

**Impact of Innovation Culture on Employee Engagement and
Organisational Performance in Select IT Companies.**

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MANAGEMENT

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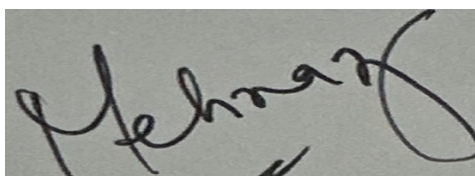
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2025

DECLARATION

I, hereby declared that the presented work in the thesis entitled “Effect of Innovation Culture On Employee Engagement and Organisation Performance in Select IT Companies” in fulfilment of degree of **Doctor of Philosophy (Ph.D.)** is outcome of research work carried out by me under the supervision of Dr. Shivani Dhand working as Associate Professor, in the Mital School of business of Lovely Professional University, Punjab, India. In keeping with general practice of reporting scientific observations, due acknowledgements have been made whenever work described here has been based on findings of other investigator. This work has not been submitted in part or full to any other University or Institute for the award of any degree.

A black and white photograph of a handwritten signature in cursive script, which appears to read 'Mehnaz'.

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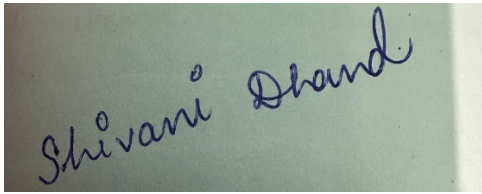
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CERTIFICATE

This is to certify that the work reported in the Ph.D. thesis entitled “Effect of Innovation Culture On Employee Engagement and Organisation Performance in Select IT Companies” submitted in fulfillment of the requirement for the award of degree of **Doctor of Philosophy (Ph.D.)** in the Mittal School Of Business, is a research work carried out by Mehnaz Manzoor 12109336, is Bonafide record of her original work carried out under my supervision and that no part of thesis has been submitted for any other degree, diploma or equivalent course.



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Abstract

The dynamic interplay between innovation culture, employee engagement, and organizational performance has garnered significant attention in contemporary organizational studies, particularly in the context of the IT industry. This research work "Impact of Innovation Culture on Employee Engagement and Organizational Performance in Select IT Companies," explores the multifaceted relationships among these constructs through robust statistical analyses and empirical evidence. Grounded in a framework that integrates innovation-driven practices, workforce engagement, and corporate outcomes, this research provides valuable insights for managers, policymakers, and scholars aiming to foster sustainable organizational growth in a rapidly evolving global economy. The study investigates five critical objectives: (1) assessing the impact of innovation culture on employee engagement, (2) evaluating the influence of employee engagement on organizational performance, (3) examining the direct relationship between innovation culture and organizational performance, (4) analyzing the mediational role of employee engagement between innovation culture and organizational performance, and (5) studying the effects of geo-demographical variables on these relationships. Data were collected from select IT companies using a comprehensive survey instrument, with respondents representing diverse organizational levels, roles, and demographics. The analysis employed advanced statistical techniques, including Structural Equation Modeling (SEM), to validate hypotheses and uncover nuanced insights. The results of this study underscore the pivotal role of innovation culture in enhancing employee engagement. A beta coefficient of 0.350 demonstrates that IT companies prioritizing innovative practices successfully cultivate an environment conducive to creativity, collaboration, and active participation. Such an atmosphere not only motivates employees to align with organizational goals but also fosters a sense of ownership and commitment. This finding aligns with prior literature emphasizing the critical role of innovation-friendly environments in nurturing workforce motivation and engagement. Employee engagement, in turn, emerged as a significant determinant of organizational performance. With a beta value of 0.250 and strong statistical significance ($t\text{-value} = 4.15$, $p\text{-value} = 0.000$), the study confirms that engaged employees are instrumental in driving productivity, achieving corporate objectives, and enhancing overall performance metrics. This relationship highlights the necessity for IT companies to invest in comprehensive engagement strategies that recognize and reward employee contributions while fostering a supportive work environment. Innovation culture also directly influences organizational performance, as evidenced by a beta value of 0.421. The findings highlight that IT companies

embedding innovation into their strategic frameworks not only enhance operational efficiency but also achieve a competitive edge. By institutionalizing innovation as a continuous process rather than an episodic initiative, organizations can ensure sustainable growth and adaptability in a competitive market landscape. A particularly noteworthy contribution of this research is the mediational role of employee engagement in the relationship between innovation culture and organizational performance. The study demonstrates that innovation practices positively impact employee engagement, which in turn significantly enhances organizational outcomes. This dual pathway underscores the importance of adopting a holistic approach that simultaneously prioritizes innovation and engagement to maximize organizational success. Contrary to initial expectations, geo-demographical variables such as age, gender, and regional differences were found to have an insignificant influence on the relationships among innovation culture, employee engagement, and organizational performance. The Multi-Group Analysis (MGA) revealed p-values exceeding 0.05, indicating that these constructs are perceived uniformly across diverse demographic and geographical profiles. This consistency underscores the universal relevance of the findings and their applicability across various IT companies in India. The demographic profile of respondents revealed several notable trends. The majority of participants (69%) were under the age of 30, reflecting the youthful workforce prevalent in the IT sector. A significant proportion of respondents (65.5%) were female, highlighting progress in gender diversity within the industry. Additionally, the inclusion of third-gender respondents indicates an encouraging move toward inclusivity. High levels of educational qualifications among participants underscore the industry's reliance on skilled professionals, further emphasizing the critical role of intellectual capital in driving innovation and performance. The findings of this study hold profound implications for multiple stakeholders. For managers, the intertwined nature of innovation, engagement, and performance necessitates the development of integrated strategies that address these dimensions concurrently. By fostering an innovative culture, organizations can inspire employees to actively contribute to corporate objectives, thereby enhancing overall performance. Policymakers should focus on creating frameworks that incentivize innovation and support workforce development, particularly in knowledge-intensive sectors like IT. Researchers can build on this study by examining additional mediating and moderating variables, extending the research to other industries, or conducting longitudinal studies to deepen understanding of the dynamics of innovation-driven growth. This research affirms that cultivating an innovative culture is indispensable for enhancing employee engagement and organizational performance. IT companies must embed innovation as a core cultural value and

operational imperative. Employee engagement serves as a crucial mediating factor, bridging the gap between innovation and performance, while geo-demographical consistency highlights the universal applicability of these insights. The study provides a robust foundation for future research and managerial interventions aimed at driving sustained growth and competitive advantage in the IT sector. Ultimately, organizations that embrace the synergy between innovation culture and employee engagement are better positioned to navigate challenges, capitalize on opportunities, and achieve long-term excellence in a dynamic global economy.

Table of Content

S.No	Contents	Page No
	Declaration	i
	Certificate	ii
	Acknowledgement	iii
	Abstract	iv
	Table of Content	vii
	List of Tables	x
	List of Figures	xi
	List of Abbreviations	xiii
1	Chapter 1 Introduction	1
1.1	Background of the Study	1
1.1.1	Overview of Innovation Culture	2
1.1.2	Importance of Employee Engagement in IT Companies	3
1.1.3	Relationship between Organisational Performance and Innovation	4
1.2	Research Problem Statement	5
1.3	Rationale of the Study	8
1.4	Objectives of the Study	10
1.5	Research Questions	10
1.6	Scope of the Study	10
1.6.1	Industry Focus: IT Sector	11
1.6.2	Geographical Scope	11
1.6.3	Key Variables and Constructs	11
1.7	Significance of the Study	13
1.7.1	Practical Implications for IT Companies	15
1.7.2	Academic Contributions	16
1.8	Bibliographic Analysis	17
1.9	Structure of the Thesis	22
2	Chapter 2: Literature Review	24
2.1	Introduction to the Literature Review	24
2.2	Innovation Culture	25
2.3	Employee Engagement	28
2.4	Organisational Performance	32
2.5	Relationship Between Innovation Culture and Employee Engagement	36

2.6	Impact of Employee Engagement on Organisational Performance	39
2.7	Interlinkages: Innovation Culture, Employee Engagement, and Organisational Performance	42
2.8	Research Gaps Identified	45
2.9	Summary of the Literature Review	48
3	Research Methodology	49
3.1	Nature of Research	49
3.2	Research Design & Justification	49
3.3	Population of the Study & Unit of Analysis	50
3.4	Sample Technique & Justification	50
3.5	Determination of Sample Size	52
3.6	Selection of Companies and Justification	54
3.7	Questionnaire Structure	55
3.8	Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA)	55
3.9	Data Collection Method	56
3.1	Data Analysis	56
3.11	Evaluation of Measurement Model and Structural Model	57
3.12	Measurement Model	57
3.13	Discriminant Validity	57
3.14	Structural Model	58
3.15	Missing Data	58
3.16	Data Normality	59
3.17	Common Method Bias	60
4	Data Analysis & Results	62
4.1	Introduction to Data Analysis	62
4.2	Demographic Profile of Respondents	62
4.3	Introduction of innovative culture on employee engagement in select IT companies.	69
4.4	Introduction of employee engagement on organization performance in select IT companies	99
4.5	Introduction of innovation culture on organization performance in select IT companies	105
4.5	Introduction of employee engagement between the relationship of innovation culture and organization performance in select IT companies.	115
4.6	To analyze the effect of geo-demographical variables on innovation culture, employee engagement, and organization performance in select IT companies.	126

5	Chapter 5 Findings Conclusions Limitations & Future Scope	131
5.1	Introduction	131
5.2	Purpose of the Chapter	131
5.3	Summary of the Major Findings	131
5.4	Recommendations	135
5.5	Practical Implications of the Study	137
5.6	Limitations of the Study	139
5.7	Future Research Directions	140
5.8	Conclusion	141
5.9	References	144
	Appendix A: Questionnaire	160
	Appendix B: Additional Supporting Information	170
	Appendix C: Expert Evaluation of the Questionnaire Constructs	175

LIST OF TABLES

Table No	Title	Page No
Table 1.1	Country wise work Related to Innovation Culture, Employee Engagement and Organisational Performance	17
Table 1.2	Source wise work Related to Innovation Culture, Employee Engagement and Organisational Performance	18
Table 1.3	Author's Keywords work Related to Innovation Culture, Employee Engagement and Organisational Performance	20
Table 1.4	Author wise work Related to Innovation Culture, Employee Engagement and Organisational Performance	21
Table 3.1	Multiple formulas from various authors for data collection from IT companies in Delhi and Bangalore	52
Table 3.2	Selected 20 Companies	54
Table 3.3	Major Constructs and References from Literature	55
Table 3.4	Pilot Study Summary	56
Table 3.5	Cronbach's Alpha for Reliability Testing	56
Table 3.6	Kaiser-Meyer-Olkin (KMO) Test for Sampling Adequacy	56
Table 4.1	Age Distribution of Employees	62
Table 4.2	Gender Distribution of Employees	63
Table 4.3	Educational Qualification Distribution of Employees	64
Table 4.4	Work Experience Distribution of Employees	64
Table 4.5	Marital Status Distribution of Employees	65
Table 4.6	Organizational Level Distribution of Employees	66
Table 4.7	Departmental Distribution of Employees	67
Table 4.8	Employee Distribution by Company	68
Table 4.9	Demographic Profile of Respondents	71
Table 4.10	Indicator Loadings	73
Table 4.11	Reliability Analysis	76
Table 4.12	Convergent Validity	77
Table 4.13	Heterotrait-Monotrait Ratio (HTMT)	78
Table 4.14	Fornell-Larcker criterion	79
Table 4.15:	Factor Loading	101
Table 4.16	Reliability Analysis	102
Table 4.17	Convergent Validity	103
Table 4.18	Discriminant Validity Heterotrait-Monotrait Ratio (HTMT)	104
Table 4.19:	Fornell-Larcker criterion	104
Table 4.20	Hypothesis Testing	105
Table 4.21	Factor Loading	106
Table 4.22	Reliability Analysis	106
Table 4.23	Convergent Validity	107
Table 4.24	Discriminant Validity Heterotrait-Monotrait Ratio (HTMT)	108
Table 4.25	Fornell-Larcker criterion	109
Table 4.26	Hypothesis Testing	110
Table 4.27	Factor Loading	111
Table 4.28	Reliability Analysis	112
Table 4.29	Convergent Validity	113
Table 4.30	Discriminant Validity Heterotrait-Monotrait Ratio (HTMT)	117

Table 4.31	Fornell-Larcker criterion	120
Table 4.32	Hypothesis Testing	123
Table 4.33	Reliability and convergent validity	127
Table 4.34	Hypothesis Testing	128
Table 4.35	Multi Group Analysis	129

LIST OF FIGURES

Figure No	Title	Page No
Figure 1.1	Country wise work Related to Innovation Culture, Employee Engagement and Organisational Performance	18
Figure 1.2	Source wise work Related to Innovation Culture, Employee Engagement and Organisational Performance	19
Figure 1.3	Author's Keywords work Related to Innovation Culture, Employee Engagement and Organisational Performance	21
Figure 2.1	Conceptual Model	43
Figure 2.2	Final Framework	47
Figure 4.1	Age Distribution of Employees	63
Figure 4.2	Gender Distribution of Employees	63
Figure 4.3	Educational Qualification Distribution of Employees	64
Figure 4.4	Work Experience Distribution of Employees	64
Figure 4.5	Marital Status Distribution of Employees	65
Figure 4.6	Organizational Level Distribution of Employees	66
Figure 4.7	Departmental Distribution of Employees	67
Figure 4.8	Employee Distribution by Company	68
Figure 4.9	Impact of Innovate Culture on Employee Engagement	80
Figure 4.10	Idea about Innovation	81
Figure 4.11	Solution to Innovation	82
Figure 4.12	Contributing Technology Value	83
Figure 4.13	Contributing organization value	84
Figure 4.14	Impact of Employee Engagement on Organizational Performance	104
Figure 4.15	Impact of Innovate Culture on Organisation Performance	114
Figure 4.16	Effect of employee engagement between the relationship of innovation culture and organisation performance	225

List of Abbreviations

IT	– Information Technology
SEM	– Structural Equation Modeling
MGA	– Multi-Group Analysis
HRM	– Human Resource Management
R&D	– Research and Development
AI	– Artificial Intelligence
ML	– Machine Learning
SME	– Small and Medium Enterprises
CSR	– Corporate Social Responsibility
HR	– Human Resources
ICT	– Information and Communication Technology
ERP	– Enterprise Resource Planning
KPI	– Key Performance Indicator
ROI	– Return on Investment
TQM	– Total Quality Management
GD	– Gender Diversity
CI	– Competitive Intelligence
PDCA	– Plan-Do-Check-Act
L&D	– Learning and Development
BPM	– Business Process Management
NPD	– New Product Development
ISO	– International Organization for Standardization
HRIS	– Human Resource Information System
LMS	– Learning Management System
KSA	– Knowledge, Skills, and Abilities
HCI	– Human-Computer Interaction
OE	– Organizational Effectiveness
VUCA	– Volatility, Uncertainty, Complexity, and Ambiguity

Chapter 1: Introduction

1.Introduction

This chapter lays the foundational framework for the research study by introducing and contextualizing the core concepts of innovation culture, employee engagement, and organisational performance, particularly within the Information Technology (IT) sector. The chapter begins by highlighting the dynamic and rapidly evolving nature of the IT industry, where innovation is not just a value-add, but a strategic necessity for survival and competitiveness. In such an environment, cultivating a strong innovation culture becomes essential to harness the creative potential of employees and drive organisational success. The chapter then transitions into exploring the significance of employee engagement as a critical factor in organisational growth, emphasizing how engaged employees are more likely to contribute meaningfully to innovation and performance. Building on these concepts, the chapter discusses the interrelationship between innovation culture, employee engagement, and organisational outcomes, establishing the conceptual linkages that inform the research. The research problem is identified, followed by the rationale for conducting this study in the context of selected IT companies. Clearly articulated objectives and research questions provide direction and purpose to the inquiry. The scope of the study, including the industry and geographical boundaries, is also defined to delimit the research. Furthermore, the chapter discusses the key constructs under investigation and elaborates on the significance of the study, both in terms of its practical implications for IT organizations and its contributions to academic literature. A bibliographic analysis is included to showcase the current research trends and gaps. Finally, the chapter concludes by presenting the structure of the thesis, offering a roadmap for how the research will unfold in the subsequent chapters.

1.1 Background of the Study

The rapid evolution of the business landscape, particularly within the Information Technology (IT) sector, has brought about an increased focus on innovation as a core driver of organizational success. Innovation is no longer viewed as a luxury or an afterthought but as a strategic imperative that shapes the future of companies (Barsh et al., 2006; Sadeli, 2005). For IT companies, where technological advancements and global competition are constantly reshaping market dynamics, fostering an innovation culture is crucial to maintaining a competitive edge. An innovation culture refers to the set of values, behaviors, practices, and

organizational structures that support and promote creative thinking, risk-taking, and the continuous pursuit of new ideas and solutions (Damanpour, 1991). This cultural foundation enables companies to develop new products, services, and business models that can disrupt markets and transform industries (Christensen, 1997). In the context of employee engagement, innovation culture plays an essential role by creating an environment where employees feel motivated, empowered, and actively involved in shaping the company's innovative future (Firm & Chen, 2002). Employees in organizations with a strong innovation culture are more likely to feel valued, exhibit greater job satisfaction, and contribute proactively to the organization's goals. Engagement in this sense extends beyond merely performing tasks; it includes actively participating in processes that drive innovation, such as idea generation, problem-solving, and collaborating on new initiatives (Kanter, 1988). A deeply embedded innovation culture ensures that employees at all levels are encouraged to share ideas, experiment with new concepts, and take ownership of projects, which ultimately leads to higher productivity and organizational effectiveness. Organizational performance, in turn, is intricately linked to innovation culture and employee engagement. High levels of employee engagement foster greater innovation, which directly contributes to better business outcomes, including improved profitability, enhanced customer satisfaction, and sustained competitive advantage (AbuKhalifeh & Som, 2013; Truss et al., 2013). A robust innovation culture helps organizations respond to market changes quickly and effectively, adapt to new technologies, and continuously improve their operations. For IT companies, where technological disruptions and rapid changes in customer needs are common, an innovation culture is particularly critical to achieving long-term success (Aleksić & Politis, 2023; Alsarayrah et al., 2023). This study aims to explore the impact of innovation culture on employee engagement and organizational performance in select IT companies. By understanding how innovation culture influences the way employees engage with their work and contribute to the organization's performance, the study seeks to provide valuable insights for IT firms looking to foster an environment that drives both employee satisfaction and business growth. Ultimately, the research underscores the importance of cultivating an innovation-driven culture as a means of achieving sustained success and fostering a more dynamic, engaged, and productive workforce.

