use the bank's services again. Moreover, customer's dissatisfaction with the services leads to huge losses in the market. In order to avoid this, the banks should fulfil the requirements and expectations of the customers as precisely as possible and

serve well to satisfy the customers. It is important to focus on the quality of the banking industry, which contributes more to financial institutions in terms of revenue and image of the country.

One of the pillars of a shared economy, community banks, are facing a significant challenge as digitalization transforms the face of modern banking. Co-operative banks are quickly embracing technology to remain relevant, creating a commercial opportunity for top IT service providers (Pramanik & Bhakta, n.d.). Therefore, the study of Fintech application, use, and upshot of service quality to augment customer contentment must be probed. Such a scenario calls for a thorough study of the banking industry and research on a list of selected branches of the Co-operative Bank of Oromia, Ethiopia.

## 2. Statement of the Problem

The financial sector is facing one of its most difficult challenges in recent years. Banks are being forced to close branches and begin charging customers due to the availability of free money. In terms of branches, they will increasingly focus on providing greater benefits to customers rather than transactions. Institutions will need to raise a lot of awareness in this area. The adoption of Fintech cannot be avoided by the bank in the current scenario. Banks are faced with the dilemma of cutting costs (operating costs, branch network, and staff) while increasing their investment in technology to address the digital transformation. These difficulties, combined with new challenges, pose a threat to their profit and loss statements (European Economic & Social Committee, 2017). Though the co-operative banks survived the international financial crisis in 2008, today, they are facing the problems of meeting new capital requirements and reaching targeted profit margins in the fintech ecosystem. The European Union encourages larger banks, recognizes excess capacity in the banking industry, and suggests mergers.

The real challenge of digitalisation now lies in how it affects customer behaviour and satisfaction. For co-operative banks, this is a continuous process of adapting to the digital revolution while maintaining personal relationships with customers, who are the true source of sustainable development. The overarching message is that digitalization represents an opportunity to promote the co-operative banking model. In light of the aforementioned, it is clear that there is still a solid foundation for conducting research to test the influence of Fintech adoption on service quality and customer satisfaction. This research has also examined how

these constructs relate to customers' perceptions of risks and cyber security issues, Fintech application and usage, service failure, and strategies to increase customer satisfaction.

## 3. Review of Related Literature

Fintech innovations may facilitate new business models, processes, products, or applications, having a major impact on financial services and institutions (Financial Stability Board (FSB), 2017). Arner et al. (2017) state, "Despite the lengthy history of the relationship between finance and technology, the fintech phase, which began in 2008, is well-defined by who provides goods and services, not by goods and services actually delivered." In the most recent era, new entrants are using technology to offer financial services to customers without intermediation (Consumers International, 2017).

Bank for International Settlements (2018) states that the newest fintech providers are payment, clearing and settlement industries (peer-to-peer transactions, mobile wallets and digital currencies) followed by deposit, credit and capital raising industries (mobile banks, crowdfunding and credit scoring) (Frost et al., 2019; Frame et al., 2019; Stulz, 2019; Thakor, 2020). Fintech has different effects on co-operative financial organizations. First, a number of FinTech businesses have now been effective in scaling a relationship banking system, which could eventually reduce the advantage of relationships and soft information acquisition enjoyed by small, local financial co-operatives (Lin et al., 2013).

Peer-to-peer lending activities in the US entered into the areas where traditional banks with assets of more than \$50 billion are underserved in highly concentrated markets with fewer branches (Jagtiani & Lemieux, 2018). Second, many big commercial banks are now doing more to promote technological advancements with the help of fintech companies to offer their products. Big banks have occasionally purchased fintech lenders or offered them ownership holdings. Due to the related regulatory requirements, alliances between Fintech companies and small banks are less frequent. However, there is an indication that certain co-operative banks can restore profitability to small business lending after some decades of tightening operating margins by employing Fintech technologies to handle customer and application data (Eckblad et al., 2017; Kim & McKillop, 2019). The issues of co-operative banking in the new financial environment can be addressed with the help of financial education.



Most people agree that there are no widely accepted benchmark measures in the banking industry to assess the perceived quality of a bank service. As a result, keeping a competitive advantage through high-quality service is a critical survival tool. Measuring service quality appears to be difficult for service providers due to the various qualities of services—intangibility, heterogeneous nature, inseparability, and highly perishable. As a result of these complications, various measuring models for gauging perceptions of service quality have been developed (Gronroos, 1983; Parasuraman et al., 1988). The SERVQUAL model, developed by Parasuraman et al. in 1988, featured ten parts. These ten elements were divided into five separate dimensions later in 1988. These include assurance, dependability, tangibility, responsiveness, and empathy. Due to its apparent correlation with expenses, profitability, customer satisfaction (Bolton & Drew, 1991; Boulding et al., 1993), customer retention, and positive word-of-mouth, service quality has grown in importance as a research topic. The perceived service quality can be measured using a variety of research tools. Among such broad instruments, the SERVQUAL model is well-known.

Sindwani (2020) revealed that the quality of technology in banking services significantly impacts customer trust. A conceptual framework was developed using data from bank customers, focusing on reliability, security, responsiveness, and personalization dimensions. Customer involvement tempers the relationship between dependability, security, and customer trust. The findings indicate that customers expect automated banking services to be more reliable and safe. Convenience, while positive, is not enough to build customer trust. Personalization, reliability, security, and responsiveness positively affect customer trust. Banks can improve these areas to increase customer trust.

Digitalization is also significantly impacting banking, a traditional branch system-oriented industry, as one example among many (Dapp, 2014, 2015; Moutinho et al., 1997). This affects banks' capacity to generate value for stakeholders (Hirt & Willmott, 2014; Walters, 2014). Digitalization generally provides banks with various options, such as enhanced customer interactions, better management options, and the assistance of new value chains and business models. Furthermore, the digital transition introduces a number of risks, such as winner-take-all dynamics, replaceable and modular business model-building pieces, and a lack of digital skills (Hirt & Willmott, 2014). Furthermore, borderless international trade, high transparency, and mass consumer goods reduce market entry and switching costs.

It has acknowledged the tenacity of financial co-operatives, which had their beginnings in the 19th century in Germany and continue to this day with a presence in more than 140 nations. The effectiveness of collaboration, in the form of network sharing, in achieving targeted business is acknowledged. The importance of relationship lending as a component of business model development was also highlighted. However, it raises concerns about the sustainability of this competitive edge in the face of disturbances from Fintech firms.

According to Junger and Mietzner (2019), on household trust and comfort levels with new technologies, financial literacy, and general transparency, households with low levels of trust, strong financial knowledge, and a preference for openness are likelier to adopt fintech. The likelihood of switching, however, does not appear to be greatly impacted by household pricing perceptions. The study by Kurian and Radkar (2022) revealed that low financial literacy, lack of confidence, and low digital literacy are significant barriers to digital inclusion. Researchers in the hospitality business have been paying more attention to studies in service management (Halil & Kashif, 2005a; Riadh, 2009a). Researchers investigated the relationship between service quality and other factors, such as customer satisfaction and behavioural intentions (Maria et al., 2007; Francosis et al., 2007; Raidh, 2009b; 2010; Jani & Han, 2011; Basheer, 2012; Simon, 2012).

Regarding customer adoption of technology, it is more difficult to pinpoint the fundamental variables influencing their choice, especially regarding free applications. In other words, we cannot determine whether a user prefers one technology over another using the fundamental Technology Acceptance Approach (TAM) model. It is crucial to identify additional components for the TAM's fundamental model (Susilo et al., 2019). Generation, gender, and bank type significantly impact the attitudes of young metropolitan banking customers, with interaction affecting the adaptation of automated IT-driven banking technologies (Mishra, 2022).

Based on a primary survey conducted among urban co-operative bank officials, a study by Gupta and Thomas (2021) on finances through Urban Co-operative Banks provides insights into Telangana Urban Co-operative Banks' financial inclusion and Fintech performance. Slum dwellers and micro, small, and medium-sized businesses are served by more than 60% of urban co-operative banks. Yet, there is a glaring disparity in account ownership and credit availability. The analysis confirms the difficulties in balancing different stakeholder interests, but it also reveals that co-operative banks attain this balance more effectively than other organizational firms.

Additionally, research needs to explore the impact of technological advancements on the evolution of the banking service quality model. As technology rapidly advances, banks must adapt and innovate their models to stay competitive. This includes exploring integrating artificial intelligence, blockchain, and other emerging technologies into business and service processes that can streamline operations, enhance security, and improve decision-making processes.

Research on fintech has shown that after many years of negative operating margins, fintech solutions have made the path to reaching different types of consumers and small business lending profitable again. However, the growth of fintech has disturbed the financial services industry. Customers and members ceased to feel beholden to their familiarized service providers. As an alternative, they favour services that can be accessed remotely and are rapid and safe. It is crucial to link practitioner and academic research at this point to better understand the benefits and problems that Fintech presents to financial co-operatives and their regulatory authorities.

A perusal of available literature on Fintech and the banking industry, it is understood that there are studies available related to Fintech and banks' relationship, Fintech adoption/applications in the banking industry, the effect and impact of Fintech facilities on banking, customer satisfaction in commercial banks. Studies related to Fintech adoption and customer contentment levels in co-operative banks are scanty. Research studies on Fintech adoption and customer contentment is an untouched area in the Ethiopian context, particularly regarding financial co-operatives and co-operative banks. The researcher found this research gap and attempted to fill this research gap in the co-operative banking industry in the Ethiopian context.

#### 4. Objectives of the Study

This research paper investigates the Fintech adoption by the Co-operative Bank Oromia, handling risk and cyber security issues in practicing Fintech applications, and the effect on service quality delivery to enhance customer contentment.

The specific objectives are:

1. To examine the association between the bank facilities and Fintech adoption by the Co-operative Bank of Oromia and service quality dimensions.

2. To analyze the level of contentment among the customers on the service quality dimensions of the selected branches of the Co-operative Bank of Oromia.

3. Determine the impact of service quality dimensions on customer contentment in the context of Fintech usage.

4. To describe the risk and cyber security issues in practicing Fintech applications, service failure, if any, and strategies to be adopted to enhance customer contentment towards the service quality dimensions.

#### 5. Research Methodology

Both descriptive and analytical research methods were adopted in this study. The survey method was adopted for data collection. A mixed research approach was followed for data collection and data analysis. Quantitative and qualitative data were gathered and analyzed to fulfil the research objectives.

The methodology employed in obtaining information about Fintech adoption, risks and security issues, and customer contentment in co-operative banking was via a survey conducted of a sample of customers who are using Fintech facilities of the bank. The survey questionnaire was created and distributed at random to the intended respondents. Account holders in specific CBO branches were targeted as respondents. In order to produce a realistic result, the data must be collected from a large population. As a result, the survey questionnaire was designed to apply to a diverse population, with respondents representing a range of genders, age groups, marital status, education background, designations, and levels of professionalism. Because distinct levels of society have different expectations and needs, choosing respondents from diverse backgrounds will almost certainly yield a more reliable result regarding Fintech adoption and usage and service quality by CBO branches.

#### 6. Sources of Data

Both primary and secondary data were used for this study. The source of primary data includes customers of sample branches of the Co-operative Bank of Oromia, the Director and employees of the Digital Banking Operations and Technology Unit, the Co-operative Bank of Oromia Head Office, and employees of the respective branches of CBO. Secondary data sources include websites, unpublished and published reports such as reports on the banking industry, and reports of the CBO.

## 7. Sampling Procedure and Techniques

### 7.1 Population (N)

The population of the study is the customers of sample branches of CBO, the Director and employees of the Digital Banking Operations and Technology Unit, Co-operative Bank of Oromia Head Office, and employees of the respective branches of CBO were also contacted to explore Fintech adoption and service delivery. Customers of the branches were selected by using a convenience sampling technique.

### 7.2 Sampling procedure

Regarding the sampling procedure, the researcher adopted a multi-stage sampling procedure to select the area in terms of district, branches, and sample customers.

**Stage 1. Selection of Operational Districts of CBO:** As per the records of the CBO, there are 16 operational districts and two Area Relationships in Mekele (Tigre Region) and Bahirdar (Amhara Region) of CBO in Ethiopia. Out of 16 operational districts, five operational districts, East, West, South, North, and Central, were selected purposively by considering the major criteria, including adopting Fintech

and customer usage of modern banking facilities like mobile banking, ATM, and internet banking.

**Stage 2. Selection of Branches:** Based on the discussion with the Director of Digital Banking Operations and Technology Unit, Co-operative Bank of Oromia Head Office, two branches from East Operational District, two branches from West Operational District, two branches from South Operational District, two branches from North Operational District, and two branches from Central Operational District were selected on the basis afore mentioned criteria namely, banking facilities and adoption of Fintech, customer usage of modern banking facilities like mobile banking, ATM, and internet banking.

**Stage 3. Selection of Customers:** From each selected branch, based on convenience sampling, the researcher collected the required information and data for the study. The target number of customers as respondents was 60 from each branch of CBO's five operational districts totalling 600. In each branch, the researcher, with the support of bank staff, collected data from customers using Fintech facilities like ATMs, mobile banking, and internet banking and are willing to respond to the questionnaire administered.

**Table 1. Sampling frame**

No.	Branch selected	Sample Customers
<b>East Operational District</b>		
1	Bole Medhaniale	60
2	Saris	60
<b>West Operational District</b>		
3	Ambo	60
4	Holata	60
<b>South Operational District</b>		
5	Jamo	60
6	Marva	60
<b>North Operational District</b>		
7	Addisu Gebeya	60
8	Lamberet	60
<b>Central Operational District</b>		
9	Agamsa (Merkato)	60
10	Dabaso (Stadium)	60
<b>Total</b>		<b>600</b>

## 8. Tools and Method of Data Collection

### A) Semi-Structured Questionnaire

A semi-structured questionnaire was prepared and administered among the selected branch customers. The questionnaire was composed of close-ended questions with multiple choices or dichotomous types. The questionnaire is divided into four sections for easy comprehension and reading. The first section of the questionnaire considers the respondents' demographic information. For respondents' convenience, the questions have multiple-choice answers. Testing the association between Fintech adoption and service quality dimensions is the second part of the questionnaire. The third section of the questionnaire required the respondents to rate the customer contentment level of the bank they have chosen attached to a five level pre-defined scale ranging from Highly Satisfied to Highly Dissatisfied to elicit information regarding customer contentment. The opinion of customers was elicited to analyse the risks and security issues, Fintech application service failure, and strategies to be adopted for enhancing service quality/customer contentment. The goal is to collect respondents' opinions in response to the aforementioned issues. The questionnaire's responses are solely based on the respondents' experiences and opinions. All data collected were fed into the Statistical Package for the Social Sciences (SPSS) and Microsoft Excel for analysis. While some responded quickly to the survey, others needed more time to process the questions and inquiries. Nonetheless, most of them patiently filled out our questionnaire, and some even provided their opinions. Face-to-face interviews with customers at the selected branches were used to administer the survey questionnaires.

### B) Key informant Interview

Key informant interview was conducted with the Director and employees of the Digital Banking Operations and Technology Unit, Co-operative Bank of Oromia Head Office in order to elicit information on the service quality dimensions, reasons for service failure, and strategies to be adopted to recover from service failure and maximization of customer contentment. Besides, employees of the respective branches of CBO were also contacted to explore Fintech adoption and service delivery.

## 9. Method of Data Analysis

SPSS was used to analyse the data. The Chi-square test was used to determine the relationship between the rating of banking and Fintech facilities and service quality dimensions. The means and standard deviation were used to measure the level of customer satisfaction on service quality dimensions. The most influential service quality dimensions on the level of customer contentment were determined using Ordered Logistic Regression. Descriptive statistics, percentages, and means were used for data analysis and interpretation to analyse risks and security issues, Fintech application service failure, and strategies to be adopted for enhancing service quality/customer contentment

## 10. Major Findings of the Study

### 10.1 Analysis of the relationship between the Bank & Fintech facilities and service quality dimensions

**Table 2. Association between the Bank & Fintech facilities and Service Quality Dimensions: Chi square test results**

Service Quality Dimensions Bank & Fintech Facilities		Tangible	Reliability	Responsiveness	Assurance	Empathy
Overall facilities	$\chi^2$ value	66.541	180.683	130.061	172.360	95.246
	Asymp. Sig. (2-sided)	.207	.000	.000	.000	.001
	Sig.	NS	S	S	S	S
	$\chi^2$ value	9.828	35.210	23.605	33.150	42.958
				.003	.000	.000

Service Quality Dimensions Bank & Fintech Facilities		Tangible	Reliability	Responsiveness	Assurance	Empathy
ATM	Asymp. Sig. (2-sided)	.090	.002	.114	.110	.081
	Sig.	NS	S	NS	NS	NS
	$\chi^2$ value	7.474	13.338	14.692	10.865	4.407
Internet banking	Asymp. Sig. (2-sided)	.486	.101	.065	.209	.819
	Sig.	NS	NS	S	NS	NS

Source: Computed from field survey data, 2021/22

As for overall banking and Fintech facilities, the chi-square test results indicate an association between overall banking and Fintech facilities and Reliability as a service quality dimension with a chi-square value of 180.683, which is significant at a 0.01 level. There is an association between overall banking and Fintech facilities and Responsiveness as a service quality dimension with a chi-square value of 130.061, which is significant at a 0.01 level. There is an association between overall banking and Fintech facilities and Assurance as a service quality dimension with a chi-square value of 172.360, which is significant at 0.01 level. There is an association between overall banking and Fintech facilities and Empathy as a service quality dimension with a chi-square value of 95.246, which is significant at 0.01 level. It is found that except tangibles as a service quality dimension, all other service quality dimensions have significant associations with the overall banking and Fintech facilities. Thus, it can be inferred that the higher the banking and Fintech facilities rating, the higher the service quality in all dimensions.

### 10.2 Analysis of the Level of Customers' Contentment on Service Quality Dimensions

Customer contentment was measured in terms of satisfaction. The sample customers were highly satisfied with the convenience of the bank location (mean=4.4182; SD=0.78740) and neatness of the staff appearance (mean=4.6667; SD=1.209) as regards the **tangible** services of the bank since none were dissatisfied with the appearance of the staff and insignificant percentage on the location of the bank. The customers were satisfied with the other attributes of tangible services since the mean value for the statements ranged from 3.41 to 4.20.

None of the sample customers were highly satisfied with the **reliability** service dimension of the selected branches of CBO. However, the customers were satisfied with all the reliability service dimensions attributes since the statements' mean value ranged from 3.41 to 4.20, except for the accuracy of records.

The sample customers were highly satisfied with the **responsiveness** attribute "Staff are listening to the complaints carefully" of the selected branches of CBO since the mean score ranged from 4.21 to 5.00. Further, the customers were satisfied with all the attributes of responsiveness service dimensions since the mean value for the statements ranged from 3.41 to 4.20.

The sample customers were highly satisfied with feeling safe in the delivery service (mean=4.2364; SD=0.77040) and politeness of the employees of the employees (mean=4.1288; SD=1.06889) as regards the **assurance** services of the bank, since none were highly dissatisfied on the appearance of the staff and insignificant percentage on the location of the bank. The customers were satisfied with the other attributes of assurance services since the mean value for the all-other statements ranged from 3.41 to 4.20. Nonetheless, a significant proportion of the customers was dissatisfied with the assurance attributes such as interest in solving the problems (24.8%), and staff felt safe in their financial transactions (21.2%).

The survey result shows that the sample customers were highly satisfied with the **empathy** attribute, viz., proper functioning of facilities inside the bank (mean=4.3879; SD=5.35942). Although the customers were satisfied with other attributes of empathy dimensions, the selected



branches need to concentrate on some of the empathy attributes such as special attention to frontline counter facilities, equal treatment for all customers, the staff of the bank understanding the specific needs of customers, convenience for physically disabled persons and problem-solving abilities of staff since one-fourth of the sample customers expressed dissatisfaction on these attributes.

The Director and employees of Digital Banking Operations & Technology revealed that as for the tangibles dimension, a yearly assessment had been made using a balanced scorecard, and customer contentment was measured; the bank appearance was upgraded, and the bank logo and colour were changed. As for the reliability dimension, the bank has taken HRD measures and improved staff skills. As for the responsiveness dimension, they reported that it is not as expected; as for the assurance dimension, the bank is taking steps through research and development by designing and offering training; and as for the empathy dimension, the Director of Digital Banking Operations & Technology revealed that it is very poor in some branches as observed by the team of experts from the head office of CBO.

### ***10.3 Analysis of the influential service quality dimensions and level of customer contentment in the context of Fintech facilities and Usage***

The estimates of parameters of independent variables expected to influence customer contentment level are displayed in Table 3. Four variables were found to be significant from the five service quality dimension variables by influencing customer contentment level in the study area. The results of ordered logistic regression analysis show that

reliability and assurance service dimensions are the most powerful factors on the level of customer contentment on Fintech adoption and usage since the calculated P-value is less than 0.01 level of significance. This implies that a one-unit increase in the reliability and assurance services of the bank leads to an increase in the level of customer contentment. Further, responsiveness as an independent variable was found to be the next most influential factor on the level of customer contentment, which is significant at a 0.05 level. The variable tangibles is the least influential factor on the level of customer contentment, which is significant at a 0.10 level. Empathy as an independent variable does not influence the level of customer contentment.

### ***10.4 Customers' opinion on risks & cyber security issues, and service failure***

The survey results show that risks and cyber security issues are involved while adopting and using technology in banking operations and customer services. They are network problems, deduction of amount from customers' accounts in the event of not receiving cash from ATM due to poor network or error, ATMs without secured cabins and security in some branches, errors in using mobile applications due to internet issues, and the like. The bank has been devising mechanisms to solve such issues.

Among the service failures, as evidenced by the customers, the most severe service failure is that the employees don't have a pure attitude and politeness in dealing with the customers, which means the services fall under the assurance service quality dimension. It was observed from the key informant interview with the employees that they are

**Table 3. Ordered Logit Regression Result: Determinant Service Quality Dimension of Customer Contentment Level**

Variables	Estimate	Std. Error	Wald	Sig.
Tangibles (SQDTAN)	1.375	.801	2.946	.086*
Reliability (SQDREL)	1.226	.302	16.528	.000***
Responsiveness (SQDRES)	-1.357	.565	5.766	.016**
Assurance (SQDASS)	1.086	.358	9.187	.002***
Empathy (SQDEMP)	1.040	.777	1.793	.181
Chi-square $\chi^2$ 53.047 p=0.000				
-2log likelihood 103.350 N=600				

*Source:* Computed from field survey, 2021/22

\*\*\* Significant at <1%, \*\* Significant at <5% and \* significant at <10%.

unhappy with the working conditions, salary, and motivational aspects, which lead to repercussions in dealing with customers with a high degree of frustration. The second most severe service failure is hygiene and cleanliness in the branches, which ultimately damages the responsiveness service quality dimension. The next major service failure identified by customers is that the branches have personnel who appear to be well-trained, competent, and experienced. It was observed from the key informant interview with the employees that there is high employee turnover due to working conditions and salary. Well-trained, experienced, and highly competent employees seem to switch to other banks and companies wherein lucrative salary is ensured and the possibility of earning extra income is higher than other commercial banks.

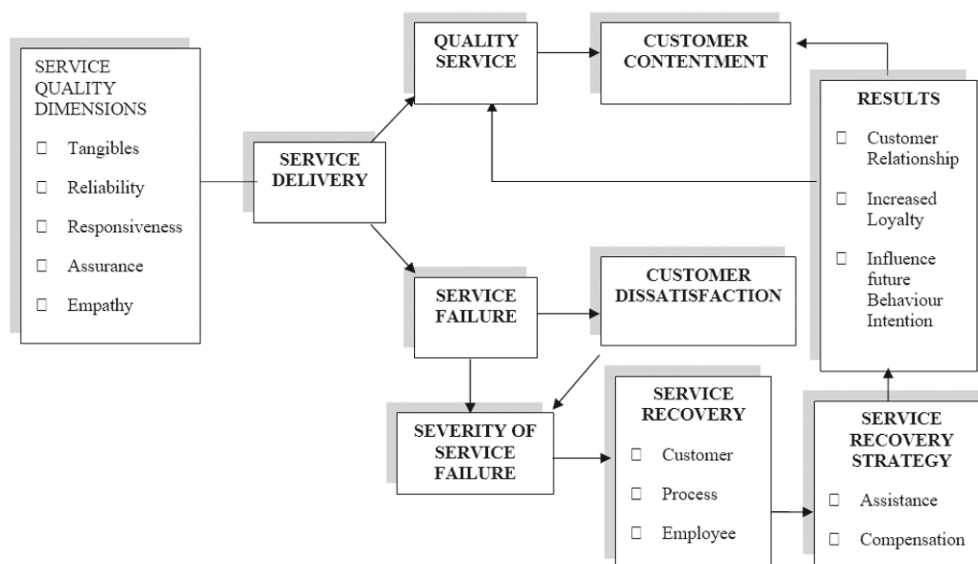
#### **10.5 Customers' opinion on the strategies to enhance the service quality in the context of Fintech adoption, usage, and banking facilities**

It was observed that the customers have opined to adopt strategies on tangible service quality by considering the physical facilities (mean=3.8318), materials and equipment (mean=3.9061), and personnel and communication (mean=3.9045). It implies that the branches should be beset with the equipment needed to deliver the services with high-caliber employees, and arrangements must be made for access to communication materials. More than half of the

customers opted to adopt strategies such as performing the promised services dependably, accurately, and by maintaining reliability. It is one of the biggest challenges of the branches to provide the promised services. Nonetheless, utmost care has to be given while promising to customers, keeping in mind the available facilities at the bank. This will ensure customer loyalty and retention.

More or less 80 percent of the customers expressed their opinion to improve the responsiveness service quality by considering the provision of prompt services. Customers are the fulcrum of any business undertaking. Hence, utmost care has to be given by the bank in providing services promptly. The bank employees and the authorities should come voluntarily to help the customers whenever needed. Customers have overwhelmingly chosen to improve the assurance service quality dimension by implementing strategies such as employee skills, ability, and courtesy to convey trust and customer confidence. This could be possible through intensive employee training programs on customer relationship management, stress management, and time management. More than 60 percent of the customers have expressed their opinion to improve the empathy service quality dimension by giving individual attention to customers, due care to customers, and delivering the services according to the convenience of the customers. The above applies to Fintech adoption in banking operations and customer usage of such technology-based services.

**Banking Service Quality Recovery Strategy Model (BSQRSM) for Co-operative Bank of Oromia**



**Graph 1: Banking Service Quality Recovery Strategies Model for Co-operative Bank of Oromia**

*Source: Developed by the Authors based on literature review and research findings (2023)*

The banking service recovery strategy model developed by the author encompasses the elements of service quality dimensions, representing all the banking facilities and services offered by the banking industry. Service delivery is an important element that must be given due weight in delivering banking facilities and services to the customers. Service delivery assures the availability and accessibility of services to the customers. If the banks offer customers quality service, it results in customer contentment. If there is a service failure, then it will lead to customer discontent with the banking services and facilities. Service failure using critical incidents technique can be categorized into: 1. Service system failure including technology; 2. Failure in implicit or explicit; 3. Unprompted or unsolicited employee behavior. These are on the part of the banks that deliver facilities with service failure. There is another category of service failure on the part of the customers, i.e., 4. Problematic customer misbehavior. This can be due to drunkenness, verbal and physical abuse, breaking banking policies and laws, and uncooperative customers. Service failure always leads to customer discontent with the banking services.

Here is the question of making the customers satisfied with the banking facilities and services. If the banks want to satisfy the customers even after the services are over, they must examine the cruelty of service failure. Service failure is inevitable and can't be prevented, but customer satisfaction and expectations can be checked and balanced to lessen the severity of service failure. The severity of service failure has a negative effect on customer contentment. The higher the service failure, the lower the customer contentment; so, the banks must examine the severity based on the customer expectations and behavior intentions, and they have to reduce the severity level of service failure to satisfy the customers with their facilities and services.

Banks should go through the service recovery process in order to satisfy and retain customers. It is critical to prevent customers from switching to competing banks and spreading negative word of mouth. Service recovery refers to service providers' actions in response to service failure. Service recovery is a process to identify service failure, classify the root causes of the service failure, and resolve customer problems, which improves the service system. Service recovery can be categorized into: 1. Customer recovery that re-establishes customer contentment and loyalty after a service failure; 2. Process recovery that ensures that failure incidents encourage learning and process improvement of service delivery to make the

customers satisfied; and 3. Employee recovery to train and retain employees for this purpose, i.e., for the purpose of service recovery.

The banks implement different service recovery strategies to make customers satisfied with their services and retain them for the future. Service quality dimensions-based strategies like tangibles, which are the techniques that rectify or fix failed services, and psychological strategies focus on customer needs and wants. For the banking service recovery strategy model, we consider two major categories of strategies, which include all dimensional strategies. They are: 1. Assistance Strategy, which focuses on current problem-solving related to managerial intervention, replacement, correction, and apology. 2. Compensation Strategy, which focuses on future solutions. By implementing all these strategies, the banking industry would maintain customer relationships to retain customers, increase loyalty among customers if possible, and influence future behavior intentions. Suppose the banks deliver facilities and services by following the above service recovery strategies in a proper manner. In that case, there is a high possibility to satisfy the customers not only while availing banking services but also even after service failure, which is guaranteed.

## 11. Conclusion

The customers of the selected branches of CBO were young and middle-aged, and highly dominant groups were male. It is worth noting that a significant proportion of the customers was dissatisfied with the tangible attributes such as physical ambience, easy access to reservation, attractive and stylish decoration of the branches, clean and comfortable office building, materials with the service, modern facilities of communication, availability of rest room services and availability of safety and security facilities and instructions. It may also be concluded that although the customers were satisfied with the attributes of reliability services, the selected branches are in a position to fully satisfy the customers in the areas of information about the banking services and delivery of services at the time promised. Although the customers were satisfied with all the attributes of responsiveness dimensions, the branches need to pay due attention to satisfy fully the customers in the areas of frontline services and telling the customers about the exact time that the service will be performed. A significant proportion of the customers was dissatisfied with the assurance attributes such as interest in solving the problems and staff feeling safe in their financial transactions. The selected branches need to concentrate on some of the

empathy attributes such as special attention to equal treatment for all customers, the staff of the bank understanding the specific needs of customers, convenience for physically disabled persons, and problem-solving abilities of staff since one-fourth of the sample customers expressed dissatisfaction on these attributes. Although a strong positive relationship exists between banking facilities and service quality dimensions, empathy service does not affect customer satisfaction. Customers' expectations, particularly in the service sector, are changing on a daily basis, so the bank must implement the appropriate strategies to improve service quality on the one hand and customer satisfaction on the other hand.

## 12. Recommendations

The following recommendations are forwarded to enhance the service quality of the Co-operative Bank of Oromia.

### Banking facilities Related:

- It is critical for service firms, such as those in the banking industry, to efficiently manipulate their physical environment by injecting aesthetic elements such as design and architecture into the overall structure to appeal to customers, increasing contentment and repeat patronage.
- The bank should install the latest equipment for cleaning applications to maintain the neatness and cleanliness of the branches. This should help them to attract new customers.
- The bank could audit whether the rates/charges charged are affordable to customers of all classes and revisit the policy, not compromising on their quality of services to maintain good customer relations.
- Going to deliver the service at the right time is also an index of an organization's efficiency. The bank, as the service provider, must provide the service within a specified time frame.
- The bank staff should be regularly made to realize what the bank's main aim is. They must be told about the importance a customer holds for the bank so that the staff is more willing to serve the customers well. The bank should take personal care of all the customers to increase customer contentment.

### Fintech Related:

- The bank staff should make an immediate response to the requests by customers, ensure safe and secure service, and maintain the good appearance and proper functioning of the network system. The staff should be kept aware of the latest technology developments in and around the bank in order to sense the latest developmental needs.
- The study concludes that using digital technology in Fintech applications has altered the financial ecosystem and transmogrified the basic process of payment methods.
- The management should provide adequate manpower to have staff available to attend to the customer's request and the customer's complaints immediately to redress the issues related to Fintech adoption and usage.
- At the outset, it is recommended that the CBO can employ new advanced financial technologies like Online Banking, Automated Deposit cum Withdrawal Machine (ADWM), Fraud Detection and Prevention, Portfolio Management (Robo-advisors), Online Loan Sanction, Loan Underwriting, Robotic Process Automation (RPA), Digital Payments, Insuretech and Regtech etc. to explore more opportunities to grow and offer better quality services.
- The author has advocated a "Banking Service Quality Recovery Strategy Model" (BSQRSM) to deliver better services to augment customer contentment.

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# Efficiency Measurement in B2B Digital Marketing: a DEA Approach

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## A b s t r a c t

The purpose of this paper is to develop an integrated and holistic approach to benchmark digital marketing performance for B2B organizations in India. The rationale behind the study is to help marketing managers and leaders make effective and impactful decision-making by minimizing the shortcomings/ gaps and learning and incorporating the best strategies to derive the ROI from all digital marketing efforts for the organization.

For the context of this study, a total of 31 B2B organizations were selected and analyzed for the benchmarking study using the Data Envelopment Analysis (DEA) method. The study identifies the parameters where the inefficient decision-making units (DMUs) lack in terms of capabilities compared to the efficient DMUs and how the ranking can be done for a comparative analysis.

The study provides a holistic approach to the usage of DEA using various methods such as CCR, BCC, and cross-efficiency models. The initial part of the study involves the efficiency measurement of the 31 shortlisted B2B organizations using the BCC and CCR models. The study also explains the rationale and shortcomings of the traditional BCC-CCR model in cases of real-life context involving organizational efficiency measurement. It further explains and extends the study to show how applications of cross-efficiency measurement using Arbitrary and Benevolent models can address the shortcomings and help business leaders rank the organizations (DMUs) and make impactful business decisions.

The work proposes and applies an innovative approach of using various DEA models and providing a comparative view so that organizations can choose the right approach. Through this study, the inefficient organizations can learn and take action from the best-in-class organizations so that necessary course correction can be done. The present study explores the emerging issues related to understanding how different B2B organizations headquartered in India can be benchmarked based on their digital marketing capabilities.

**Keywords:** Benchmarking, data analysis, decision-making units, DMUs, Employer branding, social media

## 1. Introduction

Digital marketing initiatives have helped B2B firms improve customer acquisition by targeting and showing the right message to the correct audience. It has removed the traditional barriers of connecting with people face-to-face and has helped marketers/salespersons improve their productivity in the virtual environment. Digital media has also democratized information; thus, B2B buyers are well-informed regarding information on products/ services. It has been proven that B2B buyers rely on credible information to make purchase decisions. Hence, for B2B firms, it is very important to maintain a good and updated digital presence across different channels such as social media, website, blogs, etc. (Pandey & Shinde, 2019). The changing dynamics of the market and the growth of competition have encouraged and forced B2B marketers to adopt customer-centricity in their DNA of operations. Thus, we see B2B organizations invest heavily in technology and innovation with the goal of excellence and improvement in the efficiency of the business (Bhattacharyya & Debata, 2021). According to reputed research and advisory firm IDC, the spending in CX grew approximately from \$550 Billion in 2019 to \$640 Billion by 2022 (Ross, 2019). Even in 2023, most companies are expected to spend more on CX-related spending by an average of 24% compared to last year (Gareiss, 2022). However, Gartner's recent hype cycle report has highlighted that the priorities and focus areas for the customer experience landscape are changing drastically and need to be investigated (Davis, 2022).

The last few years have seen B2B firms increasing the adoption of digital marketing initiatives such as social media both for their own branding as well as for employer-centric branding (also called employer branding). However, various structured literature review studies have shown that the firms are unable to realize and achieve their full potential as there has not been enough research done in this area (Pandey et al., 2019). It has also been raised that, unlike the B2C Industry, the B2B Industry has not been able to fully leverage and use to the fullest potential channels such as social media. The lack of understanding of the best practices and important parameters impacting the business leads to a decline in the ROI of the business (Wertime & Fenwick, 2011). Although few organizations have tried to set marketing goals and measure their results against the goals from data, no concrete study is available on how B2B organizations have used the information for decision-making and how they can get returns out of it (Bhattacharyya & Debata, 2021).

Considering the fact that the digital marketing domain is a fast-evolving domain with constant changes and developments in technology, there must be an emphasis on research to understand this domain better (Shaltoni & West, 2010; Ćiković & Lozić, 2022). The situation is critical in emerging and developing countries such as India, as hardly any regional-specific research is available to understand how performance relates to B2B marketing. Most of the existing work in the B2B marketing domain has been studied from the lens and perspective of developed countries such as the US, UK, and Australia (Brennan & Croft, 2012). The present study aims to explore the emerging issues related to understanding how different B2B organizations headquartered in India can be benchmarked based on their digital marketing capabilities. The paper proposes to derive a construct based on the DEA model, which is a type of linear programming technique. A study from McKinsey (2021) has recently cited examples and applications of how and where B2B companies can effectively use data and analytical techniques to win over competitors. The study highlights how the usage can lead to a significant jump in business performance and growth rate for businesses. Some of the applications are using sales performance or marketing performance (Davis et al., 2021).

## 2. Literature Review

### *2.1 Usage and outcomes of DEA in benchmarking the best practices*

Efficiency measurement is a core component of any business. Data envelopment analysis, which is also called DEA, is a method that calculates the technical efficiency of Decision-Making Units (DMUs) relative to other peers having multiple input and output variables (Hota & Rout, 2020). It is a non-parametric method first used by Charnes, Cooper, and Rhodes (popularly known as CCR), where the context was around constant return to scale (Charnes, 1978). Later, it was revised to a model with variable returns to scale developed by Banker, Charnes, and Cooper (popularly known as BCC). A DMU is known to be technically efficient if the DMU can provide the same output with reduced input or can give higher output with the same input. DEA has been classified as a very useful and effective method in scenarios where efficiency measurement is cumbersome and complex (Chirikos, 2020). The method has several advantages compared to other benchmarking methods. One of the most prominent advantages is its ability to handle multiple input-output variables. The technique has been widely used in various fields, such as the healthcare industry, the non-profit

sector, public mobility, and educational institutions (Marschall, 2009; Sodani, 2008).

Performance benchmarking has gained significant importance in the last few years. This is further critical in scenarios involving digital-based engagement so that business leaders can get a return on investment. Organizations have significantly increased investments and spending in digital efforts in the last few years to enhance a better customer experience (Ross, 2019). The benchmarking process provides a lens through which an organization's performance can be measured against peers/competitors based on a standard/ reference point. It provides a competitive perspective and a critical indication of improving self-performance (Sreekumar & Mahapatra, 2011).

## **2.2 Significance and Importance of Digital Marketing Standardization**

Several researchers have attempted to use the DEA method in their body of work; each work differs in the context and how the parameters for the study are considered (Sreekumar & Mahapatra, 2011). Magnini (2020), in his paper related to competitor benchmarking post-COVID-19 pandemic, highlighted that methods related to competitor benchmarking prior to COVID-19 were becoming obsolete, and businesses need to adopt newer methodologies for better and more accurate decision-making. With the constant change in privacy policy guidelines and changes in third-party cookie-based policy, there is a greater need and emphasis on first-party data and understanding how these data are interconnected to the overall performance of the firm/ organization. Ali (2017), in his paper related to market research, emphasized the role of technology and data in the benchmarking industry. Ali's paper has also stressed the role of efficiency measurement in today's digital transformation-led economy. The need for benchmarking has been emphasized across studies to ensure businesses are able to compete in today's global environment amid cut-throat competition (Mann, 2018). Past studies have highlighted the concern that there is a paucity of research, specifically in the B2B digital marketing domain, in terms of understanding areas related to measuring effectiveness, ROI, and benchmarking (Pandey et al., 2019; Jarvinen et al., 2012).