1.1.1 Overview of Innovation Culture

Innovation culture is a critical element for organizations striving to remain competitive in today's dynamic business environment. Defined as the set of values, behaviors, and practices that encourage and promote innovative thinking and actions, innovation culture plays a vital

role in fostering an environment conducive to creativity and new ideas. It is a multi-faceted concept that encompasses leadership support, organizational structure, employee empowerment, and the allocation of resources toward research and development (Etxebarria et al., 2022; Yidana et al., 2022). A strong innovation culture not only drives organizational growth but also contributes to the continuous improvement of products, services, and processes, which are crucial for long-term success. In the context of Information Technology (IT) companies, where technological advancements occur rapidly and competition is intense, fostering an innovation-driven culture is particularly important (Martins & Terblanche, 2003). This culture encourages employees to think outside the box, challenge existing norms, and actively participate in the innovation process. According to Kanter (1988), the role of leadership in creating and nurturing an innovation culture is pivotal, as leaders are responsible for setting the tone, creating a vision, and ensuring the right environment is in place to support innovation. Innovation culture also depends on organizational structure, as companies with decentralized decision-making structures tend to have more flexible and responsive environments for innovation (Tushman & O'Reilly, 1996). Moreover, innovation requires a workforce that is motivated, engaged, and committed to contributing to the company's objectives, which makes employee engagement a critical component in fostering an innovation culture (AbuKhalifeh & Som, 2013; Joiceswarnalatha & Krishna, 2019). Organizational performance, as influenced by innovation culture, reflects the ability of the company to adapt, evolve, and succeed in a constantly changing market environment (Zahra & George, 2002). Therefore, a robust innovation culture leads to increased productivity, higher employee morale, better problem-solving capabilities, and, ultimately, enhanced organizational performance. In IT companies, where technological disruptions can make or break business success, an innovation culture not only helps organizations stay ahead of the curve but also facilitates organizational learning and knowledge sharing, which are key drivers of performance and competitive advantage (Alateeg & Alhammadi, 2024). Thus, innovation culture plays a critical role in shaping employee engagement and organizational performance, especially in the fast-evolving IT industry, where continuous innovation is necessary to stay relevant in the marketplace.

1.1.2 Importance of Employee Engagement in IT Companies

Employee engagement is a critical factor in the success of any organization, and its significance is particularly pronounced in IT companies, where innovation, collaboration, and rapid problem-solving are essential for staying competitive. Employee engagement refers to the

emotional commitment and enthusiasm that employees have toward their work, which in turn influences their motivation, performance, and overall contribution to the organization's goals (Harter et al., 2002). In IT companies, where the workforce is often comprised of highly skilled professionals, employee engagement is not just about retaining talent but also about fostering a culture that promotes creativity, knowledge sharing, and continuous learning. The importance of employee engagement in IT companies can be understood through several key factors. First, engaged employees are more likely to exhibit high levels of productivity, which directly impacts the company's bottom line. In the fast-paced IT industry, where deadlines are tight and the demand for innovative solutions is constant, the ability to rely on a committed and proactive workforce is invaluable (El-ella et al., 2014). Engaged employees are also more likely to go beyond their basic responsibilities, contributing ideas, solving problems creatively, and working collaboratively to achieve organizational objectives. This proactive involvement not only boosts individual and team performance but also drives organizational growth and innovation (Biriowu & Augustina, 2020; Bose, n.d.). Second, employee engagement plays a crucial role in employee retention. In the competitive IT sector, where skilled talent is in high demand, retaining top performers is a key challenge. Engaged employees are more likely to feel a sense of loyalty and attachment to their organization, reducing turnover rates and the associated costs of hiring and training new employees (Saks, 2006). The creation of an engaging work environment, where employees feel valued, empowered, and aligned with the company's mission, helps foster a sense of belonging and purpose, which is critical in retaining top talent. Third, employee engagement has a direct impact on innovation within IT companies. Engaged employees are more likely to contribute to the innovation process by actively participating in brainstorming sessions, collaborating on new ideas, and implementing creative solutions to complex challenges (Hosseini & Javadi, 2013; Muhtadi et al., 2013). Innovation in IT companies is often driven by the collective input of employees who are motivated to explore new technologies, experiment with ideas, and continuously improve existing systems. Therefore, a highly engaged workforce is more likely to fuel the kind of innovation that enables IT companies to stay ahead of competitors, meet changing customer needs, and adapt to technological advancements (El-ella et al., 2014; Soni, 2015). Finally, employee engagement contributes to improved organizational performance in IT companies. Engaged employees demonstrate a higher level of commitment to the company's goals and objectives, leading to better team cohesion, enhanced collaboration, and improved overall performance (Saxena & Singh, 2015; Tirabeni et al., 2016). The focus on employee engagement, particularly in the context of a high-performance work culture, helps foster a sense of ownership, accountability,

and responsibility among employees, which in turn drives the success of the organization. In conclusion, employee engagement is of paramount importance in IT companies, as it influences not only the productivity and retention of talent but also the company's ability to innovate and achieve sustained growth (Email, 2016; Kapoor & Meachem, 2016). By fostering an engaging work environment, IT companies can ensure that their employees are motivated, committed, and empowered to contribute to the company's success in an increasingly competitive and fast-paced industry.

1.1.3 Relationship between Organisational Performance and Innovation

The relationship between organizational performance and innovation is deeply intertwined, especially in industries like Information Technology (IT), where the ability to innovate is directly linked to long-term success. Innovation, in this context, refers to the process of introducing new ideas, products, services, or processes that create value for the organization and its stakeholders (Tushman & O'Reilly, 1996). Organizational performance, on the other hand, is measured through various indicators such as financial success, productivity, customer satisfaction, and market share (Kaplan & Norton, 1992). A positive relationship between these two constructs suggests that organizations that foster a culture of innovation are more likely to experience higher levels of performance, as innovation enables companies to stay competitive, adapt to market changes, and meet evolving customer demands. One of the key ways in which innovation drives organizational performance is through the development of new products and services. In IT companies, technological advancements and evolving customer needs make innovation a necessity for survival and growth. Organizations that encourage creative thinking and experimentation are more likely to introduce breakthrough technologies or software solutions that can lead to increased revenue and market share (Christensen, 1997). Furthermore, innovative processes, such as the use of automation, artificial intelligence, and machine learning, can streamline operations, reduce costs, and improve efficiency, thereby enhancing overall organizational performance (Khwaja & Yang, 2022). In addition to product and process innovation, organizational innovation also encompasses business model innovation, which can have a significant impact on performance. Companies that innovate their business models, such as adopting new ways of delivering value to customers or changing their revenue streams, are often better positioned to respond to disruptions in the market (Osterwalder & Pigneur, 2010). For example, in the IT sector, companies that successfully transition to cloud-based solutions or subscription-based pricing models often experience growth in both revenue and customer loyalty. Moreover, innovation can foster greater employee engagement, which in turn improves

organizational performance. When employees are encouraged to contribute ideas, experiment with new concepts, and actively participate in the innovation process, they are more likely to feel a sense of ownership and commitment to the organization's success (Harter et al., 2002). A culture of innovation promotes a work environment where employees are motivated to go beyond their routine tasks, collaborate across teams, and contribute to the company's competitive advantage. This heightened engagement leads to improved performance through higher productivity, better problem-solving capabilities, and more efficient execution of strategies (Bašić, 2022; Saad et al., 2022). The relationship between innovation and performance is also evident in terms of market responsiveness. Organizations that prioritize innovation are better equipped to respond to changes in market conditions, technological trends, and customer preferences. For IT companies, where the pace of technological change is particularly rapid, the ability to innovate and adapt quickly is crucial for maintaining relevance and outperforming competitors. Companies that are not innovative risk stagnation and decline, as they fail to meet the demands of an increasingly dynamic marketplace (Afram et al., 2022; Crews et al., 2022). In conclusion, the relationship between organizational performance and innovation is reciprocal. Innovation drives organizational performance by enabling companies to introduce new products, streamline processes, adopt new business models, and engage employees more effectively. At the same time, a high level of organizational performance provides the resources and stability necessary to support continuous innovation. For IT companies, this relationship is particularly crucial, as innovation is not just a strategic advantage but a fundamental requirement for survival and success in a fast-moving, competitive environment. Organizations that cultivate an innovation-oriented culture are more likely to achieve superior performance and sustained growth in the long run.

1.2 Research Problem Statement

Innovation is widely recognized as a critical driver of organizational success, particularly in the highly competitive and rapidly evolving Information Technology (IT) sector. Companies in this industry are continually facing the pressures of technological advancements, changing customer demands, and increased market competition. In such a dynamic environment, an organization's ability to innovate is not just a strategic advantage but often a necessity for survival. However, fostering a culture of innovation within an organization presents unique challenges that require significant attention from leadership, management, and employees alike. This is where the relationship between innovation culture, employee engagement, and organizational performance becomes crucial. Understanding how these factors interact and

influence each other is key to improving business outcomes and maintaining competitive advantage in the IT sector. The problem of fostering and sustaining innovation within organizations has long been a focus of academic and business research. The concept of "innovation culture" refers to an organizational environment where creativity is encouraged, risk-taking is supported, and employees are empowered to generate and implement new ideas (Tushman & O'Reilly, 1996). The cultural shift toward innovation requires a deep commitment to transforming the organizational mindset, aligning leadership practices with innovation goals, and embedding innovation into the company's strategy, structure, and processes (Nonaka & Takeuchi, 1995). However, many organizations, particularly in the IT sector, face difficulties in establishing a culture of innovation that permeates all levels of the organization. Factors such as organizational resistance to change, lack of appropriate incentives, and insufficient employee engagement may hinder the development of an effective innovation culture (Amabile, 1998). In many IT companies, the emphasis on technical skills and operational efficiency may overshadow the need for a culture that promotes innovation, creativity, and continuous learning. Without fostering an innovation culture, even the most technically skilled employees may struggle to generate new ideas or develop novel solutions to complex problems. This problem is exacerbated by the high turnover rates and intense competition for skilled professionals in the IT sector, where companies may find it difficult to retain talent and keep employees engaged in the organization's long-term innovation objectives (Hejjas et al., 2019; Viswanathan, Lal, et al., 2019). Employee engagement is a critical factor in this regard, as employees who are emotionally invested in their work are more likely to contribute innovative ideas, collaborate effectively with colleagues, and remain committed to the company's goals (Ahad & Khan, 2020; Zondo, 2020). Disengaged workforce, on the other hand, can stifle creativity, reduce productivity, and ultimately harm the company's performance. Employee engagement has been found to have a significant impact on innovation and organizational performance. Engaged employees are not only more productive but also more likely to take initiative, generate new ideas, and contribute to innovative solutions (Dinh, 2020; Pimentel et al., 2020). In IT companies, where innovation is often a collaborative and iterative process, employee engagement is even more critical. When employees feel valued and supported in their roles, they are more likely to be motivated to contribute to the company's innovation efforts. Conversely, low levels of engagement may result in a lack of commitment to organizational goals, reduced collaboration, and a decline in innovation outcomes. Therefore, understanding the relationship between innovation culture and employee engagement is essential for identifying the mechanisms that promote or hinder organizational performance.

Organizational performance, which includes indicators such as productivity, financial success, customer satisfaction, and market share, is closely linked to the ability of an organization to innovate and engage its workforce (Al Kurdi et al., 2020; Mansoor et al., 2021). As companies face pressure to respond quickly to market changes, technological advancements, and evolving consumer needs, the ability to innovate becomes a key determinant of success (Porter, 1985). However, it is not enough for companies to simply engage in sporadic innovation efforts; there needs to be a consistent, sustainable innovation strategy that is supported by a culture that encourages risk-taking, experimentation, and collaboration across teams (Ayodele et al., 2021). In this sense, an innovation-driven organizational culture has the potential to improve performance by fostering a work environment where employees are motivated, productive, and committed to achieving the company's long-term goals (Mehralian et al., 2022; Weideman & Hofmeyr, 2021). Despite the recognized importance of innovation culture and employee engagement, research on the specific impact of these factors on organizational performance in IT companies remains limited. While some studies have explored the general relationship between innovation and organizational performance (Shahzad et al., 2022), few have examined how innovation culture and employee engagement jointly contribute to performance in the IT sector. Moreover, the interaction between these factors and the ways in which they influence each other have not been extensively studied. The lack of empirical research on this topic in the context of IT companies presents a significant gap in the literature. Thus, the research problem addressed in this study revolves around understanding how innovation culture influences employee engagement and, in turn, how employee engagement affects organizational performance in select IT companies. This research aims to bridge the gap by providing empirical evidence on the relationship between these three variables and offering insights into the mechanisms that drive organizational success in the IT sector. The study will explore how an innovation-driven culture can enhance employee engagement, foster creativity, and improve organizational performance, ultimately contributing to the growth and competitiveness of IT companies in an increasingly dynamic business environment.

1.3 Rationale of the Study

In the context of the rapidly evolving Information Technology (IT) industry, innovation is increasingly regarded as a critical driver of success and sustainability. The ability to innovate not only determines the competitiveness of a company but also plays a pivotal role in shaping its long-term growth and market positioning. Innovation in the IT sector can take various forms, including technological advancements, process improvements, and the introduction of new

business models. However, innovation is not an isolated function; it thrives in an environment that encourages creativity, risk-taking, and collaboration, which is where the concept of an innovation culture becomes crucial. An innovation culture refers to the organizational climate where innovation is actively promoted, and employees are empowered to think creatively and contribute to new ideas and solutions (Alsarayrah et al., 2023; Martínez-Villaluenga & Peñas, 2023). In organizations with such a culture, innovation is seen not as a one-off event but as a continuous process embedded in the company's DNA. One of the key challenges for IT companies, however, is establishing and nurturing an innovation culture that permeates all levels of the organization. Research has shown that while many companies acknowledge the importance of innovation, they often struggle to create a conducive environment that fosters creativity and experimentation (Handayani et al., 2017; Shuck et al., 2017). Factors such as hierarchical structures, risk-averse management styles, and inadequate resources for innovation-related activities often hinder the development of an innovation-friendly environment. Moreover, innovation requires a high level of employee engagement, as it is the employees who drive the creative processes and generate the novel ideas that lead to breakthrough innovations. However, despite its importance, employee engagement in the IT sector is often overlooked, with many companies focusing primarily on technical competencies rather than on fostering an emotionally and intellectually invested (Anindita & Emilia Seda, 2018). Employee engagement has been identified as a crucial factor influencing innovation outcomes. Engaged employees, who feel valued and motivated, are more likely to take ownership of their work, contribute creative solutions, and go beyond their routine tasks to support the organization's innovation goals (Viswanathan, Sarath Lal, et al., 2019b, 2019a). In contrast, disengaged employees may lack the motivation to engage in innovative practices, leading to reduced creativity and lower productivity (Harter et al., 2002). Therefore, it is essential to explore the relationship between an innovation culture and employee engagement in IT companies to understand how the former can positively impact the latter and, ultimately, enhance organizational performance. This study is motivated by the need to fill the existing gap in the literature regarding the specific relationship between innovation culture, employee engagement, and organizational performance in the IT sector. While previous research has explored these constructs separately, few studies have investigated how they interact and contribute to organizational success in the context of IT companies (Lee & Chen, 2019). Given the rapid pace of technological change and the growing pressure on IT firms to remain competitive, understanding the mechanisms through which innovation culture and employee engagement influence performance is more relevant than ever. By examining the interplay

between these factors, the study aims to provide actionable insights for IT companies looking to improve their innovation capabilities, engage their employees more effectively, and enhance their overall performance(Halim et al., 2019).Additionally, the findings of this research will have practical implications for IT companies seeking to develop a sustainable innovation strategy. The study will provide insights into how organizations can foster a culture that not only promotes innovation but also enhances employee engagement, leading to improved productivity, creativity, and organizational performance. Understanding how to cultivate a work environment that supports innovation and encourages employee participation in the creative process is crucial for IT firms that aim to thrive in an increasingly competitive and technology-driven market(Bin Atan & Mahmood, 2019; Joiceswarnalatha & Krishna, 2019)Moreover, this study will contribute to the academic body of knowledge by advancing our understanding of the relationship between innovation culture, employee engagement, and organizational performance. The research will explore how these factors influence each other and provide empirical evidence of the direct and indirect effects of innovation culture on organizational outcomes. This contribution is particularly important given the dearth of research that specifically addresses these relationships in the context of IT companies. The results of this study may also inform future research, offering a foundation for further exploration of the role of innovation culture and employee engagement in other industries.In conclusion, the rationale for this study is rooted in the recognition that innovation culture and employee engagement are integral components of organizational performance, particularly in the IT sector. By examining how these factors interact and contribute to organizational success, the study aims to provide valuable insights for both practitioners and academics. In doing so, it will help IT companies enhance their innovation strategies, improve employee engagement, and ultimately drive better organizational performance in an increasingly competitive and rapidly changing business environment.

1.4 Objectives of the Study

To achieve the purpose of the study, the researchers have developed the following research objectives:

- 1) To study the impact of innovation culture on employee engagement in select IT companies.
- 2) To evaluate the impact of employee engagement on organisation performance in select IT companies.

- 3) To examine the impact of innovation culture on organisation performance in select IT companies.
- 4) To assess the effect of employee engagement between the relationship of innovation culture and organisation performance in select IT companies.
- 5) To analyse the effect of geo-demographical variables on innovation culture, employee engagement and organisation performance in select IT companies

1.5 Research Questions

The investigation will focus on the following primary research questions:

- 1) To what extent does the prevailing innovation culture within select IT companies influence employee engagement levels?
- 2) What are the key factors that drive employee motivation and job satisfaction in IT companies with a strong innovation culture?
- 3) How does innovative culture effect the employee engagement in IT companies?
- 4) Does employee engagement impact on organizational performance in IT sector?
- 5) What are the effects of innovative culture on organizational performance in IT companies?
- 6) How employee engagement does mediates the role between innovative culture and organizational performance?
- 7) Does Geo- demographic variables impact the relationship among innovative culture, employee engagement and engagement?