## **2.3 Recent Developments**

Recently, the conversational AI created by OpenAi, termed ChatGPT, has created a lot of buzz. Launched in Nov 2022,

it crossed over a million users within the first few days of its launch. Based on generative AI and natural language processing (NLP) technology and trained knowledge, ChatGPT can give perspective on a wide range of topics (Liferay, 2023). The output would be in the form of text and would also be resembling that of a knowledgeable human being. Various sources have claimed that ChatGPT can aid businesses in accelerating product development and streamlining processes. This is more useful in scenarios involving repetitive questions, such as customer ticketing/ customer service departments. Despite its popularity, there are still questions and uncertainties related to the reliability/ accuracy of the responses, lack of empathy in the responses, issues in case of error, data privacy, and security. Microsoft also created a similar concept for a web browser based on Conversational AI for their search engine Bing in Feb 2023. Google is also doing group testing for its in-house ChatGPT, called Bard (Vincent, 2023).

## **3. Material and Methods**

### **3.1 Material**

#### *3.1.1 Introduction to CCR and BCC Method*

Efficiency measurement is a core component of any business. Data Envelopment Analysis, which is also called DEA, is a method that calculates the technical efficiency of Decision-Making Units (DMUs) relative to other peers having multiple input and output variables (Hota & Rout, 2020). A DMU is known to be technically efficient if the DMU can provide the same output with reduced input or can give higher output with the same input. DEA has been classified as a very useful and effective method in scenarios where efficiency measurement is cumbersome and complex (Chirikos, 2020). Some important steps in the DEA study include allocating input and output data, identifying the model, using DEA software, and calculating relative efficiency scores. For the DMUs, which are termed inefficient, certain target values for the variables are listed and computed that would make the inefficient units efficient.

DEA is a non-parametric method first used by Charnes, Cooper, and Rhodes (1978), where the context was around constant return to scale (CRS). It is popularly known as the CCR model. The unknown weights are calculated based on the given inputs and outputs from the DEA model in such a manner that the relative efficiency can be maximum (Pérez, 2013). The mathematic expression for the CCR model as proposed by CCR for n number of DMUs with m number of inputs and producing s number of outputs is given below:



$$\begin{aligned}
 \text{Max } Z_p &= \sum_{k=1}^s V_k Y_{kp} \\
 \text{s.t. } \sum_{j=1}^m U_j X_{jp} &= 1 \\
 \sum_{k=1}^s V_k Y_{ki} - \sum_{j=1}^m U_j X_{ji} &\leq 0 \quad \forall i \\
 V_k, U_j &\geq 0 \quad \forall k, j
 \end{aligned}$$

One of the major drawbacks of the CCR method is that it ignores the scenario that different DMUs could be operating at different levels. Hence, the CCR model was later revised to a model with variable returns to scale (VRS) developed by Banker et al. (1984). This model is known as the BCC model. The mathematic expression for the BCC model is shown in the figure below:

$$\begin{aligned}
 \text{Max } Z_p &= \sum_{k=1}^s V_k Y_{kp} + C_k \\
 \text{s.t. } \sum_{j=1}^m U_j X_{jp} &= 1 \\
 \sum_{k=1}^s V_k Y_{ki} - \sum_{j=1}^m U_j X_{ji} - C_k &\leq 0 \quad \forall i \\
 V_k, U_j &\geq 0 \quad \forall k, j
 \end{aligned}$$

### 3.1.2 Cross-efficiency measurement method and its advantages

In the BCC-CCR model, every DMU chooses its own weight based on its convenience to maximize efficiency. It also leads to tiebreaker scenarios where multiple DMUs have the same efficiency. This creates difficulty in ranking the DMUs in order. The cross-efficiency method overcomes these difficulties. Here, the concept of self (self-appraisal) and peer review (peer appraisal) is introduced to improve and provide greater accuracy in arriving at the hierarchy of DMUs (Doyle & Green, 1994). This prevents DMUs from choosing their own weight for its convenience and advantage purpose.

Doyle and Green proposed two models, namely aggressive (arbitrary) and benevolent, that aim at the minimization of maximization of the efficiency of the composite DMU.

The Aggressive method of cross-efficiency determination is explained mathematically below:

$$\begin{aligned}
 \text{Min } \sum_{r=1}^s U_r \left( \sum_{j=1, j \neq 0}^n Y_{rj} \right) \\
 \text{s.t. } \left\{ \begin{array}{l} \sum_{i=1}^m V_i \left( \sum_{j=1, j \neq 0}^n X_{ij} \right) = 1, \\ \sum_{r=1}^s U_r Y_{ro} - \theta^* \sum_{i=1}^m V_i X_{io} = 0, \\ \sum_{r=1}^s U_r Y_{rj} - \sum_{i=1}^m V_i X_{ij} \leq 0, j=1, 2, \dots, N; j \neq 0; \\ V_i, U_r \geq \varepsilon, i=1, 2, \dots, m; r=1, 2, \dots, s \end{array} \right.
 \end{aligned}$$

The Benevolent method of cross-efficiency determination is explained mathematically below:

$$\begin{aligned}
 \text{Max } \sum_{r=1}^s U_r \left( \sum_{j=1, j \neq 0}^n Y_{rj} \right) \\
 \text{s.t. } \left\{ \begin{array}{l} \sum_{i=1}^m V_i \left( \sum_{j=1, j \neq 0}^n X_{ij} \right) = 1, \\ \sum_{r=1}^s U_r Y_{ro} - \theta^* \sum_{i=1}^m V_i X_{io} = 0, \\ \sum_{r=1}^s U_r Y_{rj} - \sum_{i=1}^m V_i X_{ij} \leq 0, j=1, 2, \dots, N; j \neq 0; \\ V_i, U_r \geq \varepsilon, i=1, 2, \dots, m; r=1, 2, \dots, s \end{array} \right.
 \end{aligned}$$

### 3.1.3 Orientation

DEA models can be classified into two orientations, namely input and output-oriented (Sreekumar & Mahapatra, 2011). The input-oriented model focuses on how the input can be further reduced by keeping the same level of output. The output-oriented model focuses on how the output can be increased, given the same level of inputs. For this study, an input-oriented approach is used by the authors. This method has been described as appropriate in situations when the input parameters are controlled by the company and output by external factors. The output parameters chosen in this study, such as social media followers, have an association with external dynamic factors (Pandey et al., 2019).

### 3.2 Method

For the context of this study, a total of 31 B2B organizations are selected and analyzed for the benchmarking study using the method of Data Envelopment Analysis (DEA). The study identifies the parameters where the inefficient decision-making units (DMUs) lack in terms of capabilities compared to the efficient DMUs. Hence, through this study, inefficient organizations can learn and take action from the best-in-

class organizations so that necessary course correction can be done. The present study aims to explore the emerging issues related to understanding how different B2B organizations headquartered in India can be benchmarked based on their digital marketing capabilities. Although various models are available in DEA, one of the first models developed was CCR in 1978, which is still very relevant and useful. The CCR model is an input-oriented model that seeks to minimize input for a given output level. It assumes a constant return to scale. For an increase in input, there is a constant increase in output according to the assumption of this model.

We will be using DEA Solver to conduct CCR and BCC analysis. This is followed by the usage of R for conducting cross-efficiency analysis. Though the CCR and BCC model gives a detailed view of the efficiency of the DMUs, multiple DMUs have an efficiency of 1. Hence, it is difficult to identify the best performing DMU/ arrive at any rank order. Also, in this method, the DMUs choose their own weights so that the efficiency level will be maximum. Hence, to further enrich the study, cross-efficiency models, namely Arbitrary and Benevolent models, are used, which provide a clear picture of the ranking of the various DMUs.

The data necessary for this study are collected from reliable and standard business journals and magazines such as Forbes and Economic Times, which employ professionals to gather accurate and correct information. This approach was also taken by Sreekumar (2011) in his study related to the performance of Indian B schools. The collected information is further enriched and validated with existing information from various social media networking sites

such as LinkedIn company handles and Glassdoor profiles of the respective organisations. For confidentiality reasons, the actual names of the organizations have not been listed directly in the study.

### 3.3 Selection of inputs and outputs

To solve the problem, 31 organizations (DMUs) headquartered in Bangalore are considered using a combination of probability (random sampling) and non-probability sampling (judgmental and convenient sampling). There is no specific rule for classifying the input and output parameters, and the classification is subjective in nature and based on the nature of the study (Ramanathan, 2001).

#### Input:

- X1: I1
- X2: I2
- X3: I3
- X4: I4
- X5: I5
- X6: I6

#### Output:

- Y1: O1
- Y2: O2
- Y3: O3
- Y4: O4
- Y5: O5

**Table 3.1 Details of Input and Output Parameters**

Sl No	Parameter	Abbreviation	Explanation
1	Employee count	I1	Total no of employee strength of the organization, including both permanent and contractual employees
2	Years in business	I2	Time since the organization was formally incorporated legally
3	Investor count	I3	Total no of investors involved in the organization
4	Product count	I4	Total no of active products that are available currently for clients' commercial/business purpose

5	Funding value	I5	Amount of Funding received so far by the organization (in millions)
6	Traffic	I6	Average monthly website visitors for the organization based on Google Analytics data
7	LinkedIn followers	O1	Total no of current LinkedIn followers of the official company page
8	Twitter followers	O2	Total no of followers on the Twitter channel of the official company page
9	Facebook likes	O3	Total no of likes received on the official Facebook page
10	Glassdoor rating	O4	Average rating received on the official Glassdoor page
11	Indeed rating	O5	Average rating received on the official Indeed page

#### 4. Results and Discussions

DEA is a technique to evaluate the relative efficiencies of various DMUs of organizations. These DMUs are distinct and independent from each other. For managerial reasons, it is important to evaluate efficiencies to know what unit is performing and what unit is not. Also, it indicates what level of input or output we should target for each DMU (Sreekumar & Patel, 2007).

For analysis, R studio is used, and the steps below are performed in the script editor to get the desired results, and the CCR model is used. A package named “deaR” is used in R. To further enrich the study, a variable return to scale approach is taken, and the entire analysis is run on R with updated R scripts.

**Table 4.1 Efficiencies of DMU (CCR and BCC)**

DMU	CCR	Rank	Peer	Peer weight	BCC	Rank	Peer	Peer weight
1	0.43	28	20,18	0.7, 0.69	0.52	30	27,11	0.4,0.23
2	1	1	2	1	1	1	2	1
3	0.81	24	18,11	0.73,0.69	1	1	3	1
4	1	1	4	1	1	1	4	1
5	1	1	5	1	1	1	5	1
6	1	1	6	1	1	1	6	1
7	0.49	26	20,18	0.89,0.78	0.62	28	27,18	0.5,0.15
8	1	1	8	1	1	1	8	1
9	0.46	27	18,20	0.92,0.63	0.61	29	27,11	0.6,0.18
10	1	1	10	1	1	1	10	1
11	1	1	11	1	1	1	11	1
12	0.41	29	27,18	0.4,0.3	0.42	31	27,18	0.54, 0.18
13	0.95	23	26	0.19	1	1	13	1
14	0.80	25	18,29	0.95,0.8	1	1	14	1

DMU	CCR	Rank	Peer	Peer weight	BCC	Rank	Peer	Peer weight
15	0.40	30	2,20	0,3,0.1	1	1	18,20	0.78, 0.12
16	1	1	16	1	1	1	16	1
17	1	1	17	1	1	1	17	1
18	1	1	18	1	1	1	18	1
19	1	1	19	1	1	1	19	1
20	1	1	20	1	1	1	20	1
21	1	1	21	1	1	1	21	1
22	1	1	22	1	1	1	22	1
23	1	1	23	1	1	1	23	1
24	1	1	24	1	1	1	24	1
25	1	1	25	1	1	1	25	1
26	1	1	26	1	1	1	26	1
27	1	1	27	1	1	1	27	1
28	0.22	31	2	0.08	1	1	18,27	0.88, 0.08
29	1	1	29	1	1	1	29	1
30	1	1	30	1	1	1	30	1
31	1	1	31	1	1	1	31	1

From Table 4.1 above, we can infer that for the CCR model, DMU1 is 0.43 efficient or 43% efficient. DMUs 2,4,5,6,8,10,11,16,17,18,19,20,21,22,23,24,25,26,27,29, 30,31 have an efficiency unit of 1, which means these are operating at the highest level of efficiency. No unit can have more efficiency than 1. We can conclude that 22 units are efficient, while nine units are inefficient compared to these most efficient units.

From Table 4.1 above, we can infer that for the BCC model, DMU1 is 0.52 efficient or 52% efficient. DMUs 2,3,4,5,6,8,10,11,13,14,15,16,17,18,19,20,21,22,23,24,25,

26,27,28,29,30,31 have efficiency unit of 1, which means these are operating at the highest level of efficiency. No unit can have more efficiency than 1. We can conclude that 25 units are efficient, while six units are inefficient compared to these most efficient units. This leads to cases and scenarios involving ties due to the same efficiency score. This ultimately creates a problem for the decision-making process, and as a result, the best corrective action cannot be chosen. The table below shows an evolved method of efficiency score computation involving an arbitrary and benevolent model that overcomes this limitation and provides a better lens for decision-making purposes.

**Table 4.2 Efficiencies of DMUs (Arbitrary and Benevolent method)**

DMU	Efficiency (Arbitrary)	Rank (Arbitrary)	Efficiency (Benevolent)	Rank (Benevolent)
1	0.20	19	0.25	22
2	0.49	9	0.41	15
3	0.13	26	0.34	17
4	0.09	28	0.18	27
5	0.74	1	0.71	5

DMU	Efficiency (Arbitrary)	Rank (Arbitrary)	Efficiency (Benevolent)	Rank (Benevolent)
6	0.08	30	0.11	28
7	0.16	22	0.25	23
8	0.57	3	0.75	3
9	0.16	21	0.26	21
10	0.20	18	0.41	16
11	0.54	4	0.75	4
12	0.15	23	0.20	26
13	0.14	24	0.10	29
14	0.14	25	0.28	20
15	0.08	29	0.06	30
16	0.31	15	0.58	8
17	0.42	12	0.24	24
18	0.53	5	0.78	2
19	0.37	14	0.42	14
20	0.73	2	0.91	1
21	0.50	8	0.64	6
22	0.10	27	0.24	25
23	0.52	6	0.45	12
24	0.29	16	0.42	13
25	0.18	20	0.29	19
26	0.51	7	0.46	10
27	0.43	11	0.61	7
28	0.05	31	0.03	31
29	0.45	10	0.50	9
30	0.27	17	0.45	11
31	0.41	13	0.30	18

Based on the Arbitrary method from the above table, we can infer that DMU5 has the highest cross-efficiency score of 0.74, indicating it is the most efficient DMU, while DMU28 has the lowest cross-efficiency score of 0.05. The average efficiency score is 0.32, and 15 DMUs have efficiency scores above the average score based on this arbitrary method of cross-efficiency measurement.

Based on the Benevolent method, we can infer that DMU20 has the highest cross-efficiency score of 0.91, indicating it is

the most efficient DMU, while DMU28 has the lowest cross-efficiency score of 0.03. The average efficiency score is 0.40, and 16 DMUs have efficiency scores above the average score based on this benevolent method of cross-efficiency measurement.

## 5. Conclusions

The study is mainly concerned with respect to determining the efficiency of B2B firms headquartered in India. The



study provides a holistic approach to the usage of DEA using various methods such as CCR, BCC, and Arbitrary and Benevolent models. The initial part of the study involves the efficiency measurement of the 31 shortlisted B2B organizations using the BCC and CCR models. The study also explains the rationale and shortcomings of the traditional BCC-CCR model in cases of real-life context involving organizational efficiency measurement. It further explains and extends the study to show how applications of cross-efficiency measurement using Arbitrary and Benevolent models can address the shortcomings and help business leaders rank the organizations (DMUs) and make impactful business decisions.

This method helps in evaluating the firms that are less performing and how they can improve to get the desired level of performance. The method also identifies the best-performing DMUs and learns the best practices from them to formulate winning strategies.

Below are some key points based on the competitive analysis carried out on the 31 DMUs using the DEA method:

- ♦ Twenty-one units out of 31 DMUs have emerged as benchmarking units for the other 10 DMUs in the CRS model, whereas 24 units are found to be efficient in the VRS model.
- ♦ Ten DMUs (DMU5, DMU6, DMU8, DMU13, DMU18, DMU20, DMU22, DMU24, DMU34 and DMU35) have become inefficient units in both CCR and BCC model based on their efficiency scores.
- ♦ Ten DMUs (DMU1, DMU3, DMU7, DMU9, DMU12, DMU13, DMU14, DMU15, DMU22 and DMU28) have become inefficient units in the CRS model, while six DMUs (DMU1, DMU7, DMU9, DMU12, DMU15, DMU28) have become inefficient units in the VRS model based on their efficiency.
- ♦ Six DMUs (DMU1, DMU7, DMU9, DMU12, DMU15 and DMU28) have become inefficient units in both CCR and BCC model based on their efficiency.
- ♦ Ranking of DMUs in an order was not possible using the CCR and BCC model. Hence, a cross-efficiency-based model was chosen using the arbitrary and benevolent approach.
- ♦ DMU28 was identified as the lowest-performing DMU using both the arbitrary and benevolent approach, highlighting its need for improvement.

## 6. Theoretical and Managerial Implications

The need for benchmarking has been emphasized across studies to ensure businesses are able to compete in today's global environment amid cut-throat competition (Mann, 2018). Past studies have highlighted the concern that there is a paucity of research, specifically in the B2B digital marketing domain, in terms of understanding areas related to measuring effectiveness, ROI, and benchmarking (Pandey et al., 2019; Jarvinen et al., 2012).

If we consider the case of a CEO of a Fortune 500 organization, he/she may not be able to spend time on a daily basis with a small SME customer. They may be more concerned with the bigger enterprise customers or conceptualizing how the next big deal can be won. In these types of scenarios, earlier, a CEO was completely unaware and did not have an understanding of what is the overall perception or satisfaction from the brand. However, in recent years, digital platforms have gained momentum, and now social media gives all the details and shows the perception based on intelligence. The digital-based tools also give a view of how the competitors are performing and what is the perception of competitors' brands in the minds of the customers.

Although historically, B2B companies were lagging behind B2C in terms of adopting data and analyzing them; it is evident that the adoption and usage of techniques to study competitor performance can enhance business performance. However, it is important that companies should keep their goal in mind before navigating the journey of analysis. Some of these could be around what type of data understanding can be valuable, having the right mix of talent in the team, owning the right tools and techniques, and finally driving adoption towards its usage throughout the organization. Thus, through the knowledge, information, and data of correct entities, a corrective course of action can be devised that would fuel and propel the organization toward growth.

## 7. Limitations and Future Scope of Research

The current study uses DEA using an input-oriented approach. The study can be further enriched by using different and newer methods of Data Envelopment Analysis or newer methods of benchmarking study using an output-oriented approach. Researchers can also use newer and more relevant items/ variables to study the DMUs. The authors of this study have focused mainly on organizations headquartered in Bangalore. Future research could be aimed at studying the Indian context more aggressively by including factors such as geographical proximity and cross-

cultural perspective. It would also be interesting to explore further companies based on their industry classification and study the benchmarking from that perspective.

It has been observed that there is a sense of fear and insecurity amongst organisations when it comes to sharing data in any form, specifically for non-listed companies. This is furthermore prevalent when it comes to data involving financial numbers and estimates. Considering the industry and market fluctuations, it is important that data in accurate and correct form should be available for researchers, which is a constraint. To address this, researchers can adopt methodologies involving neural networks (NN), which would enable managers to predict and make informed decisions.

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# The Direct and Indirect Effects of Coping Behaviors on Personality and Work-Family Conflict Relationship: A Study of Indian Journalists

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## A b s t r a c t

The professional demands of journalism make the employees' lives unfriendly to their families. Therefore, a better understanding of the role of personality traits and their coping behaviors may be useful to minimize their perception of work-family conflict. This study, in particular, has tested the direct and indirect relationship between coping behaviors, the Big Five personality traits, and the two directions of work-family conflict, namely, work-to-family conflict (WFC) and family-to-work conflict (FWC). The four coping behaviors- problem focused, functional emotion-focused, dysfunctional emotion-focused, and avoidance coping- were taken as parallel mediators in the indirect relationship. This cross-sectional study was conducted among 212 Indian Journalists using self-reported data. The results of the direct relationship revealed an interesting finding that journalists' coping styles influence WFC more than their personality traits. However, personality traits influence the perception of FWC more than coping behaviors. Further, the mediation analysis results revealed that a combination of coping behaviors fully mediated the relationship between the big five personality traits and work-to-family conflict while partially mediating the relationship between the big five personality traits (except for neuroticism) and family-to-work conflict. Individually, results showed different association patterns between the big five personality traits, four coping behaviors, and both forms of work-family conflict. Targeted interventions for media organizations like condensed work weeks, compulsory day off in a week, leaves, flexible scheduling, and wellness-related initiatives are discussed. Also, it is suggested that Realistic Job Previews (RJP) be shared with the journalists during the onboarding phase so that they self-select themselves according to their personality traits and develop effective coping behaviors.

**Keywords:** *Personality, Big Five, Coping, Parallel Mediation, Work-family conflict, Journalism, India*



## 1. Introduction

Work and family domains are no longer strictly segregated from each other as jobs are becoming amorphous in the context of technological and social-demographic changes (Anand & Vohra, 2022). The nature of the journalism profession induces its employees to work round the clock and provide news as it happens. Stress in their job also results from a wide range of professional demands such as unexpected outstation assignments in all weathers, meeting stringent daily deadlines, finding fresh stories every day by being exposed to traumatizing events, concentrating on content in noisy newsrooms, working late evenings, weekends, even on festivals and public holidays (Feinstein et al., 2002; Monteiro et al., 2015 meta-analysis). Simultaneously, socio-demographic changes, like the operation of egalitarian gender and social norms, have increased women's participation, particularly mothers in this so-called masculine journalism profession, and altered traditional family structures (Global Media Monitoring Project Report, 2020). Consequently, journalists experience 'work-family conflict,' defined as the simultaneous pressure from either of the (work or family) domains, making it difficult for an individual to discharge his other role-related responsibilities effectively (Greenhaus & Beutell, 1985). The aforementioned notion of 'work-family conflict' implies a bidirectional relation, such that work can interfere with family life (i.e., work-to-family conflict: WFC) and family can also interfere with work-life (i.e., family-to-work conflict: FWC) (Mesmer-Magnus & Viswesvaran, 2005). Previous research has very well established that both directions of work-family conflict have several significant negative consequences for individuals (Kossek & Ozeki, 1998; Frone et al., 1996; Rupert et al., 2009) as well as for their organizations (Netmeyer et al., 1996; Grandey & Cropanzano, 1999; Allen et al., 2000). To avoid these consequences, it is important that journalists have adequate personal resources and use effective coping strategies that protect them from work-family conflict.

In the recent past, researchers have overwhelmingly identified work and family-related *contextual* resources like job characteristics, organizational support, and flexibility (Michel et al., 2011; Ten Brummelhuis & Bakker, 2012) that can help an individual minimize his work-family conflict. Relatively, little attention has been paid to *personal* resources like personality traits and coping behaviors as direct predictors for both directions of work-family conflict. Research evidence personality and coping are independent in influencing physical and psychological health outcomes

(Suls et al., 1996; Carver & Connor-Smith, 2010). Yet, studies encompassing both personality and coping in influencing work-family conflict perception are very rare (Andreassi, 2007; Baltes et al., 2011). This study has taken a step forward and included personality and coping together as antecedents to journalists' work-family conflict and tried to differentiate their predictive power.

Going a step further, a few researchers revealed that the association between personality and stress outcomes can be indirect i.e. through adopting coping behaviors. Lazarus and Folkman (1984) stressed that cognitive appraisal and coping are two fundamental processes mediating the person-environment relationship. Bolger and Zuckerman (1995) suggested mediation as the other way in which personality influences the adoption of coping strategies, which, in turn, influences psychological outcomes like work-family conflict. Eby et al. (2005) meta-analysis of 190 work-family studies also found that only 0.6 percent of studies examined coping as a mediator specific to work-family conflict and urged for further research. Although, a little later, few studies attempted to understand this triangulated relationship using varying populations, their findings have been inconsistent (Smoot, 2005; Andreassi, 2007; and Byrant, 2009). In some instances, coping failed as a mediator (Smoot, 2005), while in others, coping played a mediating role in the process by which personality and WFC are related, though limited to certain personality-coping pairings (Andreassi, 2007; Byrant, 2009). To further explore this issue, this study has been undertaken.

Overall, the present study may prove substantial to the existing work-family research and practice. Firstly, working conditions for journalists are not conducive to their families. Thus, from the perspective of work-family conflict, journalists are a fascinating study group that has not received enough attention from previous work-family scholars. Moreover, studies have evidence societal culture plays a key role in shaping individuals' work-family conflict experience and their personality traits (Powell et al., 2009). Thus, Indian journalists seem to be an under-researched context. Secondly, the study aims to examine how personality and coping behaviors influence journalists' work-family conflict. This will add to our understanding of Lazarus and Folkman's (1984) Cognitive Theory of Stress and Coping, i.e., whether journalists' personality (cognitive appraisal of stressful situations) or their coping styles (reaction to stress severity) lead to differential exposure to stress (work-family conflict)? Thirdly, the current study has tested the mediating role of coping behaviors in the relationship between personality and

work-family conflict. Previous literature suggests that this indirect triangulated relationship demands further empirical attention.

## 2. Background

### 2.1 Personality (Big Five) and Work-Family Conflict

Personality refers to dynamic mental structures and coordinated mental processes that determine individuals' emotional and behavioral adjustments to the environment (James & Mazerolle, 2002). Numerous personality theorists and researchers have advocated that there are five basic orthogonal factors, namely, extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience, which represent personality at the broadest level of abstraction (Tupes & Christal, 1961; Goldberg, 1981; Digman, 1989; McCrae & Costa, 1987). The Big Five taxonomy has been generalized reliably across different types of samples, methodological variations, languages, and cultures.

The first personality trait, *conscientiousness* is described by characteristics like achievement orientation, dependability, orderliness, efficiency, organization, planfulness, responsibility, thoroughness, and hardworkingness (McCrae & John, 1992). Kossek et al. (1999) asserted that individuals high on conscientiousness pursue their work and family roles with high intensity (more investment of time and energy) due to the fact that they plan and organize their tasks efficiently and experience less work-family conflict. Bruck and Allen (2003) revealed that more conscientious employees reported less FWC but was found unrelated to WFC. Wayne et al. (2004) found that individuals high on conscientiousness reported less WFC and FWC.

The second trait, *extraversion*, is defined by characteristics like active, energetic, assertive, bossy, outgoing, sociable, talkative, expressive, and enthusiastic (McCrae & John, 1992). Rusting and Larsen (1998) suggested that individuals high in extraversion tend to experience more positive effects than those low in extraversion. Grzywacz and Marks (2000) found a high level of extraversion associated with decreased conflict in both directions.

The third trait, *agreeableness*, includes characteristics like altruism, trust, modesty, cooperation, sympathy, forgiveness, kindness, and generosity (McCrae & John, 1992). Bruck and Allen (2003) found that agreeable individuals reported less work-family conflict as their helpful nature encouraged others to share their roles and

responsibilities. Wayne et al. (2004) found that agreeable individuals experienced less work-family conflict as they had fewer interpersonal conflicts in both domains. Rantenen et al. (2005) also found agreeable employees minimize psychological distress as they garner resources like the support of supervisors, coworkers, family members, and the community.

The fourth trait, *neuroticism*, is described by characteristics like anxiety, insecurity, defensiveness, emotional instability, tension, and worry (McCrae & John, 1992). Previous research studies (Carlson, 1999; Grzywacz & Marks, 2000; Stoeva et al., 2002; Wayne et al., 2004 and Aryee et al., 2005) consistently revealed that higher level of neuroticism was related to more negative interaction between work and family in both the directions. They believed that such individuals experience time constraints, stress in their roles, and tend to find themselves in conflicting situations.

The fifth trait, *openness to experience*, is defined by the characteristics of intelligence, unconventionality, imagination, experimentation, curiosity, creativity, and originality (McCrae & John, 1992). Wayne et al. (2004) and Leka and De Alwis (2016) did not find openness to experience significantly reduced both forms of work-family conflict. However, Rantenen et al. (2005) found openness to experience positively linked to FWC only among men as they spent much of their time and energy on paid work, which made their families bear the brunt of their limited resources such as time and energy.

The discussion above makes it clear that there are differences between the associations of the Big Five personality traits with work-to-family conflict and family-to-work conflict (Allen et al. 2012 meta-analysis). In order to understand why the Big Five traits revealed varied relationships with both forms of work-family conflict, previous studies have examined the mediating mechanisms that link personality traits with work-family conflict. For the first time, Vollrath et al. (1995) tested coping as a mediator in the relationship between personality and strain outcomes and found considerable support. Later, a number of researchers suggested studying further the indirect effect as how personality traits affect cognitions and behavioral efforts to evade stressful situations and, in turn, how such cognitions and efforts have further capacity to influence stressful situations like work-family conflict (Wayne et al., 2004; Eby et al., 2005; Connor-Smith & Flachsbart, 2007). They believed that individuals with different personality traits appraise stressors or situations differently and assess their resources to cope with stressful situations. When they

perceive situations are under control, and they have access to plenty of resources, they mainly employ active coping strategies (like problem-focused and emotion-focused); otherwise, they indulge in passive coping behavior (like avoidant coping). Although previously, Baltes et al. (2011) have tested the mediating role of problem focused coping in the relationship between certain personality traits and both forms of work-family conflict; however, they ignored the other forms of coping (emotional and avoidance-based coping). Thus, by testing direct and indirect effects, the present study attempts to understand whether the personality traits that affect the appraisal processes are likely to affect the choice of coping strategy.

## **2.2 Personality and Coping**

Coping has been defined as the cognitive and behavioral efforts an individual uses to manage taxing demands appraised as exceeding his personal resources (Lazarus & Folkman, 1984). Costa and McCrae (1986) asserted that coping responses have more to do with individual personality traits than with the actual stressors. Parkes (1986) explored that personality, in addition to situational factors, acted as significant predictors for coping styles. Lazarus (1988) suggested that the personality of an individual influences the appraisal of the stressful situation and, consequently, the coping style he/ she engages in. Subsequently, sufficient literature is produced which indicates that individuals who score high on extraversion tend to use more problem-focused coping strategies (Wearing & Hart, 1996), like instrumental support seeking (Hooker et al., 1994; McWilliams et al., 2003), rational action (Costa & McCrae, 1986), active problem solving (Hooker et al., 1994; Leebaggley et al., 2005; DeLongis & Holtzman, 2005) and use less emotion-focused coping strategies (Hooker et al., 1994; McWilliams et al., 2003) like acceptance of responsibility (O'Brien & DeLongis, 1996; Penley & Tomaka, 2002), self-blame, and wishful thinking (Leebaggley et al., 2005).

Individuals who score high on neuroticism have been found to employ more emotion-focused and avoidant-focused coping strategies, such as escape-avoidance, withdrawal, self-blame, denial, wishful thinking, hostile reactions, substance use, confrontation and venting of emotions (Wearing & Hart, 1996; Uehara et al., 1999; Shewchuk et al., 1999; Penley & Tomaka, 2002; McWilliams et al., 2003). These individuals have been found using less problem-focused coping (Hooker et al., 1994; O'Brien & DeLongis, 1996; McWilliams et al., 2003; Leebaggley et al., 2005).

Contrary to it, individuals who score high on conscientiousness have been found using more problem-focused strategies, such as direct action, planning, problem-solving, positive reappraisal, and suppression of competing activities (O'Brien & DeLongis, 1996; Penley & Tomaka, 2002; Leebaggley et al., 2005) and less avoidant and emotion-focused coping strategies.

The individuals who score high on agreeableness have been found to employ more emotion-focused coping strategies in some studies (O'Brien & DeLongis, 1996; Shewchuk et al., 1999; Penley & Tomaka, 2002), whereas, in some other studies (Hooker et al., 1994; McWilliams et al., 2003; Leebaggley et al., 2005) contradictory results have been found. In their meta-analyses, Connor-Smith and Flachsbart (2007) reported that agreeableness plays a limited role in coping. Yet, positive relation was expected in relation to social support (instrumental and emotional) coping strategies, negative relation to emotion-focused coping strategies and unrelated to problem-focused as well as avoidant coping strategies.

The relationship between openness to experience and the choice of a coping strategy has not been clearly established in the literature. For instance, Hooker et al. (1994) found no relationship between openness to experience with the choice of coping strategy, but Penley and Tomaka (2002) and McWilliams et al. (2003) found openness to experience related to more problem-focused and avoidant-focused coping and less to emotion-focused coping. Lee-Baggley et al. (2004) found that individuals high on openness tend to report a low level of 'distancing from others and the world around them' (a form of avoidance-based coping).

Based on the above arguments, we assume that the Big Five personality traits influence the choice of coping behaviors.

## **2.3 Coping and work-family conflict**

Coping is the 'reaction' after cognitive appraisal of the situation, and it is not necessarily a successful act. Lazarus and Folkman (1984) asserted that when confronted with potential stressors, people engage in a primary cognitive appraisal process, where they ask whether the situation threatens their wellbeing. Then, they also indulge in a secondary appraisal process, where they assess their ability to cope with stressors effectively. Thus, the way people cope with stressors can affect their well-being and performance. Hall (1972) reported that employment of coping strategies has been found to be related to less role conflict among married working women in the USA. Matsui et al. (1995) examined a sample of Japanese working women. They found

that family role redefinition (a form of problem-focused coping) has moderated the relationship between the level of FWC and life strain. Bhagat et al. (1995) studied Indian teachers and found problem-focused coping strategies to be more effective than emotion-focused coping strategies in managing work and personal life stressors and resulting in desirable outcomes. Similar results were reported by Burke (1998) that problem and emotion-focused coping turned out to be effective, while avoidance coping was ineffective in reducing work-family conflict experience among Canadian police officers. Another study by Rotondo et al. (2003) among a sample of individuals working across a variety of organizations showed that the use of passive coping (avoidance/or resignation behaviour at home or at work) resulted in high work-family conflict in both directions. However, Andreassi (2011) found that active coping was not related to work-family conflict, asserting that active coping is effective only when people perceive they have control over the stressors. In the current study, the stressors assumed are work demands (e.g., work timings, outstation assignments) and family demands (e.g., number of children, a working spouse, household chores) that compete for one's time and energy.

Based on the above discussion and drawing evidence from past studies, we propose the model to be tested in the present study (Figure 1).

### 3. Research Methodology

#### 3.1 Participants

Full-time journalists working for the daily newspaper organizations in Punjab, India, in different positions were included in the sampling frame. Further, the Punjab Press Media Directory was used to furnish the basic details like names and contact information for 439 professionals who met the above criteria. Due to the unpredictable nature of the journalism profession, a web-based questionnaire was

employed to collect data. After a few days of mailing, follow-up calls and a personal request approach was used. Among 439, only 212 journalists holding full-time jobs in daily newspaper organizations of Punjab were selected on the basis of their responses after doing the final screening. Of the total, 166 were males, and 46 were females; 81.1 percent were married, and of those, 67 percent had parental status. The mean age of respondents was 36.8 years, and the mean tenure in the profession was 10.5 years.

#### 3.2 Measures

##### 3.2.1 Work-family Conflict

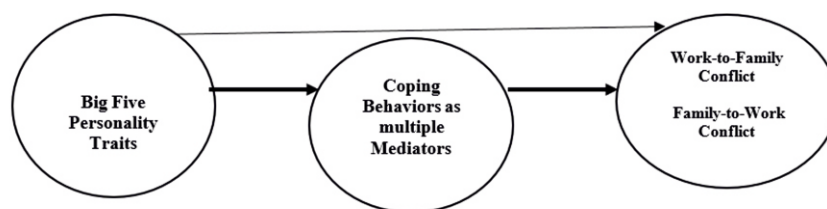
Grzywacz and Mark's (2000) 8-item scale measuring dimensions of work-family negative spillover (i.e., conflict) was used, with four items for each dimension- Work-to-Family Conflict and Family-to-Work Conflict. Response options ranged from 1 (never) to 5 (all the time) as participants were asked to indicate the frequency with which they felt about each statement in past three months.

##### 3.2.2 Personality (Big Five)

Donnellan et al. (2006) 20-item Mini-IPIP scale was used, with four items measuring each personality trait of the Big Five. Three items- 'I am life of the party', 'I seldom feel blue' and 'I have vivid imagination' were rephrased for better understanding of the participants. Response options ranged from 1 (strongly disagree) to 5 (strongly agree).

##### 3.2.3 Coping

Carver's (1997) 28-item brief COPE inventory was used that assessed fourteen types of coping behaviors categorized into problem-focused coping (active coping, planning, and using instrumental support) and emotion-focused coping (positive reframing, acceptance, humor, religion, self-distraction, denial, venting, self-blame, behavior disengagement, substance use, and emotional support). Carver (1997) argued that the brief COPE scale has a



**Figure 1. Proposed Model**

*Source: Prepared by the Authors*



purpose similar to that of the full COPE scale, and the advantage of the shortened scale is that it minimizes respondent time demands. Participants were asked to indicate the frequency of use of such behaviors as the response options ranged from 1 (I haven't been doing this at all) to 5 (I've been doing this a lot).

#### 4. Analysis and Results

Principal Component Factor Analysis (PCFA) was performed to assess the structure of a given scale, followed by a confirmatory factor analysis (CFA) to validate the underlying factor structure of the scale for our dataset. The results for all three scales are reported in the following text.

For the work-family conflict scale, the Varimax rotation yielded two orthogonal factors representing work-to-family and family-to-work conflict, which explained 70% of the total variance. Further, the results of CFA using maximum likelihood estimation revealed that the two-factor measurement model showed a good fit to the data [ $\chi^2(19) = 29$ ,  $p = 0.00$ , GFI = 0.96, CFI = 0.98, NFI = 0.96, RMSEA = 0.05] and all factor loadings were found statistically significant.

For the personality scale, the Varimax rotation yielded five orthogonal factors, which cumulatively explained 71% of the variance. The results of CFA also showed a good fit to the data [ $\chi^2(36) = 69.90$ ,  $p = 0.00$ , GFI = 0.92, CFI = 0.94, NFI = 0.90, RMSEA = 0.07] and all the factor loadings were found significant.

For the coping scale, the Varimax rotation yielded four orthogonal factors, and they explained 61% of the variance. However, the original Carver (1997) 28-item brief COPE scale has a two-factor structure (Emotion and Problem-focused coping). Therefore, new labelling was done. Factor I was labeled as problem-focused coping as items relate to active coping, planning, and using instrumental support. Factor II was labeled as functional emotion-focused coping

as items related to emotional support, religion, humor, acceptance, and positive reframing. Factor III was labeled as dysfunctional emotion-focused coping as items related to self-blame, venting, and behavior disengagement, and factor IV was labeled as avoidance-focused coping as items related to substance use, denial, and self-distraction.

To confirm the factor structure, a series of CFA was conducted and compared the fit for three plausible alternative structures. Model I with a hypothesized two-factor structure (Emotion and Problem focused coping), Model II, with a three-factor structure (Emotion, Problem and Avoidance focused coping), and Model III with four factor structure (as explored above). The fit indices revealed that model III fit data better than the other two models, as reported in Table 1. Compas et al. (1999) argued that the structure of coping varies as a function of the characteristics of the sample and the type of stressful situation being studied. Previously, Litman (2006) also supported four dimensionality (problem focused, emotion-focused, socially supported, and avoidant coping) of COPE inventory (Carver et al., 1989) for a sample of University students.

Descriptive statistics, reliabilities and Pearson's correlation coefficients for the study variables are shown in Table 2. Agreeableness, conscientiousness, and extraversion were found to be negatively associated, while neuroticism was positively associated with WFC and FWC. Openness to experience was found to have a negative association with WFC only but not with FWC. Agreeableness, conscientiousness, extraversion, and openness to experience were positively associated with problem focused and functional emotion coping, but neuroticism was positively associated with dysfunctional emotion and avoidance-based coping. Further, functional emotional coping and problem focused coping were negatively related to WFC and FWC, whereas dysfunctional and avoidance coping were positively related to WFC and FWC.