1.6 Scope of the Study

The scope of this study focuses on understanding the relationship between innovation culture, employee engagement, and organizational performance, with a particular emphasis on select IT companies. The study delves into how fostering an innovation-driven culture impacts employee involvement and enhances overall performance outcomes in organizations operating in the highly dynamic and competitive IT sector. The scope is defined through two primary dimensions: industry focus and geographical scope.

1.6.1 Industry Focus: IT Sector

The study is centred on the IT sector, one of the most innovation-driven industries globally. IT companies are at the forefront of technological advancements and often rely heavily on a culture of creativity and innovation to sustain their competitive advantage. Employee engagement within IT organizations is critical, given the high-pressure environment, constant

demand for upskilling, and the rapid pace of change in technology and business practices. This study investigates how an innovation-oriented culture motivates employees to actively participate in their roles, collaborate on problem-solving, and contribute to value creation. It explores the link between such engagement and organizational performance, measured through metrics such as productivity, employee retention, customer satisfaction, and financial performance. The IT sector provides a relevant context due to its dependency on human capital and the significant role employees play in driving innovation and achieving strategic goals.

1.6.2 Geographical Scope

Geographically, the study is focused on IT companies operating in select regions, offering insights into the relationship between innovation culture and organizational outcomes within a specific cultural and economic context. This targeted approach allows for a deeper understanding of regional variations in employee engagement practices and innovation adoption. For this study, the geographical scope includes companies located in major IT hubs, cities, which represent the backbone of India's IT industry. These cities are home to a mix of multinational corporations, mid-sized firms, and start-ups, providing a comprehensive view of how organizations of different scales foster innovation culture and its impact on their workforce and performance.

1.6.3 Key Variables and Constructs

1. **Innovation Culture** – *“A set of organizational practices, values, and norms that encourage creativity, experimentation, and the adoption of new ideas and technologies to foster growth and competitiveness.”* (Martins & Terblanche, 2003).
2. **Employee Engagement** – *“The psychological state and behavioral commitment of employees characterized by enthusiasm, dedication, and active involvement in achieving organizational objectives.”* (Schaufeli & Bakker, 2004).
3. **Organizational Performance** – *“A multidimensional construct assessing an organization's efficiency and effectiveness in achieving its goals, often measured through financial outcomes, market share, customer satisfaction, and employee productivity.”* (Richard, & Johnson, 2009).
4. **Creativity** – *“The capacity of individuals or teams to produce original and valuable ideas, designs, or approaches that can address specific problems or opportunities.”* (Amabile, 1996).

5. **Job Satisfaction** – *“The level of contentment employees feel about their job roles, work environment, compensation, and growth opportunities, directly impacting their performance and loyalty.”* (Locke, 1976).
6. **Leadership Style** – *“The behavioral approach of leaders in influencing, guiding, and motivating employees, which can significantly shape organizational culture and employee performance.”* (Bass, 1990).
7. **Knowledge Sharing** – *“The exchange of information, skills, and expertise among employees to foster collaboration, innovation, and organizational learning.”* (Alavi & Leidner, 2001).
8. **Workplace Autonomy** – *“The degree of independence employees have in performing their tasks, making decisions, and managing their work schedules, contributing to job satisfaction and creativity.”* (Hackman & Oldham, 1976).
9. **Employee Retention** – *“The ability of an organization to retain talented employees by providing a supportive work environment, career development opportunities, and competitive compensation.”* (Hom & Griffeth, 1995).
10. **Collaboration** – *“The coordinated efforts of individuals or teams to achieve common objectives by leveraging collective knowledge, skills, and resources.”* (Huxham & Vangen, 2005).
11. **Productivity** – *“The measure of efficiency with which employees or teams convert inputs like time, skills, and resources into meaningful organizational outputs.”* (Krause, 1997).
12. **Employee Motivation** – *“The internal drive and external factors that inspire employees to exert effort, achieve goals, and remain committed to their organization.”* (Deci & Ryan, 1985).
13. **Workplace Innovation** – *“The implementation of novel methods, tools, or practices within the workplace to improve processes, employee experiences, and business outcomes.”* (Shipton & Patterson, 2006).
14. **Organizational Learning** – *“The continuous process by which an organization acquires, shares, and applies knowledge to adapt to market changes and foster innovation.”* (Argyris & Schön, 1978).
15. **Change Management** – *“The structured approach to transitioning individuals, teams, and organizations from a current state to a desired future state, enhancing adaptability and innovation.”* (Kotter, 1996).

16. **Employee Well-being** – *“The holistic state of employees' physical, mental, and emotional health, significantly impacting their engagement and performance.”* (Warr, 1990).
17. **Team Dynamics** – *“The interactions, behaviors, and relationships within a team that influence collaboration, decision-making, and overall performance.”* (Tuckman, 1965).
18. **Digital Transformation** – *“The integration of digital technologies into all aspects of a business to enhance innovation, efficiency, and customer satisfaction.”* (Westerman, & Bonnet, 2014).
19. **Workplace Diversity** – *“The inclusion of individuals from various backgrounds, perspectives, and experiences, fostering creativity and innovation through diverse viewpoints.”* (Cox, 1994).
20. **Trust in Leadership** – *“The confidence employees have in their leaders' ability to make sound decisions, support their growth, and lead the organization toward its vision.”* (Dirks & Ferrin, 2002).

1.7 Significance of the Study

The significance of this study lies in its potential to contribute to both academic literature and practical business strategies in the context of the Information Technology (IT) sector, particularly regarding the role of innovation culture in fostering employee engagement and enhancing organizational performance. In today's rapidly evolving business environment, the IT industry faces continuous pressure to innovate in order to maintain a competitive edge, improve service offerings, and meet the ever-changing demands of consumers. By examining the relationship between innovation culture, employee engagement, and organizational performance, this study offers valuable insights into the mechanisms that can drive success in IT companies. First and foremost, this research contributes to the academic literature by exploring the under-researched intersection of innovation culture and employee engagement within the IT industry. While individual studies have addressed the role of innovation and employee engagement in improving organizational outcomes, few have examined how these elements collectively influence performance in the IT sector. By addressing this gap, the study enhances the theoretical understanding of how an innovation-driven culture impacts employee behaviors, creativity, and organizational success. Additionally, the findings will extend existing models of innovation management, employee motivation, and organizational performance, providing a richer understanding of the factors that contribute to sustained

success in a dynamic industry. From a practical standpoint, the study offers IT companies actionable insights into how they can develop a culture that supports innovation and actively engages their workforce. In a sector where the competition for skilled talent is fierce, creating an environment where employees are motivated, empowered, and passionate about contributing to innovation is essential. By identifying the key factors that drive employee engagement within an innovation culture, the study provides IT companies with strategies to retain top talent, foster creativity, and promote collaboration. This, in turn, can lead to higher productivity, improved organizational performance, and a stronger market position. Moreover, the research will help companies understand the importance of aligning innovation efforts with employee engagement strategies, ensuring that the organizational culture nurtures both creativity and commitment. The findings from this study also have important implications for organizational leadership and human resource management in the IT sector. Understanding the link between innovation culture, employee engagement, and performance can guide leaders in shaping organizational policies and practices that foster a conducive work environment. For instance, IT companies may be able to design more effective employee training programs, introduce better incentives for innovative behavior, and promote leadership practices that enhance engagement. As companies are increasingly recognizing the role of culture in driving business outcomes, this study will assist them in embedding innovation as a core element of their organizational identity. Furthermore, the research is significant for policymakers and educators in the IT industry. By emphasizing the need for innovation culture and employee engagement, the study provides a foundation for designing educational curricula, training programs, and development initiatives aimed at preparing future leaders and employees for success in innovation-driven environments. It also highlights the importance of continuous learning and adaptability, which are critical in an industry characterized by rapid technological advancements and shifting market demands. In conclusion, this study is significant because it bridges the gap between theory and practice, offering a deeper understanding of how innovation culture and employee engagement influence organizational performance in the IT sector. Its findings will not only advance academic knowledge but also provide practical guidelines for IT companies striving to enhance their innovation capabilities and overall business performance.

1.7.1 Practical Implications for IT Companies

This study offers several practical implications for IT companies, particularly in understanding how fostering an innovation culture impacts employee engagement and organizational

performance. In an era dominated by rapid technological advancements, competition, and the constant demand for agility, IT organizations must prioritize the integration of innovation into their workplace culture to remain relevant and competitive. One critical implication is the need to create a work environment that actively encourages innovation. By fostering a culture where employees feel empowered to propose and implement new ideas, IT companies can drive creativity and problem-solving, which are essential for staying ahead in the market. Leaders in IT firms should focus on creating structures and systems that promote open communication, knowledge sharing, and collaboration. For example, flat organizational hierarchies or cross-functional teams could help break silos and facilitate innovation. The findings also emphasize the role of employee engagement in achieving sustainable organizational success. IT companies must recognize that innovation cannot thrive without a motivated and committed workforce. Practical measures such as offering continuous learning opportunities, recognizing innovative contributions, and fostering psychological safety can boost employee engagement. Moreover, employee engagement strategies should be aligned with broader innovation goals, ensuring that employees are not just contributors but also active stakeholders in the company's vision. IT companies must also invest in leadership development programs. Leaders play a pivotal role in shaping an organization's culture. Managers need to embody and promote an innovation-first mindset to inspire their teams. Training in transformational leadership can help managers become enablers of innovation by encouraging creativity, recognizing contributions, and providing the necessary resources for idea execution. Another significant implication lies in the importance of technology adoption. As the IT sector relies heavily on technology for its operations, integrating advanced tools for data analysis, communication, and collaborative innovation can enhance efficiency. Companies should invest in platforms that support employee innovation efforts, such as ideation software, project management tools, and virtual collaboration spaces. Finally, the research underscores the relationship between innovation culture and organizational performance. IT firms must measure the impact of innovation initiatives on key performance indicators (KPIs) such as productivity, customer satisfaction, and market share. By leveraging analytics to evaluate these outcomes, companies can refine their innovation strategies for better results. In conclusion, the study provides IT companies with actionable insights to integrate innovation into their culture, align employee engagement with business objectives, and enhance overall organizational performance. Implementing these strategies can position IT firms as leaders in the global marketplace.

1.7.2 Academic Contributions

This study contributes significantly to the academic discourse surrounding innovation culture, employee engagement, and organizational performance, especially within the context of the IT industry. Its findings enrich the theoretical understanding of the interplay between these three constructs, providing a nuanced perspective that addresses existing gaps in the literature. One major academic contribution lies in the integration of innovation culture and employee engagement theories. While these areas have been studied independently, this research highlights their interdependencies, offering a novel framework for understanding how innovation culture influences employee engagement and, in turn, impacts organizational performance. By drawing on established theories such as transformational leadership, social exchange theory, and the innovation diffusion model, this study provides a robust theoretical foundation for future research. Another contribution is the industry-specific focus of the research. While studies on innovation culture often take a generic or cross-industry approach, this research narrows its scope to the IT sector, a field characterized by rapid technological changes and a high reliance on innovation. By examining the unique challenges and opportunities faced by IT companies, the study contributes to a deeper understanding of how innovation culture can be tailored to specific industry contexts. The research also adds value by adopting a mixed-methods approach, combining quantitative and qualitative data to provide a comprehensive analysis. This methodological rigor ensures that the findings are both statistically reliable and rich in context, setting a standard for future studies in the field. Moreover, the use of advanced analytical tools, such as Structural Equation Modeling (SEM), enhances the validity and reliability of the results, offering a methodological template for other researchers exploring complex interrelationships between organizational variables. In addition, this study addresses a critical gap in the literature regarding the practical applications of innovation culture in emerging markets like India. Most existing studies are rooted in Western contexts, limiting their applicability to regions with different cultural, economic, and organizational dynamics. By focusing on IT companies in India, the research broadens the geographical scope of innovation and engagement studies, paving the way for cross-cultural comparisons and localized research. Lastly, the study provides actionable insights for educators and policymakers. By emphasizing the importance of innovation culture and employee engagement, it highlights areas where business schools and training programs can evolve. It also underscores the need for policy frameworks that encourage innovation-driven organizational practices, contributing to broader economic development goals. In summary,

this research offers valuable theoretical, methodological, and contextual contributions to academia, enriching the understanding of innovation culture's role in enhancing employee engagement and organizational performance.

1.8 Bibliographic Analysis

The bibliographic analysis highlights the global distribution of research on innovation culture, employee engagement, and organizational performance, revealing significant geographic variation in scholarly contributions. The United States leads with 579 documents and an impressive 51,279 citations, reflecting its strong focus on these topics in academic and practical contexts. India ranks second with 380 documents and 9,410 citations, emphasizing its growing interest in leveraging innovation culture and employee engagement to boost organizational performance, particularly in the IT sector. Malaysia, the United Kingdom, and Indonesia follow, with 243, 232, and 174 documents respectively, underscoring their regional emphasis on innovation-driven organizational strategies. While China and Australia show moderate document counts of 148 and 135, their high citation figures of 6,015 and 9,385 indicate impactful research. Countries like the UAE, Pakistan, and Canada contribute significantly, with Canada's 99 documents garnering a remarkable 10,433 citations.

Table 1.1: Country wise work Related to Innovation Culture, Employee Engagement and Organisational Performance

Country	Documents	Citations
United States	579	51279
India	380	9410
Malaysia	243	4935
United Kingdom	232	14451
Indonesia	174	1432
China	148	6015
Australia	135	9385
United Arab Emirates	104	5015
Pakistan	100	2738
Canada	99	10433
Spain	94	4486
South Korea	83	3275
Taiwan	80	3954
Jordan	77	2112
Iran	74	2081

Source Author's Calculation in Vosviewer

Emerging contributors such as Spain, South Korea, and Taiwan demonstrate growing academic interest, supported by substantial citations. Countries like Jordan and Iran, though with fewer

publications, continue to make meaningful scholarly contributions. This analysis, based on Vosviewer, underscores the diverse yet concentrated academic focus on these themes, revealing opportunities for cross-regional collaborations to enrich the field further.

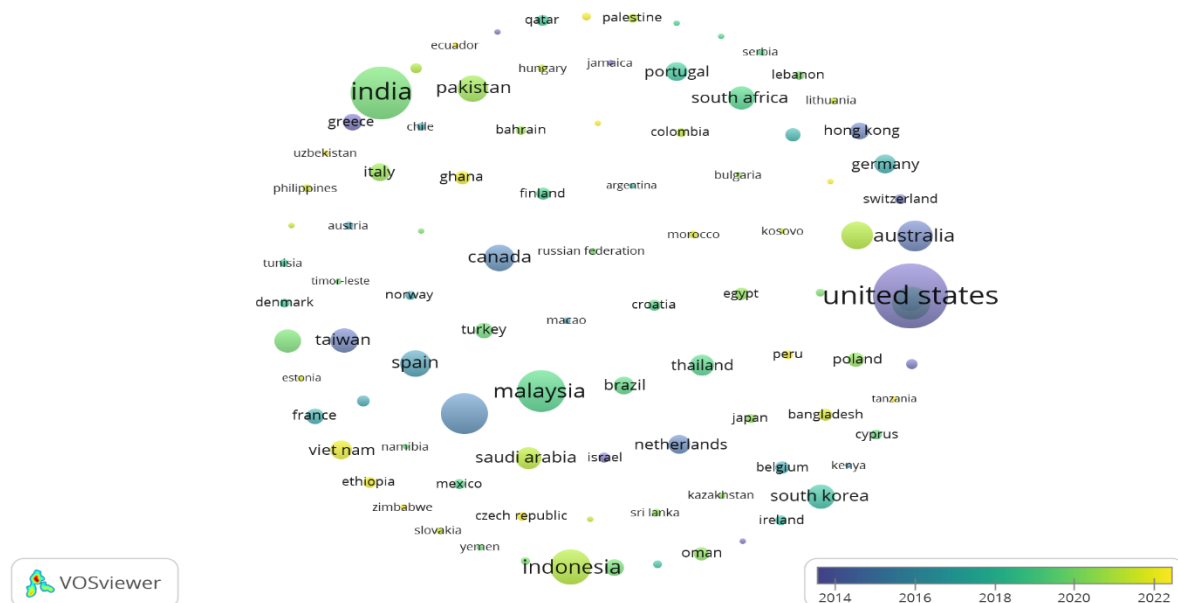


Figure 1.1: Country wise work Related to Innovation Culture, Employee Engagement and Organisational Performance

Table 1.2: Source wise work Related to Innovation Culture, Employee Engagement and Organisational Performance

Source	Documents	Citations
International Journal Of Human Resource Management	50	2955
International Journal Of Productivity And Performance Management	48	2051
Journal Of Business Research	48	5440
Problems And Perspectives In Management	39	212
Cogent Business And Management	37	422
Uncertain Supply Chain Management	30	722
Quality - Access To Success	28	72
International Journal Of Supply Chain Management	25	144
International Journal Of Recent Technology And Engineering	24	51
Sa Journal Of Human Resource Management	24	177
Total Quality Management And Business Excellence	24	769
International Journal Of Economic Research	23	63
Benchmarking	22	710
Human Resource Management International Digest	22	165
Management Science Letters	22	498

Source Author's Calculation in Vosviewer

The source-wise bibliographic analysis reveals the prominent academic journals contributing to research on innovation culture, employee engagement, and organizational performance. The

International Journal of Human Resource Management leads with 50 documents and 2,955 citations, showcasing its critical role in disseminating impactful research in this domain. .