**Table 1. Results of Confirmatory Factor Analysis (Coping Scale)**

Models	Chi-Square(df)	GFI	CFI	NFI	RMSEA
Two factor model (PFC-EFC)	779.01(339)	0.746	0.880	0.800	0.07
Three factor model (PFC-EFC-AFC)	676.38(337)	0.832	0.928	0.843	0.05
Four factor model (PFC-FEFC-DEFC-AFC)	441.17(335)	0.878	0.972	0.888	0.03

Source: Author's calculations

Note: PFC: Problem Focused Coping, EFC: Emotion Focused Coping; AFC: Avoidance Focused Coping; FEFC: Functional Emotion Focused Coping, and DEFC: Dysfunctional Emotion Focused Coping



**Table 2. Pearson Correlations between Study Variables**

Variables	1	2	3	4	5	6	7	8	9	10	11
1 Extraversion	1 (0.84)										
2 Openness to experience	0.23**	1(0.88)									
3 Conscientiousness	0.30**	0.21**	1(0.78)								
4 Agreeableness	0.00	0.06	0.06	1(0.79)							
5 Neuroticism	-0.40**	-0.02	-0.36**	-0.12	1(0.88)						
6 Dysfunctional Emotion focused coping	-0.35**	-0.12	-0.36**	-0.03	0.55**	1(0.86)					
7 Avoidance focused coping	-0.36**	-0.14*	-0.37**	-0.14*	0.57**	0.75**	1(0.87)				
8 Problem focused coping	0.48**	0.36**	0.43**	0.00	-0.33**	-0.59**	-0.47**	1(0.91)			
9 Functional Emotion focused coping	0.38**	0.29**	0.38**	0.02	-0.29**	-0.50**	-0.49**	0.72**	1(0.89)		
10 Family-to-Work Conflict	-0.30**	0.040	-0.29**	-0.39**	0.30**	0.39**	0.41**	-0.31**	-0.29**	1(0.86)	
11 Work-to-Family Conflict	-0.33**	-0.15*	-0.25**	-0.14*	0.38**	0.59**	0.58**	-0.56**	-0.46**	0.48**	1(0.85)
Mean	3.65	3.48	3.69	3.53	2.86	2.82	2.44	3.50	3.32	2.32	3.17
S.D	0.73	0.73	0.66	0.64	0.87	0.76	0.71	0.59	0.70	0.78	0.68

Source: Author's calculations

Figures in parenthesis denote Cronbach alpha

\*p&lt;0.05, \*\*p&lt;0.001

**Table 3. Results of Hierarchical Regression Analysis**

Variables	Work-to-Family Conflict			Family-to-Work Conflict		
	$\beta$ coefficient	$\Delta R^2$	Adjusted $R^2$	$\beta$ coefficient	$\Delta R^2$	Adjusted $R^2$
<b>Step 1</b>			0.145			0.209
Neuroticism	<b>0.288*</b>			<b>0.129*</b>		
Extraversion	<b>-0.204*</b>			<b>-0.195*</b>		
Openness to Experience	<b>-0.162*</b>			<b>0.135*</b>		
Agreeableness	-0.041			<b>-0.325*</b>		
Conscientiousness	0.093			<b>0.221*</b>		
<b>Step 2</b>		0.226	0.371		0.014	0.223
Neuroticism	0.004			0.019		
Extraversion	-0.104			<b>-0.148*</b>		
Openness to Experience	-0.022			<b>0.157*</b>		
Agreeableness	-0.019			<b>-0.309*</b>		
Conscientiousness	-0.117			<b>-0.165*</b>		
Functional Emotion coping	<b>-0.236*</b>			-0.084		
Dysfunctional Emotion coping	<b>0.396*</b>			<b>0.158*</b>		
Problem Focused coping	<b>-0.366*</b>			-0.024		
Avoidance focused coping	<b>0.292*</b>			0.012		
<b>F statistic for full model</b>		<b>14.764*</b>			<b>7.720*</b>	

Source: Author's calculations

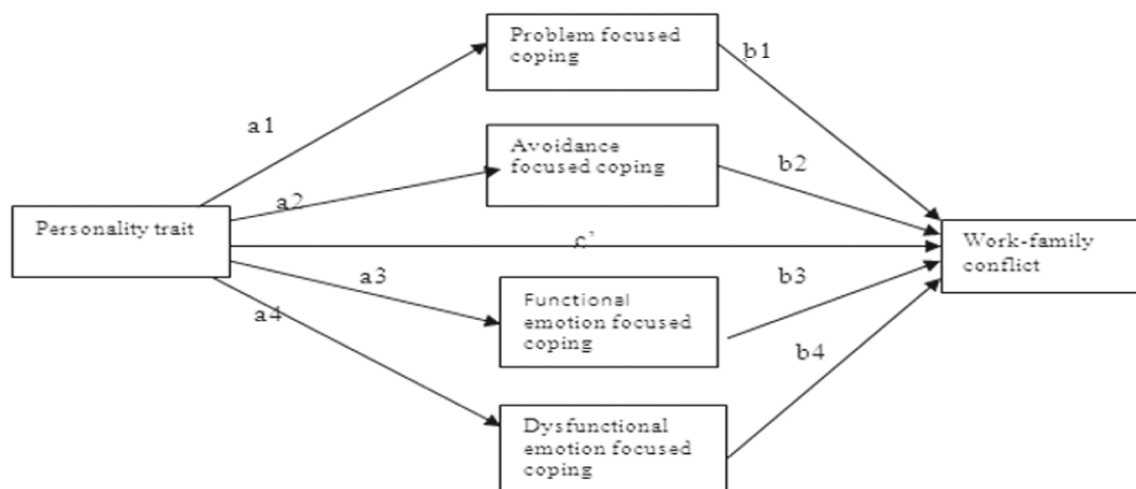
\*p&lt;0.05

Table 3 reports the results of hierarchical multiple regression that personality traits of (entered in step 1) neuroticism, extraversion, and openness accounted for 14.5 percent variance in WFC, but when coping behaviors were added (in step 2), the total variance explained increased to 37.1 percent with an additional 22.6 percent variance attributed to only coping behaviors. For FWC, all big five personality traits explained 20.9 percent variance (in step 1), but when coping behaviors were included, all the personality traits except neuroticism along with dysfunctional emotional coping explained 22.3 percent variance, with just 1.4 percent additional variance attributed to dysfunctional emotion focused coping.

Subsequently, to examine how far the Big Five personality traits influence the WFC and FWC through coping behaviors, mediation analysis was performed using an 'Indirect' SPSS macro (Preacher & Hayes, 2008). The path model that corresponds to this mediation analysis is shown in Figure I, where each personality trait was taken as an independent variable, with all four coping behaviors as multiple parallel mediators and each dimension of work-family conflict as the dependent variable. The direct effect ( $a$  = from personality trait to coping behavior and  $b$  = from coping behavior to each dimension of conflict), indirect effect ( $a * b$  = from each of the personality trait to dimension of work-family conflict when mediated by coping behaviors), prime direct effect ( $c'$  = from personality trait to dimensions of conflict when mediating path involving coping behaviors is statistically controlled) and total effect

of each big five trait on each dimension of work-family conflict ( $c$  = not controlling for any of the coping behaviors) were calculated. For bootstrapping, 2000 samples were requested, and a bias-corrected and accelerated 95 % confidence interval (CI) was created for indirect effect  $a * b$ . The indirect effect was accepted when the lower and upper confidence limits excluded zero.

Table 4 reports results for the dependent variable WFC, which suggested that the effect of agreeableness was completely mediated by avoidance focused coping, while the effect of extraversion, conscientiousness, and openness to experience was completely mediated by the path that involved problem focused coping and functional emotion focused coping. Lastly, for neuroticism, the effect was completely mediated by the path that involved avoidance focused coping and dysfunctional emotion coping. Similarly, Table 5 reports results for family-to-work conflict, which suggested that the effect of agreeableness was partially mediated by the use of avoidance focused coping, while for extraversion and openness to experience, the effect was partially mediated by the path that involved functional emotion focused coping. For conscientiousness, the effect was partially mediated by the path that involved dysfunctional emotion focused coping. Lastly, for neuroticism, the effect was completely mediated by the path that involved avoidance focused coping and dysfunctional emotion coping. Moreover, all ten mediation models had statistically significant  $R^2$  for the proportion of variance in both dimensions of work-family conflict.



Source: Prepared by the Authors

**Figure 2. Path model for parallel mediation analysis with four coping mediators in the relationship between each personality trait and each form of work-family conflict**

Table 4. Results of the Mediation Analysis for Work-to-Family Conflict

Personality Trait	Direct Prime effect	Total Effect	Mediation by PFC			Mediation by AFC			Mediation by FEFC			Mediation by DEFC			Adjusted R <sup>2</sup>
			a	b	a*b	a	b	a*b	a	b	a*b	A	b	a*b	
Extraversion	0.004	-0.203*	0.306*	-0.341*	-0.104*	-0.070	0.281*	-0.019	0.167*	-0.213*	-0.035*	-0.104	0.375*	-0.039	0.378*
Neuroticism	0.013	0.287*	-0.055	-0.341*	0.188	0.360*	0.277*	0.099*	-0.027	-0.214*	0.005	0.405*	0.370*	0.149*	0.368*
Conscientiousness	0.117	-0.093	0.211*	-0.367*	-0.077*	-0.098	0.293*	-0.029	0.197*	-0.237*	-0.046*	-0.145*	0.392	-0.057	0.381*
Agreeableness	-0.019	-0.041	-0.043	-0.343*	0.015	-0.229*	0.277*	-0.063*	-0.011	-0.214*	0.002	0.065	0.376*	0.024	0.369*
Openness to Experience	-0.035	-0.162*	0.267*	-0.332*	-0.088*	0.003	0.282*	0.009	0.174*	-0.208*	-0.036*	-0.006	0.375*	-0.002	0.369*

Source: Author's calculations

\* $p < 0.05$ 

Table 4. Results of the Mediation Analysis for Family-to-Work Conflict

Personality Trait	Direct Prime effect	Total Effect	Mediation by PFC			Mediation by AFC			Mediation by FEFC			Mediation by DEFC			Adjusted R <sup>2</sup>
			A	b	a*b	a	b	a*b	a	b	a*b	A	b	a*b	
Extraversion	-0.146*	-0.195*	0.306*	-0.005	-0.001	-0.070	0.215*	-0.015	0.168*	-0.086*	-0.149*	-0.104	0.168*	-0.018	0.962*
Neuroticism	-0.045	0.129*	-0.055	-0.053	0.002	0.360*	0.241*	0.0870*	-0.027	-0.112	0.003	0.405*	0.201*	0.081*	0.078*
Conscientiousness	-0.157*	-0.221*	0.211*	-0.017	-0.003	-0.098	0.209*	-0.020	0.197*	-0.079	-0.015	-0.145*	0.160*	-0.023*	0.101*
Agreeableness	-0.306*	-0.324*	-0.043	-0.063	0.002	-0.229*	0.155*	-0.035*	-0.115	-0.114	0.001	0.065	0.203*	0.013	0.167*
Openness to Experience	0.187*	0.134*	0.267*	-0.100	-0.026	0.003	0.224*	0.007	0.174*	-0.143*	-0.025*	-0.006	0.184*	-0.001	0.109*

Source: Author's calculations

\* $p < 0.05$

## 5. Discussion

The present study makes one of the first attempts to examine the relationship between the big five personality traits, four categories of coping behaviors, and both forms of work-family conflict among a sample of Indian journalists. The findings indicate that coping directly influences WFC more than personality traits, while personality traits directly influence FWC more than coping behaviors. This may be because print media professionals appraise their work situation as more challenging and stressful than their family situation (even reflected by Mean scores, perception of WFC = 3.17 > perception of FWC = 2.32). As a result, they mainly employ coping strategies at work domain to change their aspect of the stressful environment or to distract their attention from the stressful situation. This finding is somewhat consistent with the notion that a situationally specific assessment provides a more accurate portrayal of individual coping behavior than individual traits alone (Lazarus & Folkman, 1984). This reflects journalists manage their work stressors separately from how they handle their family stressors. Previous studies by McWilliams et al. (2003) and Campbell-Sills et al. (2006) also found that coping accounted for significant variance in distressed situations beyond that contributed by personality variables.

Further, the study analyzed parallel multiple mediation models instead of separate analyses for each coping behavior as a possible mediator in each of the big five personality traits to work-family conflict relationship. This approach is practical because, in real-life situations, one may have a simultaneous number of choices to cope with conflicting situations than otherwise, restricting oneself to a single coping behavior. The results indicated that coping plays a major mediating role in the relationship between personality and work-family conflict (both bi-directional dimensions). More specifically, the results reveal that indirect effects (personality → coping → work-family conflict) are significant when compared to the direct effects (personality → work-family conflict) for both dimensions of conflict.

The effects of the big five personality traits on both forms of work-family conflict (WFC and FWC) are found to be mediated to varying degrees by the adoption of different coping behaviors. Specifically, for the extraversion personality trait as a predictor of work-to-family conflict dependent variable, problem focused coping, followed by functional emotion focused coping, emerged as the significant mediators of the relationship. While functional

emotion-focused coping became the only mediator in the relationship between extraversion and family-to-work conflict. This suggests that extraverted journalists (those who are energetic, sociable, active, assertive, and gregarious) take support from human news resources to get a quick and easy supply of information and hardly search for news and verify their accuracy (a form of instrumental support). Moreover, they make a proper strategy before conducting any interview (planning) and bout with a line of questions. Consequently, they hardly carry their work-related tasks to the family domain. At the family front, extraverted journalists, directly through their traits or through the use of positive reframing, family support, and a good sense of humor (sub-types of functional emotion focused coping), minimize negative spillover from family to work.

For neuroticism personality trait as a predictor of both the dimensions of work-family conflict (WFC and FWC), dysfunctional and avoidance coping played the major mediating role. Neurotic (emotionally unstable) journalists are more sensitive to working in noisy newsrooms, covering traumatic events, and meeting deadline pressure, especially during rush hours (hours before the newspaper is sent to the press) (Khan, 2005). Due to their poor emotional regulation, they make use of substances as self-medication, complain about their workload, and indulge in other activities to take their minds off the routine work stress. Moreover, they employ avoidance behaviors like refraining from work, making excuses, shirking responsibility, and detaching oneself from the events. As a result, negativity emerged from one domain spillover to another domain.

For conscientiousness personality trait as a predictor, problem and functional emotion focused coping acted as mediators to work-to-family conflict. At the same time, no coping acted as a mediator to the relationship between conscientiousness and family-to-work conflict. This suggests that conscientious journalists (those who plan, organize, follow orderliness, are efficient, responsible, and hardworking) negotiate workload with others, arrange work schedules to allow time for family responsibilities, work more efficiently to meet existing role demands, and make alternate arrangements for completing their tasks (all forms of emotion and problem focused coping) to reduce the negative spillover of work on the family front. Moreover, the presence of the trait directly reduces family-to-work conflict.

For the agreeableness personality trait as a predictor, only emotion focused coping played a mediating role on the

overall effect of both dimensions of work-to-family conflict. This suggests that agreeable (altruistic, tender-minded, trustworthy, and modest) journalists maintain liaison with news sources, editors, page designers, photographers, and family members, indulge less in interpersonal issues, and use humor and emotional social support to minimize both forms of work-family conflict.

For openness to experience personality trait as a predictor, problem and functional emotion focused coping acted as mediators to work-to-family conflict. While only functional emotion focused coping acted as a mediator in the relationship between openness to experience and family-to-work conflict. This suggests that journalists high in openness to experience (intelligent, unconventional, imaginative, curious, creative, and original) explore issues in-depth and write long featured articles, editorials, critical reviews, and commentaries that appeal to popular taste and stimulate public interest. Such journalists positively appraise the situation, crack jokes to make it light, actively participate in it, focus on the technical and practical aspects, discuss issues with experts, and take help from others (forms of emotion and problem focused coping) to negate the negative spillover of work to family domain.

A careful examination of results also reveals that journalists mainly employ problem focused coping to mitigate their work-to-family conflict than to reduce their family-to-work conflict. Previously, Rotondo et al. (2003) and Andreassi (2011) also found that when individuals have the ability to change the situation or stressors, then problem focused coping is suitable, and when they lack or have little ability to change stressors, then emotion focused coping has been found more appropriate. Thus, the possible explanation for this finding can be the nature of the journalism profession, which has a high level of autonomous functioning that makes journalists exercise more control and ability to make work changes to accommodate their family demands. In loosely defined jobs, like that of a journalist, employees generally have the freedom to determine the daily activities that they need to perform in their jobs.

### **5.1 Practical Implications**

This study has practical implications for media organizations as well as for journalists. Initially, the results revealed a greater prevalence of work-to-family conflict in the lives of journalists than family-to-work conflict. Therefore, media organizations can offer work-family balancing arrangements like a condensed work week, compulsory days off, leaves, flexible scheduling, and

wellness-related initiatives. Moreover, the managers need to ensure that employees utilize those arrangements and have no ill consequences on the career progression of journalists. However, it is known that the job of a journalist requires long hours, exposure to traumatizing events, extensive travel, and other challenging aspects; this information should not be glossed over in the employee orientation or socialization process. In fact, Realistic Job Previews (RJP) are to be shared with the journalists during the onboarding phase so that they self-select themselves according to their personality traits and develop effective coping behaviors.

Further, discovering that coping behaviors serve strongly in reducing WFC, while personality traits serve strongly in reducing FWC among journalists, this study is directed towards organizational support to facilitate coping mechanisms. It can be through designing training programs that aim to instill, develop, or shed specific personality traits or coping skills among employees. While designing such programs, managers must take into consideration the influence of personality traits on the adoption of multiple coping strategies. For instance, management must plan counseling services, emotion regulation training, employee assistance programs, peer resource groups, or mentor networks so that journalists mainly employ problem focused or functional emotion focused coping to deal with work challenges and thus minimize their work-to-family conflict. Also, regular sessions are to be conducted with the journalists so that they tend to develop a sense of control over their personal resources, practice self-care, engage meaningfully in life's multiple roles, and employ constructive coping behaviors.

### **5.2 Limitations and Future Research**

The findings of the present study should be considered in light of some limitations. Firstly, lengthy scales are generally used on a large number of respondents to draw a meaningful conclusion. However, as part of a larger survey, this study used the shorter version of personality and coping scale. Secondly, data was collected using self-reported scales, and therefore, there remains a chance of common method bias mostly attributed to social desirability, consistency motif, and mood states, etc. Thirdly, the nature of our sample (predominantly male and married journalists) could have influenced many of our results. So, additional research can also be carried out across other job types in which gender segregation is not so marked. Or else, this study can be extended to examine the effect of coping on work-family conflict contingent upon interactions represented by gender and personality.



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# Analysis of India's Trade Potential With RCEP Countries: A Gravity Model Approach

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The gravity model is a statistical tool widely used for cross-country empirical analysis of international trade flows. Throwing light on the current perspective of India's trade potential with the RCEP (Regional Comprehensive Economic Partnership) countries has been a major contributor to conducting the current study. The neighbouring country effect was taken as a factor separately rather than the distance to understand the effect of the neighbouring country dummy variable on the trade potential. It was found that when we consider the clustering by distance, the Regional Trade Agreement does not affect trade. Certain factors like Distance, Capita Income, and Border and Per Capita Income influence bilateral trade between the two countries. However, the Regional Trade Agreement does not look to be an influential variable for enhancing the bilateral trade between both countries. It was concluded that the bilateral trade does not involve much influence from the Regional Trade Agreement Treaty, and its effect is more ornamental than actual.

**Keywords:** Gravity Model, Modelling International Trade Flow, RTA Effect on Trade Flow, Trade flow from India to RCEP Countries

## 1. Introduction

The central objective in the analysis of international trade flow between countries is the examination of any significant difference between the actual trade and potential trade after estimating the potential trade using the different determinants of the trade flows (Kalirajan et al., 1999). India's trade potential with other countries at different points in time has generated active interest among researchers from time to time. The dynamics of trade potential analysis of world trade flows based on the studies in the early years of the 21<sup>st</sup> century showed that India has the highest possibility for performing trade with the Asia-Pacific region, with Western Europe, as well as with North America (Batra, 2004).

The gravity model is a statistical tool widely used for cross-country empirical analysis of international trade flows. It is more relevant and useful to understand the influence of the free trade agreements (FTA) in this context (Baier & Bergstrand, 2007). From the Indian perspective, the Gravity model technique is used to analyze and assess the potential for mutually beneficial trade in goods and services between India and ASEAN+5 countries, FDI, and the potential for cooperation in terms of reciprocal market access (Das, ERIA Research Project Report 2013, 2014).

A survey of literature on gravity models shows that the studies conducted so far fall into certain broad categories. Some studies establish the strengths of the gravity models-based applications and the application of the Poisson quasi-maximum likelihood estimator on the gravity model and the effect on the resulting estimates. There are studies on the various types of biases that might occur in applying gravity models in modeling international trade flows. There are studies on the application of gravity models for modeling the international trade flows of India in the context of different trading / economic cooperation groups such as ASEAN, SAFTA, and other groups. There are also studies with miscellaneous themes, though themes mentioned earlier are more frequently found.

The current paper revolves around the study on the analysis of the trade potential of India with the RCEP Countries based on the panel data from 1991 to 2018. The research model used is the Gravity model, calculated using the Panel data. The model has been developed using the Pseudo Poisson Maximum Likelihood estimation technique in STATA. Several related works have been discussed in the literature review section in order to give a glimpse of the research gap in the current area. Several factors have been

taken into consideration while developing the model, which includes the Per Capita Income of India and the other country, the distance between India and the other country, whether India and the other country have a common border, whether both countries speak a common language, whether there is any colonial link between the countries, whether the country is landlocked and whether the other one is an island country. In the next section, we are discussing the related studies that have happened in this direction.

## 2. Literature Review

### *2.1 Strengths of Gravity Model and Effects of Various Applications to It*

Due to their empirical robustness and explanatory power, gravity models-based research has been widely conducted to study international trade and, in recent times, to study the effects of FTA on international trade (Konstantinos et al., 2010). The estimates produced by the Poisson quasi-maximum likelihood estimator, which can be applied to the gravity model, result in identical actual and estimated total trade flows added across all partners (Arvis & Shepherd, 2011).

### *2.2 Biases in The Application of Model*

Substantial biases in the results are introduced by estimating a gravity equation by omitting time-varying multilateral trade-resistance terms, and correcting them only yields the differences between actual and predicted export shares and not the levels (Ruiz & Vilarrubia, 2007). Under standard assumptions, residual trade costs (which can not be observed) have a large magnitude, and ignoring them results in a bias in the trade cost measures (which can be observed) and also of variables that are specific to countries; these can be answered by structural estimation or by explicit estimation as fixed effects (Egger & Nigai, 2015). While applying the Poisson gravity model to model international trade flows, if spatial dependence is not accounted for, then the parameter estimates might be biased, resulting in incorrect inferences; such an estimation problem might be addressed by eigenvector spatial filtering (Krisztin & Fischer, 2015).

### *2.3 Modeling International Trade Flows*

Machine learning was used to validate the gravity parameters of international trade data from 2004 to 2019, with GDP and distance powers aligning closely around one in the classical gravity equation (Abdullah, 2023). Analysis of world trade flows by applying the augmented gravity



model showed that India has the highest possibility for performing trade with the Asia-Pacific region, with Western Europe and North America following in close succession (Batra, 2004).

The Gravity model technique has been used to analyse and assess the potential for mutually beneficial trade in goods and services between India and ASEAN+5 countries, FDI, and the potential for cooperation in terms of reciprocal market access (Das, ERIA Research Project Report 2013, 2014). GDP and population growth in both partner nations and the Chinese economy positively influenced trade, while greater distances had a negative impact on the trade flows between China and its 97 partner countries from 2008 to 2019 (Emikönel, 2022).

FTA in goods among ASEAN countries under RCEP can drive intra-industry trade flows and enable India to sustain such trade flows (Das & Dubey, 2014). ASEAN's own FTA, along with five existing FTAs with six partner countries, has resulted in a situation that reduces the effectiveness of the FTAs (Fukunaga & Isono, 2013). The gravity model was applied to study the trade creation and diversion effects of various RTAs. The special focus is on SAFTA, and the evidence was found on intra-bloc export creation, the net export diversion in SAFTA, and the other RTAs covered (Rahman et al., 2006).

A study on 103 member countries of WTO during 2002-2011 showed that Non-Tariff Measures (NTMs) could be either import promoting or import reducing to the imposing country; it would be import promoting for exporters from those countries whose trade regulations are close to the NTM imposing country and import reducing for other types of exporters (Grübler et al., 2016). A simple estimation procedure was needed for the general equilibrium comparative static analysis of gravity models. It has been developed for the illustration with an application of removal of worldwide border and also using Poisson Pseudo-Maximum Likelihood Estimator to deliver general and full equilibrium responses (Anderson et al., 2015).

The gravity model is commonly used to examine the impact of FTAs and bilateral trade flows (Urata & Okabe, 2010). The gravity model was used to evaluate the trade potential of the GCC countries within the context of the MENA region, and it was found that though the GCC intra-trade was small in absolute terms, it was higher than expected based on the underlying determinants (Boughanmi, 2008). The gravity model was applied to estimate the probable trade flow for Greece, and the findings show that the actual exports of

Greece are less than the potential exports, while the opposite applies to imports (Papazoglou, 2007). The Spatial Autoregressive Gravity model applied to Intra-African trade from 2002 to 2018 revealed that distance did not impact agricultural trade, while institutional factors in destination countries did affect (Bakouan & Ouedraogo, 2022).

A simple model for international trade and heterogeneous firms was developed, and estimates of intensive and extensive margins of trade were obtained; it was found that the traditional estimates were biased (Helpman et al., 2007). Estimation of structural gravity models was done by introducing a Poisson pseudo maximum likelihood (PPML) procedure for estimation, which is based on constrained projection, the asymptotic distribution, and the comparative static predictions, and also estimated changes in percentages (Pfaffermayr, 2020 May).

India has tremendous trade potential with China, and trade between the two countries can be doubled by removing the barriers; also, Pakistan has a very high trade potential (Batra, 2006). The gravity model was applied to assess the importance of transport infrastructure; it was found that transport infrastructure had been a significant determinant for the tourism inflows to a specific destination; however, the sensitivity of the tourism flows to transport infrastructure tends to vary based on the places connected (Khadaroo, 2008). The gravity model applied to study trade flows with and within Southeast Europe has shown that many trade flows with and within Southeast Europe are noticeably larger or smaller than what the model would predict. The findings suggest that the trade potential depends on the type of trade flows considered (Christie, 2002).

A study of the trade potential of the Bangladeshi economy showed that it is influenced positively by the size of the trading economies, the difference between the per capita GNP of the trading economies, and the extent of openness. Further, the exports are positively influenced by the exchange rate, the import demand of the partnering economies, and the extent of openness of the Bangladeshi economy. Transportation cost negatively influences Bangladesh's trade (Rahman, 2003).

#### ***2.4 Modeling Trade Flows of Various Types of Products, Commodities, and Services***

The gravity model was applied to analyse the trade flows of wine in the European Union (EU). It was found that per capita GDP positively influenced wine trade, remoteness influenced exports positively and imports negatively, while the price of wine did not have any material impact on trade;

depreciation of EU currencies and high wine production, increased exports and reduced imports (Dascal et al., 2002).

The gravity model has been used to assess the extent of trade in manufactured goods between North and South Ireland with reference to that happening between the developed countries; it was found that the extent of trade between North and South Ireland was more than that expected from the experience in case of developed countries (Fitzsimons et al., 1999). Bilateral trade comprising Malaysia and OIC member countries was studied using the gravity model. It was found that the size effects, the economy's openness, the country's current inflation, and the exchange rates determined Malaysia's export potential to the OIC countries; distance and institutions were significant for the exports (Abidin et al., 2013).

Evidence from Egypt by applying the gravity model, suggests that GDP growth positively influences agricultural exports and growth in per capita GDP negatively influences agricultural exports; depreciation of the Egyptian currency vis-à-vis its trading partners positively influences agricultural exports, whereas transportation costs have a negative influence (Hatab et al., 2010).

The gravity model was applied to determine the determinants of services trade and the barriers; the most significant determinants were the wealth of the nations and a common language, whereas distance was found not significant (Keith, 2016).

### ***2.5 Miscellaneous Applications of Gravity Models for Various Types of Relationships***

The gravity model was used to study the trade patterns in stock markets, and it was found that geography is a relevant factor for equity markets, particularly the number of overlapping opening hours and common borders positively influencing cross-country correlation among stock markets. (Flavin et al., 2002). The gravity model was applied to study the spatial structure of the Chinese urban system and classify the ranks of spatial combination areas (Gu & Pang, 2008). The gravity model was used to study the effect of the rights of the trade union, and also the democratic values of the country on the exports of manufacturing industries classified by their labour intensity, and the findings show a significant relationship between trade union rights and manufacturing exports, democracy and labour intensive manufacturing exports, among other things (Kucera & Sarna, 2006).

The gravity model was applied to study the relationship between governance and FDI in Latin American countries; the findings in the Latin American context are similar to those of prior studies in that poor governance tends to increase FDI in transition economies (Subasat & Bellos, 2013). The gravity model was used to study the relationship between governance and FDI; the findings suggest that the absence of a good governance system tends to increase FDI (Bellos & Turan, 2012).

Migration and economic development were studied using the gravity model for bilateral migration in 127 countries; the findings match partly with the evidence from prior studies in that the nature of the relationship between income at origin and migration is consistent with extant literature except for factors such as instrumentation and introduction of controls (Letouzé et al., 2009). International tourism in Turkey was studied through the use of the gravity model approach; an eight-factor model seemed to explain the observations, with a negative index effect, the tourism climate index had been found to be the most significant indicator, and the Iraq war was unexpectedly found insignificant (Eryigit et al., 2010).

### ***2.6 Research Gap***

The most recent works done on the topic are mainly till 2014, whereas the world has changed a lot with significant developments in the Indian sub-continent thereafter. Hence, throwing light on the current perspective of India's trade potential with the RCEP countries has been a major contributor to conducting the current study. Changing international standing after 2017 marked by the Doklam conflict leading to a realignment of international relations among countries like India, China, and Bhutan, has been a factor in performing the study. The distance between the participating countries has been factored separately in some studies, but they have not been considered in clusters using the Gravity Model. The neighbouring country's status, which tends to positively affect the trade relationship, has not been figured out as a factor in some of the previous studies.

We have taken the neighbouring country effect as a factor separately rather than the distance to understand the effect of the neighbouring effect dummy variable on the trade potential. The study has been made on the data from 1991 to 2018 to better understand the factors affecting the trade potential. Next, we fitted the Gravity model twice – once without considering the neighbouring effect as a factor and

then with the neighbouring effect considered as a factor, and we tried to ascertain the effect.

### 3. Research Objective

As has been discussed earlier, this study's central research objective is to analyze India's trade potential with the RCEP Countries based on the panel data from 1991 to 2018. The research model that has been used is the Gravity model, which is calculated using the Panel data using the Gravity model using the Pseudo Poisson Maximum Likelihood estimation technique.

### 4. Research Problem

The rationale behind coining this research study is manifold. As we have discussed the research gap, the most recent work done from the perspective of trade flows among the RCEP countries happened with the data before 2014. The Dokalam incident in 2017 has changed the relationship between two large neighbours, India and China. Hence, this research study, which is supposed to work with the data till 2018, takes into account the changing trade flow regime due to sudden political development. Another aspect that should be examined is whether the neighboring effect influences the trade flow. As mentioned earlier, though the distance between the different countries has been factored in several studies, the neighboring country effect has not contributed much in any study referred by us; however, it is an important variable that has an important effect on the trade flow. Obviously, neighboring countries should experience more trade flows among them; however, apart from distance, this neighboring country effect has not been considered in the earlier studies. The current study has tried to see through 2 different models (in one neighboring effect used as a cluster and in another without it) whether the neighboring effect is really influencing the trade flow or how it is influencing/interacting with the other variables. We are investigating two different aspects here – 1. Included the data of the post-Dokalam period in our study to look for any major disparity, and 2. Incorporating the Neighboring effect in the model as a dummy variable to understand its effect on the trade flows (which has not been done in any previous work that came to our attention).

### 5. Research Questions

The major research questions for which we are trying to get answers are delineated below.

1. Does the national income of India and other countries influence bilateral trade?
2. Does the Per-capita income of India and other countries influence bilateral trade?
3. Does connected border influence bilateral trade?
4. Does distance between the countries influence bilateral trade?
5. Does having a common language influence bilateral trade?
6. Does the Regional Trading Agreement influence bilateral trade?
7. Do colonial links influence bilateral trade?
8. Does being an island country influence bilateral trade?
9. Does being a landlocked country influence bilateral trade?
10. How does the Neighboring Effect influence the model?

### 6. Data Sources

The secondary data has been collected from the World Bank website (World Integrated Trade Solutions).

<https://wits.worldbank.org/countrystats.aspx?lang=en>

Apart from that, there were many other data points that needed to be considered, like Population, Regional Trading Agreement, and Distance, etc., which have been collected through different websites, including –

<https://data.worldbank.org/indicator/SP.POP.TOTL> (Population Data)

<https://data.oecd.org/> (Regional Trading Agreement)

[https://www.distance-between-countries.com/countries/distance\\_between\\_countries.php?from=India&language=English](https://www.distance-between-countries.com/countries/distance_between_countries.php?from=India&language=English) (Distances)

These were the major data sources used for getting the secondary data used for the current study, along with some other sources.

### 7. Methods and Methodology

As discussed before, we have used the Gravity model, which is of the following form -

$$\text{Log}(T_{ij}) = \alpha + \beta_1 * \log(Y_i Y_j) + \beta_2 * \log(Y_i / \text{pop}_i * Y_j / \text{pop}_j) + \beta_3 * \log(D_{ij}) + \beta_4 * \text{Border}_{ij} + \beta_5 * \text{Lang}_{ij} + \gamma_1 * \text{Reg}_i + \gamma_2 * \text{Comcol} + \gamma_3 * \text{Col} + \gamma_4 * \text{landlocked} + \gamma_5 * \text{Island} + u_{ij}$$

Here,

Log(T<sub>ij</sub>) denotes the bilateral trade between India and the j-th country,

Log (Y<sub>i</sub>Y<sub>j</sub>) denotes the Log of Product of GNP of India and the j-th country,

Log((Y<sub>i</sub>/pop<sub>i</sub>.Y<sub>j</sub>/pop<sub>j</sub>) denotes the log of the product of Per Capita Income of India and the j-th country,

D<sub>ij</sub> denotes the distance between India and the j-ith country,

Border<sub>ij</sub> denotes whether India and the j-th country have any common border or not,

Lang<sub>ij</sub> denotes whether India and the j-th country have any common language or not,

Regl denotes Regional Trading Agreement is there between the countries or not,

Col denotes whether there is any colonial link or not,

Landlocked denotes whether the country is landlocked or not,

Island denotes whether the country is an island or not.

We have used the Pseudo Poisson Maximum Likelihood estimation technique to determine the coefficients of the current model.

The gravity model is a special kind of non-linear model and can not be fitted using an ordinary linear regression method. It is fitted through Pseudo Poisson Maximum Likelihood estimation technique, which is used to determine the coefficients of the model. Estimating the parameters of interest using a pseudo-maximum-likelihood estimator based on some assumption on the functional form of Var(y<sub>i</sub> | x<sub>i</sub>) is one method for generating a more efficient estimator without utilising non-parametric regression. Under the assumption that the conditional variance is proportional to the conditional mean, the beta coefficient values can be estimated by solving the following set of first-order conditions, which include the following.

$$\sum_{i=1}^n [y_i - e^{x_i' \beta}] x_i = 0$$

In order for the estimator that is defined below to be numerically equivalent to the Poisson pseudo-maximum equation that was presented earlier by OLS, it is essential that E [ln h<sub>i</sub>|x] be independent of x<sub>i</sub>. In addition to this, accurate calculation of the intercept necessitates the frequent application of PPML when working with count data. Because of the way the equation is written, it is assumed that the right specification of the conditional mean has been provided. Therefore, the data do not necessarily

need to have a Poisson distribution in order for it to be count data, and y<sub>i</sub> does not necessarily need to be an integer in order for it to be compatible with the estimate that is based on the Poisson likelihood function.

Even in cases in which the dependent variable is not an integer, the implementation of the pseudo-maximum-likelihood is determined using the Poisson regression method. The form of the regression is taken as follows –

$$\Pr(y_i = j | x_i) = \frac{e^{-\lambda} \lambda^j}{j!}, \quad j = 0, 1, 2, \dots$$

And here, λ is specified as λ = exp (β<sub>0</sub>+β<sub>1</sub>\*x<sub>1i</sub>+ ..... ..)

The vector of the parameters' beta values can be estimated by maximizing the log-likelihood function, which is given by the following mathematical form.

$$\ln L(\beta) = \sum_{i=1}^n \left[ -e^{x_i' \beta} + (x_i' \beta) y_i - \ln(y_i!) \right].$$

Here, STATA has been used to fit the gravity model using the Pseudo Poisson Maximum Likelihood method. There are two ways to fit this kind of model: one using the STATA menu directly and another writing the code like below –

poisson y x1 x2 ... xk, vce(robust)

We have used the coding method in order to fit the relevant model.

## 8. Results and Discussion

At the beginning, we have taken clusters with Distance between the countries.

We are finding the log pseudolikelihood value to be - 745.91307. We have checked the multicollinearity part. The CommonLanguage and Landlocked portion has been removed from the model. These answer the questions 'Does having a common language influence bilateral trade?' and 'Does being a landlocked country influence bilateral trade?'. Common language and being a landlocked country are not influencing the bilateral trade as they have no relevance in the model, i.e., these parameters don't influence the bilateral trade.

We have examined the coefficients and p-values individually and tried to see the effectiveness of each of the other factors in the model.

Log (Y<sub>i</sub>Y<sub>j</sub>) – ln\_yiyj: The Coefficient is 0.0168, and the corresponding p-value > 0.05. It means the variable is not

**Table 1. Fitted Model**

ln_bi_exchn	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
ln_yiyj	.011123	.0168182	0.66	0.508	-.0218401	.0440862
ln_pci_ind_j	.0417529	.017137	2.44	0.015	.008165	.0753408
DistanceD	-.0000504	.0000182	-2.76	0.006	-.0000861	-.0000146
Border	-.2944141	.0976385	-3.02	0.003	-.485782	-.1030461
CommonLanguage	0 (omitted)					
ColonialLinks	-.0287573	.0423297	-0.68	0.497	-.1117219	.0542074
Landlocked	0 (omitted)					
Island	.0542346	.0540056	1.00	0.315	-.0516144	.1600837
RegionalTradingAgreements	.0363464	.0607929	0.60	0.550	-.0828054	.1554983
_cons	1.582314	.3385805	4.67	0.000	.9187083	2.245919

quite significant. It means that the Gross National Income of India and the other countries does not influence much the trade potential between both countries. This answers the research question 'Does the National Income of India and other countries influence bilateral trade?', i.e., this factor does not affect the bilateral trade.

$\text{Log}((Y_i/\text{pop}_i) \cdot Y_j/\text{pop}_j) - \ln\_pci\_ind\_j$  – The Coefficient is 0.0417, and the corresponding p-value < 0.05. It means the variable is quite significant. In case the Per Capita Income of both countries increases, it will enhance the bilateral trade of both countries as well. This answers the question, 'Does the Per Capita Income of India and other countries influence bilateral trade?', i.e., the factor Per Capita Income of both countries influences the bilateral trade.

Dij – DistanceD – Coefficient is -0.0000504, and the corresponding p-value < 0.05. It means the variable is quite significant for the model. As the coefficient is negative, it means as the distance between the two countries increases, it results in a decrease in bilateral trade. It answers the question, 'Does the distance between the countries influence the bilateral trade?', i.e., if there is less distance between them, it enhances the trade prospects.

Borderij – Border – Coefficient is -0.294, and the corresponding p-value < 0.05 means the variable is significant. It means, in the current case, if the country has a border with India, then the trade is supposed to decrease. The case might seem to be peculiar, but in the current scenario, what is evident is that the major neighbours of India (China and Pakistan) don't possess good terms, which affects the trade to a large extent. It answers the question, 'Does having a connected border influence bilateral trade?' Here, there is a specific reason why having a connected border affects bilateral trade.

ColonialLinks – The coefficient is -0.0287, and the corresponding p-value = 0.497, which means the variable is not quite significant for the model. Hence, having a colonial link does not influence bilateral trade significantly. Hence, the answer to the question 'Do colonial links influence bilateral trade?' is that the colonial links do not impact the bilateral trade in any manner.

Island – The coefficient is 0.054, and the corresponding p-value = 0.315, which means the variable is not quite significant. Hence, being an island nation does not influence the trade potential. Hence, the answer to the question 'Does being an island country influence bilateral trade?' is that being an island country does not impact bilateral trade in any manner.

RegionalTradeAgreement – The coefficient is 0.036 and the corresponding p-value = 0.55 (> 0.05) which means the variable is not significant. It means whether there is any trade agreement or not, it does not influence bilateral trade significantly. Hence, the answer to the question 'Does Regional Trading Agreement influence bilateral trade?' states that there is no influence of the factor on bilateral trade.

There are certain factors like Distance, Capita Income, Border, and Per Capita Income that influence the bilateral trade between the two countries. However, the Regional Trade Agreement does not look to be an influential variable for enhancing the bilateral trade between both countries. Hence, it can be concluded from here that the bilateral trade does not involve much influence from the Regional Trade Agreement Treaty and its effect is more ornamental than actual. This is true when we have clustered the distance between the countries.

We have fitted the PPML Model without clustering distance and the result obtained is as follows –



**Table 2. Fitted Model**

ln_bi_exchn	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
ln_yi <sub>ij</sub>	.011123	.0057131	1.95	0.052	-.0000745	.0223205
ln_pci_ind <sub>j</sub>	.0417529	.0090443	4.62	0.000	.0240264	.0594795
DistanceD	-.0000504	9.94e-06	-5.07	0.000	-.0000699	-.0000309
Border	-.2944141	.0535687	-5.50	0.000	-.3994069	-.1894213
CommonLanguage	0	(omitted)				
ColonialLinks	-.0287573	.0482125	-0.60	0.551	-.123252	.0657375
Landlocked	0	(omitted)				
Island	.0542346	.0170433	3.18	0.001	.0208304	.0876388
RegionalTradingAgreements	.0363464	.0166829	2.18	0.029	.0036487	.0690442
_cons	1.582314	.1887956	8.38	0.000	1.212281	1.952346

We are seeing that the result is more or less similar, however, we are finding some differences here.

RegionalTradeAgreement – The coefficient is 0.036, and the corresponding p-value = 0.029 ( $< 0.05$ ), which means the variable is quite significant in this model. It means whether there is any trade agreement or not, it influences bilateral trade.

Hence, when we are clustering by distance, the Regional Trade Agreement is not significant; however, without the cluster, it is found to be significant. Hence, when we have taken the clusters based on the distance, the Regional Trading Agreement does not seem to be effective; however, it seems to be effective once we have considered the clusters.

## 9. Conclusion

In this work, we have performed a detailed study on the effect of different factors on the bilateral trade between India and the RCEP countries using the Gravity model. We see when we are considering the clustering by distance, the Regional Trade Agreement does not have any effect on Trade. It means that when we are considering the countries separately as per the distance (different clusters), we are considering the countries within the same group in terms of distance, and hence, other countries in the other group are not considered there. Regional Trade Agreement generally happens between neighboring countries or countries that are within a certain distance range, and hence, in this case, within the same group, Regional Trade Agreement does not hold any special prominence. However, when we have not considered the clusters (i.e., we are not grouping the countries in terms of distance or neighboring effect) the

Regional Trade Agreement is found to be effective for predicting Trade potential.

Apart from that, there are certain factors like Distance, Capita Income, Border, and Per Capita Income that influence bi-lateral trade between the 2 countries, however, Regional Trade Agreement does not look to be an influential variable for enhancing the bi-lateral trade between both the countries when we are considering the clusters based on distance. Hence, it can be concluded from here that the bilateral trade does not involve much influence from the Regional Trade Agreement Treaty, and its effect is more ornamental than actual. This is true when we have clustered the distance between the countries.

Another important aspect that came to our attention is that the neighbouring effect is inversely affecting the trade potential, i.e., if the country is a neighboring country, its trade flow has decreased, and there is a negative association, as we see from the results. The major reason behind this might be the Dokalam effect (in the case of China) and the ongoing disturbance with Pakistan, which contributed to the negative relationship. Since Pakistan and China are two major neighbors of India with huge trade flows, it has had a considerable effect on the model, thereby making the situation that if the country has a border with India, then the trade is supposed to decrease. We can relate it to the real-life scenario, and it helps to understand the appropriateness of the model. The current model provides a major idea that in case the neighboring effect is considered, how well it influences the model, and that answer is available from the current study result. It gives a clear picture of the trade flow analysis using the gravity model that has been built as part of this research work.

## 10. Limitations of Research

The data for the study was available till 2018, and more recent data on all the variables included in the study were not available at the time of composing the paper which restricted the scope of the study to a certain extent. The study was majorly based on the Gravity model which has been found to be most suitable in different literatures, however, more advanced models were not included in the study due to paucity of the computational resources. The authors have been primarily dependent on the computation power of STATA in order to perform the analysis, and there was limited scope for the authors of the current study to use non-parametric models, which may have given better results in the current scenario.

## 11. Future Scope of Research

We have done the study based on the data till 2018; however, due to the COVID scenario, there have been lots of ups and downs in the trading pattern of the countries, which will be more or less evident after 2022 when more data will be available. The same study will be extended with 4 years more data which will give an understanding of whether the COVID scenario has influenced the trading pattern among these countries and whether there is any shift in the trading pattern. Also, there may be the scope of using non-parametric models in the current study to get a better view of the relationship among the variables.

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# Exploring Factors Driving the Choice of Frozen Food in the Indian Market

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## A b s t r a c t

The socio-demographic changes in India have also impacted food preferences and consumption behavior. This change in food consumption preference can be attributed to changing lifestyles, family composition, paucity of time, demanding occupations, and earning potential. The research is based on the Theory of Planned Behavior and intends to explore the factors influencing purchase intention in ready to eat frozen food category. The historical research has addressed the questions around food or organic food buying behavior, but the changes in preference owing to lifestyle have seldom been studied in the Indian context. The research extends to understanding factors influencing the decision-making towards ready-to-eat frozen food and help marketers develop their proposition addressing the value sought by the consumer in this nascent category. The data was collected through structured adopted scales. The study used EFA, CFA, and Structure Equation Modeling to give statistical significance and evidence for the hypotheses. This study declutters the ready-to-eat frozen food buyer behavior. The multivariate SEM analysis revealed that convenience is the key driving factor in purchasing frozen food. The Indian consumer is already habitual to consuming fast food, and a small alteration with health benefits can help the marketer and other key stakeholders.

**Keywords:** Frozen Food, Indian Market, Purchase Intention, Buying behavior, Structure Equation Modeling



## 1. Introduction

The idea of food has been transformed along with the passage of time. Previously, people were used to eating home-cooked cuisine (Menon et al., 2022), which swiftly changed to eating in restaurants for want of variety, taste, convenience, and experience. It then underwent one more alteration, and people started eating at home; nonetheless, market-purchased Ready-Made Frozen Food (RMFF) has also made its way into retail stores. People are now incredibly preoccupied with their careers. Having started with the male population, the female population is now involved in improving their lifestyle and expectations (Archer & Hutchings, 2000). As a result, women are unable to devote adequate time to their homes to maintain several different family unit activities. The eating habits of unmarried, single individuals, including separated, widower, and lonely people, differ from men and women who live within a family (Vinther et al., 2016). Due to these reasons, consumers require food types that are easy to prepare, clean, hygienic, and time-saving in their busy life. Ready-made frozen food is one such type of item. Moreover, the youth, an attractive segment in the frozen food market, is ready to pay a premium. The COVID-induced lockdown has left the consumer apprehensive about restaurant visits, and their tendency to satisfy the Indian taste palette has also promoted the consumption of ready-to-eat frozen food products in the Indian market (Goyal, 2020). The discussed environmental and socio-demographical factors promote the change in the consumption style of the Indian consumer.

The industry is also buoyant on account of improvements in living standards and changing consumer preference towards healthier, nutritional, and morally responsible products. The ready-to-eat frozen food industry has registered significant growth due to socio-demographic changes (Sen et al., 2021). Appaiah (2019) projected the growth of the Indian frozen food market from \$130 mn to \$754 mn by the year 2023, registering a compounded average growth rate of over 15%. This trend has altered as anyone can easily access ready-made-frozen food and buy it in a store or supermarket that is simple to prepare and delicious.

This study uses the framework of the Theory of Planned Behavior (TPB) to provide evidence to bridge the attitude-intentions gap toward the consumption of ready-to-eat frozen food category goods. Though attitude offers a foundation for behavior toward an object (Lizin et al., 2017), it does not always translate into real purchasing behavior (Madar et al., 2013), necessitating paying attention to other drivers of buying intentions.

The study is novel in terms of its intention to develop a deeper understanding of changing food consumption habits by delving into the factors responsible and their respective effects in a specific context. Historically, the antecedents of frozen food purchase decisions have seldom been studied. Many studies have been conducted in developed economies, but an indisputable study in the Indian context has not been carried out. Focusing on elements influencing eating habits contributes to the ongoing discussion about the aspects that could influence how young shoppers feel and why they plan to buy RMFF meals. This study extends the body of knowledge by conceptualizing consumers to include millennial consumers of RMFF food. We may learn more about emerging market economies by focusing on India, a typical developing market in Southeast Asia. Key stakeholders can benefit from this study's conclusions, particularly in creating efficient marketing plans to maximize consumer buying for ready-made frozen food items.

## 2. Literature Review

Current trends in food demand indicate that dietary intake has shifted from home-cooked to frozen meals, with the frozen food business experiencing tremendous growth (Lawa et al., 2019). Health-related difficulties, change-seeking tendencies, dietary and sensory needs, psychological needs, and prevention of sickness are all possible reasons for this tendency. The value of accurate knowledge of available items and their characteristics cannot be overstated. According to the literature, customers analyze product features, quality, category, and available brands before buying (Schmidt & Bijmolt, 2020). The current study aims to validate this point of view in the frozen food category. Customers have a positive intention to buy products about which they have appropriate knowledge (Sen et al., 2021), which is true for frozen food products as well.

Additionally, in some circumstances, the value of information outweighs the benefits of exchange. For example, (Hilton et al., 2013) found that customers valued product knowledge over convenience and price; in this situation, if consumers knew about frozen food, they were more likely to buy it. As a result, product knowledge is one of the most important elements influencing consumers' attitudes toward buying decisions.

Valaskova et al. (2018) suggest another element influencing customers' views and intentions to buy frozen food is their desire for change. Change-seeking is a personality trait characterized as the willingness to take all types of risks, including physical, social, legal, and financial, only to try

something new (Saxena & Puri, 2013). Hence, people with change-seeking personality traits may eat frozen meals simply to modify their flavor or try something new (Backett-Milburn et al., 2010). Customers with change-seeking personalities are more likely to try something new to satisfy their desire for variety and break their boredom, and frozen food is a relatively new sort of cuisine (Zuckerman, 2014). People experiment with various cuisines simply to "test them out" and "alter their taste" (Hasegawa & Sakai, 2021). Besides this, satisfaction is derived from the shopping experience and products that cater to hedonistic demands (Kesari & Atulkar, 2016).

As against the findings of Valaskova et al. (2018), Saxena and Puri (2013), and Backett-Milburn et al. (2010) that when risk concerns were taken into account, shoppers had a negative attitude toward new items (White et al., 2016) indicating a negative trend toward novelty products, particularly when the product is highly sensitive (akowska Biemans, 2011). However, this attitude is influenced by one's personality type. In the context of consumer change-seeking behavior, personality is a crucial factor to consider (Kautish & Sharma, 2018). However, Vansteenkiste and Teixeira (2012) mention in their research that to meet their distinct and different psychological requirements, people acquired diverse habits or ate different sorts of food.

Consumers are interested in fashion trends and usually attempt to use the most recent and fresh arrivals of all products, which come in a wide range of options (Gabrielli et al., 2013); the consumer may behave similarly in the frozen food category. Modern fashion buyers enjoy new trends and have positive attitudes about new products, particularly pirated goods (Bukhari et al., 2020). Apart from this, Kowalczyk and Pounders (2016) discovered an interesting correlation between consumers' new favorite products and their sentiments regarding spurious goods. Typically, change-seeking is associated with exploratory activities, including unusual stimulation (Spielberger & Starr, 2012). Customers may also experiment with frozen meals because it is novel food in developing economies. They also mentioned that persons with change-seeking personalities may be compelled to seek out new items of interest. People with strong change-seeking tendencies are prone to trying new things, making quicker judgments, and having a spendthrift attitude (Sharma et al., 2010). Additionally, people with strong change-seeking tendencies also try new activities to increase their self-fulfillment (Hudson & Fraley, 2015). This type of self-fulfillment is

related to psychological fulfillment, which has different aspects. For example, two unique aspects of change-seeking qualities are exploration and curiosity, which essentially encourage customers to choose various items (Jiang & Kim, 2015); this satisfies their desire to learn something new and to feel accomplished. Customers can also feel accomplished by learning about and selecting a new sort of food (Watson, 2020).

Furthermore, numerous studies explore change-seeking personality traits and their effect on purchasing intentions (Hajli et al., 2017). Individuals are motivated to seek new information and try new items by change seeking, which is both an internal and external factor (Bublitz et al., 2013). Ultimately, it changes people's perspectives towards various items such as frozen food. Searching for new and maybe contradictory information is one component of change seeking; the other is looking for new products based on new information (Brossard, 2013). People with strong change-seeking personality traits will be eager to visit previously unexplored locations and eat new foods they have never tried before (Saleem et al., 2017).

## **2.1 Product Attributes**

The two most important product attributes that drive buyers to purchase quick meals are convenience or ease of usage and time savings (Yeo et al., 2017). Mallinson et al. (2016) define convenience as the amount of food preparation performed by the processor or retailer, with convenient food being one that saves time, labor, expense, and skilled handling while also reducing the amount of equipment necessary in preparation. Foods are also classified according to how they are prepared by the consumer (Richter, 2017). In the case of prepared foods, the time saved drives the family consumption decision (Cranfield, 2020). As a result, convenience is defined as a progression that saves the household time in the preparation of meals. When faced with time limitations because of personal and professional obligations, young people have been known to devise ways to reduce the amount of time and energy spent on tasks regarded as time-consuming, such as cooking. (Butler & Sherriff, 2017). Singles, in particular, are thought to be more convenience-oriented. Due to a lack of time, customers are more likely to eat store-bought meals (Wetherill & Gray, 2015). Adults believe that a lack of time, a need for convenience, and a hectic schedule all play a role (Woodhall-Melnik & Matheson, 2017). Convenience has a negative correlation with health goals (Garza et al., 2016). Convenience has a negative correlation with health goals.

Hence, most people buy frozen foods to save time on preparation since it is convenient (Behrens et al., 2010). Another study promulgates that convenience and healthy food products are a way of life and equal support for working women (Jackson & Viehoff, 2016).

Consumers are becoming more health conscious and aware of the influence of their dietary choices on their overall well-being (Gineikiene et al., 2017). Consumers have begun to take steps to change their eating habits as well. Nutrition is rapidly becoming a deciding factor in food purchasing (Chalamon & Nabec, 2015). Food merchants' attempts to assist customers in making healthier food choices include displaying the nutritional worth of goods in a simple manner (Leach et al., 2016). The perceived advantage of a product, and hence the propensity to utilize it, has been influenced by the product's name, price, and nutritional benefit (Nuttavuthisit & Thøgersen, 2017). Since nutrition is significant to the participants, general nutrition knowledge improved their desire to try unfamiliar meals (Murimi et al., 2016). Individuals seeking precise and relevant dietary information are also motivated by health reasons (Ek, 2015). Hence, consumers might gain confidence by learning more about new products, such as convenience foods. As per McColl-Kennedy et al. (2017), today's consumers are more informed and worried about their well-being. They want to participate in something to maintain a healthy lifestyle and eat nutritious foods. Food nutrition knowledge is directly linked to food purchases (Krause et al., 2018). Consumers would buy frozen food if they were aware of its nutritional value (Tas et al., 2015). According to Giordano et al. (2018), consumers who are more aware and capable of making informed selections are less nervous than those who lack appropriate product information, and they may also feel more secure while purchasing frozen food; thus, product knowledge-based attitudes are more likely to translate into real purchase decisions, regardless of product category.

Hence, we hypothesized that product attributes positively influence purchase intent.

***H<sub>1</sub>. Product attributes positively influence purchase intent.***

## ***2.2 Quality Perception and Brand Image***

Consumers today want food items to not only be of great quality but also to be healthy, safe, and environmentally friendly (Lee & Hwang, 2016). Consumers are becoming more demanding in terms of product quality and safety (Azam, 2016).

When purchasing ready-made frozen food, customers greatly emphasize the brand image (Vilnai-Yavetz &

Koren, 2013). Consumers' negative impressions of a product's branding might affect the product's quality image (Puzakova et al., 2013). Additionally, even previous customer information might influence buying behavior (Dholakia et al., 2010). Consumers' negative impressions of a product's branding might affect the product's quality image (Yaman, 2018). Furthermore, past customer information might influence buying behavior (Stankevich, 2017). Customers were also concerned about the nourishment availability. Consumers assess nutritional value, quality, tidiness, and cleanliness, as well as fat and cholesterol levels (Sen et al., 2021). The majority of consumers place a premium on nutrition, flavor, purity, quality, affordability, accessibility, and good packaging (Hay et al., 2021). Packaging quality can also impact a customer's choice to buy. Thus, we hypothesized that

***H<sub>2</sub>. Brand image and quality image positively influence purchase intent.***

## ***2.3 Product Communication***

Media exposure regularly to food-related information increases the desire to consume more healthful foods (Rounsefell et al., 2019). According to Jayanthi (2015), the Indian food market can grow rapidly if buyers' understanding of varied food products is increased. She also discovered that only 14% of organic food customers were sufficiently informed of the issue and that food knowledge significantly impacted organic food customers' purchase intentions. Consumers who are more knowledgeable and capable of making informed judgments are less worried than those who lack adequate product information (Wang & Hazen, 2016); therefore, they may be more confident while purchasing frozen food. Product knowledge-based attitudes are more likely to translate into actual purchase decisions, regardless of the product category (Betzler et al., 2021). Nuttavuthisit and Thøgersen (2017) suggest that customer awareness of a product is critical in its purchase, particularly when it is manufactured in another country.

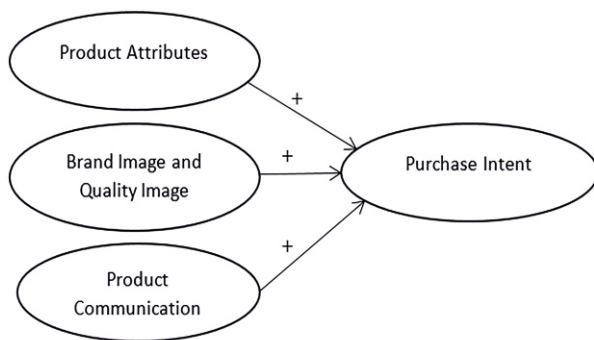
When people are concerned about their health and want to know more about the food they eat, information has a greater impact on purchase decisions; in this case, knowledge can change their views toward buying frozen food. Based on the information in the literature about product knowledge and its impact on purchase intention, it can be concluded that knowledge changes people's attitudes toward food in the same way that knowledge changes people's attitudes toward other objects (Rana & Paul, 2017). Moreover, how this information is communicated also influences purchase

decisions. Consumers consider grace, language use, and visuals to be key criteria when purchasing a product (Singh et al., 2020).

Thus, we hypothesized that:

**H<sub>3</sub>**, *Product communication positively influences purchase intent.*

The present study identified three key drivers for the purchase intent of frozen food – product attributes, quality perception and brand image, and product communication. The conceptual model is depicted in Figure 1.



**Figure 1. A Conceptual Model**

### 3. Research Methodology

This research study is descriptive and cross-sectional. We identified the items driving the choice of frozen food through a review of extant literature. We conducted focus groups of frozen food consumers to ratify the identified items. Furthermore, elaborate discussions with academic and industry experts ensured the correctness of the items

selected for the study. We developed the questionnaire using these twenty-four 5-point Likert scale items to collect primary data. The questionnaire was also included as a section for demographic information. The sample was selected using the purposive sampling method. The sample consisted of 250 customers. We sent an online questionnaire to the selected customers and, after scrutiny, retained 221 filled questionnaires for further analysis. The final sample consists of 106 males and 115 females. The median family size is four, and the median income group is monthly income between Rs. 35000- Rs. 50000.

### 4. Data Analysis

#### 4.1 Exploratory Factor Analysis (EFA)

The exploratory factor analysis (EFA) with 24 items with principal components analysis was performed. The orthogonal rotation was applied to the resultant factor using the varimax method. The 18 items were retained with communality greater than 0.5 and factor loading greater than 0.7 on one factor, with cross-loading less than 0.4 on other factors for a sample size of 221 (Hair et al., 2017). The latent root criteria to identify underlying factors. The four factors extracted 69.61% of the variance of the original variables. The KMO (Kaiser-Meyer-Olkin) statistic (0.889) was greater than 0.5, indicating that factor analysis could be used with a given set of data (see Table 4.2). Further, the value measures for sampling adequacy (MSA) provided strong evidence for the appropriateness of factor analysis. The p-value (<0.001) for Bartlett's test provided the evidence that correlation matrix has highly significant correlations among at least some variables.

Table 1 displays the result of exploratory factor analysis indicating extracted factors (constructs) and corresponding item loadings.

**Table 1. Factor Loading Matrix** (factor loadings < |0.5| are not shown)

	Factor			
	1	2	3	4
I prefer frozen food because [I save time chopping and cleaning to prepare the meal]	.711			
I prefer frozen food because [I save time to go to the market often to purchase raw items and then processing them before food preparation]	.718			
I prefer frozen food because [The frozen food has less cooking and it is well directed to prepare tastier food]	.738			
I prefer frozen food because [They are more informative in terms of ingredients and date of expiry]	.791			
I prefer frozen food because [I find them flexible because of the longer storage period]	.723			



	Factor			
	1	2	3	4
I prefer frozen food because [The frozen food taste as good as fresh food]	.779			
I prefer frozen food because [ I understand frozen food retains nutrition and quality]	.815			
I prefer frozen food because [I understand that frozen food has food-grade additives and it is good.]	.827			
I take my decision to buy frozen food based on the following [After comparing Prices]				.718
I take my decision to buy frozen food based on the following [TV Advertisement]				.787
I take my decision to buy frozen food based on the following [Trusted Brand]			.834	
I take my decision to buy frozen food based on the following [Packaging quality]			.769	
I take my decision to buy frozen food based on the following [Quality perception]			.847	
I take my decision to buy frozen food based on the following [Celebrity promoting the brand]				.838
I would like to buy frozen food next time when I purchase my grocery		.737		
I would actively look for frozen food while buying groceries.		.785		
The likelihood of purchasing frozen food is		.841		
My willingness to buy frozen food is		.818		

Factor 1 comprised eight items on product attributes, factor 2 consisted of four items related to purchase intent, factor 3 contained three items associated with quality perception, and factor 4 included three items linked to product communication. The reliability of the identified dimensions was checked using Cronbach's alpha. The values of reliability statistics for all the dimensions exceeded the cut-off of 0.7. The Cronbach's alpha values for product attributes, purchase intent, quality perceptions, and product communication were 0.923, 0.826, 0.874, and 0.776, respectively.

#### 4.2 Confirmatory Factor Analysis

The confirmatory factor analysis (CFA) was conducted with four reflective constructs identified in EFA – Product Attributes (PA), Quality Perception (QP), Product Communication (PC), and Purchase Intent (PI). The validity

and reliability of the constructs were evaluated through the measurement model of CFA. Hu and Bentler's (1999) criteria were used to examine measurement model fit. The measurement model showed good fit:  $\chi^2(113) = 203.233$  ( $p < 0.001$ ), Comparative Fit Index (CFI) = 0.955, Tucker-Lewis Index (TLI) = 0.945 and the standardized root mean square residual (RMR) = 0.0518. CFI and TLI were higher than the recommended lowest level of 0.9, whereas standardized RMR was lower than the highest recommended level of 0.08. All the items had loadings greater than the acceptable level of 0.6, presenting evidence of item reliability. The composite reliability values for all the constructs surpassed the cut-off values of 0.7. In addition to composite reliability values, Cronbach's alpha values also exceeded the cut-off values of 0.7. The values of composite reliability and Cronbach's alpha provided evidence for construct reliability.



**Table 2. Evidence of Construct Reliability**  
*Completely Standardized Factor Loadings, Variance Extracted, and Reliability Estimates*

Constructs and Items		Factor Loadings	Composite Reliability	Cronbach's Alpha
Product Attributes (PA)				
PR7	I prefer frozen food because [I save time to go to the market often to purchase raw items and then processing it before food preparation]	0.722	0.916	0.915
PR8	I prefer frozen food because [The frozen food has less cooking and it is well directed to prepare tastier food]	0.755		
PR9	I prefer frozen food because [They are more informative in terms of ingredients and date of expiry]	0.831		
PR10	I prefer frozen food because [I find them flexible because of the longer storage period]	0.790		
PR11	I prefer frozen food because [The frozen food taste as good as fresh food]	0.758		
PR12	I prefer frozen food because [ I understand frozen food retains nutrition and quality]	0.797		
PR13	I prefer frozen food because [I understand that frozen food has food-grade additives and it is good.]	0.802		
Quality Perception (QP)				
PD3	I take my decision to buy frozen food based on the following [Trusted Brand]	0.846	0.874	0.874
PD4	I take my decision to buy frozen food based on the following [Packaging quality]	0.828		
PD5	I take my decision to buy frozen food based on the following [Quality perception]	0.834		
Product Communication (PC)				
PD1	I take my decision to buy frozen food based on the following [After comparing Prices]	0.730	0.780	0.776
PD2	I take my decision to buy frozen food based on the following [TV Advertisement]	0.829		
PD7	I take my decision to buy frozen food based on the following [Celebrity promoting the brand]	0.641		
Purchase Intention (PI)				
PI1	I would like to buy frozen food next time when I purchase my grocery	0.673	0.831	0.826
PI2	I would actively look for frozen food while buying groceries.	0.731		
PI3	The likelihood of purchasing frozen food is	0.790		
PI4	My willingness to buy frozen food is	0.773		

The convergent validity was examined of the constructs through average variance extracted (AVE). AVE for all the constructs exceeded the cut-off value of 0.5, providing evidence of convergent validity (Hair et al., 2014). The discriminant validity of the measurement model was established through two criteria- Fornell-Larcker's criteria (1981) comparing the square root of AVE of each variable to correlations with other variables. The square root of the AVE of each variable was greater than all the correlations of the variable with other variables. Table 3 shows the validity analysis using the Fornell-Larcker criteria. The diagonal entries are the square root of the average variance extracted for the row variable, and non-diagonal entries are the correlation coefficients between the row and column variables. Additionally, the AVE for each factor was greater than its MSV and ASV.

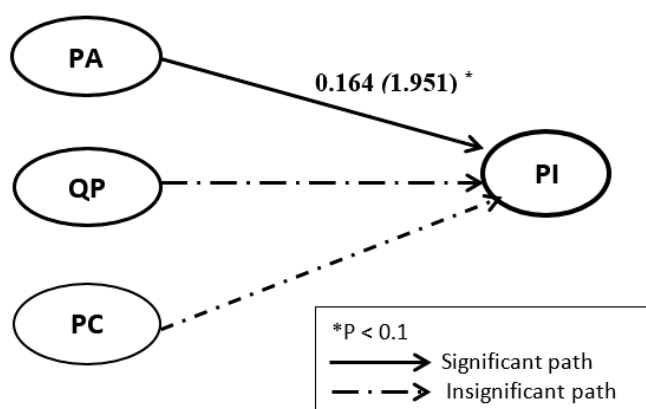
### 4.3 Hypothesis Testing

The hypothesized relationships were tested in the proposed model through the structural model of CFA. The overall model showed a good fit:  $\chi^2 (113) = 203.233$  ( $p < 0.001$ ), Comparative Fit Index (CFI) = 0.955, Tucker-Lewis Index (TLI) = 0.945 and the root mean square residual (RMR) = 0.0518. We examined the path coefficients of the structural model to assess the direction and strength of relationships. Figure 2 exhibits the results of hypothesis testing.

The path from product attributes (PA) to purchase intent (PI) was statistically significant (0.164,  $p < 0.1$ ), indicating a positive influence of product attributes on purchase intent, supporting  $H_1$ . The paths from quality perception (QP) and product communication (PC) were not statistically significant, thus not supporting  $H_2$  and  $H_3$ .

**Table 3. Validity Analysis – Fornell-Larcker Criteria**

	AVE	MSV	Maxx(H)	PC	PA	QP	PI
<b>PC</b>	0.544	0.300	0.801	<b>0.737</b>			
<b>PA</b>	0.608	0.381	0.918	0.505	<b>0.780</b>		
<b>QP</b>	0.699	0.381	0.875	0.548	0.617	<b>0.836</b>	
<b>PI</b>	0.552	0.122	0.837	0.301	0.349	0.332	<b>0.743</b>



**Figure 2. Structural model of CFA**

## 5. Theoretical Implications

It is evident through the research that product attributes are the key driver of purchase intent in frozen food. Product characteristics such as convenience in cooking, saving time in food pre-processing and ease in cooking (Yeo et al., 2017), retaining taste and nutrition (Chalamon & Nabec, 2015), and clarity of information about frozen food (Sen et al., 2021) are vital influencers of purchase intent. These findings are in line with the existing literature. Additionally, we found that ability to store them for a longer duration is the key driver in the purchase decision. This may help customers to plan their purchases better and buy in larger quantities to take advantage of economies of scale and avoid frequent visits to outlets due to paucity of time.

Contrary to the findings of existing literature (Rounsefell et al., 2019), product communication has no significant role in the purchase intent of ready-made frozen food. Furthermore, unlike existing literature, quality perception (Hay et al., 2021) and brand image (Vilnai-Yavetz & Koren, 2013) do not influence the purchase intent of frozen foods. The data showed that only 25 percent of sampled customers consume the product regularly, whereas almost 70 percent consume it sporadically. Thus, the consumption of frozen foods is not habitual. The sporadic consumption of frozen food may be a reason for product attributes influencing purchase intent, and neither quality perceptions nor product communication drive purchase decisions. The role of communication seems to be restricted to the creation of awareness and dissemination of information.

Since ready-made frozen food is generally offered by brands, therefore, the consumer does not have any reason to doubt the quality attributes of ready-made frozen food.

## 6. Managerial Implications

Lifestyle changes influence consumer behavior. The lifestyle changes are attributed to the composition of nuclear families, dual-income families, migration to metropolitan locations resulting in longer working hours, demanding work life, and economic growth aspirations. These socio-demographic changes are impacting consumption patterns and food preferences. This change is also evident in the findings and conclusion of the study.

The lack of time due to longer working hours and demanding job requirements leaves consumers less time to prepare wholesome food to fulfill their nourishment requirement. It hence results in the consumer's search for suitable options for nutritional requirements. This poses an opportunity for the marketer to propose the product as a

wholesome food fulfilling nutritional requirements as well as a shorter preparation time.

The consumer has adopted the Westernized eating habit of consuming fast food; however, the general perception about fast food is that it is unhealthy, leading to obesity, cardiac problems, and other lifestyle-related diseases. Since the consumer who has shown intent to consume ready-made frozen food are also health-conscious, the marketer can use this insight to promote RMFF as a healthier and nutrient-rich fast-food option.

The double-income families grapple with the time shortage problem more than single-income families; hence their affordability allows them to experiment seeking convenience; thus, ready-made frozen food offers the aspired value to the consumer.

The research finding suggests that the consumer is reluctant to visit markets frequently. RMFF having the attribute to be stored for extended periods matches the reason for intention to adopt the product.

The Indian taste buds are known to prefer variety as well as taste, and ready-made frozen food can offer these attributes; hence marketers can experiment with offering variety as well as taste. With the expanding townships, frequent job-related traveling or otherwise is building a market for firms dealing in convenience foods provided their thrust is appropriate to value perception area.

In general, there is a negative association between convenience as food selection and a healthier diet; since the consumer has indicated trust in ingredient information as well as confidence in the ingredient quality available in packaging, marketers can circumvent this little challenge by providing adequate information. This confidence in the ingredients and information on packaging can be attributed to the brand equity behind the offer.

The research established the consumer's indifferent attitude towards quality perception because it is bolstered by the brand perception in the consumer's mind. Instead, the brands can focus on time-saving, nutrition, and healthier option to offer ready-made frozen food. Since the consumer perceives RMFF can be stored longer, therefore packaging quality does not feature as a question in the consumer's mind.

Consumers today are well-informed and understand the taxonomy of nutrition, ingredient, etc. They do not require marketing stimuli to learn hence appropriate and adequate information on packaging is sufficient in forming the perception; therefore, the consumer did not show much influence through the communication by the brand.

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# Organizational Effectiveness as Mediator between e-HRM Strength and Sustainability

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## A b s t r a c t

This investigation examines the function of organizational effectiveness in mediating the affinity of Electronic-Human Resource Management Strength (EHRS) toward sustainable competitive advantage (SCA). Researchers gathered data from 307 people working in Information Technology (IT) businesses in India's leading cities for the study. We used Sobel's test, the Baron-Kenny approach, and Structural Equation Modeling (SEM) to inspect the data. The results demonstrate that the organizational effectiveness (OE) and sustainable competitive advantage (SCA) in the analyzed firms were substantially influenced by the e-HRM strength. The current investigation discovered that Organizational Effectiveness substantially mediated the affinity of e-HRM strength toward SCA. The survey is quantitative; future researchers may supplement qualitative results with interviews as a means of data triangulation to reinforce the current study results. The investigation enables policymakers to make decisions before implementing e-HRM. To the author's knowledge, no studies have looked at how organizational efficiency mediates between HRM strength and a sustainable competitive advantage (SCA).

**Keywords:** Sustainable competitive advantage, e-HRM, Organizational Effectiveness, e-HRM strength

## 1. Introduction

COVID-19 has a drastic impact on each aspect of business operations. According to the International Labour Organization (ILO, 2020), over 78 percent of businesses, including HRM, altered their business operations or services to defend themselves from the coronavirus pandemic. Fraij (2021) and Ishita and Dubey (2021) mentioned that the pace of digital transformation of HRM boosted as e-HRM could cope with the challenges posed by COVID-19. Hannon et al. (1996) proposed that transnational organizations can use human resource information systems to deploy and monitor their workers to achieve and sustain a competitive edge. Velmurugan and Akhilesh (2013) state that HRM policies influence SCA by enhancing workers' skills, competence, and impetus. According to Lengnick-Hall & Lengnick-Hall (2006), e-HRM processes facilitate forming a "unique and sustained competitive advantage" in businesses via developing knowledge.

Moreover, HRD practices link employee performance to improve organizational effectiveness (Kareem & Hussein, 2019). In addition to focusing on traditional approaches such as enhancing service quality, product design, and administrative practices, businesses intend to maximize their competitiveness by offering value to their "internal clients" or workers (Tzafrir et al., 2004). With the abrupt growth of digital HRM implementation amid the coronavirus pandemic scenario, there is a need to comprehend the sustainable benefits of e-HRM regarding sustainable competitive advantage (SCA) and organizational effectiveness (OE).

### 1.1 Relevance of Context

There needs to be more research on electronic human resource management strategies. In addition, previous scholars (Bondarouk & Ruel, 2009; Strohmeier, 2007) in Europe and the United States established e-HRM models. As a result, these earlier researches may represent Westernized attitudes and views. In South Asia, particularly in India, there needs to be more studies on e-HRM and its effect on firm performance. The demand for conducting the study in the IT sector stems from the belief that the IT sector remains a worldwide sourcing leader, with a 52 percent market share (as of FY 2020) in the country's services exports. India Skills Report (2021) by Wheebox and the Confederation of Indian Industries (CII) reported that COVID-19 exposed a significant skill gap in the IT sector. In

these industries, skilled talents are a key to competitive advantage. The HRM processes in Indian IT Industries, such as HRD initiatives and employee sourcing, differ significantly from those in other service and manufacturing companies. In the IT sector, studies on organizational effectiveness indicated job satisfaction and organizational climate as predictor variables (Yadav, 2019). Commitment, organisational atmosphere, and effectiveness are the sole mediators of the relationship between job satisfaction and effectiveness (Yadav & Singh, 2022). No studies were conducted on establishing a link between e-HRM, organizational effectiveness, and sustainability in the IT sector. The present study took employees from the IT sector as a participant from the standpoint of e-HRM and organizational effectiveness in the COVID environment.

### 1.2 Rationale

Since the deployment of e-HRM was taking place expeditiously, organizations need to comprehend the long-term benefits of e-HRM implementation. Strohmeier (2007) postulates that e-HRM is a multidimensional architecture generating value at several levels. It impacts all levels, ranging from micro-level to macro-level outcomes. Individual-level effects point to micro-level impacts, while organizational consequences indicate macro-level developments (Strohmeier & Kabst, 2009). Past researchers have looked into the HRM method's role in developing SCA. Furthermore, many countries and industries have studied and supported this positive relationship, including US service and manufacturing and service corporations, the health and airlines industry (Gowen et al., 2016), Greece's shipping industry (Progoulaki, M.; Theotokas, 2010), and Korean research institutions (Gowen et al., 2016; Lee et al., 2019).

Previous research (Bondarouk & Ruel, 2009; Strohmeier, 2007; Iqbal et al., 2019) examined e-HRM's influence on potential organizational benefits. It includes cost mitigation, worker productivity, enhanced HR process quality and HRM service delivery, operational performance, and transition of the HR function into a strategic companion. Furthermore, Marler and Fisher (2013) claimed that the consequences of e-HRM were based on a range of contextual circumstances and asked for a more thorough examination of e-HRM strategic outcomes. Existing research has primarily focused on investigating micro-level concerns. As a result, for strategic competitive advantage and organizational effectiveness, a thorough analysis of e-HRM implementation outcomes is required. To find the research

gap in the existing body of work on organizational effectiveness, we undertook a Bibliometric VOSviewer software analysis with organizational effectiveness as a keyword taken from the most extensive database, Google Scholar, during 2016-22 conducted by Ansari (2023), which concluded with 25 items related to organizational effectiveness with seven research clusters, 162 links, and 820 link strengths. Research on organizational effectiveness is closely related, among others, to performance, organizational goals, and organizational culture. There need to be more studies linking e-HRM to organizational effectiveness. Therefore, we will bridge the research gaps through the intense literature review to establish the link between e-HRM strength, Organizational Effectiveness, and Sustainable Competitive Advantage.

## 2. Review of Literature and Hypothesis Evolvement

Early e-HRM literature dates back to 1995 (Strohmeier, 2007), and strategic HRM literature dates back to the 1970s (Lengnick-Hall et al., 2009). Surprisingly, both streams suggest the transformation of the function of HRM. We founded our paper on Teece and Pisano's (1994) organisational capabilities theory to show how e-HRM enhances organisational performance and long-term competitive advantage.

### 2.1 E-HRM Strength

e-HRM includes 'the deployment of information technology(IT) to networking and assisting diverse stakeholders in their joint performance of HR functions,' according to Strohmeier and Kabst (2009). Strohmeier (2007) stated that e-HRM is the "electronisation" of HR processes, including planning, preparing, provisioning, implementing, and operationalizing HR actions using information technology. Past studies (Snell et al., 2002) have divided e-HRM into three groups based on the severity of the consequences: operational, relational, and transformative. Operational effects point to performance and efficacy outcomes of e-HRM (Lengnick-Hall & Moritz, 2003), like mitigation in cost and administrative obligations. Relational results highlight the phenomenon of multiple stakeholders interacting and networking. The transformational outcomes aim to substantially change HRM's broad scope and function and contribute to overall organizational performance. Bondarouk et al. (2015) found HRM strength to be the most critical determinant of the quality of HRM service. The HRM system's strength is a connecting device that helps employees develop collective,

shared perceptions, behaviors, and attitudes (Bowen & Ostroff, 2004).