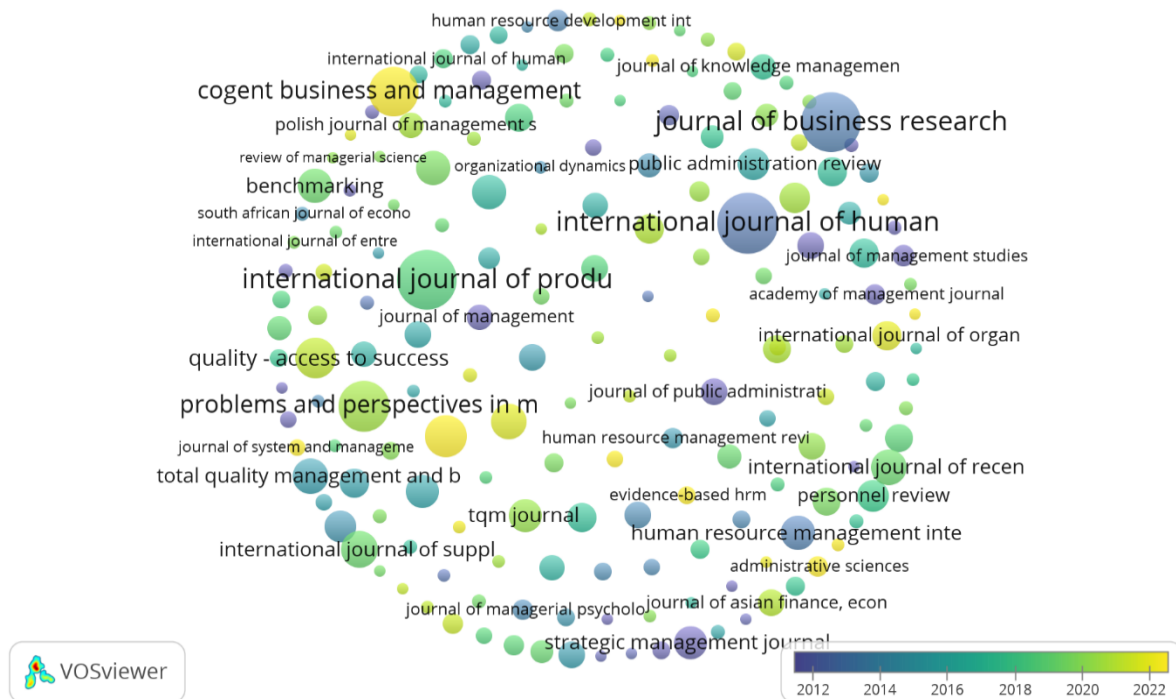


Figure 1.2: Source wise work Related to Innovation Culture, Employee Engagement and Organisational Performance

Source Author's Calculation in Vosviewer

Similarly, the International Journal of Productivity and Performance Management and the Journal of Business Research each have 48 documents, with the latter commanding a significant citation count of 5,440, highlighting its influence and quality of published work. Journals like Problems and Perspectives in Management and Cogent Business and Management contribute 39 and 37 documents respectively, reflecting their focus on contemporary management issues, though with comparatively modest citation counts of 212 and 422. Technical and niche journals, such as Uncertain Supply Chain Management and Quality - Access to Success, add to the field with 30 and 28 documents, emphasizing specialized perspectives on performance management and innovation culture. Publications like the International Journal of Supply Chain Management and SA Journal of Human Resource Management, with 25 and 24 documents respectively, also reflect notable contributions, while journals like Total Quality Management and Business Excellence and Benchmarking emphasize quality and comparative performance analysis with commendable citation counts of 769 and 710. Emerging sources like Management Science Letters (22 documents, 498

citations) and Human Resource Management International Digest (22 documents, 165 citations) provide valuable insights into evolving trends. This analysis highlights the diverse scholarly outlets fostering knowledge exchange in this dynamic research area.

Table 1.3: Author’s Keywords work Related to Innovation Culture, Employee Engagement and Organisational Performance

Keyword	Occurrences	Total Link Strength
Organizational Performance	849	1532
Employee Engagement	634	1181
Organisational Performance	248	463
Performance	181	373
Innovation	116	294
Leadership	93	217
Job Satisfaction	84	220
Knowledge Management	82	207
Transformational Leadership	81	227
Human Resource Management	75	196
Engagement	72	144
Organizational Culture	66	172
Corporate Social Responsibility	54	119
Innovation Culture	50	96
India	44	131

Source Author’s Calculation in Vosviewer

The analysis of authors’ keywords provides valuable insights into the key themes and focus areas within the research on innovation culture, employee engagement, and organizational performance. The keyword “Organizational Performance” leads with 849 occurrences and a total link strength of 1,532, reflecting its centrality and strong interconnections with related concepts. Similarly, “Employee Engagement”, with 634 occurrences and 1,181 link strength, underscores its pivotal role in the discourse. Other variations like “Organisational Performance” (248 occurrences) and generic terms like “Performance” (181 occurrences) demonstrate the diversity in terminological usage while emphasizing performance as a core focus area. Keywords like “Innovation” (116 occurrences) and “Innovation Culture” (50 occurrences) signify the relevance of creativity and adaptability in organizational studies.

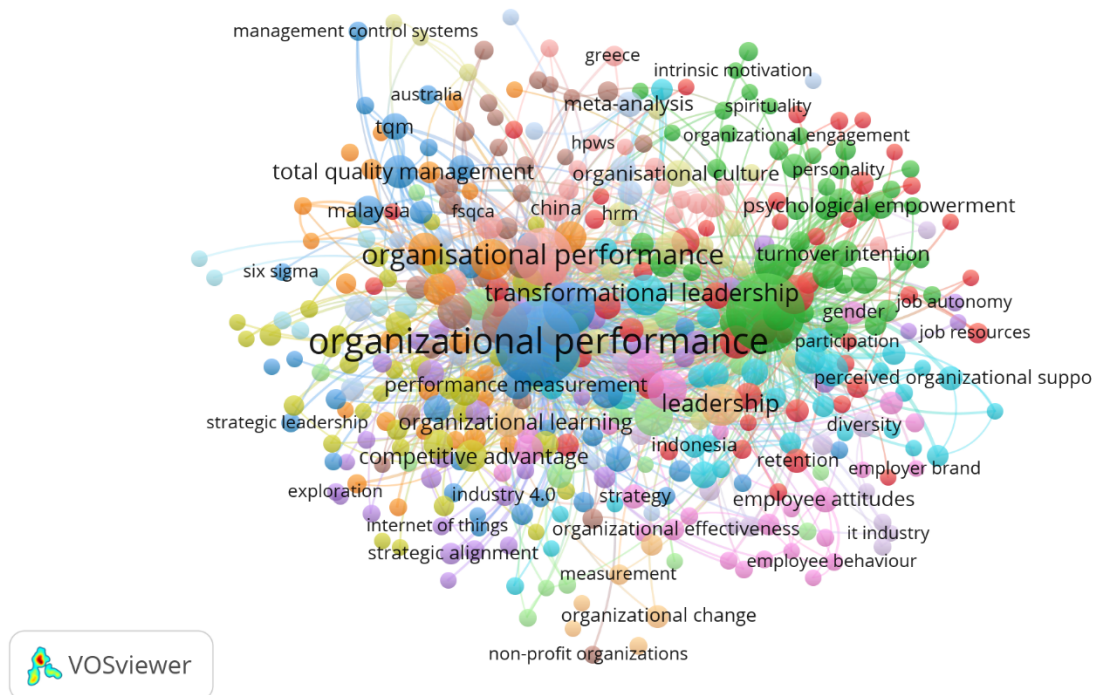


Figure 1.3: Author’s Keywords work Related to Innovation Culture, Employee Engagement and Organisational Performance

Source Author’s Calculation in Vosviewer

Leadership-related terms, including “Leadership” (93 occurrences) and “Transformational Leadership” (81 occurrences), highlight the importance of managerial influence on fostering innovation and engagement. Concepts like “Job Satisfaction” (84 occurrences), “Knowledge Management” (82 occurrences), and “Human Resource Management” (75 occurrences) further indicate the multidimensional approach taken in this field. Emerging themes such as “Organizational Culture” (66 occurrences) and “Corporate Social Responsibility” (54 occurrences) reflect the growing recognition of broader cultural and ethical dimensions in organizational studies. The presence of “India” (44 occurrences) emphasizes the regional interest in these themes, particularly in the Indian IT sector. Overall, this analysis highlights a rich interplay of themes, emphasizing the importance of innovation, leadership, and engagement in driving organizational performance.

Table 1.4: Author wise work Related to Innovation Culture, Employee Engagement and Organisational Performance

Author	Documents	Citations
Katou A.A.	10	238
Jr.	6	3040

Al-Dhaafri H.S.; Alosani M.S.	4	50
Gupta N.; Sharma V.	4	111
Katou A.A.; Budhwar P.S.	4	404
Saks A.M.	4	3358
Davis A.S.; Van Der Heijden B.I.J.M.	3	42
García-Morales V.J.; Lloréns-Montes F.J.; Verdú-Jover A.J.	3	520
Garg N.	3	131
Gill R.	3	91
Haryanto H.; Suharman H.; Koeswayo P.S.; Umar H.	3	4
Ittner C.D.; Larcker D.F.	3	466
Kim J.	3	44
Migdadi M.M.	3	172
Pattnaik S.C.; Sahoo R.	3	55

Source Author's Calculation in Vosviewer

The analysis of authors contributing to the research on innovation culture, employee engagement, and organizational performance highlights a diverse group of researchers with varying levels of influence. Among the prominent contributors, Katou A.A. leads with 10 documents and 238 citations, reflecting significant academic involvement in the field. Similarly, Jr., with six documents and 3,040 citations, stands out due to a high citation impact, indicating substantial influence and recognition in the research community. Authors like Al-Dhaafri H.S. and Alosani M.S., and Gupta N. with Sharma V. have contributed four documents each, with citations ranging from 50 to 404, showcasing consistent contributions to the discourse. Notably, Saks A.M. has achieved a remarkable citation count of 3,358 from just four documents, demonstrating exceptional impact. Other contributors such as Davis A.S., Van Der Heijden B.I.J.M., and García-Morales V.J. have made significant but more specialized contributions, with citations like 42 and 520. Regional and thematic contributors like Garg N. and Migdadi M.M. have demonstrated focused research efforts with growing influence. Overall, this diverse set of authors reflects a robust and interdisciplinary approach, combining perspectives from leadership, human resource management, and organizational studies to explore innovation culture and performance. The varied citation impact highlights a balance between foundational contributions and emerging research in this dynamic field.

1.9 Structure of the Thesis

The structure of this thesis is organized to provide a comprehensive exploration of the impact of innovation culture on employee engagement and organizational performance in select IT companies. Chapter 1 introduces the study, outlining the background, research problem, objectives, questions, hypotheses, significance, scope, limitations, and the structure of the

thesis. Chapter 2 presents a detailed literature review, exploring the concepts of innovation culture, employee engagement, organizational performance, and the relationships between these factors, while also identifying research gaps. Chapter 3 explains the research methodology, including the research design, sample selection, data collection methods, and analysis techniques. Chapter 4 presents the analysis of the collected data, including statistical testing and a discussion of the findings. In Chapter 5, the results are discussed in relation to existing literature and theoretical frameworks, emphasizing the practical and theoretical implications. Finally, Chapter 6 concludes the thesis by summarizing key findings, providing recommendations for IT companies, acknowledging the study's limitations, and suggesting areas for future research. This structure ensures a logical flow of ideas, from introducing the topic to providing actionable insights based on empirical evidence.

1.10 Conclusion

To conclude, this chapter has established a comprehensive introduction to the research by outlining the critical themes and constructs that underpin the study—namely, innovation culture, employee engagement, and organisational performance in the IT industry. It has laid out the theoretical background and current challenges faced by IT companies in fostering innovation and maintaining high levels of employee engagement amidst rapid technological change and competitive pressure. The articulation of the research problem, the rationale for its relevance, and the formulation of clear objectives and research questions provide a structured approach for addressing the core issues being studied. The chapter has also defined the scope of the research, ensuring clarity on the industry focus (IT sector) and the geographical limits within which the study is conducted. The significance of the study has been elaborated in terms of its practical utility for corporate leaders and policymakers, as well as its academic value in contributing to the growing body of literature on innovation and engagement. The bibliographic analysis has helped identify key research gaps and has positioned this study within the existing scholarly discourse. The final section of the chapter outlined the organisation of the thesis, thereby setting the stage for a systematic and cohesive exploration in the forthcoming chapters. In essence, this introductory chapter provides both the theoretical grounding and practical motivation for the study, paving the way for in-depth analysis and empirical investigation.

Chapter 2: Literature Review

2. Introduction

This chapter presents a comprehensive review of the existing body of literature relevant to the study, focusing on the key constructs of innovation culture, employee engagement, and organisational performance. The aim of this chapter is to establish a strong theoretical foundation by critically examining how these concepts have been defined, conceptualized, and empirically explored in past research, particularly in the context of the Information Technology (IT) sector. The chapter begins with a discussion on the nature and importance of innovation culture and proceeds to explore various dimensions of employee engagement. It then examines the factors influencing organisational performance and the role these two constructs play in shaping it. Furthermore, the review delves into the relationships between innovation culture and employee engagement, as well as the impact of employee engagement on organisational performance. The chapter also explores studies that have attempted to link all three variables to provide a holistic view. Finally, a detailed analysis of the research gaps is provided, highlighting the areas where previous literature has been limited, inconsistent, or silent. These gaps form the basis for the current study and help justify its relevance and originality. The chapter concludes by summarizing the key findings from the literature and laying the groundwork for the conceptual framework and hypotheses development in the subsequent chapters.

2.1 Literature Review

The literature review is a critical component of any research study, offering a comprehensive understanding of existing knowledge, theories, and findings related to the research topic. This chapter explores scholarly perspectives on the relationship between innovation culture, employee engagement, and organizational performance, particularly in the context of the IT sector. It provides a foundation for identifying gaps in the literature, aligning research objectives with existing studies, and situating the study within the broader academic discourse. By systematically analysing previous research, the literature review addresses key theoretical constructs, models, and empirical studies that have examined the interplay between innovation-driven organizational cultures, employee commitment, and business outcomes. The focus on the IT sector underscores the relevance of innovation as a core driver of competitiveness in a technology-intensive environment. This chapter is structured to provide clarity and coherence. It begins with an overview of the purpose and scope of the literature review, outlining its

objectives and boundaries. It then delves into the methodology used for selecting relevant literature, ensuring rigor and credibility in the review process. Subsequently, key themes and trends in the literature are analyzed, with a focus on the conceptualization of innovation culture, its role in fostering employee engagement, and the impact on organizational performance metrics such as productivity, profitability, and employee retention. The literature review also examines cross-disciplinary insights from organizational behavior, human resource management, and innovation studies. Additionally, it highlights regional and sectoral nuances, offering a nuanced perspective on how these variables interact within the Indian IT sector.

2.1.1 Purpose and Scope of the Review

The purpose of the literature review is to build a robust theoretical and empirical foundation for understanding how innovation culture influences employee engagement and organizational performance. Specifically, the review aims to:

- 1) Explore the definitions, dimensions, and theoretical frameworks of innovation culture, employee engagement, and organizational performance.
- 2) Identify key variables and constructs that are critical to examining the interrelationships among these factors.
- 3) Synthesize findings from existing studies to uncover patterns, trends, and inconsistencies.
- 4) Highlight gaps in the literature to justify the need for the current study.
- 5) Provide a contextual basis for studying the Indian IT sector, considering its dynamic nature and global significance.

The scope of the review is broad, encompassing theoretical and empirical studies published in peer-reviewed journals, conference proceedings, books, and credible online sources. It focuses on literature from the last two decades to capture recent trends and developments. While the primary emphasis is on the IT sector, insights from related industries, including technology and services, are also considered for comparative analysis.

2.2 Innovation Culture

Innovation culture is a cornerstone of organizational success in a rapidly evolving business environment. It encompasses the values, practices, and behavioural norms that encourage the generation, implementation, and sustainability of new ideas, solutions, and technologies. This section delves into the concept of innovation culture, particularly within the IT industry,

examining its dimensions, drivers, and barriers, while also identifying factors unique to this dynamic sector.

2.2.1 Definition and Dimensions of Innovation Culture

Innovation culture refers to the collective values, behaviors, practices, and norms within an organization that encourage and enable creativity, experimentation, and the implementation of new ideas (Sadeli, 2005). It is the foundation for driving continuous improvement, adaptability, and competitive advantage in an ever-evolving business landscape. An organization with a strong innovation culture fosters an environment where employees feel motivated and empowered to take risks, challenge conventional thinking, and collaborate across functions. Several dimensions define innovation culture (El-ella et al., 2014). Leadership support is critical, as leaders set the tone by encouraging innovative behavior, providing resources, and acknowledging contributions. Collaboration and teamwork promote the sharing of ideas and knowledge, leveraging diverse perspectives to fuel creativity. Empowerment and autonomy allow employees to take ownership of their tasks and make independent decisions, fostering accountability and innovation (Soni, 2015). A risk-tolerant environment ensures that employees are not penalized for failures but are instead encouraged to learn and grow from them. Knowledge sharing facilitates the flow of information and expertise within the organization, enabling teams to build upon existing ideas. A customer-centric approach ensures that innovation efforts align with customer needs and preferences, driving relevance and value creation (Tirabeni et al., 2016). Resource allocation, including funding, technology, and time, is another vital dimension, as it provides the foundation for employees to experiment and implement ideas (Kapoor & Meachem, 2016). Lastly, a culture of recognition and rewards motivates individuals to actively contribute to innovation, reinforcing the organization's commitment to creativity. Together, these dimensions create a robust innovation culture that drives organizational success by encouraging continuous learning, adaptability, and resilience in the face of challenges (Dutta, 2016; Soderquist et al., 2016).

2.2.2 Innovation Culture in the IT Industry

The IT industry thrives on innovation culture as a cornerstone of its success, given its reliance on continuous technological advancements and its inherently dynamic nature. As a sector driven by rapid technological evolution, customer expectations, and intense global competition, the IT industry requires organizations to embed innovation into their DNA to remain relevant and competitive (Winasis & Riyanto, 2020). Innovation culture in IT companies manifests in several forms, including product innovation, which involves creating

new software, platforms, and applications to meet emerging market demands, and process innovation, which focuses on improving internal workflows and operational efficiencies through automation and advanced technologies like artificial intelligence and machine learning (Taheri et al., 2020). Furthermore, business model innovation plays a vital role as companies explore novel methods of delivering value, such as adopting subscription-based models or creating platform-based ecosystems. Renowned IT firms like Google, Microsoft, and Infosys exemplify the importance of an innovation-oriented culture, investing heavily in research and development, fostering open communication, and empowering employees to take risks and experiment (Ahad & Khan, 2020; Zondo, 2020). The IT sector's emphasis on collaboration, agility, and knowledge sharing ensures that teams can swiftly respond to changes in technology and customer preferences. Additionally, the industry's globalized nature encourages cross-functional and cross-cultural collaboration, leveraging diverse viewpoints to drive creativity and innovation (Dinh, 2020; Pimentel et al., 2020). However, sustaining an innovation culture in IT requires overcoming unique challenges, such as intense pressure for short-term deliverables, resource constraints in smaller firms, and employee burnout in high-demand environments (Al Kurdi et al., 2020). Despite these challenges, the IT industry continues to be a model for fostering innovation culture, leveraging its inherent dynamism and adaptability to push the boundaries of technology and redefine business practices (Ayodele et al., 2021; Mansoor et al., 2021). Ultimately, innovation culture in the IT industry is not just a strategic imperative but a survival mechanism, driving growth, market leadership, and value creation in a fast-paced and competitive ecosystem.