### 2.2 Organizational Effectiveness

The focus on organizational effectiveness began in the 1930s, but it was not until the 1970s that the term "organizational effectiveness" was coined (Mukhtar et al., 2013). According to researchers in organizational sciences, the core focus of organisational theory (Biswas, 2010) was organisational effectiveness. Richard et al. (2009) stated that organizational effectiveness comprises internal and external performance consequences. Internal results include improved processes and functions in efficiency and efficacy, whereas external measures include corporate social responsibility. Almost every organization assesses and measures organizational effectiveness through performance measures (Matthews, 2011).

### 2.3 Sustained Competitive Advantage (SCA)

Ferdinand (2005) states that competitive advantage is among the most fundamental concerns in generating strategic organizational performance and sustainability. Longoni et al. (2014) described sustainable development as 'meeting existing needs without compromising the capacity of future generations' to fulfill their demands.' Competitive advantage is a strategy to mediate various processes to create good performance and achieve organizational effectiveness. Lengnick-Hall & Lengnick-Hall (2006) found the critical contribution of e-HRM systems in forming a "unique and sustained competitive advantage" in businesses by developing knowledge.

### 2.4 E-HRM Strength & Sustainable Competitive Advantage

The RBV theory states two fundamental assertions (Deb, 2009). First and foremost, human capital is a valued asset vital to every firm's success. Second, resources should be turned into organisational capability utilising procedures. HRM models, supported by RBV, have a clear strategic role: the HR function can sustain those human resources crucial to gaining a competitive advantage (Marler, 2009). Battour et al. (2021) have established a positive link between HR strategies and SCA. According to Al-Hmouze (2016), implementing E-HRM in a firm gives it a competitive advantage by rapidly adjusting to changes in the business world and fulfilling varying client expectations. Ruel and Bondarouk (2014) raised concern about e-HRM becoming a sustainable competitive advantage. It involves complicated



mechanisms, which include system development and implementation. Talukdar et al. (2021) have acknowledged that E-HRM competencies incorporate sustainability at multiple organisational levels.

However, Nurlina et al. (2020) wondered how e-HRM contributes to sustainable performance. Similarly, El Idrissi et al. (2022) caution that the E-HRM benefits on sustainable performance are not assured. Seeing the controversy about how e-HRM influences sustainable competitive advantage, we formulated the following hypothesis -

**Hypothesis 1 (H1).** E-HRM strength impacts sustainable competitive advantage (SCA) positively.

### **2.5 E-HRM Strength and Organizational Effectiveness**

We used a resource-based view (RBV) to explain the linkage of e-HRM strength and organizational outcomes. As per Wright et al. (2001), the RBV assigns HRM a strategic and direct responsibility. It emphasises internal elements and asserts that its resources and capabilities determine a company's performance. Thus, HRM is crucial in developing access to human capital into a higher organisational performance by combining it with specific talents. One of the primary outcomes in e-HRM literature by Bondarouk and Furtmueller (2012) revealed a limited linkage between the efficient technological execution of e-HRM and organizational effectiveness. Ellmer and Reichel (2018) divided the link of e-HRM technology to separate organizational entities into three clusters: organizational structure, organizational factors, and organizational environments. E-HRM "gives the human resource functions an avenue to develop new ways of enhancing organisational effectiveness" (Lengnick-Hall & Moritz, 2003). HRM strength should positively impact OE (Bowen & Ostroff, 2004). However, many e-HRM scholars emphasized the negative repercussions of e-HRM. Kougiannou and Mendonqa (2021) pointed out that the role of technology in facilitating or inhibiting voice is a developing topic.

Similarly, Talukdar and Ganguly (2022) demonstrated the detrimental impact of e-HRM due to lowered socialization imparted by e-HRM. Mitigated HR effectiveness imparts lowered effectiveness. From the perspective of the above discrepancies in the existing literature, we formulate the hypothesis as follows -

**Hypothesis 2 (H2).** E-HRM strength positively influences organizational effectiveness (OE).

### **2.6 Organizational Effectiveness and Sustainable Competitive Advantage**

According to Michael Porter (1980), a company's performance is affected by changes in the external environment. New risks can surface unexpectedly, and opportunities may only be present for a few years (Chae et al., 2014). There are minor distinctions between sustainable competitive advantage (SCA) and Organizational Effectiveness (OE). While SCA contributes to an organisation attaining long-term competitive advantages over competitors from the standpoint of the organization's external and internal domains, organizational effectiveness is primarily derived from an organization's internal capabilities, such as the deployment of technology-based processes. However, the researchers believe that there is a fine line between OE and SCA that separates the two concepts. Ma (2000) identified competitive advantage and a firm's performance as two distinct structures with a tangled relationship and were found to impact organizational effectiveness positively. Putri and Yuniawan (2016) state that competitive advantage influences organizational success and delivers positive results. We propose the following hypothesis to comprehend the nuanced nature of the connection between organizational effectiveness and long-term competitive advantage-

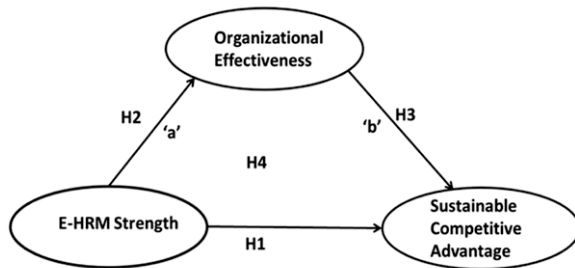
**Hypothesis 3 (H3).** OE positively influences SCA.

### **2.7 E-HRM Strength, Organizational Effectiveness, and Sustainable Competitive Advantage**

Recent e-HRM research (Panos et al., 2016; Wahyudi & Park, 2014; Vanhala & Ritala, 2016) has emphasized the significance of mediating variables in linking e-HRM to different organizational performance measures, including possible e-HRM's mediation role. Accepting the previous three hypotheses suggested in the final deliberation necessitates the presence of the OE's mediation function in the linkage of SCA and e-HRM strength (Baron & Kenny, 1986). The intricacies of this relationship are shown in the truth that the impact of HRM initiatives takes a lot of work to generate SCA (Delery & Roumpi, 2017). The success of an organization is crucial to strategic management. It primarily refers to an organization's capacity to attain its mission, vision, and goals (Mitchell, 2002). Evaluating organizational performance is a crucial part of human resource strategic management. Executives must understand how well their firms perform to assess whether any strategy

adjustments need to be made. An integrated strategy is required to attain high performance while considering numerous internal and external environmental stakeholders and placing HRM at the centre of sustainability. As a result, we can view a variety of factors that may influence or alter this relationship, resulting in the following hypothesis -

**Hypothesis 4 (H4).** OE mediates the linkage of e-HRM strength and SCA.



**Fig 1. Conceptual Model**

Source: Author

### 3. Research Methodology

We used Amos 21.0 to test this investigation's path and postulated model. We separated the analysis into two parts to validate the suggested model, per Anderson and Gerbing's (1988) methodology. The first part evaluated the measurement model for factor analysis, goodness of fit, and construct validity. After achieving a good measurement model, we utilized SEM (Structural Equation Modelling) to empirically characterize the structural link between the constructs using path estimates. The chi-square (2) goodness of fit, root-mean-square of approximation (RMSEA), comparative-fit index (CFI), and Tucker-Lewis index (TLI) are the indices utilized for the assessment of the fit of the tested model.

We have carried out the test for mediation using the mediation technique suggested by Baron and Kenny (1986), accompanied by Sobel's test. The mediation technique assumes that the mediation is supported if:

- The predictor and predicted variables have a meaningful relationship.
- The predictor and mediating variables have a significant statistical connection.
- The mediating and predicted variables have a significant statistical association.

If the link of the predictor variable to the predicted variables mitigates its influence in the presence of mediation, there is

partial mediation. Mediation occurs to the full extent of the association of the predictor to the predicted variables, nullifying its significance in the presence of a mediating variable. Another often-used method in the literature is Sobel's test (Sobel, 1982), known colloquially as coefficient multiplication, which evolves from the product of unstandardized indirect coefficients 'a' and 'b' (MacKinnon et al., 2002).

#### 3.1 Data Collection/ Employee Sample

We have adopted the study's online survey methodology through a 27-item question sheet. Non-probability sampling technique viz. purposive sampling technique is used for selection of sample. We gathered information from employees of several IT organizations based in India's main cities. The final sample consisted of 307 employees. Data is collected online (N=268) and in hard copy format (N=139). We rejected 100 responses from the total responses received due to missing data. We applied Harman's single-factor test to the final data collected to check the evidence of common method bias (Podsakoff et al., 2003). The first unrotated factor recorded only a 48 percent data variance, suggesting no common method variance (CMV) in the current investigation.

#### 3.2 Measures

We divided the survey into two sections: one for employees' demographic characteristics and another for a questionnaire measuring the study's three constructs. We have used 27 statements to assess the three constructs: e-HRM strength, Organizational Effectiveness (OE), and Sustainable Competitive Advantage (SCA). All the constructs used in this study contained five-point Likert-type scales varying from 1=completely agree to 5=completely disagree. We have utilized a twelve-item measure designed by Gold et al. (2001) for assessing the OE, a five-item measure designed by de Guimarães et al. (2018) for determining the SCA, and a ten-item measure for assessing e-HRM strength designed by Bondarouk et al. (2017) for the study. We prepared a questionnaire consisting of 27 items and referred to 10 experts in social science, academic, and industrial management. We modified each item and reorganized the questionnaire based on the experts' suggestions and a pilot study of roughly 50 questionnaires.

### 4. Findings

#### 4.1 Description of Employees Sample

We mentioned the demographic characterization of employees under study in Table 1, which includes employees' age, annual income, company experience, education, employment nature, job role, marital status, and sex (N = 307, Male = 192, Female = 115).

**Table 1. Demographic Characteristics of Employees Under Study**

Demographic Variables	Attribute	Number of Respondents (Frequency)	Percentage of Respondents
Age in Yrs	Less Than 25	84	27.4
	26-34	44	14.3
	35-45	95	30.9
	Above 45	84	27.4
Company Experience	Less Than 2 Yrs	74	24.1
	2 to 5 Yrs	65	21.2
	5 to 8 Yrs	87	28.3
	Above 8 Yrs	81	26.4
Education	Diploma	106	34.5
	Graduate	181	59
	Post Graduate	20	6.5
Employment Nature	Permanent	273	88.9
	Contractual Deputation	34	11.1
Job Role	Supervisory Role	130	42.3
	Below Managerial Role	44	14.3
	Managerial Role	39	12.7
	Above Managerial Role	94	30.6
Marital Status	Married	254	82.7
	Unmarried	53	17.3
Sex	Male	192	62.5
	Female	115	37.5

Source: Author

#### 4.2 Measurement Model Analysis

We performed measurement model analysis with factor analysis through Principal Component Analysis (PCA) with oblimin rotation on each construct. We computed the Kaiser–Meyer–Olkin (KMO) test values for EHRS, OU, and SCA to assess factorability: 0.945, 0.969, and 0.868, respectively. The KMO measure validated the sampling adequacy for the assessment; we found KMO values for all discrete items and the overall model (overall KMO= 0.957) to be more than the tolerable limit of 0.6 (Tabachnick & Fidell, 2007, p.619). Confirmatory factor analysis (CFA) was carried out in the Amos 21.0 version to evaluate the data's fit to the study's suggested measurement model. Construct reliability, convergent validity, discriminant validity, and goodness of fit statistics were all examined as a part of the CFA.

##### 4.2.1 Indicator Reliability

Indicator reliability is the percentage of a single indicator's variance obtained from relevant latent variables. As one can see in Table 2, the standardized estimates for each construct lie between 0.712 and 0.906 above the recommended threshold of .7 (Carmines & Zeller, 1979). Indicator reliability for each construct is above .5 as per recommendations (Carmines & Zeller, 1979). We used the bootstrap approach with 5,000 samples to calculate the significance level of all loadings and found that all values were statistically significant at  $p < .001$  (Henseler et al., 2009). Furthermore, the study instrument's Cronbach's alpha is 0.95, which is acceptable because it exceeds the allowed limit of 0.6 and more (Hair et al., 2014, p.125).

**Table 2. Convergent Validity and Internal Consistency Reliability**

Latent Variable	Indicator	Convergent validity			Internal Consistency reliability	
		Standard Loading	Indicator Reliability	Average Variance Extracted	Composite Reliability	Cronbach Alpha
		>.7	>.5	>.5	>.7	.7-.9
eHRM Strength (EHRS)	EHRS1	.747	0.558	0.637	0.909	0.946
	EHRS2	.762	0.581			
	EHRS3	.712	0.507			
	EHRS4	.772	0.596			
	EHRS5	.761	0.579			
	EHRS6	.739	0.546			
	EHRS7	.851	0.724			
	EHRS8	.864	0.746			
	EHRS9	.882	0.778			
	EHRS10	.866	0.75			
Organizational Effectiveness (OE)	OE01	.839	0.704	0.776	0.923	0.976
	OE02	.906	0.821			
	OE03	.86	0.74			
	OE04	.891	0.794			
	OE05	.9	0.794			
	OE06	.881	0.81			
	OE07	.87	0.776			
	OE08	.862	0.757			
	OE09	.868	0.743			
	OE10	.897	0.753			
	OE11	.903	0.815			
	OE12	.889	0.78			
Sustainable Competitive Advantage (SCA)	SCA1	.783	0.613	0.647	0.833	0.901
	SCA2	.832	0.692			
	SCA3	.81	0.656			
	SCA4	.795	0.632			
	SCA5	.8	0.64			

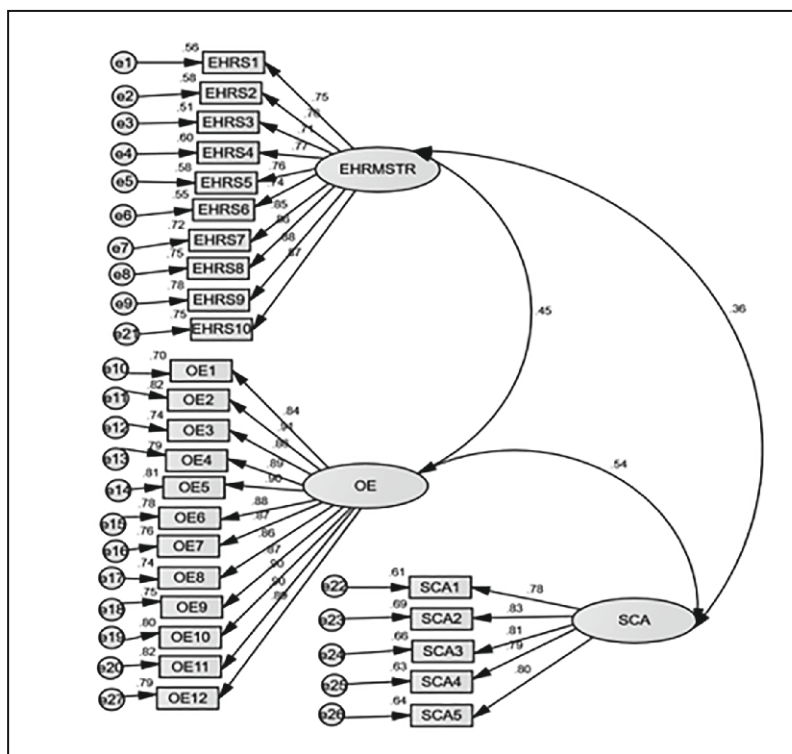
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#### 4.2.2 Construct Reliability

Construct Reliability is the 'estimation of the level to which change in the measure echoes variation in the underlying measures,' according to Westen and Rosenthal (2003). Construct Reliability establishes convergent validity, Content validity, and discriminant validity.

#### 4.2.2.1 Content Validity

To ascertain face validity, we took measures from prior literary works. We further modified the scales to suit the requirements of the ongoing investigation.



Source: Author

Fig 2. Measurement Model

## 4.2.2.2 Convergent Validity

We used convergent validity using average variance extracted (AVE) and composite reliability (CR). Table 2 displays the outcomes of convergent validity. The AVE values fell from 0.637 to 0.776, which exceeded the threshold of .5 (Bagozzi & Yi, 1988). The CR values for each measure varied from 0.833 to 0.923, well above Bagozzi and Yi's (1988) suggested criteria of 0.7, indicating reasonably good convergent validity.

## 4.2.2.3 Discriminant validity

Discriminant validity depicts the level to which items employed in the measurement deviate from one another (Campbell & Fiske, 1959). Table 3 displays the mean, SD, KMO, and matrix of factor correlation along with  $\sqrt{\text{AVE}}$  on the diagonal cells. The construct correlations are less significant than the square root values, demonstrating that the data has robust discriminant validity per Fornell and Larcker's (1981) criteria. All the above conditions are satisfied, as shown in Table 3, indicating that the data have good discriminant validity.

**Table 3. Mean, SD, Cronbach Alpha, KMO value, and Factor Correlation matrix with  $\sqrt{\text{AVE}}$  on the diagonal side**

	Mean	SD	KMO	AVE	CR	ASV	MSV	eHRS	OE	SCA
eHRS	2.94	1.22	0.94	0.64	0.95	0.17	0.21	<b>0.798</b>		
OE	3.22	1.26	0.97	0.78	0.98	0.25	0.30	0.455	<b>0.881</b>	
SCA	2.35	1.15	0.87	0.65	0.90	0.21	0.30	0.362	0.544	<b>0.804</b>

Source: Author



**Table 4. Path coefficient of the structural model and significance testing results**

Hypothesis	Proposed Relationship	Path Coefficient(B)	S.E.	T-value	Std. Coefficient	Direction	Significant (p<.05)
H1	EHR(+)->SCA	0.418***	0.07	5.942	0.362	Positive	Yes
H2	EHR(+)->OE	0.593***	0.074	7.989	0.455	Positive	Yes
H3	OE(+)->SCA	0.428***	0.056	7.643	0.479	Positive	Yes
H4	EHR(+)->SCA (Through OE)	0.168**	0.07	2.406	0.1445	Positive	Yes

\*\*\*means  $P < .01$ ; \*\*means  $p < .05$

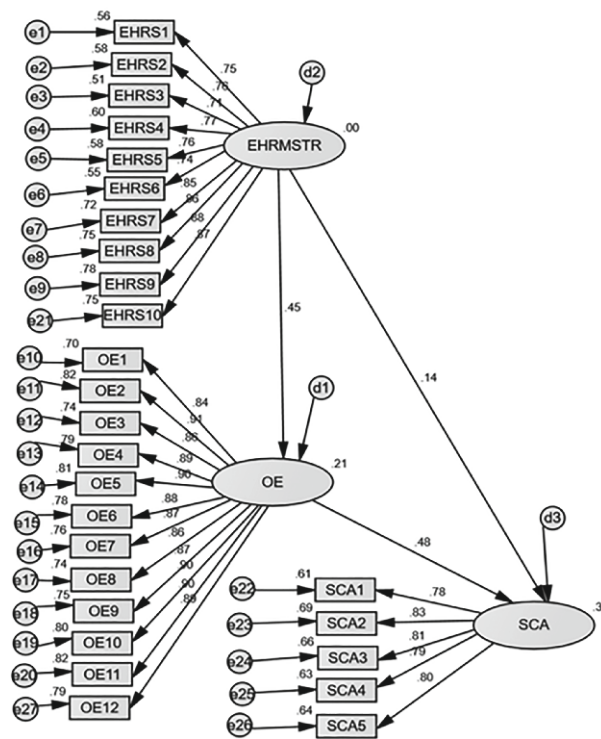
Source: Author

The maximum likelihood method is adopted to estimate the parameters of the model. The measurement model's goodness-of-fit statistics established that it was well-fit to the data ( $p < 0.05$ , CMIN/df = 2.414(<3), TLI = 0.939 (> .9), CFI = 0.944(> .9), NFI=0.908(> .9) and RMSEA = 0.068(< .1), SRMR=0.0393(< .08). Thus, the measurement model exhibits good construct validity.

#### 4.3 Structural Model and Test of Hypotheses

Table 4 demonstrates the results of the hypotheses tests. Figure 2 shows the measurement model, demonstrating the

beta coefficients and  $R^2$ . Firstly, the goodness-of-fit parameters for the suggested model are analysed, and the model yielded a statistically significant Chi-square,  $\chi^2 = 777.395$ ; df = 322; CMIN/df = 2.414(< 3);  $p < .001$ . The fit indices were CFI = 0.944(> .9); TLI = .939(> .9); RMSEA = .068(< .1); SRMR=.0393(< .08), which indicated a good model fit. As a result, we proceed to investigate the model's hypothesized linkages.



Source: Author

**Fig 3. Structural model**

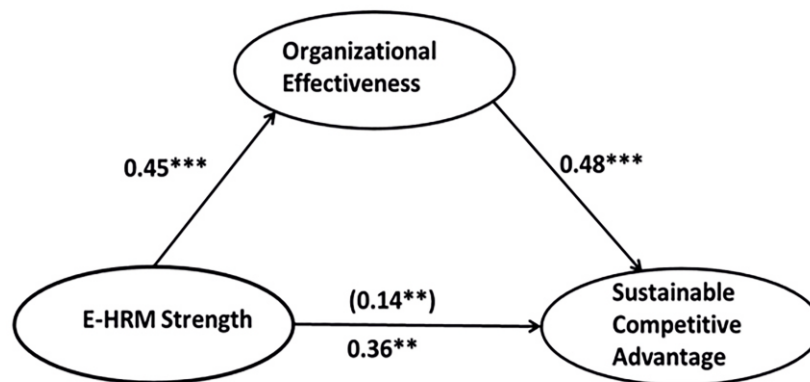
Figures 3 and 4 show the path coefficient values, the second criterion for structural model assessment. We found a positive effect of the constructs e-HRM Strength (EHRS) and OE on Sustainable Competitive Advantage (SCA), supporting H1 and H2. When both the constructs viz. e-HRM strength and OE are regressed directly on SCA, the influence of EHRS ( $\beta=.15$ ;  $p<.001$ ) and OE ( $\beta=.5$ ;  $p<.001$ ) on SCA was substantial, thereby supporting H1 and H2. When using OE as a mediator, EHRS significantly influences SCA ( $\beta=.14$ ;  $p<.001$ ) and OE ( $\beta=.48$ ;  $p<.001$ ), which supports H4. The current study found a significant impact of EHRS on OE ( $\beta=.45$ ;  $p<.001$ ) when regressed on the mediator variable (OE), confirming hypothesis H3. The signs of the path's beta coefficients of all four constructs are positive, indicating that a more excellent EHRS level results in a greater OE and SCA level. Table 4 illustrates the path coefficients for the proposed research model's predicted linkages. We used the bootstrap technique to evaluate the path coefficients using 5000 samples to estimate the t-values (Henseler et al., 2009). The t-values are above the allowed limit of 1.96 (Hair et al., 2011). The results support all four hypotheses proposed in the model.

#### 4.4 Mediation Testing

For mediation testing, we found a lesser absolute effect of EHRS on SCA in regression three ( $\beta=0.144$ ) than in regression two ( $\beta=0.362$ ). As per Baron and Kenny's (1986)

criteria, OE partially mediates the relationship between EHRS and SCA. When Sobel's z-value is more significant than 1.96, the mediator impact is statistically significant at the .05 levels (MacKinnon et al., 2002). For our study, Sobel's z-value of 5.53 with a p-value of 0.00000003 indicates (lesser than 0.05) a significant mediation of OE on SCA as per MacKinnon et al. (2002) recommendations.

We employed explanatory power to assess the structural model, as measured by path coefficients' degrees of significance and squared multiple correlations ( $R^2$ ) suggested by Chin (1998). The squared multiple correlations test findings, which show how well a model explains variance in a dataset, showed that a model consisting of EHRS, OE, and SCA presents 31% ( $R^2 = 0.31$ ) of the variance SCA. The model also indicates 21% ( $R^2 = 0.21$ ) of the variance of OE. Chin (1998) categorized  $R^2$  as strong, average, and feeble, with values around 0.67, 0.33, and 0.19, respectively. Therefore, the mediated model falls in the average based on squared correlations. We made the final assessment of the structural model by the effect size (Hair et al., 2014), which denotes the specific shift in the coefficient of determination ( $R^2$ ) in endogenous latent variables caused by exogenous construct. Cohen (1988) categorized the effect size holding the threshold as .02, .15, and .35 as feeble, mediocre, and strong, respectively. The current study found the effect sizes of EHRS and OE as 0.02 (small) and 0.25 (medium), respectively.



( Note: \*\*\* indicates  $p<0.0001$  and \*\* indicates  $p<0.001$  )

Fig 4. Path Diagram

## 5. Discussion

The present study supports hypothesis H1, which postulates that EHRS positively influences SCA congruence with the results of Battour et al. (2021), Delery and Roumpi (2017), and Ramadan, W.H. (2012). The current study supports hypothesis H2, which proves that EHRS positively influences OE in unity with the results of Bowen and Ostroff (2004). The results also seem logical, as a robust HRM system boosts individual and organizational processes, promoting organizational effectiveness. Our study supports hypothesis H3, suggesting that OE positively influences SCA in compliance with Kamukama's (2011) results. However, the hypothesis contradicts the findings of Putri and Yuniawan (2016), which failed to demonstrate that competitive advantage has a positive and meaningful influence on organizational effectiveness, both directly and indirectly. Thus, this study does not support it. The present study found the critical mediating role of organizational effectiveness (OE) between EHRS and SCA as established in hypothesis H4, which partially complies with the survey administered by Battour et al. (2021). Battour et al. (2021) found a positive linkage between EHRS and SCA, but strategic agility is the mediating factor. The current analysis validates the research model (Figure 1) proposed in the investigation by supporting all four hypotheses: H1, H2, H3, and H4. The current study is the first to consider the mediation function of OE between EHRS and SCA in the Indian context.

## 6. Practical Implications

The most critical takeaway for HR managers from this investigation is to emphasize the long-term benefits of e-HRM to understand better its impact on organizational effectiveness and long-term competitive advantage. Simply projecting e-HRM as a cost saver or media for quick transactions hides the real benefits. The study will contribute to the HR managers to project the e-HRM strength for higher budget allocation, thereby justifying the investment in strategic technology. The study will contribute to policymakers in organizations to realize the true potential of e-HRM strength. It will help top management comprehend the contribution of technology as an administrative tool. The futuristic role of e-HRM has become enormous from the perspective of the post-COVID scenario, as reflected in the predictions of Cooke et al. (2021) that technology advancements, such as e-HRM remote types of work, will become much more critical than it is now. If the future of HR is to assist firms in attaining a competitive advantage, it only makes sense to use e-HRM to

make that future a reality (Foster, 2009). Understanding the influence of organizational effectiveness and e-HR strength on SCA is critical to educators, experts, and policymakers.

## 7. Theoretical Implications

The research adds to the body of knowledge in numerous ways. Firstly, this study builds on earlier research on e-HRM as a predictor of competitive advantage, as Marler and Fisher (2013) recommended. The survey findings reinforce the deep-rooted correlation of e-HRM strength to sustainable competitive advantage in the novel demographic environment. Simultaneously, it presents explanations for how e-HRM strength affects organizational effectiveness. Second, this study links e-HRM strength and SCA with organizational effectiveness as a mediator. Although previous researchers have conducted miscellaneous research on e-HRM strength and SCA (Marler & Fisher, 2013; Battour et al., 2021), we have filled the clarifications needed in the hypothesized association framework studied in the existing literature. E-HRM practices inculcate rich employee experience, enriching employee productivity (Iqbal et al., 2019), strategic agility (Battour et al., 2021), and organizational effectiveness, resulting in sustainable competitive advantage. Third, the report presents evidence of the success of e-HRM practices from India's IT sector, which has widely adopted these techniques in recent decades. It adds new geographical and demographic contexts to some previously gained conclusions through empirical inquiry in Western environments (Marler & Fisher, 2013). Thathsara and Sutha (2021) state that e-HRM significantly impacts organizational effectiveness in financial institutions without mentioning sustainability. Therefore, our study adds to the body of knowledge by establishing the linkage between e-HRM strength and SCA while taking OE as a mediator.

## 8. Limitations and Future Scope of Research

The small sample in the current study might need to accurately reflect the workforce of the companies that belong to the most severely impacted industries under examination. Few employees had shown an unwillingness to participate in the survey as they were severely affected by the pandemic. Data utilized in the present study is self-reported and subjected to inherent biases. The outcome may only be generalized by considering various other measures. For comparison purposes, future researchers may conduct the same analysis in different countries and other sectors, viz., educational institutions.

## 9. Conclusion

The study discovered a strong link between organizational performance and e-HRM strength. The predictor variable, e-HRM strength, and the predicted variable, sustainable competitive advantage, were positively correlated. As a mediation function of organizational effectiveness, the association of e-HRM strength towards long-term sustainable competitive advantage became substantial. As a result, this work contributes significantly to the literature on e-HRM strength. The conclusions of this study can inspire industry practitioners to generate many e-HRM opportunities. Thus, the e-HRM strength contributes to organizational effectiveness and sustainable competitive advantage.

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# Government-to-Business (G2B) E-Marketplace Adoption for E-Procurement: Indian Public Sector Perspective

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## A b s t r a c t

The paper aims to investigate the critical factors that influence the behavioral intention of public procurement managers in the Indian public sector to use the G2B e-marketplace for e-procurement. The study proposed a conceptual model based on the literature review and focused group discussions among 20 e-procurement experts. A cross-sectional field survey is conducted using a self-administrated questionnaire to 200 public procurement managers in India to validate the proposed model. The hypotheses are tested using multiple regression analysis to get insights from the valid data. The results demonstrate that performance expectancy (PE), effort expectancy (EE), and trust (TR) are positively related to behavioral intention (BI) to use the G2B e-marketplace for e-procurement. However, facilitating conditions (FC) are not significantly contributing to G2B e-marketplace usage in the Indian public sector. Further, PE has the highest impact on the BI, followed by EE and the TR. To increase the adoption of e-procurement systems like the G2B e-marketplace, system designers and policy makers should consider the relevance of portal design from the user's perspective. The system's user-friendliness should be improved by paying particular attention to the user interface, process simplification, and business rules governing the e-procurement system, resulting in increased trust in the system. The study contributes theoretically to the current e-procurement adoption literature by identifying and validating the critical factors impacting the behavioral intention of public buyers to use the e-procurement system of the G2B e-marketplace.

**Keywords:** *e-procurement, e-marketplace, technology management, G2B, public procurement*

## 1. Introduction

With the developments in Information and Communications Technologies (ICT), governments across the globe have taken the initiative to provide online business services (De Roiste, 2013). Many countries have invested a great deal of money in e-government services to enhance operational efficiency. However, despite the increased awareness and demand, low user adoption remains a paramount concern for public policymakers and government agencies (Hung et al., 2006). The Organization for Economic Co-operation and Development (2006) stated in its analysis of the country frameworks of e-procurement in Italy, North Africa, and the Middle East that e-government, of which e-procurement is an inherent element, is among the most important developments in ICT-based regulatory technology development; it can make public policy more productive and secure. According to Wang and Liao (2008), there are three general types of e-government services: “government to government (G2G), government to citizens (G2C), and government to business (G2B)”. E-procurement has been identified as a key enabler in the G2B space for reducing procurement expenses by lowering transaction costs and the cost of products and services.

As per Tatsis et al. (2006), e-procurement is *“the integration, management, automation, optimization, and enablement of an organization's procurement process, using electronic tools, technologies, and web-based applications.”* Harink (2003) refers to *“e-procurement as the use of different forms of web-based communication technology at some or all stages of the procurement process; it may include the identification and specification of the initial need through the search, sourcing and negotiation stage of contracts and placement of orders, as well as mechanisms for registering receipt, triggering payment and supporting post-supply assessment.”* Croom and Brandon-Jones (2007) referred to e-procurement as *“the use of advanced IT systems for procurement tasks, including planning, negotiation, ordering, receiving, and post-purchase assessment.”* It is also a vital aspect of e-marketplaces, and both are popularly used to enhance inter-agency communication and business transactions. Considering the possible benefits, industries across the globe have implemented e-procurement. However, e-procurement technologies pose some challenges, and some studies have shown that some e-procurement systems have failed to achieve the desired objectives (Chang et al., 2008; Ordanani et al., 2004; Kauffman., 2004). While e-procurement studies undertaken in various nations addressed similar issues, their results are significantly

different, emphasizing the relevance of the factors in the context in which the studies were undertaken (Padhi & Mohapatra, 2009). Therefore, to truly benefit from e-procurement implementation, it is important to examine several factors relevant to adopting and using e-procurement systems within a particular context.

Unlike many developed countries like the USA, UK, and Singapore, the government of India has taken a mega initiative in electronic procurement by launching an e-procurement platform in the form of a G2B e-marketplace called “Government e-marketplace (GeM).” This G2B e-marketplace is an online platform for the e-procurement of products and services with a complete audit trail enabling smooth process flow and uniform specifications. It offers tools for e-bidding, e-reverse auction, and demand consolidation, thus enabling public buyers to obtain the best value for their money by ensuring transparency and highlighting the seller's competition (GeM Handbook, 2018). It has sought to establish itself as an open, transparent, effective, and inclusive platform, providing the government with massive savings (GeM Handbook, 2018). However, many public buyers reported various concerns about efficiently using this e-marketplace in their procurement jobs. Therefore, it was considered important to examine and understand the factors that affect the use of the G2B e-marketplace as an efficient e-procurement system.

Over the past three decades, user acceptance of technological service innovation in the field of Service Operations and Information Systems (IS) has been a mature research area. Many studies have been carried out in the domain of e-government and e-procurement in the past (Dooley & Purchase, 2006; Gunasekaran & Ngai, 2008; Vaidyanathan & Devraj, 2008; Gamal Aboelmaged, 2010; Ramkumar & Jenamani, 2015; Alomar & de Visscher, 2017; Kumar et al., 2017, 2018; Brandon-Jones & Kauppi, 2018; Ramkumar et al., 2019) to investigate the benefits, challenges and critical factors for the adoption and use of technological innovations.

The review of past research has revealed that very little work has been done in the context of e-procurement adoption and usage in developing countries like India. To the best of the author's knowledge, no research has been conducted in India to date that investigates the impact of critical factors on the behavioral intention of public buyers to adopt and use an e-procurement system like the G2B e-marketplace. Against this background, by proposing and validating a conceptual framework, the study aims to investigate the factors influencing the behavioral intention of public buyers to use the e-procurement system, such as the G2B e-marketplace.

The main research questions addressed in this study are:

**RQ1-** What are the critical factors that influence the behavioral intentions of public procurement managers to use the G2B e-marketplace for e-procurement?

**RQ2-** What is the impact of the identified factors on the behavioral intention of the public procurement managers to use the G2B e-marketplace for their e-procurement needs?

The scope of the study is limited to examining such factors from the public procurement manager's perspective. The findings of this study may provide theoretical and managerial implications for purchasing managers and developers of e-procurement systems to effectively design and execute valuable strategies to encourage purchasing managers toward the adoption and actual use of e-procurement systems.

The paper first reviews the existing literature in the subject area. It then presents the conceptual model and hypothesis, followed by the research methodology, findings, and discussions. The paper ends with implications, limitations, and future research directions.

## 2. Literature Review

In the past, many research studies have emphasized the criticality of distinct success factors in the user's behavioral intention to adopt and use various new technologies such as the "Internet, Electronic Data Interchange (EDI), Enterprise Resource Planning (ERP), e-procurement, e-commerce, and e-government." Multiple studies were also conducted to study the factors affecting the adoption and usage of e-procurement at the individual and organizational levels. Table 1 shows the list of relevant research studies by the various researchers in e-procurement adoption and usage over the past two decades and their theoretical framework.

**Table 1. Past Studies on E-Procurement Adoption and Usage along with Theoretical Frameworks referred**

Sr. No.	Researchers (Year)	Theoretical Framework Referred**
1	Ramdani et al. (2013), Duan et al. (2012), Teo et al. (2009)	TOE
2	Brandon-Jones and Kauppi (2018), Ramkumar and Jenamani (2015), Kamarulzaman et al. (2013), Olson and Boyer (2003)	TAM
3	Ramkumar and Jenamani (2019)	TAM, RBV & DCT
4	Alomar and de Visscher (2017)	TAM, IDT, TOE
5	Gumussoy and Calisir 2009)	TAM, TPB & IDT
6	Gamal (2010)	TAM & TPB
7	Son and Benbasat (2007)	IT & TCT
8	Sambasivan et al. (2010)	D&M
9	Suliantoro et al. (2015), Toktaş-Palut et al. (2014), Neupane, et al. (2014), Johnson (2012), Panda and Sahu (2012), Abu -ELSamen et al. (2010), Johnson (2010), Upadhyaya and Mohanan (2009), Padhi and Mohapatra (2009), Gunasekaran et al. (2009), Gunasekaran et al. (2008), Truong and Jitpaiboon (2008), Rao et al. (2007), Dooley and Purchase (2006)	Researcher's self-proposed framework

\*\*TAM- "Technology Acceptance Model"; TPB- "Theory of Planned Behaviour"; IDT- "Innovation Diffusion Theory"; TOE - "Technology-Organisation-Environment Theory"; D&M- "DeLone and McLean (D&M) IS Success Model"; RBV- "Resource-Based-View"; DCT- "Dynamic-Capability-Theory"; IT- "Institutional Theory" and TCT- "Transaction-Cost-Theory"



Dooley and Purchase (2006) examined the factors that influence e-procurement intentions in Australia's semi-government organizations and displayed that the participation of suppliers, internal managerial support, and perceived benefits influence the intentions of e-procurement. Gamal (2010) researched the uptake of e-procurement in the UAE and claimed that behavioural intent toward e-procurement technology is primarily influenced by the user's "*attitude, perceived usefulness, and subjective norm*." Sambasivan et al. (2010) indicated that "*perceived usefulness, perceived ease of use, service provider assurance and responsiveness, facilitating conditions, and web design*" are significantly associated with the intent of the buyers to use the e-procurement system in the context of Malaysia. Some researchers have also studied the role of electronic markets (EM) in e-procurement. In the context of the USA, Rao et al. (2007) demonstrated that the perceived risks and expected benefits of purchasers had an impact on the degree of their use of electronic marketplaces for e-procurement.

The prevalence of electronic marketplaces has drawn significant scientific research. However, from the procurement manager's point of view, research on electronic marketplace adoption and use as an e-procurement system is negligible. The majority of the researchers focused on studying e-procurement adoption and usage from organizational perspectives. There is, however, a shortage of studies examining e-procurement adoption and usage from the perspectives of the public buyers who are the actual users of such systems. Various researchers have highlighted the importance of different variables for successfully adopting and using e-procurement systems at the individual level (Nandankar & Sachan, 2020). The list of such variables is depicted in Table 2. Most researchers highlighted perceived usefulness, perceived ease of use, and trust as the most critical drivers of e-procurement adoption and usage at the individual user level.

**Table 2. Variables impacting e-procurement adoption and usage at an individual level**

Sr. No.	Past studies on e-procurement adoption and usage	Variables endorsed
1	Ramkumar et al. (2019), Brandon-Jones, and Kauppi (2018), Ramkumar and Jenamani (2015), Kamarulzaman et al. (2013), Gamal Aboelmaged (2010), Sambasivan et al. (2010), Gumussoy and Calisir (2009), Olson and Boyer (2003)	Perceived ease of use / Effort expectancy
2	Ramkumar et al. (2019), Brandon-Jones, and Kauppi (2018), Ramkumar and Jenamani (2015), Kamarulzaman et al. (2013), Sambasivan et al. (2010), Gamal Aboelmaged (2010), Gumussoy and Calisir (2009), Olson and Boyer (2003)	Perceived usefulness / Performance expectancy
3	Ramkumar and Jenamani (2015), Neupane et al. (2014), Kamarulzaman et al. (2013), Duan et al. (2012), Johnson (2012), Chang and Wong (2010), Sambasivan et al. (2010), Johnson (2010)	Trust
4	Johnson (2012), Johnson (2010), Sambasivan et al. (2010), Rao et al. (2007)	Perceived risk
5	Gamal Aboelmaged (2010), Gumussoy and Calisir (2009)	Subjective norm
6	Brandon-Jones, and Kauppi (2018), Brandon-Jones and Carey (2011)	Professionalism
7	Suliantoro et al. (2015), Mora-Monge et al. (2010)	Volunteering based solidarity
8	Padhi and Mohapatra (2009)	Internal resistance
9	Gamal Aboelmaged (2010)	Behavioral control
10	Rotchanakitumnuai (2013)	Vendor honesty, Committed public managers/staff
11	Suliantoro et al. (2015)	Social expectancy, Social risk balancing
12	Olson and Boyer (2003)	Comfort
13	Ramkumar et al. (2019)	Perceived value
14	Gumussoy and Calisir (2009)	Perceived behavioral control
15	Sambasivan et al. (2010)	Facilitating conditions

It was further noticed that many researchers examined user's adoption and use of technological innovation using different theoretical frameworks (Refer to Table 1). For instance, the "Innovation Diffusion Theory (IDT)" demonstrates that user perception of the attributes of technology affects its acceptance (Rogers, 1995). The "Technology Acceptance Model (TAM)" and "Theory of Planned Behavior (TPB)" found that user acceptability and usage behavior towards an IS innovation are impacted by the "*beliefs, approach, and intention*" of the user to use it (Davis et al., 1989; Venkatesh & Davis, 2000). By integrating eight different models/theories, Venkatesh et al. (2003) recommended and tested the "Unified Theory of Acceptance and Use of Technology (UTAUT)" for user acceptance of new technology. De Lone and McLean (2003) proposed that the effectiveness of IS should be measured based on system quality, information quality, and service quality. Venkatesh et al. (2012) demonstrated a new model, UTAUT2, by refining the earlier UTAUT model by adding three new constructs -price value, habit, and hedonic motivation - in addition to the previous constructs of performance expectancy, effort expectancy, facilitating conditions, and social influence.

As shown in Table 1, some e-procurement researchers have used only a single established model or its modifications to justify their study. Besides, many past studies have used the researcher's self-proposed framework, which consists of various constructs derived mainly from existing literature. To the best of our knowledge, research on adopting and using electronic marketplace promoted by the government as an e-procurement system is rare.

Researchers have tried to fill this literature gap by proposing and validating a conceptual framework to study the behavioral intentions of public buyers to use the G2B e-marketplace as an e-procurement system. Investigating the critical factors that affect the use of the G2B e-marketplace as an e-procurement system in the Indian public sector would boost the policymaker's ability to implement effective strategies to enhance the use of e-procurement systems in the broader government and public sector.

### 3. Development of Conceptual Model and Hypotheses

For the subject study, we have conducted focused group discussions with twenty public procurement experts. These experts were directed to evaluate the importance of the multiple factors found in the literature review and as presented in Table 2 from the perspective of e-procurement

system adoption and usage at the level of a specific user. We further asked them to rank these factors in order of importance from the perspectives of public buyers' behavioral intentions to use the G2B e-marketplace for their e-procurement needs. The expert panel ranked Performance Expectancy (PE), Effort Expectancy (EE), Trust (TR), and Facilitating Conditions (FC) as the top four critical success factors that impact behavioral intentions at an individual user level. The literature review also endorsed these four factors as the most critical drivers of e-procurement acceptance by the individual user. Accordingly, the conceptual model of this study is proposed, as shown in Figure 1. We further propose a set of hypotheses, each containing a direct relationship between the identified factors and behavioral intention (BI). These hypotheses are based on findings from previous research on this subject and the outcome of the expert group discussions.

**Performance Expectancy (PE):** PE is defined as "*the degree to which an individual user believes that applying the technology will help him or her to attain gains in job performance*" (Venkatesh et al., 2003). Many researchers have demonstrated that perceived usefulness/performance expectancy is a primary determinant of the intention to use a new system in voluntary and compulsory settings (Davis et al., 1989; Venkatesh et al., 2003; Kumar et al., 2018). This enabled us to formulate the following hypothesis:

**H1.** Performance Expectancy (PE) has a positive effect on behavioral intention to use G2B e-marketplace as an e-procurement system.

**Effort Expectancy (EE):** Effort expectancy can be defined as "*the extent of ease connected with the use of a system*" (Venkatesh et al., 2003). As per Davis et al. (1989), it is determined by "how effortless it is to use the technology, how easy it is to get the technology to perform what it needs to accomplish, how clear and understandable the technology interaction is, and how much cognitive effort is required to deal with the technology." Several studies showed the link between perceived ease of use/ effort expectancy and the intention to use IS (Davis et al., 1989; Kumar et al., 2018). So, we propose the following hypothesis:

**H2.** Effort Expectancy (EE) has a positive effect on behavioral intention to use G2B e-marketplace as an e-procurement system.

**Facilitating Conditions (FC):** Facilitating Conditions are defined as "*the degree to which the user believes that an*

*organizational and technical infrastructure exists to support the system.”* (Venkatesh et al., 2003). Several studies have shown the positive impact of FC on the level of usage among users (Dwivedi et al., 2017; Shaikh & Karjaluoto, 2015 ). Under this background, we propose the following hypothesis:

**H3.** Facilitating Conditions (FC) have a positive effect on behavioral intention to use G2B e-marketplace as an e-procurement system.

**Trust (TR):** Trust is defined as “*a party's readiness to be vulnerable to another party's actions based on expectations that the other party will carry out a particular action that is important to the trustee*” (Mayers et al., 1995). It is the degree to which an individual has a firm belief in the reliability of the e-procurement system. The relationship between trust and behavioral intention has been examined in many studies (Abu-Shanab, 2014; Bélanger & Carter, 2008). This gives rise to the following hypothesis:

**H4.** Trust (TR) has a positive effect on behavioral intention to use G2B e-marketplace as an e-procurement system.

## 4. Research Methodology

### 4.1. Construct Measures

A self-administered survey was used to conduct a cross-sectional field study. A two-part questionnaire was created. In the first section, nominal scale questions were used to gather the essential data regarding the respondent's demographics, such as age, education levels, gender, time spent using an e-marketplace, and overall e-procurement experience. The second part included a five-point Likert scale used to conceptualize the constructs included in the investigated research model. Measures from previous research have been adapted to preserve the validity of the content. For instance, we have adopted *performance expectancy*, *effort expectancy*, *facilitating conditions*, and *behavioral intention* from Venkatesh et al. (2003, 2012) and *trust* from Bhattacharjee (2002). Most of the questionnaire

Table 3. Sample Demographics

Variable	Category	% of Respondents
<b>Age</b>	18-24 years old	01.22
	25-34 years old	24.38
	35-44 years old	31.71
	45-54 years old	31.71
	55-64 years old	10.98
<b>Education</b>	Bachelor's degree	67.08
	Master's degree	15.85
	Professional degree	14.63
	Doctorate degree	02.44
<b>Gender</b>	Male	90.24
	Female	09.76
<b>GeM Usage Duration</b>	Less than 6 months	32.93
	6-12 months	41.46
	13-18 months	17.07
	19-24 months	08.54
<b>e-Procurement experience</b>	Less than 1 year	30.48
	1 to 2 years	19.51
	2-3 years	12.20
	3-4 years	08.54
	4-5 years	06.10
	More than 5 years	23.17

items were also taken from pertinent earlier research, with required wording modifications made based on feedback from the expert group. The survey questionnaire included 23 questions on five constructs that were considered the measures of G2B e-marketplace usage and five questions on the respondent's demographic profile.

#### 4.2 Data Collection

The population of the study is e-procurement users in India who used the G2B e-marketplace for their public procurement. The sampling frame of this study consisted of public procurement managers registered as members of a reputed professional body in purchasing and logistics management in India. A random sample of 200 names was extracted from the member list of this professional body. An email / WhatsApp message was sent along with a link to the online survey questionnaire comprising the invitation to participate in the study. Against these, 82 questionnaires were ultimately found complete and usable, which equals a 41 percent (82/200) satisfactory response rate. While Flynn et al. (1990) highlight that studies in operations management have been published with response rates as low as 10%, Sekaran (2003) contends that a response rate of 30% for mail questionnaires is appropriate. The “Kaiser-

Mayer-Olkin (KMO)” measure of sampling adequacy was 0.89, which was above 0.5, and “Bartlett's Test of Sphericity” was significant. Hence, the data obtained was appropriate for further analysis. Table 3 provides the characteristics of survey respondents. The majority of the respondents were male in the age group of 35 to 54 years with G2B e-marketplace experience of six to twelve months.

#### 4.3 Data Analysis

To make sure that construct reliability was at an acceptable level, Cronbach's coefficient alpha was examined. As recommended by Hair et al. (1998), it was discovered that every construct had a valid value greater than 0.70. As a result, the survey instrument items were thought to be internally consistent. Table 4 presents the construct-wise no of items and Cronbach alpha values.

Principal Component Analysis (PCA) is used in exploratory factor analysis to validate the constructs. The matrix is rotated using Promax's rotational approach, which enhances the outcomes. The findings of the factor analysis are shown in Table 4, with the required items loaded onto their expected factors. Every item chosen for a specific factor has a factor loading of more than 0.40, the minimum recommended value (Straub et al., 2004).

**Table 4. Reliability & Exploratory Factor Analysis**

	TR	BI	PE	EE	FC
PE3			.883		
PE4			.704		
EE2				.921	
EE3				.734	
FC1					.894
FC2					.872
TR1	.763				
TR4	.904				
TR6	.848				
TR7	.805				
TR8	.834				
BI1		.861			
BI2		.986			
BI3		.869			
% of Variance	47.054	17.371	6.315	4.925	7.352
No of Survey Items	8	3	4	4	4
Cronbach Alpha	0.921	0.964	0.839	0.858	0.702

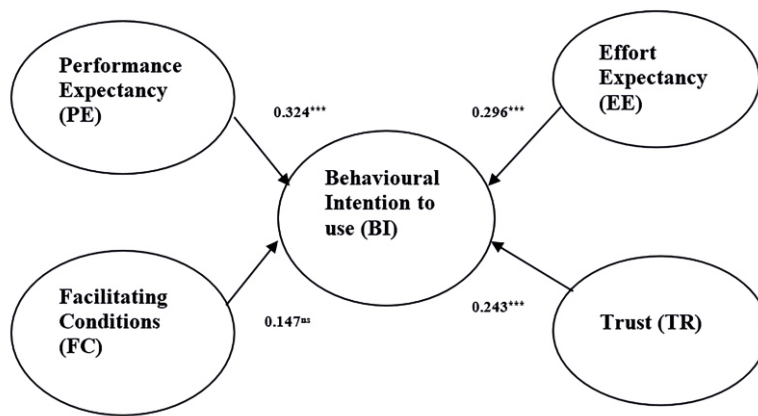


Figure 1. Standardized Regression Coefficients (\*\*\*)  $p < 0.001$

Table 4 shows that each variable is loaded on the predicted factors. The items such as EE1, EE4, PE1, PE2, FC3, FC4, TR2, TR3, and TR5 that did not load on their respective factors have been dropped in factor analysis. Multiple regression analysis is used for further testing of the hypothesis. Figure 1 depicts the standardized regression coefficient values with their level of significance.

## 5. Findings and Discussions

Multiple regression analysis is used to explore how identified factors affect the behavioral intention of public procurement managers to use the G2B e-marketplace for e-procurement in the Indian public sector. *Behavioral Intention* (BI) to use G2B e-marketplace is entered in the regression model as the dependent variable, and *Performance Expectancy* (PE), *Effort Expectancy* (EE), *Facilitating Conditions* (FC), and *Trust* (TR) are entered as independent variables. The results showed a significant positive relationship between *Behavioral Intention* (BI) to use G2B e-marketplace and *Performance Expectancy* (PE), *Effort Expectancy* (EE), and *Trust* (TR). All standardized regression coefficients except *Facilitating conditions* (FC) are significant at  $p < 0.001$ .

Hypothesis H1 suggested that *Performance Expectancy* (PE) has a positive effect on *Behavioral Intention* (BI) to use the G2B e-marketplace as an e-procurement system. Since PE has a significant regression coefficient, this hypothesis is supported. Results of the regression model also supported Hypothesis H2, positing that *Effort Expectancy* (EE) positively affects *Behavioral Intention* (BI) to use the G2B e-marketplace as an e-procurement system. Hypothesis H3, which proposed that *Facilitating Conditions* (FC) positively

affect *Behavioral Intention* (BI) to use G2B e-marketplace as an e-procurement system, is not supported. However, Hypothesis H4, which proposed that *Trust* (TR) positively affects *Behavioral Intention* (BI) to use G2B e-marketplace as an e-procurement system, is supported. VIF is examined for multicollinearity testing. Large VIF values (over 10) indicate a significant degree of multicollinearity among variables, large enough to influence estimates excessively. There are no coefficients with VIF greater than two; therefore, it is reasonable to conclude that multicollinearity issues are inherently clean of the dataset. The beta coefficient gave a determinant's relative importance. A factor with the highest beta coefficient value is considered to have maximum influence on behavioral intention to use the G2B e-marketplace system, while the second-highest beta coefficient is second in relative meaning. *Performance Expectancy* (PE), followed by *Effort Expectancy* (EE) and *Trust* (TR), is found to have the greatest influence on the public buyer's behavioral intention to use G2B e-marketplace (BI) in the suggested model. The overall model is statistically significant with  $R^2 = 0.528$  and  $p\text{-value} < 0.001$ . The adjusted R Square value is 0.503, indicating that the proposed model has accounted for 50.3 percent of the variance in the dependent variables.

## 6. Conclusions and Implications

The study started with research questions: What factors influence the usage of G2B e-marketplace as an e-procurement system? What is their impact on the behavioral intention of public buyers in the Indian public sector? We addressed these questions by studying the G2B e-marketplace implemented in India to facilitate the e-procurement of commonly used goods and services by



public buyers. Despite being a transparent and effective system, public buyers have assessed it to be non-user friendly. Our literature review revealed that this phenomenon is not specific to India and that similar concerns arose with the e-procurement systems being adopted in many other countries. Our efforts to address this issue have prompted us to examine the frameworks researchers have suggested for user adoption of various IT systems. Based on the expert group's recommendations, we presented and validated the conceptual model highlighting the four key elements influencing the behavioural intention of public buyers to use e-procurement e-marketplace.

This work has several significant theoretical and practical implications for the success of an e-procurement system. From an assessment of the supported hypotheses, we infer that *Performance Expectancy* (PE), *Effort Expectancy* (EE), and *Trust* (TR) are directly related to the *Behavioral Intention* (BI) of the public procurement professionals to adopt and use e-procurement systems such as G2B e-marketplace. The study supports the conclusions of earlier studies that the performance expectations, effort expectations, and trust of individuals expected to adopt new technology in their work impact the success of new technology (Bélanger & Carter, 2008; Abu-Shanab, 2014; Kumar et al., 2018). Overall, the findings indicate that the model being suggested has excellent predictive power and confirms its accuracy in predicting the intentions of public procurement managers in using e-procurement technology with fairly sturdy scientific backing.

The successful adoption of an e-procurement system relies on users understanding how the technology enhances productivity, accuracy, and efficiency in their procurement work.. Policymakers must prioritize comprehensive education and training initiatives to familiarize users with the system's benefits. This includes emphasizing features like streamlined processes, automated document generation, and real-time tracking to showcase time-saving advantages. Accuracy improvements should be highlighted through the elimination of manual data entry and the incorporation of data validation checks. Efficiency gains should be demonstrated by faster approvals, electronic collaboration, and centralized data storage, enabling quicker decision-making. Our findings are consistent with the findings of several scholars who have empirically investigated the relationship between performance expectancy/perceived usefulness and intention-to-use (Sang et al., 2009; Venkatesh et al., 2003). Managers are more likely to use the e-procurement system to carry out their duties if it is simple to use.

Simplified user interfaces, clear navigation, and straightforward processes contribute to a positive user experience, reducing the learning curve and making it easier for managers to integrate the e-procurement system into their daily tasks. When a system is perceived as user-friendly, managers are more inclined to engage with it confidently, leading to higher levels of adoption and usage. This underscores the importance not only of functionality and features but also of the overall usability and accessibility of the e-procurement system in ensuring effective utilization by managers. Therefore, policymakers and service providers need to ensure that e-procurement users are adequately trained, and sufficient helpdesks are provided to enable users to fix their daily problems. The association between perceived ease of use/effort expectancy and intention to use has been the source of extensive research (Davis et al., 1989; Venkatesh and Davis, 2000). Our results agree with the outcomes of these researches.

Individual users will continue using the system only when they trust it to accomplish their jobs. In line with the findings of numerous studies (Sambasivan et al., 2010; Kamarulzaman et al., 2013), this study has validated the relationship between trust and behavioral intent to use a specific technology. Therefore, policymakers and service providers should focus on building user's trust by ensuring transparent communication on data security, privacy, and system reliability, supported by successful case studies and user testimonials. Encouraging a culture of trust and recognition of tangible benefits ensures users adopt and utilize the e-procurement system effectively.

Venkatesh et al. (2003) have demonstrated that the association between facilitating conditions and behavioural intention in the UTAUT model is not statistically significant. This is because the relationship between facilitating conditions and behavioural intention is fully mediated by effort expectancy. Due to this, many researchers focused on the connection between facilitating conditions and usage behaviour but ignored the connection between facilitating conditions and behavioural intention. However, according to Venkatesh et al. (2012), in the UTAUT2 Model, facilitating conditions have an impact on behavioral intention. In light of this, Tan and Teo (2000) and Venkatesh et al. (2012) demonstrated a favourable correlation between facilitating conditions and the intention to use IS. Our research, however, did not support this association in the Indian context. This study demonstrates no statistically significant correlation between facilitating conditions and behavioural intention to use. This is predicted in the UTAUT model of

Venkatesh et al. (2003). This study contributes theoretically to the current e-procurement adoption and usage literature within the government and public sector domain for several reasons. It endorses quantitative knowledge of the factors influencing the use of e-procurement systems. In a new context (in the Indian public sector) and a new technological service (i.e., G2B e-marketplace), this study proposed and tested a conceptual model involving the user's behavioral intention to use the e-procurement system. To increase the adoption and use of e-procurement systems such as the G2B e-marketplace among public procurement managers, policymakers can embrace the findings of this study. The study reveals that decision-makers should consider the importance of PE and EE and the role of TR in increasing the behavioral intention and level of usage of G2B e-procurement systems such as e-marketplaces.

The findings of this study provide valuable insights for e-service managers, information systems (IS) researchers, and other stakeholders, shedding light on fresh perspectives regarding how users within the public sector perceive the adoption of new technologies. By delving into the user experience and perceptions, the study contributes to a more comprehensive understanding of the dynamics surrounding the integration of innovative technologies in the public sector. Not only does it offer a nuanced view of how users approach and embrace these technologies, but it also identifies key elements that play pivotal roles in enhancing the effective use of new technologies. This newfound knowledge equips e-service managers and IS researchers with actionable information to refine strategies, design more user-centric systems, and address potential challenges in the adoption process, ultimately fostering a more successful implementation of new technologies in the public sector.

## 7. Limitations, and Future Research Directions

The study holds some limitations, but at the same time, it offers directions for future research. First, the research model's list of extracted independent variables is based on past e-procurement studies. It cannot be viewed as an exhaustive list of all possible usage variables for e-procurement. Other potential factors, such as organizational factors, the factor of good governance, and cultural factors, are not investigated in this study. Future studies can be undertaken with such factors influencing the G2B marketplace adoption for e-procurement. Second, the perspectives of public procurement managers in the Indian public sector have been captured in the study. This study's

results will depend on how accurately the participants recall their experiences. Third, this study's time horizon has been cross-sectional. In order to recollect the findings, future studies can be longitudinal. Fourth, the results of this study apply to the government and public sectors. However, the study can also be replicated in other sectors. Fifth, the selected sampling frame does not guarantee a fair representation of public procurement managers in the Indian public sector. Finally, the research was conducted in a developing country, India, where the use of the G2B e-marketplace for e-procurement is at the starting phase. Hence, the research findings may not apply to developed countries where e-markets for public procurement are at a mature stage.

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# Impact of Justice Agent's Motives on Social Recognition: A Moderated Mediation of Self Control and Justice Enactment

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The traditional emphasis of Organizational Justice literature has been most often concerned with how workers shape perceptions of justice and how these expectations, in turn, influence their working attitudes (Ambrose & Schminke, 2009a). Justice agents are supervisors, decision-makers, or any other persons who have the power to treat others fairly or unfairly. The current literature on organizational justice is rather fragmented regarding the justice agent's perspective and lacks empirically tested research. Thus, the current study answers two gaps in the literature: Why do justice agents behave fairly, and what are the implications for the justice agents for acting fairly? The study also attempted to understand the impact of agents' characteristics. This is done by testing the mediation effect of Justice Enactment on the relationship between the agent's motive to act fair and social recognition at different levels of the agent's self-control trait. The authors proposed the current model based on the Deontological Model of Justice. A total of 494 responses were recorded to undertake the current study. The Structural Equation Modelling approach, along with Hayes' Process Macro, was used to test the hypotheses. It was found that the agent's motive to act fairly has a significant positive impact on the social recognition of the agent. The findings confirmed that there was a mediation effect of Justice Enactment between the agent's fairness motives and the social recognition of the agent. Justice Enactment had a partial mediation effect on the Agent's Motives for Social Recognition of the agent. The current study is only limited to the associates of the service sector. In the future, a mixed-method would additionally provide a more preponderant depth.

**Keywords:** *Justice Enactment, Justice Motives, Social Recognition, Self-Control, Deontological Motives*

## 1. Introduction

A favorable decision for promotion is a substantial antecedent of the recipient's high commitment level. However, fairness in taking this promotion decision significantly predicts the organizational commitment level and job satisfaction in the short and long run (Ambrose & Cropanzano, 2003). The perception of fairness in the organization is termed as Organisational Justice. The traditional emphasis of Organizational Justice literature has been most often concerned with how workers shape perceptions of justice and how these expectations, in turn, influence their working attitudes (Ambrose & Schminke, 2009a). It is a well-established datum that if employees receive fair treatment from their supervisors, they display less pressure, greater satisfaction with their jobs, and better overall health and well-being (Cohen-Charash & Spector, 2001; Colquitt et al., 2001; Vermunt & Steensma, 2003). In an experimental study, it was found that the fairness perception of the subordinates can be improved by training the managers in organizational justice values (Greenberg, 2006; Skarlicki & Latham, 1996). This demonstrates that managers can be trained in the principles of justice and that this has tangible positive effects on workers. Managers should, therefore, be encouraged to handle workers equally.

The existence of injustice is particularly apparent from the current literature that exhibits relatively substantial shifts in employee justice perceptions and concerns (e.g., Colquitt et al., 2015). The existing literature on organisational justice has focused only on organisational unfairness and its consequences. However, some of the key elements in this fairness process are often ignored by the researchers who enact justice, also known as justice agents (Scott et al., 2009). However, the agent's role was largely ignored, even though these agents are the ones who can ensure a fair workplace for all. There is still no proof of why and when such agents act fairly or unfairly and how they actually perceive the justice recipient's conditions and reactions (O'Reilly et al., 2016). This is because of the reason that much of the literature on organizational justice concentrates more on the perception of justice recipients and the outcome of these perceptions (Brockner et al., 2015).

The causes and conditions under which agents treat others fairly or unfairly continue to be essential topics of research. We have held many stakeholders accountable for their acts and made suggestions for enforcing justice without fully comprehending the complexities of their motive, capacity, and discretion to act fairly. We have not emphasized the manager or decision-maker's role in the justice

administration. Without a complete understanding of the individuals with authority to treat others fairly and the variables that either aid or impede their ability to do so, we will not be able to explain the persistence of justice violations or properly mitigate their impacts. Numerous researchers have already noticed this void in our understanding (Bies, 2015; Marques & Patient, 2017). We are fortunate to currently have a number of high-quality empirical papers on the theme of justice enactment, which enables us to extend earlier work by deriving patterns from these studies and developing an integrated framework that can inspire future research on this topic.

Consequently, the purpose of this study is to integrate these distinct contributions in order to demonstrate how they might enhance our knowledge of organisational justice in conjunction with the prevailing employee-centered or target-oriented perspective. The current study answers two gaps in the literature: Why do justice agents behave fairly, and what are the implications for the justice agents for acting fairly? Researchers have also tried to understand the impact of agents' characteristics. This is done by testing the mediation effect of Justice Enactment on the relationship between the agent's motive to act fair and social recognition at different levels of the agent's self-control trait. In the current study, researchers strongly contend that there is a need to study the psychological outcomes of acting fairly.

## 2. Theoretical Background and Hypothesis Development

### 2.1 Organizational Justice Agent's motives to Enact Justice

The current justice literature fails to explain "Which motives underlie an agent's fair behavior?" Or "Why or when does an agent behave fairly?" the answer to this question can be found in these three types of motives: Deontological, Instrumental, and Relational motives. By definition, "motives" are "the 'whys' of behavior—the needs or wants that drive behavior and explain what we do" (Nevid, 2013). In this section, researchers attempt to synthesize the existing research work in the area of Organizational Justice along with the above-mentioned questions. The objective of the literature review section is to comprehend the extant theoretical foundations associated with the implementation of justice and the motivations for acting fairly. The authors would first focus on a brief explanation of all three types of motives separately, followed by their implications for justice enactment.

**Deontological Motives:** Like employees, justice agents are also concerned about organizational justice because acting

fairly is right and morally imperious (Qin et al., 2017). Enactment of all the dimensions of organizational justice is closely linked with deontological motives. The enactment of procedural justice is narrowly knitted with the personal values and ethics of the agent (Brebels et al., 2011). According to the Deontological model of Justice (Folger, 1998, 2001), people enact justice not only because of their own self-interest but also because treating others fairly is morally imperative. Agents also enact fairly when they want to create an impression of themselves as ethical persons (Aquino & Reed, 2002). Deontological motives to act fair have gotten inadequate attention from academicians and researchers, whereas individual values, morals, and beliefs are the fundamental blocks of human behavior. The current literature on Organizational Justice is rather more focused on instrumental or relational reasons to act fair (e.g., Ganagoda et al., 2016).

**Instrumental Motives:** Not all the justice agents are interested in acting fair because it is right and ethical. On the contrary, they may act fairly because it is in their own interest. Targets of Justice Enactment are bothered about fairness because of its favorable outcomes (Adams, 1965; Homans, 1961). Similarly, agents are also driven to enact fairly because this may prove to be advantageous for them and further help them achieve anticipated results from their targets. The justice agents are usually forced to make fair decisions so that they can fulfill their own interests and endorse a favorable image of the justice agent (Greenberg, 1983). For instance, agents fairly distribute the rewards because it would create an affirmative image of the agent.

Monin et al. (2013) exhibited how agents benefit from using different distribution rules in a company experiencing substantial changes. If an organization wants to invigorate its employee's focus on socio-political issues, it may choose to promote the principle of equality in the distribution of rewards first. Once the utmost tempestuous times of organizational transformation are over, managers may not get any subsidy by treating everyone fairly. They may need to change their strategy to create value and, therefore, focus on promoting justice.

**Relational Motives:** People are determined to create stable and fulfilling relationships, and organizational justice is highly conducive to creating such relationships (Lind & Tyler, 1988). It is, therefore, not unusual that the desire to seek positive, professional relationships is at the heart of the literature on transformative justice primarily pioneered by Thibaut et al. (1975). However, the clear support of the agents' motivation for fairness lies in closely entangled

concepts of emotional and instrumental motives. The implementation of justice is a matter of social exchange theory, representing all parties as an instrumental purpose (Blau, 1964). Such theories have described how workers believe in justice and also why they respond to those who deceive them. Fair treatment results in constructive relationships with their managers, further leading to affirmative results. Academicians and researchers have emphasized that agents will act fairly as it will enhance their links with subordinates and further help them achieve their goals.

Taken together, the authors propose that Agents' motive to act fairly significantly influences the Justice Enactment by the agent.

**H1.** Agents' motive to act fairly significantly influences the Justice Enactment by the agent.

## ***2.2 Organizational Justice Enactment and Consequences for the Justice Agent***

Organizational justice is concerned with comprehending the complexities of fair treatment in the workplace, as reflected in the traditional precepts of justice. Distributive, Procedural, and Interactional Justice are the three dimensions of Organizational Justice. First, distributive justice expectations will be satisfied if outcomes are distributed in accordance with individual contributions of merit, equality, or need, as agreed upon in a specific organisation (Adams, 1965; Leventhal, 1976). Second, perceptions of procedural justice will be positive if the procedures take into account the interests of the groups that they represent; are stable, unbiased, and are based on accurate information; offer the opportunity to appeal the results; and are in line with the ethical standards that are currently in place (Leventhal, 1980; Thibaut & Walker, 1975). The expectations of interpersonal justice will be met if the justice agent is truthful and pleasant and refrains from making improper remarks. On the other hand, informational justice expectations will be met if the justice agent is truthful and if the target is provided with full explanations of pertinent things in a timely manner (Greenberg, 1993). Interactional justice is the name given to the combination of interpersonal justice and informational justice (Bies & Moag, 1986). In addition to providing theoretical contrasts between how various individuals view justice, these tenets also provide practical advice for those who serve justice (Cropanzano et al., 2007).

Acting fair has implications for the justice agents themselves. These implications may be intentional or

unintentional costs and/or benefits. The enactment of justice is expensive for the agent and often requires effort, dedication, preference, and considerable intellectual resources (Whiteside et al., 2018). From a deontic perspective, enacting justice involves showing legitimate and socially justified behavior (Folger & Cropanzano, 2010). Positive social recognition will result from morally sound behavior (Folger & Cropanzano, 2010). Furthermore, since not acting on the basis of socially agreed standards of behavior would likely produce negative emotions within an individual, actors may be intrinsically motivated to behave on the basis of principles of justice. This could be a conscious choice or conscientious action (Cropanzano et al., 2005). Consequently, the enactment of justice should have positive effects on actors' wellbeing and social recognition.

On the basis of the above-discussed literature about Justice Enactment and its consequences, researchers propose that.

**H2.** Agents' motive to act fair significantly influences the social recognition of the agent.

**H3.** Justice Enactment mediates the relationship between Agents' motives and social recognition of the agent.

### **2.3 Organizational Justice Agent and His Personal Characteristics**

A certain set of research focuses on the personal characteristics of the justice agent and its effect on justice enactment by the agent. These characteristics are usually those personal qualities that an agent may require to form a relationship with the target and prudently follow the several aspects of justice enactment. High moral identity, for example, which reflects the degree to which morality is fundamental to one's self-concept, was positively linked to adherence to the rule of justice (Brebels et al., 2011).

Even beyond the transitory nature of enactment motives and their unanticipated costs/benefits, some agent characteristics may affect their enactment of justice. Matta et al. (2017) noticed that supervisors with higher levels of self-control traits were less impetuous, leading to increased probability and continuity of justice enactment over time. This continuity made these supervisors more consistent in their subordinates' views, which amplified the adverse consequences of employees' previously perceived ambiguity. The findings identified by Matta et al. (2017) was further reinforced by another research study, which found that a high level of self-control and performance level of policeman coincided with a greater ability to uphold the values of organizational justice (Wolfe et al., 2018).

It may not always be straightforward to enforce justice because agents not only have to overcome their prejudices in order not to favor any workers over others but also track and control their feelings and behavior in relational contexts. In other words, the justice enactment can require effort, which weakens managers' vitalities. The ego-depletion theory assumes that there is a limited pool of regulatory resources that can be exhausted to regulate a person (Baumeister et al., 2007). Justice agents have certain resources to alter and circumvent desires, impulses, feelings, and mechanisms of motivation. Control and self-regulation entail costs for the person, which can manifest as fatigue and a state of depletion of the ego (Hagger et al., 2010). In the case of interactional justice enactment, more self-control is required when interacting with less-liked targets than when interacting with more-liked targets.

Taken together, the above discussion regarding the impact of an agent's personal characteristics on justice enactment suggests a potential moderating role of self-control (agent's characteristic) in the mediation effect of Justice Enactment between agents' motives and the agent's social recognition.

**H4.** The mediation effect of Justice Enactment between Agents' motives and the agent's social recognition is stronger at the higher level of self-control than at the low level of self-control.

**Scope and boundaries of the current study:** To ensure that it is of academic and practical value to scholars and professionals, it is crucial to define the boundaries of the current study. Firstly, researchers only focused on the Deontological motives of justice agents. Deontological motives to act fair have gotten inadequate attention from academicians and researchers, whereas individual values, morals, and beliefs are the fundamental blocks of human behavior. Secondly, authors have only focused on the agent's enactment of interactional justice as this dimension of organizational justice is the least constrained by organizational factors and the most open to managers' discretion (Scott et al., 2009). The social recognition of the agent has been analyzed to understand the consequences of acting fair. From a deontic perspective, enacting justice involves showing legitimate and socially justified behavior (Folger & Cropanzano, 2010). Positive social recognition will result from morally sound behavior (Folger & Cropanzano, 2010). To test the impact of the agent's personal characteristics on the relationship between the agent's motives, justice enactment, and social recognition, the self-control trait of the agent has been tested.

Thus, in a nutshell, this study tries to understand the moderating effect of the agent's Self Control ability on the relationship between the agent's motives to act fair and Justice Enactment, further leading to the agent's social recognition.

**Organization of the current study:** The main aim of this study was to empirically test the moderated mediated model for improving an agent's social recognition by acting fair. The data analysis was done in 3 stages:

**Stage 1:** Testing of the Direct effect of Agents' motives to act fair on the justice enactment and the agent's social recognition.

**Stage 2:** Testing of Mediated effect of Justice Enactment on the relationship between Agents' motives to act fair and agents' social recognition.

**Stage 3:** Testing of Moderated effect of agent's self-control on the Mediated effect of Justice Enactment on the relationship between Agents' motives to act fair and agent's social recognition.

A conceptual model based on the above-mentioned hypotheses and stages has been shown in Figure 1.

### 3. Research Methodology

#### 3.1 Research Design

A research design can be defined as “procedures for collecting, analyzing, interpreting and reporting data in research studies” (Creswell & Clark, 2007). In other words,

a research design “sets the procedure on the required data, the methods to be applied to collect and analyze this data, and how all of this is going to answer the research question” (Payne & Grey, 2014). The present research study is based on the causal research design, also known as explanatory research or causal-comparative research, which was used. These types of research studies examine the extent to which one or more variables are caused by another variable (or variables) and the nature of this relationship. Since causal research aims to investigate causal relationships, it is required to incorporate one or more independent variables (or postulated causes) as well as the interactions of these factors with one or more dependent variables (Oppewal, 2010).

#### 3.2 Population and Sampling

The target population for the research was associates working in the service sector. The scope of this research is Service Associates working in the public and private sectors of the service industry in Delhi NCR who have served for a minimum of 2 years in the same organisation.

#### Sampling Technique

Stratified sampling was applied in the current study to choose service organizations and ensure proper representativeness. Data from associates working in various service industries, including banks, insurance, hospitals, hotels, and higher education institutions, were gathered via systematic sampling.

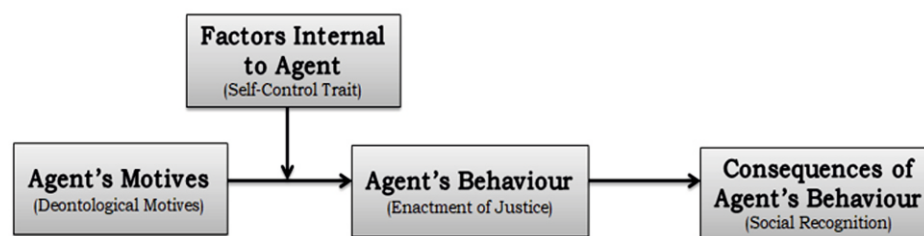


Figure 1. Conceptual Model



**Table 1. Demographic Details of the Respondents**

Category	N	%
<i>Age</i>		
Less than 26	17	3.44
26-30 years	68	13.76
31-35 years	287	58.09
36-40 years	122	24.69
<i>Gender</i>		
Female	160	32.38
Male	336	67.62
<i>Marital Status</i>		
Married	449	90.89
Unmarried	45	09.10
<i>N= 494</i>		

### 3.3 Measurement of Variables

The questionnaire was divided into two sections. The first section contained questions related to the socio-demographic details of the respondents, like age, gender, and marital status. The other section consisted of items related to variables under study. These items were extracted from existing standard scales. Five items from Musa, Hashim, and Reba (2017) were used to measure the Agent's motives to act fair. Justice Enactment (Interpersonal and Informational justice) was measured using 9 statements from Colquitt and Rodell (2015). Ten items from Erkutlu (2011) were used to measure the Social Recognition and Self-Scoring Self-Control Scale (Tangney et al., 2004) consisting of ten items that were employed to measure Self-Control. All the items were measured using five-point scales. Later, scores from all the scales were standardized for further analysis.

The first part consisted of demographic details of the Superior, the second part consisted of items related to Superior's Motives to act fair, and Self-Control, and the third part consisted of items related to Interactional Justice Perception and Social Recognition. Data related to the first two parts of the questionnaire (demographic details, items related to the Superior's Motives to act fair and Self-Control) was collected from Superiors, and the response for the third part (items related to Interactional Justice Perception and Social recognition) was collected from the subordinates working under selected superiors. A total of 1000 questionnaires were circulated, and in total, 494 responses were recorded to undertake the current study.

### 3.4 Survey Administration

The offline face-to-face survey was done by going to five different types of service sector employees in the Delhi NCR area. These employees worked in Banks, Insurance, Hospitals, Hotels, and Higher Education Institutions. Ten different branches were chosen at random from each of these sectors. Based on the list given to the HR department, every tenth employee was asked to take part in the survey. Participants could fill out the survey right away or at a time that was more convenient for them. Offline, there were a total of 1,000 surveys, and 601 people tried to fill them out. After taking out the surveys that were not complete, 494 surveys that were complete were used to do more research.

### 3.5 Test Used

Confirmatory factor analysis (CFA) was performed in order to determine the validity and reliability of the constructs under study. Further, the regression bootstrapping method was used to test the moderated mediation. PROCESS module developed by Hayes, Model No. 7 was used to test how the moderated meditation effects vary with the degree of Justice Enactment.

## 4. Results

### 4.1 Measurement Model

CFA results are displayed in Table 2. It is reasonably evident from Table 2 that the factor loadings of all the items were above 0.4 and statistically significant. The AVE value of all the constructs was above 0.5, and the CR value of all the constructs was above 0.7 (Table 2). This showed convergent

validity of all the items measuring the constructs under study (Hair & Anderson, 2010). To analyze the constructs' discriminant validity, the AVE values' square roots were compared with correlation coefficients between the constructs. This showed discriminant validity among constructs under study (Fornell & Larcker, 1981).

Cronbach's  $\alpha$  for each construct was also calculated, and all of these values were above the threshold value of 0.7, representing the reliability of the constructs (Table 2). The goodness-of-fit indices were also displayed in Table 4, which shows that all the values were above the acceptable values. Table 3 represents AVE (in upper diagonal), Mean, standard deviation, and correlation amongst the constructs. All the correlation coefficients were less than 0.9, signifying there was no multicollinearity among the constructs under study (Tabachnick & Fidell, 2012).

#### 4.2 Common Method Bias

Common method bias was tested as the data for dependent as well as independent variables was collected from the same respondents. Marker item, which has no relation with the variables under study, was used in the questionnaires (Malhotra et al., 2006). Moreover, the aim of this paper was to check moderated mediation, and it is comparatively difficult for respondents to envision such complicated relationships (Podsakoff & Organ, 1986).

#### 4.3 Hypothesis Testing

Hypothesis testing was done in 3 stages: testing of direct effect (H1, H2), mediation effect (H3), and moderated mediated effect (H4). The results are shown in Table 5. It was found that the agent's motive to act fair ( $\beta = .3461$ ) has a significant positive impact on the social recognition of the agent, and hence H1 was accepted. This positive relationship can be rationalized using the descriptions provided by the Theory of Social Exchange. This theory explains why employees perceive justice, how they react when they are deceived, and how they believe justice should be administered. If employees are treated fairly, they are more likely to have positive connections with their supervisors, which in turn leads to more positive results. Academicians and researchers have underlined that justice agents will act honestly because doing so will increase their relationships with subordinates and further help them attain their aims. As a result, the agents' reasons for their desire to act fairly considerably impact the justice enactment that the agents carry out. People are resolute in their pursuit of solid and meaningful connections, and organisational justice is extremely conducive to developing such relationships. Because of this, it should not come as a surprise that the desire to seek constructive, professional relationships is at the core of the body of literature on transformative justice, which was primarily pioneered by Thibaut et al. (1975).