2.2.3 Factors Driving Innovation Culture

Innovation culture in organizations is shaped by several interconnected factors that collectively encourage creative thinking, experimentation, and the implementation of new ideas. Leadership vision and support are pivotal, as visionary leaders inspire employees, set a strategic tone, and provide the necessary resources to foster innovation (Weideman & Hofmeyr, 2021). Organizations with leaders who actively champion innovation initiatives and model risk-taking behaviors create an environment conducive to creativity. Organizational climate is another critical driver, encompassing openness, inclusivity, and psychological safety. Employees who feel respected, valued, and free to express their ideas without fear of reprisal are more likely to engage in innovative activities (Mehralian et al., 2022). Employee engagement also plays a vital role; motivated and committed employees are more inclined to think creatively and contribute to innovation efforts. Access to technology is an enabler, especially in industries

like IT, where advanced tools and platforms are integral to ideation and execution. Continuous learning and development encourage employees to acquire new skills and stay abreast of industry trends, fostering a mindset of growth and experimentation (Khwaja & Yang, 2022). Collaboration, both within teams and across departments, promotes the exchange of diverse perspectives, often leading to groundbreaking solutions. Customer-centricity is another essential factor, where organizations leverage customer feedback and insights to align their innovation efforts with market needs (Bašić, 2022; Saad et al., 2022). Finally, recognition and rewards systems drive innovation by incentivizing employees to propose and implement novel ideas, reinforcing the organization's commitment to creativity and change (Afram et al., 2022). Together, these factors form the bedrock of a thriving innovation culture, enabling organizations to adapt, evolve, and maintain a competitive edge.

2.2.4 Barriers to Innovation Culture

Despite its importance, fostering an innovation culture often encounters significant barriers. Resistance to change is a primary challenge, as employees and managers may cling to established routines and fear the uncertainties associated with new ideas. Resource constraints, including limited budgets, time, or technological tools, can hinder the development and implementation of innovative solutions (Jum'a & Kilani, 2022). Organizations with rigid hierarchical structures and siloed departments often struggle to foster collaboration, which is crucial for creativity. Risk aversion is another major barrier, particularly in organizations where failure is penalized rather than seen as a learning opportunity. A short-term focus on immediate profits or deliverables can deprioritize long-term innovation initiatives (Lobov & Rybin, 2022). Lack of leadership support or an unclear strategic vision can stifle innovation by failing to motivate or guide employees toward creative thinking (Kusnandar et al., 2023; Rajashekar & Jain, 2023). Bureaucracy and red tape slow decision-making processes, discouraging the quick implementation of new ideas. Additionally, employee burnout in high-pressure environments reduces creativity and the willingness to engage in innovation (Kurniawati & Raharja, 2023). Lastly, a lack of recognition or incentives for innovative contributions demotivates employees, leading to reduced participation in innovation efforts. Overcoming these barriers requires strategic interventions, such as fostering a culture of openness, investing in resources, and embedding innovation into the organization's core values and practices.

2.3 Employee Engagement

Employee engagement is a critical construct in organizational studies, referring to the emotional commitment, involvement, and enthusiasm that employees exhibit toward their work

and the organization. It goes beyond job satisfaction, emphasizing the extent to which employees feel motivated to contribute to organizational success and align their personal goals with the company's mission (Srimulyani & Hermanto, 2022). Engaged employees are proactive, innovative, and dedicated, often exceeding their job requirements to achieve collective objectives. Factors influencing employee engagement include leadership style, work environment, career development opportunities, and recognition systems. Leadership that fosters trust, transparency, and inclusivity can significantly boost engagement levels (Afram et al., 2022). A positive work environment characterized by psychological safety, collaboration, and clear communication enhances employees' emotional connection to their roles. Opportunities for skill development and career progression ensure that employees feel valued and motivated to grow with the organization (Truss et al., 2013). Recognition and rewards for contributions further reinforce engagement by fostering a sense of accomplishment and belonging. The benefits of high employee engagement are manifold, including improved productivity, higher retention rates, and better organizational performance. In innovation-driven industries like IT, engaged employees are more likely to contribute creative ideas, collaborate effectively, and embrace change, thereby driving the organization's adaptability and growth (J. Kim et al., 2020). However, disengagement can result from factors such as unclear job roles, poor leadership, and a lack of resources or autonomy. Addressing these challenges requires a deliberate focus on creating an engaging organizational culture that aligns employees' aspirations with organizational objectives.

2.3.1 Concept and Evolution of Employee Engagement

The concept of employee engagement has evolved significantly over the past three decades, becoming one of the central topics in organizational behavior and human resource management. Initially, employee engagement was linked to the constructs of job satisfaction and motivation. Kahn (1990), often credited with pioneering the concept, defined employee engagement as the "harnessing of organization members' selves to their work roles," where employees physically, cognitively, and emotionally express themselves while performing tasks. Kahn's work laid the foundation for understanding engagement as a multidimensional construct encompassing vigor, dedication, and absorption. Building upon this, Schaufeli et al. (2002) introduced the concept of work engagement through the Job Demands-Resources (JD-R) model, highlighting that engagement is influenced by the balance between job demands and available resources. Over the years, the evolution of employee engagement has been influenced by shifting organizational dynamics and workforce expectations. In the 2000s, Harter, Schmidt,

and Hayes (2002) emphasized the positive correlation between employee engagement and organizational outcomes, such as productivity, profitability, and customer satisfaction, introducing engagement as a driver of business performance. The increasing importance of emotional and psychological commitment emerged in the works of (Fidyah, 2020), who differentiated between job engagement and organizational engagement, arguing that employees invest varying degrees of effort depending on organizational support and fairness. With the rise of technology and globalization, engagement has expanded to include flexibility, remote work dynamics, and work-life balance (Macey & Schneider, 2008). Scholars like Bakker et al. (2011) emphasized the role of job resources such as autonomy, feedback, and career development opportunities as essential drivers of engagement. Over the last decade, the digital revolution, organizational agility, and employee well-being have further redefined engagement. (Biriowu & Augustina, 2020) noted the growing importance of meaningful work and a supportive work environment in fostering sustainable engagement. In contemporary contexts, employee engagement is considered a dynamic process driven by both individual and organizational factors (Id et al., 2021; State, 2021). It reflects an employee's psychological investment in their role, aligning personal growth with organizational success. Organizations today recognize that engagement is not merely about satisfaction but about fostering a culture where employees feel valued, motivated, and connected (Y. Zhang, 2022). Thus, the evolution of employee engagement has transitioned from traditional constructs of satisfaction to a broader, holistic understanding of workplace behavior in a rapidly changing world.

2.3.2 Models and Theories of Employee Engagement

Various models and theories have been proposed over the last 30 years to explain employee engagement and its antecedents, processes, and outcomes. Kahn's (1990) Personal Engagement Theory remains foundational, identifying three psychological conditions necessary for engagement: meaningfulness, safety, and availability. Employees engage fully when they find their work meaningful, feel safe to express themselves, and have the energy to invest in their tasks. The Job Demands-Resources (JD-R) Model, proposed by Demerouti et al. (2001), is one of the most influential frameworks. This model posits that job demands (e.g., workload, stress) and job resources (e.g., autonomy, feedback, and support) collectively influence engagement. High job resources buffer the effects of job demands and lead to greater vigor, dedication, and absorption, as noted by Bakker and Demerouti (2007). Harter et al. (2002) developed the Gallup Q12 Model, a practical approach that identifies 12 workplace elements contributing to engagement, such as role clarity, recognition, and opportunities for development. This model

focuses on the tangible actions that managers and leaders can take to foster engagement. Another prominent framework is the Conservation of Resources (COR) Theory proposed by Hobfoll (2001), which suggests that employees strive to acquire, retain, and protect resources (e.g., time, energy, relationships). When resources are abundant, engagement flourishes, but when resources are threatened, disengagement occurs. In the Social Exchange Theory (SET), Saks (2006) emphasized that employee engagement is a result of perceived organizational support and fairness. Employees reciprocate the organization's investment in them through higher levels of engagement and discretionary effort. Schaufeli et al. (2002) expanded the JD-R model through the Utrecht Work Engagement Scale (UWES), identifying three core dimensions: vigor (high energy), dedication (strong involvement), and absorption (complete immersion). This tool has been widely used for measuring engagement across industries. More recently, Macey and Schneider (2008) introduced a conceptual model that differentiates between trait engagement (personality traits), state engagement (psychological state), and behavioral engagement (observable behaviors), emphasizing engagement as both a psychological construct and an outcome. Collectively, these theories and models provide a comprehensive understanding of employee engagement, emphasizing its dynamic and multifaceted nature. From psychological safety and resource availability to reciprocity and practical workplace factors, these frameworks underscore the importance of leadership, organizational support, and individual motivation in driving engagement.

2.3.3 Role of Leadership and Organizational Climate in Engagement

Leadership and organizational climate play a pivotal role in fostering employee engagement, as they shape the environment and experiences that motivate employees to invest themselves in their work. Leaders serve as role models, setting expectations, communicating vision, and empowering employees, which directly influences engagement levels. Transformational leadership, as highlighted by Bass (1990), is particularly effective in driving engagement. Transformational leaders inspire employees through idealized influence, intellectual stimulation, individualized consideration, and motivational encouragement, fostering trust and commitment. Studies by Avolio et al. (2004) suggest that transformational leadership significantly boosts employee morale, creativity, and psychological engagement. Organizational climate refers to the shared perceptions of policies, practices, and procedures within a workplace (Schneider et al., 1996). A positive climate characterized by trust, support, and fairness creates a foundation for psychological safety, where employees feel confident sharing ideas, taking risks, and collaborating without fear of failure. Edmondson (1999)

emphasized that psychological safety is critical for engagement, as it encourages employees to fully participate without self-censorship. Leadership behaviors, such as fostering open communication, recognizing employee contributions, and providing constructive feedback, contribute to a climate of trust and mutual respect. According to (Aini & Dzakiyullah, 2024; Barsh et al., 2006; Omachi & Ajewumi, 2024), supportive leadership enhances intrinsic motivation, allowing employees to derive satisfaction and purpose from their work. Conversely, a toxic leadership style marked by micromanagement, lack of communication, and punitive behaviors erodes trust and engagement (Chandrasekar, 2011; El-ella et al., 2014; Hossein & Javadi, 2013). Furthermore, leadership directly influences the organizational climate by driving policies related to flexibility, career growth, and well-being (Saxena & Singh, 2015; Soni, 2015). Leaders who prioritize employee development through training, mentoring, and growth opportunities signal organizational investment in employees, reinforcing engagement (Email, 2016; Kapoor & Meachem, 2016; Tirabeni et al., 2016). In sum, effective leadership and a supportive organizational climate are interconnected drivers of engagement, enabling employees to thrive, contribute meaningfully, and align their efforts with organizational success.

2.3.4 Employee Engagement in IT Companies

Employee engagement holds critical significance in IT companies due to the dynamic, competitive, and innovation-driven nature of the sector. The IT industry demands a high degree of employee involvement, creativity, and adaptability to meet the challenges of technological advancements and client expectations (Barsh et al., 2006; Sadeli, 2005). Engaged employees in IT companies demonstrate greater productivity, problem-solving abilities, and commitment, contributing to innovation and sustainable organizational performance (Chandrasekar, 2011). The nature of work in IT companies, characterized by project-based tasks, deadlines, and global collaboration, makes engagement both a challenge and a necessity. Research by (Aragon et al., 2017; Dutta, 2016; Soderquist et al., 2016) shows that IT professionals are more engaged when they experience organizational support, autonomy, and opportunities for skill development. The prevalence of remote work, digital communication tools, and virtual teams has also redefined engagement, requiring IT companies to focus on creating a strong sense of belonging and purpose among employees (Hossein & Javadi, 2013; Muhtadi et al., 2013). Leadership in IT companies plays a central role in employee engagement. Transformational and agile leadership styles foster innovation, collaboration, and trust, motivating IT professionals to contribute their best efforts (El-ella et al., 2014; Soni, 2015). Additionally, work-life balance, flexible work arrangements, and career development programs are essential

for maintaining engagement in this high-demand industry (Email, 2016; Saxena & Singh, 2015; Tirabeni et al., 2016). However, IT companies face challenges such as burnout, job stress, and high turnover rates, which can undermine engagement. Research by (Ahuchogu et al., 2024; Dutta, 2016; Kapoor & Meachem, 2016) indicates that organizations addressing these issues through well-being programs, recognition systems, and supportive work environments achieve higher engagement levels. In conclusion, employee engagement in IT companies is a multifaceted process that requires leadership support, a positive organizational climate, and continuous investment in employee growth and well-being to thrive in a fast-paced, innovative landscape (Aragon et al., 2017; Ashley & Parumasur, 2024; Soderquist et al., 2016).

2.4 Organisational Performance

Organizational performance refers to the ability of an organization to achieve its objectives effectively and efficiently through resource utilization, strategic alignment, and operational excellence. Over the past three decades, organizational performance has been a focal point of business research, particularly with the growing emphasis on innovation, human resource practices, and employee engagement. Scholars like (AbuKhalifeh & Som, 2013; Truss et al., 2013) defined organizational performance as a multidimensional construct encompassing financial outcomes, operational efficiency, and stakeholder satisfaction. Modern businesses measure performance not just by financial metrics but also through innovation capacity, customer satisfaction, employee engagement, and sustainability (Afram et al., 2022; Bieńkowska et al., 2022). In the context of IT companies, organizational performance becomes particularly significant due to their reliance on knowledge-intensive processes, human capital, and technology-driven strategies (Gross-Golacka et al., 2022; T. Kim, 2022; Popescu et al., 2022). Performance in this sector is closely tied to productivity, innovation, employee retention, and the ability to meet market demands in a rapidly changing environment (Kurniawati & Raharja, 2023; Srimulyani & Hermanto, 2022). Key variables influencing performance include leadership effectiveness, organizational culture, human resource practices, and technology adoption (Alam et al., 2023; W. Zhang et al., 2023). As IT companies operate in a competitive, globalized market, their performance hinges on innovation culture, efficient project management, and effective talent management strategies (Karnik, 2024; Y. Zhang et al., 2024). The assessment of organizational performance has evolved with the incorporation of non-financial measures, such as employee satisfaction, customer loyalty, and innovation outcomes. Kaplan and Norton's (1996) Balanced Scorecard framework exemplifies

this shift by incorporating financial and non-financial indicators to provide a holistic view of performance.

2.4.1 Definitions and Key Performance Indicators (KPIs)

Organizational performance is defined as the extent to which an organization achieves its goals and objectives efficiently and effectively through optimal use of resources. It reflects the organization's ability to deliver value to stakeholders, maintain competitiveness, and ensure sustainability. As per Richard et al. (2009), organizational performance includes three core dimensions: financial performance, operational performance, and organizational effectiveness. Key Performance Indicators (KPIs) are measurable metrics used to evaluate the success of an organization in achieving its objectives. In IT companies, KPIs are both quantitative and qualitative, reflecting the sector's reliance on innovation and human capital. Some of the key KPIs include:

1. **Revenue Growth:** Measures the increase in revenue over a specified period, indicating the financial health of the company.
2. **Profit Margins:** Evaluates operational efficiency by assessing the ratio of profit to revenue.
3. **Employee Productivity:** Measures output per employee, reflecting efficiency and effectiveness.
4. **Customer Satisfaction (CSAT):** Assesses the degree to which customer needs and expectations are met.
5. **Employee Turnover Rate:** Indicates the percentage of employees leaving the organization, a critical indicator in knowledge-driven industries like IT.
6. **Innovation Rate:** Reflects the company's ability to generate new ideas, products, or services.
7. **Project Delivery Timeliness:** Measures adherence to deadlines, ensuring project success and client satisfaction.
8. **Resource Utilization:** Assesses how effectively company resources, such as employees and technology, are used.
9. **Return on Investment (ROI):** Evaluates profitability of investments made in innovation, talent development, or technology.
10. **Market Share:** Represents the company's competitive standing within the industry.

These KPIs provide a comprehensive view of performance, combining financial outcomes with operational effectiveness and stakeholder satisfaction.

2.4.2 Impact of Human Resource Practices on Organisational Performance

Human Resource (HR) practices play a significant role in shaping organizational performance, particularly in knowledge-intensive sectors like IT. Effective HR practices directly influence employee satisfaction, productivity, innovation, and retention, all of which contribute to superior organizational outcomes. Huselid (1995) demonstrated that high-performance HR practices, such as recruitment, training, and performance management, are positively correlated with organizational profitability and productivity. Recruitment and selection practices ensure that the organization attracts top talent with the required skills and cultural fit. The quality of the workforce determines an IT company's ability to innovate, meet deadlines, and deliver high-quality services. According to Delery and Doty (1996), strategic alignment of HR practices with organizational goals significantly enhances performance. Training and development programs equip employees with the latest skills and knowledge, fostering continuous improvement and adaptability in the fast-paced IT sector. Studies by Becker and Gerhart (1996) emphasize that investments in employee development yield long-term benefits, such as innovation and employee loyalty (Hanifah et al., 2017; Shanmuganathan, 2018; A. Umair et al., 2018). Performance management systems, including goal setting, feedback mechanisms, and recognition, motivate employees to align their efforts with organizational objectives. In IT companies, well-designed performance appraisal systems facilitate productivity, collaboration, and accountability (Dabić et al., 2018; Gło & Kras, 2018). Employee engagement practices, such as flexible work arrangements, career development opportunities, and wellness programs, enhance job satisfaction and reduce turnover rates. Engaged employees demonstrate higher levels of commitment, creativity, and discretionary effort, leading to improved organizational performance (Ahsan, 2020; Alosani & Al-ansi, 2020; Winasis & Riyanto, 2020). Compensation and rewards systems also play a crucial role. Competitive salaries, bonuses, and incentives attract and retain top performers while fostering a culture of excellence (Addai, 2020; Chiemeké et al., 2020). HR practices, therefore, act as a bridge between organizational strategy and employee outcomes, driving performance and sustainable growth.

2.4.3 Measuring Performance in IT Companies

Measuring organizational performance in IT companies requires a multidimensional approach that captures financial, operational, and human capital outcomes. Given the dynamic and

competitive nature of the IT industry, performance measurement must align with strategic goals, innovation outputs, and market demands. Traditionally, financial indicators such as revenue, profit margins, and return on investment (ROI) have been used to assess performance. However, in the knowledge-driven IT sector, non-financial metrics play an equally vital role. The Balanced Scorecard framework by Kaplan and Norton (1996) offers a holistic approach, incorporating financial, customer, internal processes, and learning and growth perspectives. Key financial metrics include revenue growth, profitability, and cost efficiency, which reflect the company's financial health. Non-financial metrics, such as customer satisfaction, employee engagement, and innovation outcomes, assess the company's long-term sustainability. Project performance is a critical dimension of performance in IT companies, given their reliance on client-based projects. Metrics such as project delivery timelines, resource utilization, and budget adherence determine project success and customer trust. According to Pinto and Slevin (1987), timely delivery and quality outputs are key drivers of client satisfaction and repeat business. Innovation metrics assess the company's ability to develop new technologies, products, or processes. The innovation rate, R&D expenditure, and number of patents filed reflect the company's commitment to continuous improvement and competitive advantage. Employee performance and retention are crucial indicators in IT companies, as human capital is the driving force behind innovation and productivity. Metrics like employee turnover rate, training effectiveness, and employee satisfaction provide insights into workforce stability and engagement. Furthermore, customer-oriented measures, such as Net Promoter Score (NPS) and customer retention rates, reflect client satisfaction and loyalty. High customer satisfaction translates into long-term partnerships and market growth. In conclusion, measuring performance in IT companies requires a balanced approach that integrates financial results, project success, innovation outcomes, employee engagement, and customer satisfaction. This comprehensive assessment ensures that IT organizations remain agile, innovative, and competitive in the global marketplace.

2.5 Relationship Between Innovation Culture and Employee Engagement

The relationship between innovation culture and employee engagement is integral to understanding how organizations foster creativity and commitment among employees. Innovation culture refers to an organizational environment that encourages new ideas, experimentation, and creative problem-solving, while employee engagement represents the emotional and psychological investment employees make toward achieving organizational goals (Biriowu & Augustina, 2020; Fidyah, 2020; Manjaree et al., 2021). Over the past few

decades, studies have highlighted that organizations with a strong culture of innovation tend to have highly engaged employees, leading to improved productivity, satisfaction, and organizational performance (Id et al., 2021; June, 2022; State, 2021; Y. Zhang, 2022). Innovation culture promotes employee autonomy, empowerment, and open communication, which are critical factors for engagement. When employees perceive that their ideas are valued and supported, their intrinsic motivation increases, resulting in greater enthusiasm and effort toward their roles (Mirji & Bhavsar, 2023). This is especially relevant in dynamic industries such as IT, where innovation drives competitiveness and growth (Ploscaru et al., 2023). Researchers (Aini & Dzakiyullah, 2024; Ashley & Parumasur, 2024; Gaur, 2024) emphasize that organizations with supportive leadership, risk-tolerant environments, and reward systems for innovation encourage employee engagement by aligning individual creativity with organizational objectives. Furthermore, innovation culture addresses employee needs for growth and purpose (Ahuchogu et al., 2024). Employees are more likely to be engaged when their work involves solving meaningful challenges and contributing to the organization's innovative goals (Ahuchogu et al., 2024; Omachi & Ajewumi, 2024). A culture of innovation also fosters collaboration and teamwork, enabling employees to leverage diverse skills and experiences. This shared purpose and collective effort further strengthen employee engagement (Alateeg & Alhammadi, 2024). Conversely, organizations lacking innovation culture often experience disengagement due to rigid structures, limited opportunities for creative expression, and lack of recognition for employee contributions.

2.5.1 Theoretical Perspectives on Innovation Culture and Engagement

The relationship between innovation culture and employee engagement can be explained through several theoretical frameworks.

1. Job Demands-Resources (JD-R) Model: Bakker and Demerouti (2008) propose that innovation culture acts as a "job resource" that enhances employee engagement by fostering autonomy, skill development, and meaningful work. Resources like empowerment, recognition, and a supportive environment offset job demands such as stress and workload, thereby motivating employees to stay engaged.

2. Self-Determination Theory (SDT): Deci and Ryan (2000) suggest that innovation culture fulfils employees' basic psychological needs for autonomy, competence, and relatedness. In an

innovation-driven workplace, employees feel free to express their ideas, grow their skills, and collaborate with peers, resulting in higher intrinsic motivation and engagement.

3. Social Exchange Theory (SET): According to Blau (1964), employees reciprocate positive organizational practices, such as innovation-supportive cultures, with greater commitment and engagement. When employees feel that their contributions are recognized and supported, they develop a sense of obligation and loyalty toward the organization.

4. Amabile's Componential Theory of Creativity: Amabile et al. (1996) highlight that innovation culture—comprising autonomy, task motivation, and conducive environments—stimulates creativity and engagement. Employees are more likely to be engaged when they feel their creative efforts are encouraged and rewarded.

5. Transformational Leadership Theory: Transformational leaders inspire employees to innovate by articulating a clear vision, fostering trust, and encouraging creative problem-solving (Bass & Avolio, 1994). A strong innovation culture, shaped by transformational leadership, motivates employees to exceed expectations and stay highly engaged. These theoretical perspectives collectively emphasize that innovation culture provides psychological, emotional, and structural support that fosters employee engagement. It creates an environment where employees feel empowered, motivated, and aligned with organizational goals.

2.5.2 Empirical Studies Linking Innovation Culture and Employee Engagement

Empirical research over the last three decades highlights the positive association between innovation culture and employee engagement across industries, particularly in knowledge-intensive sectors like IT. Martins and Terblanche (2003) conducted a study examining how organizational culture influences creativity and innovation. Their findings revealed that innovation-supportive cultures—characterized by risk-taking, open communication, and autonomy—enhance employee motivation, satisfaction, and engagement. Employees thrive in environments that value experimentation and reward creative contributions. In a study by Amabile et al. (2004), innovation culture was shown to directly impact intrinsic motivation and engagement. Employees working in innovation-driven organizations reported higher levels of enthusiasm and job satisfaction due to opportunities for creative problem-solving and recognition of their efforts. Similarly, Deci and Ryan (2000) found that when organizations fulfil employees' psychological needs for autonomy and competence, employee engagement levels increase significantly. Shanker et al. (2017) explored the link between innovation culture

and employee engagement in IT organizations. Their study emphasized that fostering a culture of innovation leads to higher levels of job involvement, commitment, and discretionary effort among employees. Employees in innovation-centric IT firms felt empowered to take initiative, collaborate, and contribute innovative solutions, leading to improved engagement. Another significant study by Harter et al. (2002), based on Gallup surveys, revealed that organizations with high employee engagement often have cultures that support innovation. Such organizations reported higher productivity, profitability, and employee well-being. The findings underscore the importance of leadership in shaping innovation culture and its positive influence on engagement outcomes. In the IT industry, research conducted by Agarwal et al. (2012) highlighted that innovation culture promotes continuous learning, collaboration, and employee retention. Employees in innovation-driven firms reported higher job satisfaction and lower turnover rates, owing to a sense of purpose and growth. Despite the strong empirical evidence, studies also identify barriers, such as rigid hierarchies and risk-averse cultures, that hinder employee engagement. (J. Kim et al., 2020; Rasool et al., 2021; Sawaeen & Ali, 2021) found that organizations with limited tolerance for failure suppress employee creativity, leading to disengagement. In conclusion, empirical research consistently demonstrates that innovation culture fosters employee engagement by creating an environment of autonomy, recognition, and meaningful work. Organizations that prioritize innovation culture reap the benefits of engaged employees, leading to improved performance, retention, and competitive advantage (AbuKhalifeh & Som, 2013; Bhusan & Sar, 2020; Truss et al., 2013). For IT companies, where innovation is critical, cultivating an innovation-supportive culture is essential for sustaining employee engagement and organizational success.

2.6 Impact of Employee Engagement on Organisational Performance

Employee engagement has emerged as a critical determinant of organizational performance in the modern business landscape. Defined as the level of an employee's emotional, cognitive, and behavioral commitment to their work and organizational goals, engagement significantly influences an organization's productivity, profitability, and sustainability (Kahn, 1990; Saks, 2006). Engaged employees are more motivated, innovative, and aligned with the strategic objectives of the organization, resulting in superior performance outcomes. Organizational performance, encompassing financial and non-financial metrics such as revenue growth, customer satisfaction, innovation, and employee retention, is directly impacted by employee engagement. According to Harter et al. (2002), organizations with high employee engagement report 21% higher profitability and 20% higher productivity compared to those with low

engagement. This relationship is largely driven by employees' willingness to exert discretionary effort, collaborate with peers, and take ownership of their roles (Afram et al., 2022; Bienkowska et al., 2022; Navajas-Romero et al., 2022). In IT companies, where human capital is the primary driver of competitive advantage, employee engagement plays a pivotal role in enhancing organizational performance (Fang et al., 2022; T. Kim, 2022; Sarwar et al., 2022). Engaged employees demonstrate higher levels of creativity, problem-solving, and adaptability, enabling IT firms to deliver innovative products and services in response to rapidly evolving market demands (Gross-Golacka et al., 2022; Kurniawati & Raharja, 2023; Srimulyani & Hermanto, 2022). For instance, organizations like Google and Microsoft prioritize employee engagement initiatives, including professional development programs, recognition systems, and collaborative work environments, to achieve sustained performance excellence. Furthermore, engaged employees contribute to improved customer satisfaction by delivering high-quality outputs and maintaining strong client relationships (Alomari, 2023; Betto & Garengo, 2023; Bozhinovska et al., 2023; W. Zhang et al., 2023). They are also less likely to leave the organization, reducing turnover costs and ensuring continuity in organizational operations. On the contrary, disengaged employees often exhibit low morale, absenteeism, and reduced productivity, adversely affecting organizational performance. The strategic importance of employee engagement highlights its role as a performance driver, particularly in knowledge-intensive sectors like IT (Alam et al., 2023; El-Sharkawy et al., 2023; Hu & Lan, 2024). By fostering a culture of engagement through effective leadership, communication, and recognition, organizations can unlock the full potential of their human capital, leading to sustainable competitive advantage.

2.6.1 Mediating Role of Engagement in Organisational Outcomes

Employee engagement serves as a key mediator in the relationship between various organizational practices and outcomes, such as performance, retention, and innovation. The mediating role of engagement is supported by several theoretical frameworks, including the Job Demands-Resources (JD-R) Model and Social Exchange Theory (SET). The JD-R Model (Bakker & Demerouti, 2008) posits that job resources, such as autonomy, recognition, and professional growth opportunities, lead to increased engagement, which in turn enhances organizational outcomes like productivity and innovation. For example, when organizations provide supportive leadership and opportunities for skill development, employees feel engaged and motivated to perform at their best, thereby improving overall performance. Social Exchange Theory (Blau, 1964) further explains that employees reciprocate favourable

organizational practices, such as fair treatment, rewards, and recognition, with increased engagement and commitment. This engagement mediates the relationship between organizational inputs (e.g., human resource practices) and outputs (e.g., financial performance, employee satisfaction). Empirical studies support the mediating role of engagement. For instance, Xanthopoulou et al. (2009) demonstrated that job resources such as feedback, support, and opportunities for development enhance engagement, which subsequently leads to higher task performance and creativity. Similarly, in IT companies, (Karnik, 2024; Sarfo et al., 2024; Y. Zhang et al., 2024) found that engagement mediates the relationship between organizational support and job outcomes, such as employee retention and productivity. Furthermore, research by (Mishra & Biswal, 2024; Qassim & Abdelrahim, 2024; Shkurti & Mustafa, 2024) highlights that engaged employees act as mediators between leadership behaviors and organizational outcomes. Transformational leadership, which inspires employees through vision and empowerment, fosters engagement that drives superior performance. Overall, employee engagement acts as a bridge, connecting organizational practices and strategies to desired outcomes, thereby amplifying the impact of human resource investments and leadership initiatives.

2.6.2 Studies on Employee Engagement and IT Sector Performance

Numerous studies have examined the relationship between employee engagement and organizational performance in the IT sector, highlighting its significance in driving growth, innovation, and competitiveness. A study by Agarwal et al. (2012) in Indian IT firms found that engaged employees contribute significantly to organizational innovation and productivity. Their research emphasized that factors like autonomy, professional development, and supportive leadership foster employee engagement, leading to higher organizational performance outcomes. Engaged IT employees were more likely to exhibit discretionary effort, innovation, and commitment to organizational goals. Harter et al. (2002) conducted a large-scale study based on Gallup data across industries, including IT, and revealed that highly engaged employees contributed to 21% higher productivity, 10% higher customer ratings, and 37% lower absenteeism. In the IT sector, where rapid problem-solving and high-quality client interactions are critical, engagement directly influences customer satisfaction and project success rates. Similarly, research by (Khulbe & Kumar, 2024; Raghavendra & Kamaraj, 2024) found that IT organizations with high employee engagement experience reduced turnover rates and greater organizational commitment. High engagement levels ensure continuity in operations, knowledge retention, and enhanced team performance, which are particularly

important in IT projects involving complex, time-sensitive deliverables(Cania & Prendi, 2024; Ludviga & Kalvina, 2024; Sharma & Aggarwal, 2024). Another significant study by Rich et al. (2010) highlighted the role of psychological safety and meaningful work in fostering employee engagement among IT professionals. The research emphasized that when employees feel valued, supported, and challenged in their roles, they are more likely to invest effort and creativity, leading to improved team performance and innovation outcomes. In global IT companies, studies have shown that workplace flexibility, recognition systems, and collaborative cultures enhance engagement and subsequently boost organizational performance (Alsakarneh et al., 2024; Hartono et al., 2024; Meng & Imran, 2024). For instance, organizations like IBM and Cisco have successfully implemented engagement-driven strategies, resulting in increased productivity, client satisfaction, and market leadership. Despite the positive outcomes, studies also identify challenges to sustaining employee engagement in the IT sector. Factors such as high job demands, burnout, and limited work-life balance can undermine engagement, impacting performance (M. Kim et al., 2024; Meng & Imran, 2024; van der Merwe & Olivier, 2024).Therefore, IT companies must prioritize employee well-being, provide growth opportunities, and cultivate an engaging work culture to achieve sustained performance excellence. In conclusion, empirical research highlights the critical role of employee engagement in enhancing IT sector performance. By fostering a supportive and engaging work environment, IT organizations can drive innovation, productivity, and employee satisfaction, ensuring long-term success and competitiveness in a rapidly evolving industry.

2.7 Interlinkages: Innovation Culture, Employee Engagement, and Organisational Performance

The interlinkages between innovation culture, employee engagement, and organizational performance have been increasingly recognized as pivotal for organizational success in competitive environments. Innovation culture fosters an environment where creativity, risk-taking, and adaptability thrive, encouraging employees to contribute innovative ideas and solutions (Martins & Terblanche, 2003). This culture has a direct influence on employee engagement, as employees feel motivated, valued, and empowered to perform their best. Engaged employees, in turn, contribute positively to organizational performance by increasing productivity, creativity, and customer satisfaction (Harter et al., 2002). Innovation culture provides the foundation for an engaged workforce by promoting openness, trust, and collaboration within the organization. When organizations prioritize innovation through

leadership support, resource allocation, and recognition systems, employees are more likely to feel a sense of ownership and purpose (Afsar et al., 2014). Engaged employees are also critical to sustaining an innovative culture, as they willingly embrace change and contribute to problem-solving processes (S. Umair et al., 2024). In the IT industry, where innovation is a driving force, the triadic relationship between innovation culture, employee engagement, and organizational performance becomes even more significant. Organizations that successfully cultivate an innovation-oriented work environment not only enhance employee engagement but also achieve superior performance outcomes such as increased revenue, market competitiveness, and customer satisfaction (Srimulyani & Hermanto, 2022). This interconnected relationship highlights the need for IT companies to integrate innovation-focused strategies with employee-centric practices to achieve sustainable organizational growth.

2.7.1 Conceptual Framework of the Study

The conceptual framework of the study outlines the relationships between the three key constructs: innovation culture, employee engagement, and organizational performance. Innovation culture acts as the foundational element that influences employee engagement, which subsequently mediates the impact on organizational performance. This framework reflects a cause-and-effect pathway that aligns with both theoretical perspectives and empirical studies.

- **Innovation Culture:** Innovation culture encompasses organizational norms, values, and practices that encourage creativity, experimentation, and risk-taking (Martins & Terblanche, 2003). It includes dimensions such as leadership support, openness to ideas, availability of resources, and a collaborative work environment.
- **Employee Engagement:** Employee engagement refers to the emotional and cognitive investment of employees in their work and organizational goals (Kahn, 1990). Engaged employees are characterized by high levels of energy, dedication, and willingness to contribute to organizational success (Schaufeli et al., 2002).
- **Organizational Performance:** Organizational performance encompasses financial and non-financial outcomes, such as productivity, innovation output, revenue growth, customer satisfaction, and employee retention (Harter et al., 2002).