**Table 2. CFA Scores**

Construct	Factor Loadings	CR	AVE	$\alpha$
Social Recognition	0.431 - 0.912	0.937	0.609	0.930
Motives	0.630 - 0.822	0.838	0.512	0.854
Justice Enactment	0.579 - 0.896	0.905	0.520	0.901
Self-Control	0.476 - 0.911	0.928	0.570	0.931

**Table 3. Mean, Standard Deviation, Correlations, AVE**

Construct	MEAN	S.D.	1	2	3	4
1. Social Recognition	4.165	0.744	0.781			
2. Motives	4.174	0.826	0.575	0.715		
3. Justice Enactment	4.135	0.785	0.394	0.293	0.721	
4. Self-Control	3.473	1.011	0.139	0.102	0.166	0.755

**Table 4. Values of Goodness of Fit Indices**

GFI	AGFI	TLI	RMSEA	SRMR	CMIN/DF
0.835	0.800	0.897	.074	.0670	3.722

*Significant at  $p < 0.01$*

**Table 5. Direct and Indirect Effects**

Proposed hypothesis	( $\beta$ )	SE	P Value
Direct effects			
Motives $\rightarrow$ Social Recognition	.3461	.0354	.000
Justice Enactment $\rightarrow$ Social Recognition	.2834	.0373	.000
Motives $\rightarrow$ Justice Enactment	.3445	.1288	.007
Indirect effects			
Motives $\rightarrow$ Justice Enactment $\rightarrow$ Social Recognition	.1069	.0270	.000

Further, the impact of the agent's motive to act fair ( $\beta = .3445$ ) on justice enactment was also found to be significantly positive, and hence H2 was accepted. This finding can be grounded in "Implicit Person Theory". According to this theory, individuals can have one of two fundamental ideas on the personal characteristics of others: either believing these characteristics are set or that they are changeable and malleable through time. Researchers discovered that agents' incrementalism is connected with the fairness of the performance evaluation procedure. This suggests that agents have an underlying orientation that influences their inclination to invest in the development of their subordinates and, by extension, their readiness to maintain justice.

In addition to the ephemeral nature of enactment motives and the unanticipated costs and benefits of an action, certain agent characteristics have the capacity to influence the justice administered by an agent. Researchers discovered that managers with greater trait self-control were less impulsive, which led to a greater possibility of justice rule adherence and greater consistency over time. This consistency helped them appear more predictable to their constituents, lessening the negative consequences of uncertainty their employees would have otherwise been subjected to. A more recent study in law enforcement discovered that higher levels of trait self-control and relationship quality among police managers corresponded to a greater motivation to support the ideals of organisational justice.

Moreover, mediation analysis was done wherein the mediation effect of Justice Enactment by the agent was tested between the relationship of the agent's motives to act

fair and social recognition of the agent. Hence, the minimum condition for mediation was satisfied (Schneider et al., 2005). It was found that the agent's motives ( $\beta = .1069$ ) have a significant positive direct effect on Justice Enactment (Mediator). Justice Enactment (Mediator) had a significant positive direct effect ( $\beta = .2834$ ) on social recognition (outcome).

Cheung and Lau (2008) suggest that the mediation effect can be partial or full. When both direct and indirect effects are statistically significant, it is called partial mediation, and when only the indirect effect is significant, it is called full mediation. Table 6 shows there was a partial mediation effect of Justice Enactment (Direct Effect = .3461\*\*\*, Indirect Effect = .1069\*\*\*) on the Agent's Motives to Social Recognition of the agent. Hence, H3 was accepted. The mediation results are shown in Table 6.

#### 4.4 Moderated Mediation

The results of moderated mediation are shown in Table 7. The regression bootstrapping method was used for testing moderated mediation, and the results are shown in Table 7. It is clear from this table that the interaction between self-control and justice enactment ( $\beta = .2256$ NS), self-control, and social recognition ( $\beta = .0165$ NS) were statistically insignificant. Thus, hypothesis H4 was rejected. This is because it is possible that enforcing justice will not always be an easy task. This is due to the fact that agents not only need to be able to overcome their own biases in order to avoid favouring certain workers over others, but they also need to be able to monitor and control their feelings and behaviour in relational contexts.

**Table 6. Mediation Effects**

Mediation Effect			
Hypothesis	Direct Effect	Indirect Effect	Result
Motives → Justice Enactment → Social Recognition	.3461***	.1069**	Partial Mediation

\*\*Significant at  $p < 0.01$

**Table 7. Moderation Effects**

Moderation Effects of Self-Control		
Hypothesis	Dependent Variable: Justice Enactment	Dependent Variable: Social Recognition
<i>Direct Effect Variables</i>		
Motives	.3445**	
Self-Control	.2256 <sup>NS</sup>	.0165 <sup>NS</sup>
Justice Enactment		.2834***
<i>Indirect Effect Variables</i>		
Motives × Self-Control	.0230 <sup>NS</sup>	
Self-Control × Justice Enactment		.0120 <sup>NS</sup>
R <sup>2</sup> Value	.0007	.0002
F Value	.4044 <sup>NS</sup>	.1404 <sup>NS</sup>

\*\*\*Significant at  $p < 0.01$

\*\*Significant at  $p < 0.05$

## 5. Discussion

The current study proposes a moderated-mediated model explaining the relationship between agents' motives to act fairly and the consequences of acting fairly. Hypothesis testing was done in three stages. The first stage was related to examining the direct effect of the variables under study. It was found that an agent's motive to act fairly has a significant positive impact on social recognition of the agent ( $\beta = 0.3461$ ,  $p = 0.000$ ). According to this interpretation, the execution of justice based on a deontological motive demands lawful and socially acceptable behaviour (Folger & Cropanzano, 2010). When we behave in a morally upright manner, we will receive positive social recognition (Folger & Cropanzano, 2010). In addition, it was observed that the effect of an agent's motivation to behave fairly on the administration of justice is highly beneficial ( $\beta = 0.3445$ ,  $p =$

0.007). This was demonstrated to be true. According to the deontological theory of justice (Folger, 1998, 2001), people act justly not only because it is in their own self-interest to do so but also because it is morally required to treat others fairly. When agents aim to portray the impression that they are ethical, they also conduct themselves ethically (Aquino & Reed, 2002).

In the second stage, the mediation effect was tested. It was found that there is partial mediation of Justice Enactment in the relationship between an agent's motive to act fairly and social recognition (direct effect = 0.3461, indirect effect = 0.1069,  $p = 0.000$ ). This lends credence to the claims made in the existing body of research, which asserts that the enactment of justice from a deontological perspective requires exhibiting behaviour that is legitimate and socially justified (Folger & Cropanzano, 2010). This, in turn, results

in social recognition of the justice agent. Therefore, the administration of justice has a beneficial impact on the well-being of actors as well as their social recognition.

In the third stage, the mediation effect of Justice Enactment on the relationship between an agent's motive to act fairly and social recognition was tested at different levels of the agent's self-control trait. It was found that there is no moderated mediated effect of the agent's self-control trait on the relationship between the agent's motives to act fairly and justice enactment, further leading to the agent's social recognition ( $R^2 = 0.0002$ ,  $F = .1404$ , not significant). This finding reveals that the agent's self-control isn't the only variable that contributes to the mediation of justice enactment when examining the connection between the agent's motive to act fairly and the reward they receive from others for doing so. The organizational setting, work requirements, agents, preoccupation, and target behavior are all examples of possible contextual influences.

In conclusion, the results of this study provide valuable insights into the relationship between an agent's fairness motives and social recognition, mediated by Justice Enactment. The findings affirm the presence of a mediation effect, shedding light on the intricate dynamics at play in the context of fairness and social recognition. Notably, the research reveals a partial mediation effect of Justice Enactment, underscoring the multifaceted nature of the agent's motives in seeking social recognition. This research study will undoubtedly yield valuable insights with practical implications for organizations and individuals striving to foster fairness and recognition in the workplace.

## 6. Implications

The current research has proposed a moderated mediated model to understand the relationship between justice enactment and its antecedents and consequences. Existing literature does not have much research based on the moderated mediation model. Researchers proposed a model that explains the direct impact of an agent's motives on the social recognition of the justice agent and how this relationship is significantly mediated by justice enactment. However, the self-control traits of the justice agent do not moderate these mediation effects.

Authors have proposed the current model on the basis of the deontological model of Justice (Folger, 2001). This model of justice assumes that people enact fairly not only because of their own self-interest but also because treating others fairly is morally imperative. In the current study, the authors tried to explain the antecedents and consequences of

enacting justice in the organization. Thus, this research endeavors to comprehend the deontological model of justice in the service sector.

The current study would expand the current literature on organisational justice, and the focus of future studies may be shifted toward the agent's role in organisational justice. This study has added a fresh perspective to the existing literature, which focuses on the agent's motives, the agent's environment, and the agent's reaction. Understanding justice agent's behaviour and motives would further help to build more favourable working conditions. The study also points to patterns and gaps that shape essential directions for the literature to move forward amid the theoretical richness of the literature.

Apart from various academic contributions, the current study also provides various practical implications for organizational authorities. It is evident from the results of the current study that justice enactment can be improved by understanding the agents' motive to act fair. This not only leads to justice enactment but also results in establishing a positive social image amongst the target of justice. The agent can further enjoy social recognition in the organization. The managerial personnel understand that there are various dimensions of justice enactment study, and every dimension varies in terms of its impact on the agent. On the basis of the results of the current study, it is evident that justice enactment can be beneficial for the justice agent.

## 7. Limitations and Future Research Directions

In the future, researchers can examine the various factors involved in the enactment of justice in order to have realistic and academic perspectives that are missing in the existing literature. By contributing to the prevailing literature that agents should behave justly, researchers and practitioners are able to understand that it is beneficial, albeit inadequate, to exhort fair practices. The existing literature can be further expanded by understanding how various motives drive the agent's behaviour, and what is the impact of the target's behaviour on the enactment of justice by the agent.

Furthermore, there are a few limitations in the current study that can be addressed in future research. The current study is only limited to the associates of the service sector. In the future, researchers can study the same relationship for specific sectors like IT and healthcare. Moreover, future studies can test the proposed model for a particular geographical location. The impact of socio-demographic variables like age, gender, and caste can also be tested in the future, as these socio-demographic variables play a



paramount role in mitigating the varied relationships in the proposed model. Further, all respondents were full-time employees, and these findings may not apply to part-time employees. In the future, a mixed method approach that analyses both quantitative and qualitative data (i.e., by interviews) would additionally provide a more preponderant depth of understanding in this paramount field of research.

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# Unveiling Hybrid Entrepreneurship in Pakistan's Women Academicians: Investigating the Synergy between Regular Employment and Self-Employment

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Through the lens of social cognitive theory and role enrichment theory, this research explores on-the-job issues faced by low-income female college teachers working in Pakistan's higher education institutions (HEIs). This exploration aimed to trace the stimulus factors in full-time employees responsible for engaging in hybrid entrepreneurship. A qualitative exploratory study was conducted to obtain rigorous and trustworthy results. We used snowball sampling to approach 26 women academicians in HEIs for face-to-face interviews. Thematic inductive analysis was performed using NVivo 11 Plus software. The study's findings indicate that some teachers faced financial constraints due to low salary packages, single parenting, and time flexibility that forced them to move towards being part-time entrepreneurs. In addition, the economic and political conditions of the country were identified as influential factors in their decisions on entrepreneurial intentions and starting hybrid entrepreneurship. The result indicates another outcome stream that higher work pressure, job insecurities, entrepreneurial intentions, and financial constraints urge employees to make hybrid financial investment decisions. Our findings revealed the stimulus factors that women academicians in HEIs are directly or indirectly involved in hybrid entrepreneurship and how extra working time affects their family and work-life imbalance.

**Keywords:** *Women academicians; Hybrid Entrepreneurship; Job insecurities; Entrepreneurial intentions; Single parenting; Pakistan*

## 1. Introduction

The entrepreneurial spirit among Pakistani women can be attributed to a well-established network of connections between rural and urban areas and continuous migration and investment flows. Pakistanis are renowned for their intense and competitive enthusiasm for business (Iram et al., 2023). While there is limited research on hybrid women's entrepreneurship in Pakistan, their desire for success in the commercial sphere is well-documented. Changes in demographics, societal norms, labor market dynamics, and job security have led to the emergence of flexible work arrangements and diverse career trajectories (Asante et al., 2022; Thorgren et al., 2014; Roberts & Robinson, 2010). Pakistan's volatile economic and political conditions have driven academics to explore the concept of hybrid entrepreneurship (Nay, 2013). Engaging in self-employment while maintaining full-time employment has become increasingly common in many nations worldwide (Ardianti et al., 2022; Bosma et al., 2008). Despite the prevailing insecurities, the entrepreneurial drive and passion motivate Pakistani women to pursue hybrid investments (Iram et al., 2023a). It's worth noting that women's entrepreneurship obsession remains a relatively underrepresented topic in the literature. The existing literature suggests that women are often recognized as high-risk takers and forward-thinking business leaders. However, within Eastern cultures, specific social constraints and family responsibilities limit their involvement in decision-making processes when it comes to establishing startups (Dyke & Lamb, 2020; Iram et al., 2021). Every employee's dream is being an entrepreneur because of the insecurities in jobs prevailing in Pakistani society (Iram et al., 2022a; Yadav & Unni, 2016). Hybrid entrepreneurship is someone's transition from remuneration towards entrepreneurship; they may do so gradually by keeping their wage jobs while starting their own business. Hybrid entrepreneurs carry out a large portion of all entrepreneurial activities, and theoretical justifications suggest that hybrid entrants differ from full-fledged entrepreneurs (Demir et al., 2020; Folta et al., 2010). The need and passion for becoming a part-time entrepreneur are rising day by day due to the higher inflation and uncertain economic conditions in Pakistan (Asante et al., 2022; Iram et al., 2022). According to Paul et al. (2007) and Asante et al. (2022), it is a complex decision to leave current employment and wander into an insecure area; that's why women prefer hybrid investment choices rather than entrepreneurship (Ardianti et al., 2022). Many women begin low-maintenance entrepreneurship with the stated end purpose of putting something hybrid to

do something that they could not otherwise afford due to economic and financial pressures (Asante et al., 2022). Families having entrepreneurial background supports women to be involved in business as a hybrid choice, and they usually have optimism about selecting entrepreneurship in the future (Iram et al., 2023b; Zellweger et al., 2011; Cesaretti, 2008; Ahmad et al., 2022). Hybrid entrepreneurship has to face many management issues, along with full-time employment; however, the teaching sector is usually involved in these hybrid choices due to the shorter timings (Malik et al., 2022; Vance, 2005).

Scarce literature is available on hybrid investment choices, especially regarding Pakistani women academicians (Khan et al., 2020). Regarding the dynamics of the labor market and employment pressures, society needs to study hybrid entrepreneurs. Previous studies show that women from academia choose to work in non-standard employment arrangements and reflect changes in market conditions (Dad et al., 2022; Iram et al., 2019; Iram et al., 2023b). Hybrid women entrepreneurs are part of social structures that affect growth and labor flexibility, which are the key indicators of the predominance of high-growth entrepreneurship (Iram et al., 2022; Paul et al., 2007; Ahmad et al., 2022). A further indication of self-employment's extreme precariousness is that people with more hybrid experience prefer hybrid to full-entrepreneurial entry (Folta et al., 2010; Sudek, 2006; Riding, 2007). Lack of sufficient entrepreneurial policies and financial assistance from the government may impact the country's growth. Pakistan is a third-world nation with an estimated \$300 billion in annual economic output since the founding of the nation in 1947, even when the COVID-19 pandemic caused lockdowns, closures, and enterprises that are not running effectively or to their full capacity during the fiscal year 2020–2021. Thus, hybrid entrepreneurship is the better choice for Pakistani women, especially from academia (Iram et al., 2023b; Iram et al., 2019). Hybrid entrepreneurship choice out of clusters is difficult for women in a country like Pakistan (Iram et al., 2022; Rose & Reynolds, 2006).

Hybrid entrepreneurship in academics is a highly under-researched area that needs research (Khan et al., 2020; Akhtar et al., 2018). The population selected is the highly noble profession, which is the women academicians, and the type of factors that urge them to start hybrid entrepreneurship needs to be investigated. The low income of the teachers and fewer working hours as compared to other officials urge them to support hybrid entrepreneurship (Adebusuyi & Adebusuyi, 2021). This study is a novel contribution to the research related to the hybrid



entrepreneurial intentions of women in academia. Previous studies have had the least discussion about hybrid entrepreneurship in Pakistan, so this is the first study to uncover the factors behind women academicians' hybrid intentions. Although this may not be a common tactic, we believe it has great strategic promise. Focusing on other factors, researchers ignored that hybrid status influences full-time entrepreneurial entry by reducing uncertainty through learning about the entrepreneurial potential (Adebusuyi & Adebusuyi, 2021; Folta et al., 2010). Entrance patterns of hybrid entrepreneurs into entrepreneurship are also different from full-time entrepreneurs, which are highly recommended to study (Iram et al., 2019; Folta et al., 2010).

This research aims to explore the motivational factors among women academicians toward hybrid entrepreneurship. To explore why academicians don't like to leave their jobs to give full attention to entrepreneurship. To identify the employment insecurities and other pressures they are facing in current employment. This study will highlight the significant issues of employees regarding their job satisfaction, financial constraints, pay scales, and job pressures.

## 2. Literature Review

### 2.1 Social Cognitive Theory, Role Enrichment Theory, and Hybrid Entrepreneurship

Using the social cognition theory given by Bandura (1986) and the unique dual context of hybrid entrepreneurs argued by Folta et al. (2010), hybrid entrepreneurs often continue their pursuits despite having a unique dual-role position. Many studies have examined persistence in light of the social cognitive theory, which emphasizes the significance of self-efficacy, or confidence in one's abilities to carry out specific tasks argued by Bandura (1986), in determining agent behavior, such as continuing a side activity (Cardon & Kirk, 2015; Miao et al., 2017). According to social cognition theory, businesses are more likely to persist in the challenges if they have greater levels of entrepreneurial self-efficacy (Cardon & Kirk, 2015). Although individual differences in self-efficacy have been connected to the successful participation of individuals in various hybrid activities by Gist (1987) and Gist and Mitchell (1992), research has demonstrated that self-efficacy is changeable and can be altered by other hybrid environmental and social variables (Tierney & Farmer, 2002). The cognitive assessment of task needs and the working environment is the most important of these variables (Gist & Mitchell, 1992).

According to the above discussion, two types of enrichment in hybrid entrepreneurship can be seen, based on the role enrichment theory argued by Greenhaus and Powell (2006): wage-work-to-entrepreneurship (WE) enrichment and entrepreneurship-to-wage-work (EW) enrichment. WE enrichment is defined as the knowledge, skills, and habits that hybrid entrepreneurs get from their wage labor and apply to their entrepreneurial activities. Similarly, we define EW enrichment as the knowledge, skills, and attitudes that hybrid entrepreneurs gain from their entrepreneurial jobs and apply to their wage work. Using ideas from the social cognitive theory given by Bandura (1986), individuals who prefer to be more secure and attain self-efficacy and social well-being are more prone toward hybrid entrepreneurship.

### 2.2 Global Hybrid Entrepreneurship

Given the benefits of hybrid entrepreneurship outlined above, the researcher concluded all over the world that spreading the concept could lead to stronger and more resilient local businesses (Folta et al., 2010; Demir et al., 2020; Roman & Blits, 2022; Cestino, 2019; Asante et al., 2022). According to Kritskaya et al. (2017), hybrid entrepreneurs were likelier to succeed than any other form of entrepreneur when employment experience and other perks were considered. Folta et al. (2010) discovered that hybrid entrepreneurship was endogenous to self-employment and that hybrids were more likely to migrate to full-time entrepreneurship rather than continue in that status. These findings supported the need to encourage hybrid entrepreneurship to advance enterprise development. Demir et al. (2020) summarized three primary theoretical reasons why individuals engage in hybrid entrepreneurship in their review of the literature. These include a road to supplemental income, a path to non-monetary advantages, and a transition into principal self-employment. Thorgren et al. (2016) focus on the motivational components of hybrid entrepreneurship in their paper and distinguish between persons who aim to transition to full-time self-employment (second-step entrepreneurship) and those who do not. The authors use a 2012 sample of 103 Swedish hybrid entrepreneurs. The results of a logistic regression model demonstrate an inverted U-shaped association between age and the tendency to enter full-time entrepreneurship, indicating that the youngest and oldest individuals have the lowest probability of being involved in entrepreneurial activities (Thorgren et al., 2016). Researchers argue that the overall sunk cost of full entrepreneurship is higher than hybrid entrepreneurship because, in hybrid, an individual does not sacrifice his/her job income to engage himself/ herself in pure entrepreneurship; that's why it is a more catching form of



entrepreneurship for investors worldwide (Iram et al., 2023; Schulz, 2018).

### ***2.3 Women Academicians and Hybrid Entrepreneurship***

To be an entrepreneur is everyone's dream today; people are interested in investing money into some side business rather than saving it for contingency purposes. Hybrid investment choices reduce the risk of failure as the fixed remunerations urge the hybrids to wait till the business gets properly established to enter into full entrepreneurship (Hammarstrom & Nylén, 2014). Financial constraints compel individuals towards entrepreneurship, but at the same time, they stop individuals from leaving their jobs before establishing a secured business (Elkington & Hartigan, 2008). Finance is a concept of managing the minimum resources in the best way by human beings to maximize wealth; financial knowledge must be facilitated strategically (Hubbard & Vetter, 1996; Daniel et al., 1998). But the question is this: Why and how are these resources best allocated and managed to explain the phenomenon of hybrid entrepreneurship in women (Iram et al., 2019; Raeymaekers, 2014)? In this investigation, we highlighted the issues regarding individuals who are disappointed in their only source of income (Paradiso et al., 2004). The above issues characterize work disappointment and insecurities as upsetting backgrounds preferred by a hybrid entrepreneur (Raeymaekers, 2014). Employment disappointment and insecurities are the mentality of uneasiness that forces women academicians towards hybrid investment choices (Greenhaus et al., 2009). Besides, job disappointment matters for associations, clients, chiefs, and all representatives. Self-employment may be the only realistic alternative for a person, or they may be motivated to pursue it by their dissatisfaction with salaried jobholders (e.g., teachers) (Iram et al., 2023; Iram et al., 2022b). Part-time entrepreneurship may play a similar role for salaried women; a working woman may be concerned about the stability of their position and launch a part-time business as career insurance. Consequently, hybrid entrepreneurship may be seen as a career path that minimizes risk (Viljamaa et al., 2017).

### ***2.4 Hybrid Entrepreneurship in Academia***

The academic atmosphere is ideal for exploring one's entrepreneurial inclination, and the higher education department should foster it (Spano et al., 2022; Hammarström & Nylén, 2014). Hybrid entrepreneurship encourages women academicians to work towards their objectives or, at the very least, shows them the value of critically analyzing their surroundings to spot business

opportunities (Asante et al., 2022; Guo et al., 2019). Women academicians desiring lower financial risks while beginning their own firm should strongly consider hybrid entrepreneurship. Incubators with strong links to the university may be able to offer these researchers the finance and guidance they need to start their new business (Hammarström & Nylén, 2014). The low pay scales from the teaching department or the women having entrepreneurial intentions invest along with their full-time jobs (Hammarström & Nylén, 2014). Hayat and Anwer (2016) argued that investors always become rational in their investment decisions because they like to maximize their finances. Shiraz et al. (2011) argued that the significant relationship between motivation and rewards is that organizations with no employee motivation system prefer hybrid entrepreneurship. Pay has a significant impact on work, which finally creates motivation and satisfaction of an individual with her organization (Malik et al., 2012). Women's behaviors and emotions play a crucial role in their investment decisions (Iram et al., 2023a; Shiraz et al., 2011).

## **3. Methodology**

### ***3.1 Research Design***

An appropriate research approach and design must be chosen to answer the research questions and to achieve the study objectives. This is purely qualitative research, and we used the interpretivism paradigm to explore multiple realities. The interpretivist technique is appropriate for determining realities in a certain context and setting, as argued by Creswell and Creswell (2003), in order to obtain a deeper understanding of the perceived causes of hybrid entrepreneurship in women working in the higher education department of Pakistan.

### ***3.2 Participants and Data Collection***

Our target sample comprises low-income women academicians from Pakistan. The sample selection is based on several factors, including a 50% representation of women in the population but with less than a 20% share in employment, which is the lowest in South Asia and globally (Iram et al., 2023b). This disparity can be attributed to cultural, religious, and quota system constraints (Hussain & Jullandhy, 2020; Krauss & Putra, 2005). During data collection, several sub-groups were identified within the targeted sample of women academicians, such as single parents, widows, divorced, and separated women. However, we focused solely on low-income women academicians with hybrid entrepreneurial intentions rather than these sub-groups (Hussain & Jullandhy, 2020). Data were collected

using convenient snowball sampling from February 2021 to October 2021. In the presence of diversity, data were collected through in-depth interviews with 26 female academicians (See Table 1) working in higher education institutions (HEIs).

Data were analyzed based on observations and transcriptions of recorded interviews in detail using NVivo 11 plus. Thematic analysis is used for the coding of data, as well as the diverse methods to deal with the qualitative data (Smith & Firth, 2011).

**Table 1. Demographics of Participants**

Sr.#	Interview	Teacher	Age	Qualification	Marital Status
1.	Interviewee: A	T: A	28	Mphil	Married
2.	Interviewee: B	T: B	35	M.phil	Unmarried
3.	Interviewee: C	T: C	32	M.phil	Unmarried
4.	Interviewee: D	T : D	29	M.phil	Unmarried
5.	Interviewee: E	T: E	31	M.phil	Married
6.	Interviewee: F	T: F	32	Mphil	Married
7.	Interviewee: G	T: G	35	M.phil	Married
8.	Interviewee: H	T: H	38	M.phil	Married
9.	Interviewee: I	T: I	42	Mphil	Divorced
10.	Interviewee: J	T: J	41	M.phil	Married
11.	Interviewee: K	T : K	40	M.phil	Married
12.	Interviewee: L	T: L	29	Mphil	Unmarried
13.	Interviewee: M	T: M	30	M.phil	Unmarried
14.	Interviewee: N	T: N	32	M.phil	Unmarried
15.	Interviewee: O	T: O	34	Mphil	Married
16.	Interviewee: P	T: P	33	M.phil	Married
17.	Interviewee: Q	T: Q	28	M.phil	Unmarried
18.	Interviewee: R	T: R	40	Ph.D	Divorced
19.	Interviewee: S	T: S	33	Mphil	Married
20.	Interviewee: T	T: T	52	M.phil	Married
21.	Interviewee: U	T: U	36	M.phil	Married
22.	Interviewee: V	T: V	35	Ph.D	Married
23.	Interviewee: W	T: W	45	Ph.D	Married
24.	Interviewee: X	T: X	48	Mphil	Divorced
25.	Interviewee: Y	T: Y	49	M.phil	Married
26.	Interviewee: Z	T: Z	50	M.phil	Widow

Source: By author

**Table 2. Themes: Reasons behind Hybrid Entrepreneurship**

	Single Parenting	Economic Pressures	Financial Constraints	Job Insecurity	Entrepreneurial Intentions	Flexibility in Timings	Hybrid Entrepreneurship as Choice
T: A	0	0	0	0	2	2	1
T: B	0	0	2	0	2	0	2
T: C	0	0	1	1	1	0	2
T : D	0	0	2	1	2	1	0
T: E	0	0	2	0	2	0	0
T: F	0	0	2	2	1	0	0
T: G	0	0	0	0	2	0	1
T: H	0	1	0	0	0	2	0
T: I	1	0	0	0	0	0	0
T: J	0	0	1	0	1	0	1
T : K	0	1	0	0	0	0	0
T: L	0	0	0	2	0	0	0
T: M	0	0	1	0	0	0	0
T: N	0	0	0	0	1	1	0
T: O	0	0	0	1	0	1	0
T: P	0	0	0	0	0	0	1
T: Q	0	0	0	0	1	2	0
T: R	1	1	1	0	0	0	0
T: S	0	0	0	2	0	0	1
T: T	0	0	0	0	0	0	0
T: U	1	0	0	0	0	0	0
T: V	0	1	1	0	1	0	0
T: W	0	1	0	0	0	0	0
T: X	1	0	0	2	0	0	1
T: Y	0	0	1	0	0	0	0
T: Z	1	0	1	1	0	1	0
<b>Total</b>	<b>4</b>	<b>5</b>	<b>15</b>	<b>12</b>	<b>16</b>	<b>11</b>	<b>10</b>

Source: By author

#### 4. Data Analysis and Findings

In order to satisfy the study objective, all potential antecedents are explored. Moreover, the coding of teacher respondents was done as T:A to T:Z (Representing Interviewee: A to interviewee: Z) respectively for the better understandability of the reader. The data were analyzed according to the themes generated by using NVivo 11 software. I hereby confirm that the data are properly validated as recommended by Seers (2012) and NVivo (2019). The participants' permission to record the interviews was obtained in advance. Because our investigation was qualitative, we used thematic analysis (Braun & Clarke, 2006) to obtain important information from the available data. Because NVivo 11 is the right

program for theme analysis of qualitative data, we employed it for sophisticated qualitative data analysis (Banihani & Syed, 2017). The following is a summary of the data analysis steps.

- Interviews were conducted in Urdu and transcribed, followed by a second round of transcription in English by two subject matter experts fluent in English. Following many listening sessions, all interviews were meticulously transcribed. The primary author of this work actively listened to the pre-recorded interviews at least twice to better understand the data on the subject matter, followed by transcribing all interviews. The previous author read the

transcribed documents numerous times to identify major trends in the data.

- The author identified codes that were more relevant to the research topic. There were several rounds of code generation, each aimed to improve transcription coding. All the interviews (26) were recorded as individual cases in the system.
- To ensure that codes carrying convergent meanings were grouped under a single distinct theme, potential themes were produced and analyzed. The overall meaning of the codes under each theme was carefully considered while naming the themes.
- Table 1 is generated to view the demographics of the respondents, which depict 88% of academicians were M.Phil (master of philosophy) while 12% were PhDs (doctor of philosophy), including married, unmarried, and divorced participants. Moreover, Table 2 explains the generated themes, which are further explained below.

A total of seven themes were generated out of the interviews

## 5. Findings and Discussion

A careful thematic analysis was done to find out the reasons behind hybrid entrepreneurship.

### Theme 1: Single Parenting

Single parents and their children are considered to be “broken,” “abnormal,” “deviant,” and doomed to failure (Rhodes & Johnson, 2000). Moreover, to bear the responsibility of kids by a single parent creates financial distress. Women academicians who are divorced/widows possess hybrid entrepreneurial intentions to meet their financial demands (Gasse & Mortelmans, 2020). Such women are serving their homes and kids as sole parents, so hybrid entrepreneurship helps them to be financially secure.

*“I am a single parent. I have free time after my job, so I utilize it in doing business; other reasons were family expenditures, as my children are studying in colleges and universities, so to meet their expenditures, I have to do this (T.B).”*

### Theme 2: Economical Pressure

In Pakistan’s experience, it is evident that the quality and stability of the political system depend upon quality

education, language, religion, and ethnicity (Memon et al., 2011; Robinson, 2011). Pakistan’s economic and political instabilities disturb employment patterns and entrepreneurship. Pakistan’s highly unstable political conditions destroy the capital market and investment ratios (Tabassam et al., 2016; Memon et al., 2011). The social environment negatively affects the teaching profession (Rose & Reynolds, 2002)

*“Actually, the environmental conditions that are going on nowadays, which type of problems we are facing, expenses are too high, and the income from a job is not enough. That’s why we have to think about hybrid entrepreneurship (T.F).”*

*“I have a number of options, but economic conditions matter, so according to the economic conditions of Pakistan, every entrepreneur is affected; no entrepreneurship is on boom in Pakistan; everyone should do that entrepreneurship that he has learned or have some exposure to. (T.C)”*

*“People have no money, purchasing power of people has reduced, brands even remain on sale throughout the year at 10%, even in starting they claim 30%, 40% even 50% off and, this has been going on from 2016 due to political instability, it is going under recession even it is near depression now still the government is not stable, it cannot be improved till the economy is stable, your investor who has gone outside the country till not reinvest the whole amount again into entrepreneurship (T.C).”*

### Theme 3: Job Insecurity

Though job instability has been extensively investigated, additional research might be conducted to investigate unique employee reactions to adapt to and deal with job insecurity (Elshaer & Azazz, 2022). Due to the contractual jobs, societal imbalance, and instability in the employment ratio, academicians feel insecure in their jobs and feel that they could be fired at any time, causing more pressure insecurity (Ménard, 2022). Hybrid intentions are at their peak among the candidates fired from their jobs (Shiraz et al., 2011; Karren, 2012). The teachers on temporary jobs usually see their future with entrepreneurship.

*“My future planning is establishing a software house because my job is on a contractual basis, and whenever I feel in future that it is difficult for me to run the both, I would prefer to leave the job (T.G).”*

*“As my job is not permanent, it is a contractual nature so that in future maybe I quit it and flourish my entrepreneurship in a better way (T.W).”*

*“Due to a contractual based job, if my entrepreneurship flourishes in the future and gets fully established, I will skip my job and pay full attention to my entrepreneurship (T.I).”*

*“Sometimes it becomes hectic I thought I should leave the job, entrepreneurship is relaxing as I am all in all, in any way u can conduct an entrepreneurship but I can't leave my job coz my entrepreneurship is not at that stage (T.Q).”*

*“Job is not suitable because during the job I can't open my own software house, and even if I open it I can't run it (T.T).”*

#### **Theme 4: Financial Constraints**

Financial constraints are the result of market failures induced by knowledge asymmetries, adverse selection, and moral hazards (Zhang, 2022). Unsatisfactory remunerations of teachers especially keep them under financial burdens in under-developed countries like Pakistan (Adebusuyi & Adebusuyi, 2021; Farooq & Talib, 2019; Shiraz et al., 2011). Through hybrid entrepreneurship, employees can free themselves from financial constraints

*“My father is a cancer patient and retired also. That's why I have to start entrepreneurship for hybrid income (T.I).”*

*“Teachers always remain mediocre, so to improve my earnings, I started entrepreneurship (T.O).”*

*“Yes, of course, to secure our future and for my kid's future for uncertainties, I save my money (T.R).”*

*“I am unmarried, and I use my income for further studies and also on saving (T.N).”*

*“Hybrid income I usually utilize for saving on bearing my marriage expenditures in future and on the studies of my younger sister (T.L)”*

*“My job in one way helps me as more students approach me from College to study in the academy (T.Z).”*

*“The job is helpful in my entrepreneurship as the teachers in college usually come to my parlour; it helps me earn (T.S).”*

#### **Theme 5: Entrepreneurial Intentions or Family Entrepreneurship**

Entrepreneurship in blood always urges an employee to boost herself/himself as entrepreneur. Entrepreneurial intentions and participation in family businesses always turn the employee toward hybrid investments (Seaman et al., 2016). Career expectations nowadays are extremely diverse since some, but by no means all, families consider the continuance of the family business as the ideal (Georgescu & Herman, 2020). A family business may affect

individual entrepreneurial behaviors, and individual hybrid entrepreneurial intentions may affect the family business because, in literature, it is considered entrepreneurship in the blood (Bozer et al., 2017). Ozaralli and Rivenburgh (2016) argued that personality and entrepreneurial intentions have a positive relationship. The cognition of an individual urges her to pursue family entrepreneurship despite having employment (Bettinelli et al., 2014).

*“I want to see what I teach and how it can apply in the practical field as I am an entrepreneurship teacher, so I want to check the practical implications of entrepreneurship on how business is conducted, as doctors are tough by doctors; engineers are tough by practical engineers, who teach entrepreneurship are 99% non-businessmen (T.C).”*

*“Our family setup is as follows: we all are businessmen; we can't work under someone; our father was in the military, then he retired and started his entrepreneurship. Then we also started our own entrepreneurship, source of investment was from father hybrid, it is 100% equity-based entrepreneurship no external financing, there was no job orientation before (T.E).”*

*“We have a culture of entrepreneurship in family; my grandfather is above 98 years old, and he is still doing his entrepreneurship, we have family setup and culture of entrepreneurship, we have the natural option of to be an entrepreneur (T.B).”*

*“Ours is family entrepreneurship; then if we left it, we would be kicked out of family too (T.M).”*

*“Our entrepreneurship is 25 years old and was started by my father in 1992; I look after the entrepreneurship and act as a supporting role to my father (T.B).”*

*“Yes, of course, my profession is teaching, and I can only do hybrid entrepreneurship, which is partnership entrepreneurship; we are two partners of 50-50 percent, and my partner is running my franchise, and all the investment is mine (T.P).”*

#### **Theme 6: Flexible Timing in Teaching**

Academicians have to bear massive tasks but within less time (Rose & Reynolds, 2002). Moreover, people think that teaching is a more relaxing job due to the flexibility in its schedules. Usually, the teaching profession has flexible timings as compared to other businesses, as argued by Iram et al. (2019). According to my sample:-

*“I get more spare time, and due to more spare time, I want to see that which I teach how it can apply in the practical field (T.C).”*



Due to the need to meet the expenditures of a family, the individual takes benefit of flexible timings and starts hybrid entrepreneurship.

*"I have free time after my job, so I utilize it in doing hybrid entrepreneurship. Other reasons were family expenditures, as my children are studying in colleges and universities, so to meet their expenditures, I have to do hybrid entrepreneurship (T.D)."*

#### **Theme 7: Hybrid Entrepreneurship as a Choice**

Hybrid entrepreneurship, quantitatively and qualitatively, varies from nation to nation (Valliere, 2019). The entrepreneurship types and nature vary from person to person, but carrying entrepreneurship along with the job is a tough task. There are many clusters of entrepreneurship to select, but to select entrepreneurship is a hard task (Rosenfeld, 2005). Teachers who are doing entrepreneurship on a large scale have partners to share the investment and even run the venture in their absence. The individuals who are doing entrepreneurship as sole traders have the aim to leave the job in the future and want to pursue their own entrepreneurship. Individuals with family entrepreneurship backgrounds are also very optimistic about the choice of entrepreneurship, while they are pessimistic about the locus of control in entrepreneurship (Zellweger et al., 2011). The persons who are doing entrepreneurship on partnership have a view:-

*"Yes, of course, my profession is teaching, and I can only do hybrid entrepreneurship, which is partnership entrepreneurship. We are two partners of 50-50 percent, and my partner is running my franchise, and all the investment is mine (T.A)."*

*"It's a sole proprietorship (T.J)."*

*"It is an informal partnership which is not registered (T.D)."*

When we discussed with the respondents whether their choice of entrepreneurship is right or wrong and what they think about them right now, they replied:

*"If I see my passion, then it is not wrong; the academy is going right because it is related to my job, but construction hybrid is tough, and I feel difficulties there. If you put ten years into some entrepreneurship, then you can't change (T.K)."*

*"I would like to code the example as if u pour water in a glass or jug; it will make its place as entrepreneurship is; my entrepreneurship in satisfactory conditions nowadays, whenever I feel I have to change, I will move forward, but*

*now I am satisfied my current status (T.D)."*

Entrepreneurship choice depends upon the degree of self-efficacy (Zellweger et al., 2011).

*"I have several options, but the economic conditions of the country matter. As per the current economic conditions of Pakistan, every entrepreneur is affected, and there is very rare evidence of sustainable enterprise. I am experience of it now if I want even to switch, then it matters that other entrepreneurs have more cash flows (T.C)."*

Hybrid entrepreneurship is mostly a sole tradership as the individuals want to take advantage of profits solely. Out of 18:8, the ratio of sole tradership and partnership is shown in a Table.