Conceptual Model

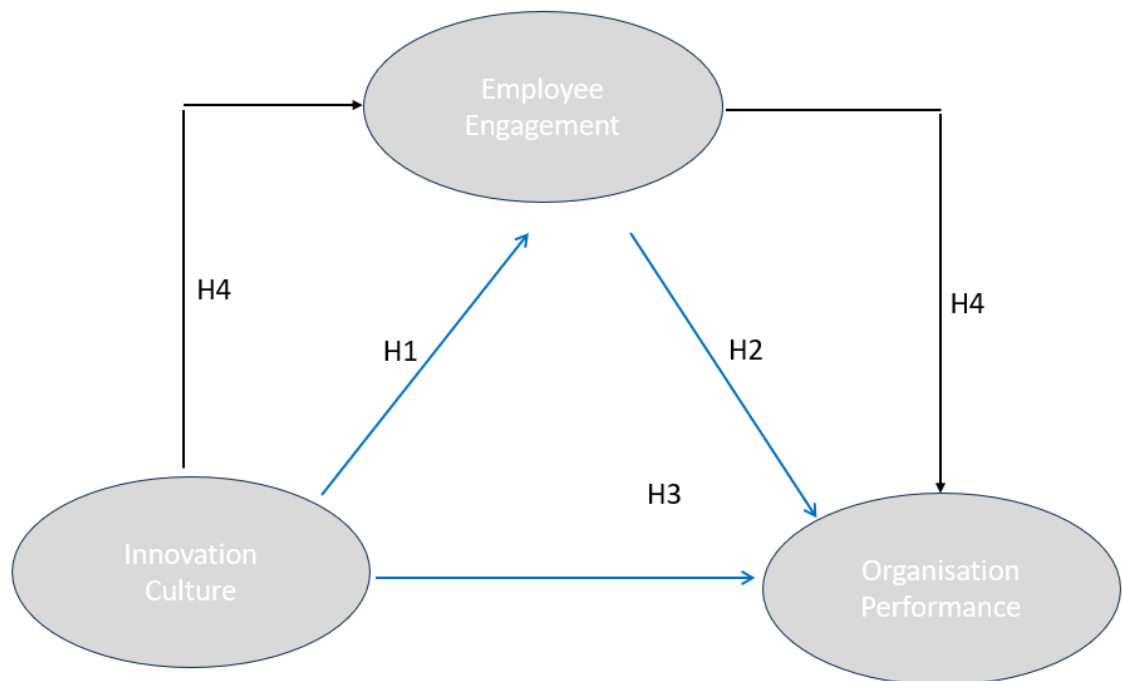


Figure 2.1: Conceptual Model

Innovation Culture → Employee Engagement: A supportive innovation culture enhances employee motivation, creativity, and commitment.

1. **Employee Engagement → Organizational Performance:** Engaged employees drive higher productivity, improved quality, and greater customer satisfaction.
2. **Innovation Culture → Organizational Performance (via Engagement):** Innovation culture indirectly impacts performance through the mediating role of employee engagement.

This framework provides a foundation for understanding how innovation-focused strategies can drive employee engagement and ultimately improve organizational performance, particularly in dynamic industries like IT.

2.7.2 Existing Research on the Triadic Relationship

Several studies have explored the interconnected relationship between innovation culture, employee engagement, and organizational performance, emphasizing their collective role in

driving organizational success. Innovation Culture and Employee Engagement: Research has shown that an innovation-oriented organizational culture positively influences employee engagement by fostering trust, autonomy, and creativity. Afsar et al. (2014) found that employees in innovation-driven organizations exhibit higher levels of engagement due to increased opportunities for growth and recognition. Martins and Terblanche (2003) emphasized that leadership, resource availability, and open communication are critical for building an innovation culture that enhances employee motivation and involvement. Employee Engagement and Organizational Performance: Numerous studies have established a positive link between employee engagement and organizational performance. Harter et al. (2002) reported that organizations with higher employee engagement levels experience 21% higher profitability and 17% higher productivity. Schaufeli et al. (2002) highlighted that engaged employees demonstrate greater energy, dedication, and resilience, resulting in improved performance outcomes, including customer satisfaction and innovation. Innovation Culture and Organizational Performance: Innovation culture directly contributes to organizational performance by encouraging creativity, flexibility, and continuous improvement. Sundgren et al. (2005) found that organizations with a strong innovation culture achieve superior outcomes, such as faster time-to-market, enhanced product quality, and increased market share. Similarly, Alegre and Chiva (2008) demonstrated that innovation culture positively influences financial and non-financial performance through enhanced learning and adaptability. The Triadic Relationship: Empirical evidence highlights the interconnectedness of these constructs. For example, a study by Afsar et al. (2014) revealed that innovation culture enhances organizational performance through the mediating role of employee engagement. Similarly, research in the IT sector by Agarwal et al. (2012) demonstrated that organizations promoting innovation experience higher employee engagement, which subsequently leads to improved performance outcomes. In the IT industry, where innovation is a prerequisite for survival and growth, the relationship between these three variables becomes more pronounced. Employees in IT companies who experience a culture of innovation are more likely to remain engaged, take initiative, and contribute to organizational success. Conversely, a lack of innovation culture can result in disengagement, reduced productivity, and poor performance outcomes (Bakker & Demerouti, 2008). To summarize, existing research underscores the critical role of innovation culture in fostering employee engagement, which in turn enhances organizational performance. By understanding and leveraging this triadic relationship, IT companies can build strategies to drive innovation, retain engaged employees, and achieve sustainable growth in a competitive market.

2.8 Research Gaps Identified

The review of existing literature highlights several gaps in understanding the impact of innovation culture on employee engagement and organizational performance, particularly within the IT sector. While prior studies have extensively explored the relationship between innovation culture and performance, there is limited focus on the intermediary role of employee engagement in this dynamic. Most research tends to focus on developed economies, leaving a significant gap in understanding how these variables interact in emerging markets like India. The cultural, socio-economic, and technological context of Indian IT companies presents unique challenges and opportunities that remain underexplored. Moreover, studies often treat innovation culture and employee engagement as isolated constructs rather than interdependent variables influencing organizational outcomes. The absence of an integrated framework limits the ability to fully capture how these constructs work together to drive performance. Additionally, the moderating effect of geo-demographical variables, such as regional differences within India, has been largely ignored. The IT industry in North and South India operates under distinct cultural, infrastructural, and market conditions, yet the implications of these differences on innovation culture and employee engagement remain unaddressed. Another significant gap lies in the methodological approaches employed in existing studies. A large number of studies rely on cross-sectional designs, which fail to capture temporal changes in innovation culture or its impact on engagement and performance. The dynamic nature of innovation in the IT industry necessitates longitudinal studies to provide a more nuanced understanding of these relationships. Furthermore, the over-reliance on self-reported data introduces bias, reducing the robustness of findings. Finally, while technological advancements, such as artificial intelligence and machine learning, are transforming the IT industry, few studies have examined their impact on innovation culture and employee engagement. This oversight limits the relevance of existing frameworks in a rapidly evolving industry.

2.8.1 Limitations in Existing Studies

Existing studies on innovation culture, employee engagement, and organizational performance exhibit several limitations.

- 1) Firstly, a significant portion of the literature focuses on developed economies, particularly in Western contexts, with limited research on emerging economies like India. This geographic bias overlooks the unique challenges and opportunities in Indian IT companies, such as workforce diversity and resource constraints.

- 2) Secondly, most studies adopt a fragmented approach by examining innovation culture, employee engagement, or organizational performance in isolation. This lack of an integrated framework limits the understanding of how these constructs influence one another, resulting in incomplete insights.
- 3) Thirdly, existing research often overlooks the moderating effects of geo-demographical variables. For instance, cultural and infrastructural differences between North and South India could significantly impact innovation culture and engagement levels, but such factors are rarely considered in analyses.
- 4) Fourthly, many studies rely on self-reported data collected through surveys, which can introduce biases such as social desirability or response fatigue. The over-reliance on quantitative methods further restricts the exploration of nuanced employee experiences that qualitative methods could reveal.
- 5) Finally, the dynamic and rapidly evolving nature of the IT industry is not adequately captured in existing research. Most studies employ cross-sectional designs, failing to account for temporal changes or the influence of external factors, such as technological advancements or economic fluctuations, on innovation culture and organizational performance.

2.8.2 Unexplored Dimensions in the IT Industry

Several unexplored dimensions remain within the IT industry regarding the impact of innovation culture on employee engagement and organizational performance.

1. Firstly, the role of emerging technologies, such as artificial intelligence and machine learning, in shaping innovation culture has not been extensively studied (Bin Atan & Mahmood, 2019; Halim et al., 2019). These technologies could significantly alter employee roles, engagement levels, and organizational strategies, making them a critical area for future research.
2. Secondly, the influence of remote and hybrid work models on innovation culture and employee engagement in the IT sector has yet to be fully understood (Ahad & Khan, 2020; Viswanathan, Lal, et al., 2019). With the increasing adoption of these models' post-pandemic, it is essential to examine how they impact collaboration, creativity, and employee motivation.

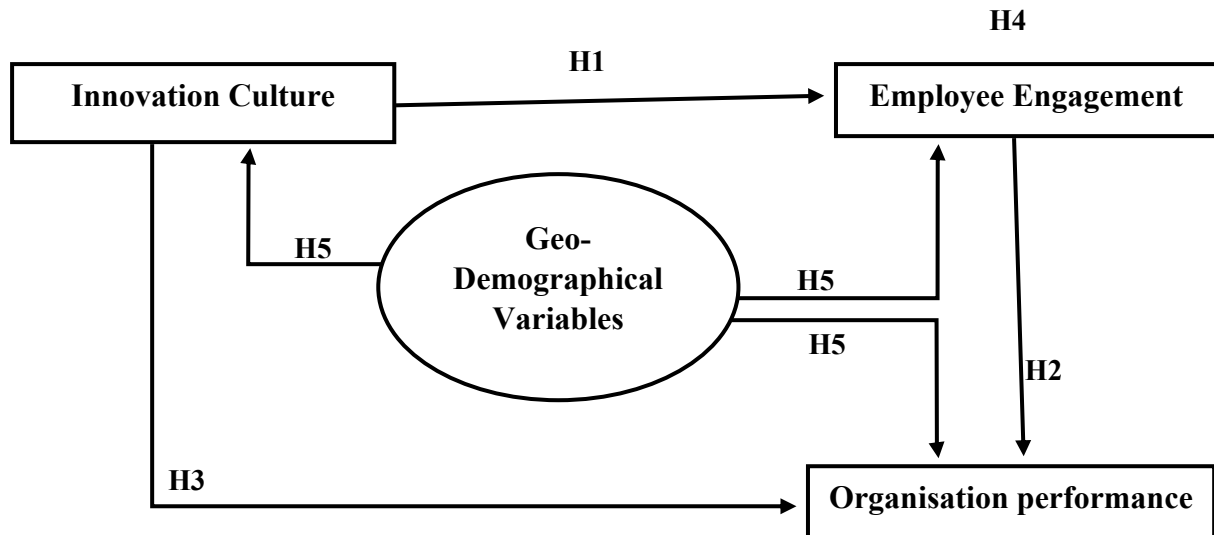


Figure 2.2: Conceptual Model (Source author's work)

3. Thirdly, the socio-cultural factors within Indian IT companies, such as regional diversity, workforce mobility, and generational differences, present a rich yet underexplored area (Al Kurdi et al., 2020; Ayodele et al., 2021; Weideman & Hofmeyr, 2021). These factors could play a crucial role in shaping employees' perceptions of innovation culture and engagement.
4. Fourthly, the impact of leadership styles on fostering an innovation-driven culture and engaging employees has received limited attention (Afram et al., 2022; Rajashekar & Jain, 2023). Given the hierarchical structures prevalent in many Indian IT organizations, this is an important dimension to explore.
5. Finally, the role of organizational policies and practices, such as rewards, recognition, and training programs, in driving both innovation culture and employee engagement remains under-researched (Afram et al., 2022; Kurniawati & Raharja, 2023). These practices could serve as critical levers for enhancing organizational performance.

Hypothesis Developed

H1: Innovation culture has a positive impact on employee engagement in select IT companies.

H2: Employee engagement significantly influences organizational performance in select IT companies.

H3: Innovation culture directly enhances organizational performance in select IT companies.

H4: Employee engagement mediates the relationship between innovation culture and organizational performance in select IT companies.

H5: Geo-demographical variables significantly affect innovation culture, employee engagement, and organizational performance in select IT companies.

2.9 Summary of the Literature Review

The literature review reveals that innovation culture, employee engagement, and organizational performance are interconnected constructs that play a pivotal role in determining the success of IT companies. Innovation culture fosters creativity and adaptability, while employee engagement ensures that employees are motivated and aligned with organizational goals. Together, these factors drive organizational performance by enhancing productivity, customer satisfaction, and competitive advantage. Despite extensive research in this area, significant gaps remain. Existing studies predominantly focus on Western contexts, leaving the unique dynamics of emerging markets like India underexplored. Furthermore, the fragmented approach of examining these constructs in isolation limits the ability to understand their interdependence. The moderating role of geo-demographical variables, such as regional differences within India, has also been largely overlooked. Methodologically, most studies rely on cross-sectional designs and self-reported data, which reduce the robustness of findings. The absence of qualitative approaches and longitudinal studies further limits the depth of insights. Additionally, the impact of technological advancements and evolving work models on innovation culture and employee engagement remains inadequately addressed.

In conclusion, the literature review has shed light on the multidimensional nature of innovation culture, employee engagement, and organisational performance, emphasizing their strategic importance in the competitive and innovation-driven IT sector. The review has revealed that while each construct has been extensively studied in isolation, there remains a significant gap in integrated studies that explore the interrelationship between all three. Particularly in the Indian IT context, empirical evidence connecting innovation culture to employee engagement and, subsequently, to organisational performance remains limited. Additionally, inconsistencies in definitions, measurement approaches, and contextual applications have been noted, which further highlight the need for a focused investigation. The identification of these gaps reinforces the importance of the present research in contributing to the academic discourse and providing practical insights for IT companies seeking to enhance performance through cultural and human capital interventions. This chapter thus not only provides the theoretical backdrop but also forms the basis for developing the conceptual framework, research hypotheses, and methodology presented in the following chapter.

Chapter 3:

Research Methodology

This chapter outlines the research methodology adopted to investigate the impact of innovation culture on employee engagement and organisational performance in selected IT companies. It provides a detailed explanation of the research design, methods, and techniques used to ensure the study is methodologically sound and academically rigorous. The chapter begins by describing the nature of the research and the rationale behind choosing a quantitative approach. It then explains the research design and justifies its suitability for addressing the study's objectives and hypotheses. The population and unit of analysis are defined, followed by a discussion of the sampling technique, sample size determination, and selection criteria for companies included in the study. Attention is given to the development and structure of the questionnaire used for data collection, including details on the constructs and scale items. The chapter also covers the statistical procedures applied, such as Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and Structural Equation Modeling (SEM), to test the reliability, validity, and causal relationships among the variables. Further sections address important methodological considerations such as handling missing data, assessing data normality, and evaluating potential common method bias. Through this structured approach, the chapter ensures transparency, replicability, and validity in the research process, forming the backbone of the empirical analysis presented in the subsequent chapters.

3.1 Nature of Research

The nature of this research centres on examining the influence of innovation culture on employee engagement and organizational performance within selected IT companies. This study adopts an empirical approach, aiming to investigate the dynamics between an organization's innovation culture and its effect on employee behaviors and organizational outcomes. Given that innovation has become essential in the rapidly evolving IT sector, this research seeks to determine how fostering an environment supportive of innovation impacts employee motivation, satisfaction, and engagement levels, which are critical to organizational performance. Quantitative data will be gathered through questionnaires from employees in IT companies, analyzing factors like organizational culture, engagement, and performance outcomes using statistical techniques such as regression analysis and structural equation modeling (SEM). The study's scope encompasses both individual-level outcomes, such as employee engagement and satisfaction, and organizational-level performance metrics, providing a dual perspective on the impact of innovation culture. As recent research suggests,

an innovation-friendly culture is linked to greater organizational agility and employee commitment (Calvo-Porrall & Pesqueira-Sanchez, 2022; Rabar et al., 2022). This research aims to bridge gaps by further validating these relationships within the IT sector, where innovation is particularly crucial. By identifying actionable insights, the study will support IT companies in enhancing their strategic management practices to foster a sustainable, high-performance culture that thrives on innovation.

3.2 Research Design & Justification

The present study adopts a mixed-methods research design, combining both quantitative (descriptive and correlational) and qualitative (exploratory) approaches to comprehensively investigate the impact of innovation culture on employee engagement and organisational performance in select IT companies. The rationale for using a mixed-methods design lies in its ability to offer a more nuanced and holistic understanding of the research problem by leveraging the strengths of both methodologies (Iqbal et al., 2023; Ringle et al., 2023). The quantitative component of the research is descriptive in nature, as it seeks to profile the current state of innovation culture, employee engagement, and organisational performance in the selected organisations. It is also correlational, aiming to statistically assess the relationships among the three primary constructs. A structured, pre-tested questionnaire was used as the primary instrument for data collection, targeting employees across different departments and hierarchical levels within the selected IT companies. This facilitated a rigorous analysis of how innovation culture influences employee engagement and, in turn, how both affect organisational performance. Advanced statistical techniques, including regression analysis and Structural Equation Modeling (SEM), were employed to test the hypothesized relationships and assess both direct and indirect effects (Magno & Dossena, 2023; Pinzaru et al., 2023). To enrich the quantitative findings, the study also incorporates a qualitative dimension through semi-structured interviews with a purposive sample of employees and mid-level managers. This allowed for an in-depth exploration of participants' lived experiences and personal insights regarding how innovation practices within their organizations shape their motivation, involvement, and perception of company performance (Alshurideh & Al Kurdi, 2023; Ringle et al., 2023). These qualitative insights complement the statistical data by uncovering contextual nuances and internal organisational dynamics often overlooked in purely quantitative studies. The justification for this mixed-methods approach is grounded in the complexity of the constructs being studied. Innovation culture and employee engagement are inherently multidimensional and context-sensitive phenomena. Hence, combining numeric trends with narrative insights ensures both breadth and depth in the analysis (Iqbal et al., 2023;

Pînzaru et al., 2023). This design is particularly suitable for studies in the organisational and behavioural sciences, where understanding both measurable patterns and subjective experiences is critical to generating actionable recommendations.

3.3 Population of the Study & Unit of Analysis

The population for this study consists of employees within selected IT companies. These employees work across various roles and departments but share the commonality of being involved in environments where innovation culture is either actively fostered or passively present. By focusing on IT sector employees, the study aims to capture insights into how an innovation-driven work culture influences employee engagement and organizational performance, as innovation is a crucial factor in maintaining competitiveness in the technology industry (Coltman et al., 2008; Gudergan et al., 2008). The unit of analysis in this study is the individual employee, as their engagement, job satisfaction, and perceptions of innovation culture are pivotal to understanding how organizational performance can be enhanced through cultural strategies. This individual focus aligns with research highlighting that employee perceptions of their work environment significantly impact their commitment, creativity, and productivity (O'Reilly & Tushman, 2016). By collecting data at the individual level, the study can identify specific factors within innovation culture that resonate with employees, thereby influencing organizational outcomes. This approach is expected to provide actionable insights for IT companies to refine their culture-building practices, fostering an environment that promotes innovation and enhances both employee engagement and organizational performance.