**Table 4**

<b>Sole Trader-ship</b>	<b>Partnership</b>
18	8

*Source: By author*

There must be reforms by the federal government to improve the teachers' salaries, and teachers must be supported. The teachers have an agenda that they need time and support to enhance (Morris, 2002). Due to the low incomes, most individuals want to continue with the job and entrepreneurship both because they have permanent employment and don't want to leave, and due to financial constraints, they have to do entrepreneurship along with it to fulfill their family requirements

*"With my life, both are attached even after retirement; I will continue both (T.J)."*

*"I want to take both together because my career is my education; hybrid entrepreneurship is carrying on, no issue. I want to be on a safe hybrid (T.I)."*

*"Being a female, we feel fear factor in taking a risk; I will not quit my job in the future if my entrepreneurship becomes at the boom, then maybe I would think, but now I have no as such mind, I want to continue both (T.F)."*

#### **6. Conclusion**

Given that women comprise a significant portion of the population in Pakistan, this research argues that their participation in entrepreneurship can substantially advance the nation's economic development. Furthermore, the study emphasizes the diverse responsibilities of educators in developing nations and acknowledges the potential

advantages of mixed-income entrepreneurship in terms of financial gain, risk mitigation, and employment stability. It also recognizes that, in order to retain teachers within the formal education system, supportive measures such as awards and recognition are necessary. Multiple revenue spikes are more achievable in an impoverished economy like Pakistan than obtaining more income from a single career (Farooq & Talib, 2019). The nation's teachers are its most valuable asset; by engaging in hybrid entrepreneurship, they can benefit the community while reducing unemployment and financial hardship (Adebusuyi & Adebusuyi, 2021; Dfes, 2001). Hybrid entrepreneurship provides a safer path to mitigate future unemployment pressures, as contractual scholars fear the risk of job loss (Iram et al., 2023; Bennett et al., 2021; Hammarstrom & Nylen, 2014). Teaching must be prioritized as an honorable profession to enhance productivity (Adebusuyi & Adebusuyi, 2021; Hammarström & Nylén, 2014; Dfes, 2001). The lack of job security experienced by visiting academics and lower-level academicians in higher education leads female academicians to make hybrid investment decisions (Wazir et al., 2013). To retain instructors full-time in the education sector, they need to receive the right recognition and awards (Shiraz et al., 2011; Adebusuyi & Adebusuyi, 2021). Despite experiencing higher stress levels than other professionals, the majority of female teachers find satisfaction in their line of work (Alamdar et al., 2011; Alamdar et al., 2012). Because teaching offers flexible schedules, it presents a unique opportunity for hybrid investments. Through these investments, teachers can secure their future through savings and entrepreneurship while meeting their immediate financial requirements (Adebusuyi & Adebusuyi, 2021; Khalid et al., 2012). Pakistan and other developing nations can benefit economically and reduce poverty through hybrid entrepreneurship (Muneeb, 2020; Iram et al., 2023). Given that women make up 46% of the population in Pakistan, their potential contribution to the country's economic development is substantial (Iram et al., 2019). The intent of women to become entrepreneurs is an encouraging sign for the advancement of the economy (Iram et al., 2021).

## 7. Limitations, Implications, and Recommendations

Reliance on self-report data from interviews introduces the potential for bias. Participants may provide responses that align with social expectations or that they perceive as more favorable, which can limit the objectivity of the study.

The rise of hybrid women entrepreneurs demands a theoretical reevaluation of existing entrepreneurship theories and their compatibility with the traditional academic system. Moreover, the literature suggests that institutions can better prepare aspiring entrepreneurs, especially women, for success in the dynamic and complex world of hybrid entrepreneurship by evaluating and adapting current entrepreneurship theories and by making changes to the educational system.

In practice, the government should consider revising the pay scale for academicians in the higher education department. Furthermore, women hybrid entrepreneurs enhance technological literacy, and traditional performance measurements may need modification to consider both online and offline success indicators in promoting hybrid entrepreneurs. Lastly, the hybrid approach also fosters the development of an integrated entrepreneurial system by promoting collaboration between traditional and digital firms.

By conducting a cross-sectional empirical study involving academicians, both male and female, engaged in hybrid entrepreneurship, researchers can provide comprehensive insights into the dynamics at play and contribute to the development of supportive frameworks within academia.

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# Designing a Suitable Strategic Model to Transform Iranian Universities into Entrepreneurial Universities

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## A b s t r a c t

The present study sought to present a strategic model to transform Iranian universities into entrepreneurial universities. Universities were responsible for teaching and researching in the past; however, concerning the modern evolutions in the global environment and changes in the relationships among three main operators in national innovation systems (industry, government, and university), universities are to undertake a third requirement, which is university entrepreneurship and participation in economic and social developments of societies. The present study adopted a qualitative approach to present a model based on which the conversion into entrepreneurial universities was explained. The interview-driven data were analyzed in two open and axial coding phases. Besides, the content analysis method was used to investigate the literature of the study's constructs. The findings helped with presenting some concepts like identifying the factors impacting the future of entrepreneurial universities, as well as environmental components influencing the transformation of universities to entrepreneurs, and determining strategies, policies, and plans for entrepreneurial universities in Iran.

**Keywords:** *Desirable Model, Entrepreneurship, Entrepreneurial University, Strategic Model, University Entrepreneurship*

## 1. Introduction

In today's modern world, the sole long-term competitiveness motor is innovation, which is an essential element in enhancing the efficiency of production factors and a factor that improves the knowledge economy. According to new studies in this domain, cooperation among three sectors, including industry, university, and government, is necessary to promote local and national innovation systems (Behzadi et al., 2013). A change in the focus of economic discourses, from conventional production factors to knowledge-based economies, conduces fundamental evolutions in the structure of universities and the nature of their relationships with their surrounding environments. In a knowledge-based economy, knowledge is replaced with raw materials, labor, and capital and is considered the most significant production factor. In normal conditions, universities, as knowledge producers, and industries, as knowledge users, need each other in order to shape a certain goal (Norouzi et al., 2014). Universities play a pivotal role in disseminating knowledge and new innovations, and this role has been widely acknowledged (Radko et al., 2022). Accordingly, the importance of knowledge in innovation and industrial revival has increased, making university professors, companies, and policy-makers accentuate the topic since universities constitute a paramount knowledge source on which technological innovations are founded. In fact, universities have long been acknowledged as key drivers of innovation systems through their core missions of teaching, research, and knowledge transfer (Meissner et al., 2022).

The revolution in the country's higher education under the umbrella of entrepreneurship is unavoidable for some reasons, including environmental evolutions at national and global levels, changes in general expectations, increasing competitions over common-pool resources, criticizing the financial and structural conditions of the higher education, dependence on the state budget, changes in the policies of higher education like decentralizing, reducing possessive responsibilities, creating strong policy-making teams, creating and preserving diversity in higher education, reducing bureaucracy, the significance of attending to customers and respecting humans, and advances in information and communication technologies. Therefore, it is necessary to engender innovative activities by creating entrepreneurial universities (Moghaddasi et al., 2015). Entrepreneurial universities do not just contribute to producing new knowledge but distribute it to industries and societies (Guerrero & Urbano, 2012).

Higher education institutions are being evaluated with respect to their responsiveness to the social and economic needs of societies, making them attend to numerous cases besides teaching and researching. In transitioning from industrialization to knowledge-driven productivity growth, universities as knowledge producers must adapt to the changing landscape (Etzkowitz et al., 2021). Universities are central actors in entrepreneurial ecosystems, playing a critical role in developing and supporting new ventures (Tajpour et al., 2023). An entrepreneurial university is the main center for nurturing trained and specialized human forces who can constantly inject fresh strength into the veins of ever-growing societies by possessing novel ideas and thoughts. The fundamental goal of the entrepreneurial university is to catalyze the diffusion and commercialization of researcher-developed knowledge (Audretsch & Belitski, 2021). Entrepreneurial universities play a pivotal role in driving economic and social transformation (Cunningham et al., 2021), and by applying the emergent ideas of universities, societies can also realize the development conception (Moghaddasi et al., 2015). Entrepreneurial universities play a significant role in driving technological advancement, social progress, and disseminating novel and original ideas (Sidrat et al., 2023). Those universities that encourage entrepreneurial practices by commercializing scientific knowledge, granting patents and licenses, or developing global incubators, as well as science and technology parks, are perceived to be more efficient and effective. In this regard, initiating high-level academic research associated with the entrepreneurial university concept may shape a shortcut to innovative results.

Many Iranian universities experience their second-generation period; i.e., they are research-based and thus not active in commercializing the research findings, fostering entrepreneurial individuals, and transforming into third-generation universities, i.e., entrepreneurial universities. Iranian society owns numerous universities and has a high potential to exploit this capacity to develop nationally. However, it seems that interacting with academics and pundits and applying the scientific capacities of universities, especially interactions of industries and companies with universities, have been neglected. Suppose the universities of the country are transitioning to third-generation universities. In that case, their positions will be illuminated in the knowledge-based economy, and their reliance on state budgets will be minimized (Mogaddasi et al., 2015).

Considering the sensitive and strong socioeconomic role of entrepreneurial universities in the country and their

positions as second-generation universities, i.e., they are research-based and not highly active in commercializing research findings, fostering entrepreneurial individuals, and transforming into third-generation entrepreneurial universities. There is no university from Iran in the top 100 entrepreneurial universities in the world. However, three universities from Iran are among the top 100 rankings of the world's universities. This selection is based on various indicators, including the quality of professors, the number of students, experimental and research facilities, the way students are accepted and entered the university, and sometimes even the direction of magazines and publications or the number of articles of that university. The most important indicator cited in many rankings is the quality of education. Generally, the number of university graduates and the number of international awards won by the university are included in this category. The influence of this index in the Times ranking is 30%. Therefore, it can be said that it can be important to have a suitable model by considering the indicators that can transform Iran's top universities into entrepreneurial universities. In Iran's higher education system, there are often theory-oriented, traditional, and old educational programs with lecture teaching methods, etc., which have been going on for years. Such a process has resulted in the accumulation of graduates who lack practical skills in the country. One of the challenges of Iran's university system today is the quality of academic research.

To say that one university is an entrepreneur and that another is not an entrepreneur is not a correct analysis; an entrepreneurial university is a scale and an ideal house, so it should be said in this way whether a university is on the path of entrepreneurship or not. In answer to this question, it should be said that some Iranian universities are on the path of entrepreneurship and have taken good measures regarding knowledge-based companies, growth centers, accelerators, and science and technology parks, which lead to the commercialization of products and services in Iran. Although there has been a slight growth in the supply of academic research, they have not been able to bring about proper development and resolution. This study intended to design a model for converting Iranian universities to entrepreneurs. This topic was analyzed in the form of several concepts, like identifying the factors impacting the future of entrepreneurial universities, environmental components influencing the transformation of universities to entrepreneurs, and determining strategies, policies, and plans for entrepreneurial universities in this country.

## 2. Research Literature

### 2.1 Theoretical Framework of the Research

#### 2.1.1 The entrepreneurship concept

Entrepreneurship is a French-rooted terminology and means commitment or, idiomatically, a mediator or broker. It is a concept that has been investigated from numerous different aspects. Entrepreneurship entails recognizing and utilizing the opportunities that were previously considered to be unknown opportunities (Saadat et al., 2021). Many believe that entrepreneurship drives economic development in developed and developing countries for three main reasons: wealth creation, technology development, and productive employment. Entrepreneurship is an objective and pragmatic concept born concurrently with the incipience of humans on earth and their endeavors to earn income and supply living necessities. Entrepreneurship emerges from a set of human traits that makes it possible for someone to identify, employ, and generate market opportunities related to incremental growth (Abiodun, 2020). In sum, entrepreneurship is a process wherein individuals embark on producing or service-providing tasks by relying on themselves and considering their knowledge, dexterity, innovation, and creation. Thus, entrepreneurship is a process of creating, innovating, and developing new businesses through uncovering opportunities and exploiting resources. It requires planning in the educational system to enable graduates, as job creators, to develop productive and monetizing employment using their specialization, innovative power, facilities, and competencies (Torkaman & Noruzi, 2017). Due to the special role and status of entrepreneurs in economic development, growth, and social evolutions, many governments in developed and developing countries attempt to encourage and steer a large number of society members with entrepreneurial attributes towards entrepreneurship-based training and entrepreneurial activities by resorting to their maximal facilities and exploiting research achievements.

#### 2.1.2 The role of universities in the country's industrial development

Universities are among the important centers that supply and nurture the country's specialized and skillful human forces. Every country needs several competent human forces with practical knowledge and skills to develop industrially. The current machine-adjacent lives necessitate special competencies to be learned by training and improved by experience. Hence, we can assert that no development is realized in the absence of knowledge, and universities

mainly contribute to the country's development provided that they underscore the operationalization of the learned subjects and foster dexterous human forces, i.e., they are entrepreneurs (Shafiabadi, 2011). The dynamic 21<sup>st</sup>-century universities are the ones that can foster and integrate specialized and managerial values. In other countries, the experience of universities in realizing entrepreneurial missions indicates that the university system to be an entrepreneur should follow a systematic approach that enjoys an adaptive structure, provident vision and strategy, innovative and entrepreneurial culture, and competent human force and continuously interacts with the environment and supportive systems. In addition, the continuous cooperation between industry and university will result in social and economic advancement, which might benefit individuals, universities, and governments

(Sharifabadi & Zadeh, 2020). Therefore, providing teaching, conducting research, creating a link between education, business, and government, and also helping to enhance regional or national development are the hallmarks of a successful entrepreneurial university (Bukhari et al., 2021).

### 2.1.3 Definitions of an entrepreneurial university

Many definitions have been presented so far for the entrepreneurial university concept. For example, Gibb (2007) defined the entrepreneurial university as an optimized university that maximizes the consolidation of entrepreneurship with the entire university system. Table 2 presents the most important definitions of an entrepreneurial university briefly.

**Table 1. Evolutionary path of universities' mission**

First generation universities	Second generation universities	Third generation universities
Teaching -based universities	Teaching- and research-based universities	Teaching-based, research-based, and entrepreneur universities
Role: Defending facts	Role: Discovering facts	Role: Creating value
Goal: Localizing financial, social, and cultural values Nurturing specialists	Goal: More concentrating on technical professional and applied training Nurturing specialists + scholars	Goal: Meeting the needs of students by preparing them for the work environment Nurturing specialists + scholars + entrepreneurs

(Source: Gupta, 2008)

**Table 2. Most important definitions of experts about entrepreneurial universities**

Year	Author	Definition
2003	Jacob et al.	The entrepreneurial university encompasses commercialization (like developmental activities, counseling services, etc.) and commodification (like newly established companies belonging to faculty members or students, patents, and franchises).
2004	UNESCO	The entrepreneurial university teaches students to be entrepreneurs, establishes an entrepreneurial structure within itself, creates and fosters entrepreneurial attitudes in students, employees, and professors, develops entrepreneurial competencies, and engenders and develops entrepreneurial culture at the university and society levels.
2006	Kirby	Teamwork, possessing entrepreneurial culture, risk appetite, responsiveness to challenges, ability to discover and create opportunities are the features an entrepreneurial university should possess.
2010	Guerrero & Urbano	It is a university that can reach innovative capacities, opportunity identification and creation, teamwork, risk appetite, and responsiveness to social needs by expanding organizational capabilities.



Concerning the definitions of the entrepreneurial university mentioned earlier, we can conclude that the entrepreneurial university concept has gone through an evolutionary path. The fulfillment of commercial businesses by academics shaped the concept of an entrepreneurial university in the late 20<sup>th</sup> century. In the early 21<sup>st</sup> century, universities were defined as entrepreneurial organizations involved in commercial practices. The commercialization concepts and dimensions have been emphasized and accentuated in the continuation of this evolutionary current. Entrepreneurial universities are becoming more popular worldwide and are now the major engines of regional economic development (Gianiodis & Meek, 2019). In addition, Universities now transfer their research more effectively to society by being

proactive and entrepreneurial (Wang et al., 2021). Consequently, there has been an increasing investigation about entrepreneurial universities over the past few years, particularly in the management and business fields (Forliano et al., 2021).

## 2.2 Research Background

In this section, we investigate some studies that have addressed the entrepreneurial university concept and the effective factors in transforming universities into entrepreneurial universities. Table 3 represents these studies in detail. Subsequently, in Table 4, we have investigated the effective factors in academic entrepreneurship of countries other than Iran.

**Table 3. Previous studies on the entrepreneurial university domain**

Row	Year	Author(s)	Article title	Main purpose	Findings
1	2019	Ricci et al.	Entrepreneurial activities and models of advanced European science and technology universities	A set of entrepreneurial practices, different models of entrepreneurship, the best entrepreneurial methods in European universities	Entrepreneurship practices: research commercialization, training entrepreneurship, supportive activities, academic employment, and entrepreneurial atmosphere
2	2019	Lombardi et al.	Entrepreneurial universities and strategy: the case of the University of Bari	Investigating why entrepreneurial universities choose specific commercial strategies by focusing on diversification, multinationalism, and the role of intellectual capital in supporting such strategies?	Strategies in pursuing educational, research, and third-mission goals under the shadow of technology production, application, and promotion
3	2019	Pickernell et al.	Entrepreneurial university strategies in the UK context: towards a research agenda	Examining the knowledge exchange strategies of England, especially concerning knowledge exchange with small and medium-sized companies	Continuous development of small business enterprises, counseling, the income of software permits, the income of non-software permits, stock sale in spin-offs, research-based contracts, facilities and services, and other IP monetization
4	2019	Bizri et al.	The entrepreneurial university: a proposed model for developing nations.	Presenting a model for active entrepreneurial universities in developing countries.	Environment, entrepreneurship, innovation, entrepreneurship culture, focus on strategies, government and organizational designing, stock holding partnership, knowledge transference, internationalization, training entrepreneurship, resources, and competencies
5	2019	Centobelli et al.	Exploration and exploitation in developing more entrepreneurial universities: A twisting learning path model of ambidexterity.	Regularly investigating the literature on the development process of universities to present an environmental model	Organizational, internal, and external environments, university exploration, university exploitation, university correlation, and university performance of entrepreneurship
6	2018	Etzkowitz et al.	Entrepreneurial university dynamics: Structured ambivalence, relative deprivation and institution-formation in the Stanford innovation system.	Responding to the question of how a latent innovation gap is recognized and solved.	Startups, spin-offs, foreign permits, and foreign financial organizations
7	2018	Twisana et al.	Roadmap of an entrepreneurial university-A case study	Discussing the missions, goals, and necessary strategies	Leadership and governorship, organizational capacity (financial resources, human forces, and incentives)-entrepreneurship training and learning, preparing and supporting entrepreneurs, knowledge exchange and cooperation, international institutions, and measurement impacts
8	2018	Dalmarco et al.	Creating entrepreneurial universities in an emerging economy: Evidence from Brazil	Identifying potential activities and effective policies in the transfer of technology in Brazil	Visions, investment, external relationships, access to university resources, innovation, and scientific research
9	2012	Alexander & Evgeniy	The entrepreneurial university in Russia: from idea to reality	Investigating a Russian model of an entrepreneurial university fitted with the 21 <sup>st</sup> century's needs	Innovation infrastructures, knowledge and technology transference, entrepreneurial universities, and university, industry, and government
10	2018	Amiresmaeili et al.	Evaluation of the Kerman University of Medical Sciences based on the characteristics of entrepreneurial universities	Evaluating Kerman's University of Medical Sciences based on the characteristics of entrepreneurial universities	Four structural, functional, procedural, and infrastructural changes in the university structure; for example, official bureaucracy, conditions of graduates, individuals' competence, educational conditions, relationships with the industry, and knowledge based companies

11	2018	Sadeghi et al.	Investigating the factors affecting the readiness of universities to become a university with entrepreneurial characteristics (Case study: Ferdowsi University of Mashhad)	This research aimed to investigate the effective factors in universities' readiness for transforming into universities with entrepreneurial properties.	Entrepreneurial structure, entrepreneurial culture, entrepreneurial management, entrepreneurial strategy, and the relationship of universities with the industry are among the factors impacting universities' readiness for transforming into entrepreneurial universities.
12	2018	Bagheri et al.	Discovering and prioritizing the dimensions and components affecting the structure of the entrepreneurial university: A proposal for success in the tasks of the third generation of universities	Identifying and prioritizing key components in the structure of an entrepreneurial university	Combination, independence, professionalism, complexity, concentration, and formality
13	2017	Fadaei et al.	Presenting a model for creating an entrepreneurial university based on futuristic techniques and producing science in the educational system	Presenting a model for creating an entrepreneurial university based on futuristic techniques and producing science in the educational system of Iran	Organizational actions, individual attitudes, flexibility, reward, entrepreneurship leadership, entrepreneurial culture, figuration, dynamism, prediction, implementation, structural motivation, university support, teaching-based education, knowledge management, research cooperation mentality, and limitations in financial resources
14	2015	Mogaddasi et al.	Factors affecting the transformation of medical sciences universities into entrepreneurial universities in the Iranian higher education system	Identifying effective factors in the entrepreneurship of medical sciences universities in the higher education system of Iran	Entrepreneurship as a strategic priority of universities, entrepreneurship management, employee training, financial resources, entrepreneurial culture and mentality, graduates' activation, facilities and equipment, extracurricular activities, and educational planning
15	2014	Noruzi et al.	Extracting the dimensions and networking the structural components of entrepreneurial universities: An interdisciplinary approach	Identifying and networking the structural components of entrepreneurial universities using an interdisciplinary approach	Independence, combination, professionalism, complexity, concentration, & formality
16	2014	Jahromi & Pourkarimi	Analysis of forces operating in an entrepreneurial university and academic technology transfer: An interdisciplinary approach	Analyzing effective forces in the development of entrepreneurial universities in terms of dynamics, social changes, linguistics, physics, electricity, and psychology	Financing and the research equipment, recognizing the market, learning, operationalizing researches, and commercializing university functions
17	2013	Mahdavi et al.	Determining effective indices in the entrepreneurship of Iranian public universities and ranking universities from this perspective	Determining effective indices in the entrepreneurship of universities and presenting an approach to ranking them	The structural and governorship structure of universities, supportive measures, training entrepreneurship, universities' attitudes towards entrepreneurship, external attitudes towards entrepreneurship, and models of the role and system of rewards
18	2013	Behzadi et al.	Designing a conceptual model for an entrepreneurial university: Using a corporate entrepreneurship approach	Identifying the characteristics of entrepreneurial universities and presenting an associated model given organizational entrepreneurship	Quality of graduates, the release of scientific findings, financial resources, research contracts, patents, generative businesses, developing science and technology parks, entrepreneurial organizational culture, adaptive organizational structure, professors' entrepreneurial approaches, macro management, lesson content, and characteristics of students
19	2013	Etzkowitz	Anatomy of the entrepreneurial university	Investigating the evolutions in entrepreneurial universities towards the firm formation and regional economic development	Technology transfer, firm formation, and regional development

**Table 4. The Effective Factors in Academic Entrepreneurship of Countries other than Iran**

The academic productivity of universities is consistent with higher levels of patent activity, contract research, and spin-off activities. The fields available in the university (the number of entrepreneurial students), the intensity of regional research and development, the size of the university, entrepreneurial performance, and the inclusion of entrepreneurial goals in the university's mission.	105 European universities Von Looy et al., 2011
Including 13 indicators in 4 categories 1- research indicators, 2- institutional indicators, 3- economic activity/innovation, 4- international diversity Narrow third mission reflection	Times Higher Education World University Ranking, THE Quacquarelli-Symonds World University Rankings, QS United Kingdom, 2010 Landinez et al., 2019
No third mission reflection	The Academic Ranking of World Universities, ARWU (China, 2003) Landinez et al., 2019

Knowledge transfer (spin-offs, graduate companies) (14 indicators) Regional engagement (regional student internships, thesis, publications, graduates working, partnerships) (12 indicators)	U-Multirank (Germany, 2011) Landinez et al., 2019
Co-authored publications with industry Co-authored publications with universities and other organisations	CWTS Leiden (Netherlands, 2007) Landinez et al., 2019
Patent volume Global patents Patent success Industry collaborative articles Industry article citation impact	Reuters Top 100 United States Landinez et al., 2019
Broader third mission reflection University and society Scientific cooperation with non-academic organisations Partnerships with employers Research commercialisation of R&D results Total pages of a university's website indexed by the leading search engines University's followers on social media	Moscow International University Ranking, MosIUR Russia, 2017 Landinez et al., 2019
Proper infrastructure: career office, academic incubator, center of technology transfer. Motivating academics and students to intellectual growth, improving the quality of knowledge at university. Development of research and lab infrastructure and intensification of cooperation with external units, like scientific-technological parks, other universities, and clusters.	Visegrad Group Countries (Czech Republic, Hungary, Poland and Slovakia) Barcik et al., 2017; Jakubiec & Kurowska-Pysz, 2013

In Iran, unfortunately, there is no native model for ranking. Universities are ranked based on the number of innovation centers, the number of science and technology parks, the number of accelerators, the number of growth centers, the number of startups, and the number of shared workspaces, among which Sharif University of Technology and University of Tehran are ranked first and second.

After reviewing the research literature, it was found that previous researchers have been neglectful about presenting a strategic model for transforming universities into entrepreneurs. Furthermore, Iranian universities must transition from research-based universities to entrepreneurial ones. Thus, the present study aimed to design a strategic model to transform Iranian universities into entrepreneurial universities. In this trajectory, the factors impacting the future of entrepreneurial universities and the environmental components influencing the transformation of universities to entrepreneurs were identified, and the strategies, policies, and plans of entrepreneurial universities were determined.

### 3. Methodology

The present study adopted a qualitative method, which was a regular search process to discover an uncertain human and social situation. In this process, the researcher renders a holistic and historical picture by analyzing the terms, reporting the prospects of individuals in detail, and accomplishing his/her inspection in a natural environment. A qualitative approach delves into the phenomena and employs interviews, documents, and participant observations to collect data (Creswell, 2017). Hence, the present study employed the interview instrument for data collection. The study's statistical population consisted of specialists, pundits, managers, and experts in the entrepreneurship and entrepreneurship training domains. These experts were to enjoy the requisite knowledge and cognizance about entrepreneurial universities and the contribution of universities to entrepreneurship. Accordingly, the selected candidates for the present study's interviews were the ones with the following characteristics: 1) managers and experts of the science and technology parks

of universities and their affiliated centers, 2) faculty members and the authorities of entrepreneurship, management, and MBA faculties who had worked or studied on university entrepreneurship, entrepreneurial university, and university-based entrepreneurship, 3) university entrepreneurs, 4) specialists in the strategic planning domain with a higher education management approach, and 5) other qualified individuals introduced or recommended by the interviewees or identified by the researcher.

After determining the qualified individuals for the interviews, the researcher employed theoretical sampling, wherein respondents were selected according to the research purpose and not statistical approaches (French, 2008). Individuals are selected for future interviews by the snowball sampling method based on the research progress and relevant concepts. In this method, future participants are referred to based on the precedent participants' introduction while introducing the subsequent participants. Therefore, using the snowball sampling method, the researcher conducted 30 interviews, every one of which was held in an average three-hour session. In these interviews, open questions, presented in Table 4, were raised.

## 4. Results

The content analysis method fulfilled by open and axial coding was used for analyzing the interview-driven data. Accordingly, the results of interview summarization were categorized into three axes, including factors impacting the future of entrepreneurial universities in Iran, environmental factors impacting the transformation of universities to entrepreneurs in Iran, and determining the strategies, policies, and programs of entrepreneurial universities in Iran.

### 4.1. Factors impacting the future of entrepreneurial universities in Iran

In this section, without any intervention or attachment to their tendencies and values, the researcher delineated the future of entrepreneurial universities in Iran by relying on the experts' perspectives. Accordingly, with reliance on past studies, the effective factors in the future of entrepreneurial universities were categorized into three domains of structural, content, and contextual factors. Then, the identified codes, shown in the table below, were located within these three concepts. In sum, about 21 concepts in the form of 308 codes were identified in this section and presented in Table 5.

**Table 5. Interview questions**

Question type	Questions
<b>Introductory</b>	What is your definition of strategy? How do you define entrepreneurship?
<b>Purposive questions</b>	How do you evaluate the future planning and strategies of the country's universities? What is your conception of a third-generation university? What is the necessity for the realization of a third-generation (entrepreneurial) university? Does the realization of a third-generation university need a strategy? What are your considered strategies that steer universities to third-generation universities? In your opinion, what kind of strategy is temporally useful for realizing a third-generation university? Short-term, mid-term, or long-term?

**Table 6. Factors impacting the future of entrepreneurial universities in Iran**

Frequency (%)	Frequency of identified codes in the interviews	Sub-concepts	Main concepts
0.0390	12	Organic structures	Structural
0.0357	11	Creating a scientific structure	
0.0455	14	Expansion of the scope of centers	
0.0455	14	Conducting effective educational affairs	
0.0487	15	Conducting effective research affairs	

Frequency (%)	Frequency of identified codes in the interviews	Sub-concepts	Main concepts
0.0519	14	Financial management and investment	Content
0.0357	11	Developing administrative affairs	
0.0162	5	Systematic organizations	
0.0552	17	Visions and missions	
0.0617	19	Goals and strategies	
0.0714	22	Manager's support	
0.0682	21	Accentuating the organizational culture	
0.0390	12	Attending to personal traits	
0.0552	17	Exploiting business models	
0.0357	11	Creating leadership thoughts in business	
0.0455	14	Technology development	Contextual
0.0357	11	Financial-economic development	
0.0714	22	Political-administrative development	
0.0390	12	Social-cultural development	
0.0519	16	Legal-regulative improvements	
0.0519	16	Developing innovation networks	
1	308	Sum of identified codes	

#### 4.2 Environmental factors impacting the transformation of universities to entrepreneurs in Iran

In this section, the axial coding was accomplished based on the interviews conducted and according to the Political, Economic, Social, and Technological (PEST) model, which

was the basis for analyzing the external environment in many strategic studies. Hence, the subcomponents impacting the future of Iranian entrepreneurial universities were identified and presented in Table 6. Overall, around 20 concepts in the form of 402 codes were identified in this section.

**Table 7. Environmental factors impacting the transformation of universities to entrepreneurs in Iran**

Frequency (%)	Frequency of identified codes in interviews	Components	Factors
0.0299	12	Promoting an entrepreneurial culture	Social-cultural
0.0323	13	Attending to university research content	
0.0075	3	Entrepreneurship training and promotion	
0.0075	3	Informing and raising awareness	
0.0124	5	Extracurricular programs	
0.0050	2	Developing entrepreneurial environments	
0.0299	12	Diverse financial resources, the steering center of the university	
0.0323	13	Developing research teams	



Frequency (%)	Frequency of identified codes in interviews	Components	Factors
0.0423	17	Developing development centers, providing financial support, and endorsing intellectual properties	Economic
0.0448	18	Economic motives	
0.0498	20	Investing on research	
0.0572	23	Technology transfer administrations, development centers, encouraging and motivating university elements	
0.0522	21	Supporting the initiation of development centers	Political
0.0299	12	Decentralizing in governorship	
0.0547	22	Managerial transformations	
0.0398	16	Business rules	
0.0274	11	University leadership, strategies, and organizational structures	
0.0299	12	The vividness of the entrepreneurship position in the statement of the university's vision and mission	
0.0274	11	The vividness of the entrepreneurship position in the university's compiled programs	
0.0398	16	Supporting patent sale, permit delegation, and establishment of generative firms	
0.0547	22	Relationships among the industry, government, and university	
0.0299	12	University's policy and mission	
0.0547	22	Supportive structures	Technological
0.0348	14	Governmental supports	
0.0274	11	Internal and external academic expectations and strategies	
0.0274	11	University infrastructures	
0.0299	12	New approaches – instruments and equipment	
0.0398	16	Information and technology management of the university system	
0.0100	4	Information management software	
0.0398	16	Infrastructures and hardware	
1	402	Sum of identified codes	

#### 4.3 Determining strategies, policies, and plans of entrepreneurial universities in Iran

In this stage, using the experts' perspectives, the researcher extracted suitable strategies for transforming the country's universities into entrepreneurial universities. Accordingly, a

total of 9 strategies were introduced concerning the conducted interviews and the axes posed as the strategies, policies, and plans of Iranian entrepreneurial universities. These strategies were compiled with regard to the 121 identified codes and presented in Table 7.

**Table 8. Determining strategies, policies, and plans of entrepreneurial universities in Iran**

Frequency (%)	Frequency of identified codes in interviews	Identified strategies
0.1240	15	Policies supporting entrepreneurial plans
0.1322	16	Defining the goals and responsibilities of the entrepreneurship and technology centers of universities to implement entrepreneurial plans at universities
0.0992	12	Modifying the teaching principles and methods of entrepreneurial plans at universities
0.1405	17	Determining the evaluation criteria of entrepreneurial plans
0.1074	13	Accurately determining the needs of educational managers and leaders in the entrepreneurship field
0.0909	11	Accurately measuring the needs of the students in the entrepreneurship field
0.0909	11	Accurately examining the needs of faculty members in the entrepreneurship field
0.0992	12	Preparing educational content and materials for equipping the faculty members of universities
0.1157	14	Creating joint insight and enhancing the knowledge of entrepreneurial plans
1	121	Sum of identified codes

## 5. Discussion and Conclusion

The increasing demands of society, lack and limitation of resources, fast spread of human knowledge boundaries, knowledge orientation of all economic, social, and cultural activities, robust emergence of real and virtual university competitors, and necessity of universities' accountability have made higher education managers, planners, and policy-makers change to creation and innovation towards the optimal supply and designation of financial resources, as well as more accurate planning commensurate with the environmental and internal requirements of universities. In the present study, the results of analyzing upstream documents, i.e., Iran's 2025 vision document, objectives law of the Ministry of Sciences, Research, and Technology, Comprehensive Scientific Map of the country, the law of the fifth development plan, and the law of supporting knowledge-based companies and institutions and commercializing innovations and inventions, showed that supporting the university entrepreneurship of the country's universities was an issue highly underpinned by the government and relevant organizations in recent years. One of the most significant contributing organizations is the Ministry of Sciences, Research, and Technology, the main administrator in nurturing specialist human forces. With concern to universities, this ministry has to compile an inclusive entrepreneurship-oriented policy, which, on the

one hand, recognizes the independence and the facilitating role of universities in the entrepreneurship domain and, on the other hand, prevents the commercialization of the university atmosphere and its conversion to an economic agency. The results of the present study inspected the most important upstream documents and revealed that universities paid increasing attention to entrepreneurial activities at different levels in the country. Another result of the present study was examining the effective factors in the future of entrepreneurial universities. These factors were categorized into three groups: structural, content, and contextual factors. Concerning the structural factors, Etzkowitz (2004) argued that for an entrepreneurial university to be formed, the university system should benefit from an adaptive structure, futuristic vision and strategy, innovative and entrepreneurial culture, competent human force, constant interaction with the environment, and supportive system in a systematic approach. Likewise, Tabejamaat et al. (2017) referred to the role of the entrepreneurial culture and leadership in this regard. For the development of an entrepreneurial university, entrepreneurship should be considered as the main mission of the university, and strategy adoption is firstly delegated to the chief managers of the organization. Kiarabi et al. (2006) asserted that the effective factors in university entrepreneurship included organizational structures,

teaching methods, reward systems, supporting business initiation, and supporting development centers. Moreover, Kordnaeij et al. (2012) and Van et al. (2007) investigated the effect of the human source factor on advancing entrepreneurial universities. They presented results conforming to the findings of the current study.

The basic information to evaluate the indicators of entrepreneurship and innovation of universities and research centers in Iran is extracted and analyzed in cooperation with the entrepreneurial ecosystem of Iran. All entrepreneurship subsets of universities can register their entrepreneurship information for free in Iran's entrepreneurship ecosystem to complete the basis of entrepreneurship indicators. The University Entrepreneurship and Innovation Index was introduced in October 2018 by UNIRF, and it is an index that shows the importance of entrepreneurship and innovation in each university. This index is calculated based on the number of innovation and technology centers, science and technology parks, growth centers, accelerators, co-working spaces, startups, failed startups (with positive impact), and academic companies. This model can be very helpful to this center in the direction of proper ranking and considering the obtained indicators.

In recent years, the demand to enter university has also decreased greatly, and this is an alarm for the country's higher education authorities, who must think of a solution for this issue as soon as possible. With a little research, we will find that the most important reason for the decrease in demand for university is the lack of a clear future and the lack of employment opportunities due to having a degree. The most important thing to do to get out of this crisis is to transform a purely educational university into a problem-solving university and a "third-generation university." In this third-generation university, the cores of technology and the role of knowledge-based companies have become very prominent. While the country's universities are still in the first and second generation, today, the world is experiencing fourth- and fifth-generation universities, so the indicators of the model of becoming an entrepreneurial university are considered in this research.

One of the wide-ranging topics of Iran's higher education is the relationship between university and industry, which has remained unfinished despite the continuous efforts of academics. One of the reasons for this is rooted in the formation of the university structure in Iran, which has always been dependent on the government and is viewed as

an agent of the government and government graduates. Universities were not formed from the heart of society and with a regional vision. Therefore, the type of relationship between the university and the industry and considering the government as a supporter in the development of centers and selling patents, granting licenses, and establishing productive companies and having support structures in this model can lead to the strengthening of the relationship between the industry and the university. This is the case in the research of Kikha and Porkarimi (1400) also mentioned it.

The political issues of the model also have a significant impact on transforming universities into entrepreneurial universities. In Iran's higher education system, due to the multiplicity of decision-making centers, the weak independence of universities, business laws, managerial developments, and the short-term view of managers, the lack of concentration in the governorate, the unclear position of entrepreneurship in the vision and mission statement, there is a need for rethinking in all structures. We are politicians of higher education. In the favorable conditions of becoming an entrepreneurial university, many of the university's financial shortcomings are eliminated by diversifying the university's income stream in various ways. Besides this, accountability, financial transparency, cost control, and financial management are created by allocating financial resources based on the performance of various units. In order to become an entrepreneurial university, universities should go to non-government financial sources. These cases have also been mentioned in the research of Chubin et al. (2015) and Samadi and Samadi (2014).

Infrastructure development is also an important factor in becoming an entrepreneurial university. It is also very important to update the current infrastructure along with their continuous maintenance. This infrastructure development includes financial-economic development, political development, socio-cultural development, and legal reforms. By entering the industry market through learning new techniques, university faculty members can develop the progress and applicability of their research, and by establishing knowledge-based companies and using new information, they can produce products that have maximum productivity for them. Creating a scientific and organic structure and carrying out entrepreneurial activities in the university in order to participate in competitions related to entrepreneurship topics can play an effective role in transforming the university into a third-generation university.

With respect to the above-mentioned cases, the following applied suggestions are presented for university managers and policy-makers: 1) Since structural factors significantly impact university entrepreneurship, the university managers and authorities are suggested to entertain different dimensions in preparing a suitable structure and pave the way for creating the support structure of entrepreneurial universities, especially in relation to educational and research practices of universities. 2) The visions and missions of universities throughout the country should be modified and revised according to the goal of moving towards entrepreneurial universities. 3) The entrepreneurial activities of students should be supported by the establishment of real and virtual university development centers. 4) Besides financing and providing physical facilities, universities should settle creative human forces with entrepreneurial mentalities in university environments to act as university representatives and support entrepreneurial university missions. 5) Constructive relational channels should be established among universities, development centers, and accelerators in different in-person and virtual forms.

Furthermore, this study experienced some limitations similar to other studies, and the suggestions below are recommended for the removal of these constraints. First, to delve into the effective factors in university entrepreneurship, the author suggests future researchers compare the entrepreneurial practices of different universities in the country to extract the success factors of every university. In addition, since the current study seeks to present a strategic model of entrepreneurial universities, future studies can probe every dimension of the extracted model in isolation.

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### Aims and Scope

The SCMS Journal of Indian Management is a quarterly, double-blind, peer reviewed journal that has been published since the year 2004. The journal's mission is to bring out the latest in management thought, academic research and corporate practice across all domains of business and management in a reader- friendly format. We welcome submissions that are innovative in ideation, conceptually sound, methodologically rigorous and contribute substantially to business and management literature. The journal targets an international audience that encompasses the entire business and management fraternity, in both industry and academia.

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