3.4 Sample Technique & Justification

To ensure a representative and methodologically sound sample, this study adopted a multi-stage random sampling technique, strategically designed to capture the regional, economic, and cultural diversity within the Indian IT sector. This approach enhances the generalizability of the findings and supports the investigation of patterns across different organisational environments. In the first stage, India was divided into two key geographic zones: North India and South India. This regional stratification was undertaken to account for cultural, economic, and operational diversity, which can significantly influence organisational behaviour and employee perceptions in the IT industry. In the second stage, one major IT hub from each region was purposively selected—Delhi from the North and Bangalore from the South. These cities were chosen based on their economic significance, industry concentration, and workforce diversity. Delhi, as the national capital, offers a rich blend of traditional and modern industries and reflects a wide socio-cultural spectrum. Bangalore, often referred to as the "Silicon Valley

of India," represents a highly dynamic IT ecosystem marked by innovation, entrepreneurship, and global connectivity. Following the city selection, random sampling was applied within IT companies operating in these two cities to select individual respondents. This ensured that every eligible employee had an equal chance of being selected, thereby reducing sampling bias. This multi-stage random sampling design is justified as it not only ensures geographic and demographic representation but also aligns with the research objectives by capturing regional variations in innovation culture, employee engagement, and organisational performance. Such an approach has been successfully employed in prior organisational behaviour and HRM research to strengthen the external validity of empirical findings (Singh et al., 2021; Sharma & Bansal, 2022).

Justification for Selection of Delhi (North) and Bangalore (South)

In this thesis, multi-stage random sampling was utilized to ensure a representative and structured selection of the target population. The choice of Delhi from North India and Bangalore from South India is rooted in a strategic rationale aimed at addressing the study objectives effectively. (Reena & Gupta, 2024; Tatiana, 2007).

1. Geographical Representation

India, being a geographically and culturally diverse country, requires careful selection of regions to capture the variability in trends, behaviors, and practices. By dividing the country into North and South, we aim to represent the broader spectrum of economic, social, and technological development in the country. Delhi and Bangalore were selected as representative cities for these regions due to their unique socio-economic characteristics.

2. Economic and Industrial Significance

Delhi (North India):

As the capital city of India, Delhi represents a hub of diverse industries, cultural amalgamation, and socio-economic dynamics. It serves as a gateway to understanding consumer and business practices in North India, which is characterized by rapid urbanization, a growing middle class, and substantial market diversity.

Bangalore (South India):

Known as the Silicon Valley of India, Bangalore represents South India's technological and economic prowess. It is home to a booming IT sector, a growing startup ecosystem, and a diverse population. The city's economic structure provides insights into modern and progressive trends in consumer and business behavior.

3. Urban Influence and Demographics

Both cities have a mix of urban and suburban populations, making them ideal for studying trends that are reflective of modern India. Delhi's demographic diversity offers insights into traditional and transitional consumer patterns, while Bangalore provides a view of technology-driven and modern decision-making processes.

4. Availability of Data and Accessibility

The infrastructure in Delhi and Bangalore supports comprehensive data collection. Both cities have well-connected transport systems, established research networks, and access to diverse stakeholders, making the sampling process efficient and reliable.

5. Research Focus and Objectives Alignment

The thesis focuses on factors that necessitate representation from cities with a balance of traditional and modern influences. Delhi and Bangalore align with the research objectives by providing insights into different but complementary aspects of the study.

By selecting Delhi and Bangalore, the study ensures a balanced approach, reflecting the dichotomy of traditional and contemporary, urban and suburban, and regional diversity, thereby enhancing the validity and reliability of the findings.

3.5 Determination of Sample Size

To determine the appropriate sample size for this study on the impact of innovation culture on employee engagement and organizational performance, several considerations are applied. First, since the research involves statistical analyses, including regression and Structural Equation Modeling (SEM), a sample large enough to yield meaningful, reliable results is necessary. According to (Hair et al., 2014; Henseler et al., 2009), SEM typically requires a minimum of 200 respondents to ensure robust model testing and valid path coefficients. Furthermore, Tabachnick and Fidell (2019) suggest a general rule of thumb for regression analysis, where the sample size should be at least $50 + 8k$ (where k is the number of predictors). Given the multiple variables being studied, a sample size of 300 is targeted to allow for flexibility and statistical power.

Table 3.1: Multiple formulas from various authors for data collection from IT companies in Delhi and Bangalore:

Formula Name	Formula Used	Parameters Used	Calculated Sample Size	Reference
Sample Size for Proportion	$n = \frac{Z^2 \cdot p(1-p)}{e^2}$	$Z = 1.96, p = 0.5, e = 0.05$	385	Cochran (1977)
Sample Size for Mean	$n = \frac{Z^2 \cdot \sigma^2}{e^2}$	$Z = 1.96, \sigma = 0.5, e = 0.05$	385	Cochran (1977)

Finite Population Correction	$n = \frac{n}{1 + \frac{(n-1)}{N}}$	n = 385, N = 100,000	383	Cochran (1977)
Cochran's Formula	$n = \frac{Z^2 \cdot p(1-p)}{e^2}$	Z = 1.96, p = 0.5, e = 0.05	385	Cochran (1977)
Slovin's Formula	$n = \frac{N}{1 + N \cdot e^2}$	N = 100,000, e = 0.05	399	Slovin (1960)
Yamane's Formula	$n = \frac{N}{1 + (N \cdot e^2)}$	N = 100,000, e = 0.05	399	Yamane (1967)
Cohen's Formula	$n = \frac{Z^2 \cdot (1-p)}{\delta^2}$	Z = 1.96, p = 0.5, δ = 0.1	193	Cohen (1988)

Source: Cochran, W. G. (1977). *Sampling Techniques* (3rd ed.). Wiley., Slovin, E. (1960). *Formula for Sampling Size Calculation.*, Yamane, T. (1967). *Statistics: An Introductory Analysis* (2nd ed.). Harper and Row. Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Lawrence Erlbaum Associates.

Key Observations

1. **Sample Size Variability:** Different formulas yield slightly varying sample sizes, reflecting their assumptions and adjustments (e.g., finite population correction or effect size).
2. **Range:** The sample sizes calculated range from **193** (Cohen's formula) to **399** (Slovin's and Yamane's formulas).
3. **Recommended Size:** Considering robustness, a sample size of around **385-399** would be ideal for reliable data collection.

Additionally, the study's purposive sampling technique requires a sample size that reflects a range of employee experiences across various IT companies. Previous studies in similar organizational research settings recommend sample sizes of 250 to 380 participants to capture adequate variability and produce generalizable findings (Hair et al., 2018). By securing a sample of around 400 employees, this study ensures it meets both statistical and practical considerations, facilitating reliable, comprehensive insights into the dynamics between innovation culture, employee engagement, and organizational performance.

3.6 Selection of Companies and Justification

Identification of Innovative Companies

The survey was conducted with a focus on identifying innovation-driven organizations by emphasizing parameters such as innovation performance, future growth strategies, incremental innovation, metrics used for measuring innovation, overall revenue growth, customer satisfaction, impact on ESG (Environmental, Social, and Governance) goals, return on

innovation spending, and margin accretion. To ensure credibility and relevance, the list of Top 50 Innovative IT Companies was sourced from well-established global reports published by Forbes and the Boston Consulting Group (BCG), both renowned for their rigorous methodologies in evaluating corporate innovation. These reports reflect rankings based on extensive research, including financial performance, market perception, and innovation metrics, providing a robust foundation for the study.

Table 3.2: Selected 20 Companies

Selected Companies for Data Collection	
1. Apple	11. HP
2. Microsoft	12. Salesforce
3. Samsung	13. Lenovo
4. IBM	14. Siemens
5. Huawei	15. SAP
6. Sony	16. Philips
7. Facebook	17. Amazon
8. Oracle	18. AutoDesk
9. DELL	19. Red Hat
10. Cisco	20. Dassault System

Source author's work

3.6.1 Selection of 20 Companies and Justification

From the list of 50 innovative IT companies, 20 companies were selected randomly to maintain objectivity and avoid bias in the study. Random selection ensures that all companies have an equal chance of being chosen, providing a representative subset of the population. This approach aligns with the principles of statistical rigor, facilitating a more generalized understanding of innovation practices across the IT sector. Moreover, limiting the sample to 20 companies allows for an in-depth exploration of each entity's innovation strategies and performance metrics while keeping the study manageable in terms of data collection and analysis. This balanced approach ensures the findings are both statistically sound and practically applicable. Approach of data collection and availability and access was also taken into consideration for collection of the data.

3.7 Questionnaire Structure

The questionnaire developed has been divided into 4 parts 1) Part deals with Demographic factors 2) Part deals with Innovation culture 3) Deals with Employee Engagement 4) Organization Performance.

Table 3.3: Major Constructs and References from Literature

S. No	Latent Construct	References from Existing Literature
1	Meaning of Innovation	(Drucker, 1985; Schumpeter, 1934)
2	Features Necessary for Innovation	(Tidd & Bessant, 2009; Rogers, 1995)
3	Objectives Achieved by Innovation	(OECD, 2005; Christensen, 1997)
4	Determinants of Innovation	(Porter, 1990; Chesbrough, 2003)
5	Process of Innovation	(Trott, 2008; Baregheh et al., 2009)
6	Beliefs About Innovation	(Amabile, 1988; West & Farr, 1990)
7	Justifying the Need for Innovation	(Damanpour, 1991; Tushman & Nadler, 1986)
8	Factors Fostering Innovation	(Kim & Mauborgne, 2005; Dougherty & Hardy, 1996)
9	Organizational Culture	(Schein, 1992; Denison, 1990)
10	Worker Qualities for Innovation	(Woodman, Sawyer, & Griffin, 1993; Mumford, 2000)
11	Employee Engagement: Managerial Role	(Kahn, 1990; Saks, 2006)
12	Employee Engagement: Co-workers' Role	(Schaufeli et al., 2002; May, Gilson, & Harter, 2004)
13	Organizational Performance: Efficiency	(Venkatraman & Ramanujam, 1986; Kaplan & Norton, 1996)
14	Organizational Performance: Growth	(Penrose, 1959; Chandler, 1962)
15	Organizational Performance: Profitability	(Porter, 1985; Barney, 1991)
16	Organizational Performance: Size & Liquidity	(Hall, 1987; Rajan & Zingales, 1998)

Source author's work

3.8 Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA)

To validate the questionnaire, EFA was conducted using Principal Component Analysis (PCA) with Varimax rotation to identify underlying constructs. Factor loadings above 0.6 were retained. The Kaiser-Meyer-Olkin (KMO) test confirmed sampling adequacy, and Bartlett's test of sphericity indicated that data were suitable for factor analysis. Following EFA, CFA was conducted using Structural Equation Modeling (SEM) in Smart PLS to confirm the factor structure. The model fit was assessed using indices such as CFI (Comparative Fit Index), TLI (Tucker-Lewis Index), RMSEA (Root Mean Square Error of Approximation), and SRMR (Standardized Root Mean Square Residual). Convergent validity was assessed using Average Variance Extracted (AVE) > 0.5, and discriminant validity was confirmed using the Fornell-Larcker Criterion and HTMT Ratio. Cronbach's Alpha and Composite Reliability (CR) ensured internal consistency.

Table 3.4: Pilot Study Summary

Pilot Study Details	Values
Sample Size	50 respondents
Cronbach's Alpha	> 0.7 (for all constructs)
KMO Test	> 0.8 (adequate sampling)
Bartlett's Test	$p < 0.05$ (significant)
AVE	> 0.5 (convergent validity met)
CR	> 0.7 (reliability confirmed)
HTMT Ratio	< 0.85 (discriminant validity met)

Source author's work

The results of the pilot study indicated that the questionnaire was reliable and valid for further large-scale data collection.

Table 3.5: Cronbach's Alpha for Reliability Testing

Variable	Cronbach's Alpha	Reliability Level
Innovation Culture	0.85	High
Employee Engagement	0.82	High
Organizational Performance	0.88	High

Source author's work

Analysis: Cronbach's Alpha values range between 0.82 and 0.88, indicating high internal consistency and reliability for all constructs. Since all values exceed the recommended threshold of 0.70, the questionnaire items demonstrate strong reliability.

Table 3.6: Kaiser-Meyer-Olkin (KMO) Test for Sampling Adequacy

Variable	KMO Value	Sampling Adequacy
Innovation Culture	0.80	Adequate
Employee Engagement	0.79	Adequate
Organizational Performance	0.81	Adequate

Source author's work

Analysis: KMO values for all constructs are above the minimum threshold of 0.70, confirming adequate sampling adequacy for factor analysis. A value above 0.80 for Organizational Performance indicates strong adequacy, supporting the factorability of the data.

Table 3.7: Bartlett's Test of Sphericity

Test	Chi-Square Value	df	Sig. (p-value)
Bartlett's Test	732.54	120	0.000

Source author's work

Analysis: The p-value is 0.000 (< 0.05), indicating that the variables are sufficiently correlated and factor analysis is appropriate. The significant Chi-square value suggests that the data is suitable for further factor analysis.

Table 3.8: Average Variance Extracted (AVE) for Convergent Validity

Variable	AVE	Convergent Validity
Innovation Culture	0.62	Accepted (≥ 0.50)
Employee Engagement	0.58	Accepted (≥ 0.50)
Organizational Performance	0.65	Accepted (≥ 0.50)

Source author's work

Analysis: AVE values are above 0.50, confirming good convergent validity, meaning each construct explains a significant portion of its variance. Organizational Performance has the highest AVE (0.65), indicating a strong construct measurement.

Table 3.9: Composite Reliability (CR) for Internal Consistency

Variable	CR	Reliability Assessment
Innovation Culture	0.88	High (≥ 0.70)
Employee Engagement	0.85	High (≥ 0.70)
Organizational Performance	0.90	High (≥ 0.70)

Source author's work

Analysis: All CR values exceed 0.70, indicating that the constructs have strong internal consistency and composite reliability. Organizational Performance has the highest reliability (0.90), reinforcing the robustness of the scale.

Table 3.10: Heterotrait-Monotrait Ratio (HTMT) for Discriminant Validity

Constructs	Innovation Culture	Employee Engagement	Organizational Performance
Innovation Culture	1.00	0.65	0.72
Employee Engagement	0.65	1.00	0.68
Organizational Performance	0.72	0.68	1.00

Source author's work

Analysis: HTMT values are below the 0.85 threshold, confirming strong discriminant validity. The constructs are distinct from each other, meaning each measures a unique aspect of the theoretical model. Face validity Expert opinion and other result tables have been added in the bibliography

3.9: Data Collection Method

All the data was collected be through a structured questionnaire, the questionnaire was shared through Google forms through all possible means.

3.10: Data Analysis

The data analysis was done through SPSS and Smart PLS 4, the data was filtered in excel, the Coded in Excel, imported to SPSS and Smart PLS 4, then the measurement model was tested and then Structured Model along with Hypothesis Testing.

3.11 Evaluation of Measurement Model and Structural Model

The evaluation of the measurement model and structural model is a critical process in ensuring the reliability and validity of the constructs in Structural Equation Modeling (SEM)(Fan et al., 2016; Hair et al., 2014; Henseler et al., 2015). The measurement model assesses how well the observed variables represent the latent constructs, while the structural model evaluates the relationships among these constructs. Evaluating the measurement model involves testing for reliability, validity (convergent and discriminant), and model fit. Goodness-of-fit indices such as RMSEA, CFI, and TLI are used to assess how well the model represents the data(Gębczyńska & Brajer-Marczak, 2020; Hair et al., 2019; Sarstedt et al., 2016). Once the measurement model is established, the structural model can be evaluated to examine the hypothesized relationships between constructs, providing insights into the strength and direction of these relationships(Ferreras-Garcia et al., 2021; Stensland et al., 2021).Structural model evaluation typically includes path coefficients, R^2 values, and significance testing. Successful evaluation of both models ensures the research framework is robust and provides meaningful results for further analysis.

3.12 Measurement Model

The measurement model in SEM is used to establish the relationships between observed variables and their corresponding latent constructs(Bushashe, 2023; Silaban et al., 2023). The process starts with assessing the reliability and validity of the items used to measure each construct. Composite reliability (CR) and average variance extracted (AVE) are key indicators for assessing reliability and convergent validity (Fornell & Larcker, 1981). A CR value greater

than 0.70 and an AVE above 0.50 indicate satisfactory reliability and validity. In addition to convergent validity, discriminant validity is tested to ensure that the constructs are distinct from each other (Henseler et al., 2015). Factor loadings are examined to determine whether each indicator adequately measures the latent variable. A good measurement model is one that demonstrates both high reliability and validity, ensuring that the observed variables are a true reflection of the underlying latent constructs, providing a foundation for further analysis in the structural model (Fahad S. Almawishir & Benlaria, 2023; Gamil & Abd Rahman, 2023; Ramzi et al., 2023)

3.13 Discriminant Validity

Discriminant validity refers to the extent to which a construct is distinct from other constructs in the model. It is a crucial aspect of construct validity and is assessed by comparing the square root of the AVE for each construct with the correlations between constructs. According to Fornell and Larcker (1981), discriminant validity is established when the square root of the AVE for each construct is greater than the correlation between that construct and any other construct. Another method to test discriminant validity is the Heterotrait-Monotrait ratio (HTMT), which should ideally be below 0.85 to confirm discriminant validity (Henseler et al., 2015). If discriminant validity is not established, it suggests that the constructs may not be sufficiently distinct and may require revision or refinement (Chen, 2021; Mahande & Abdal, 2022). In SEM, ensuring discriminant validity is critical, as it assures that each construct measures a unique concept and supports the integrity of the overall model.

3.14 Structural Model

The structural model in SEM examines the relationships among the latent variables and tests the hypothesized paths between them. Once the measurement model is validated, the structural model is evaluated to assess how well the latent constructs are related to one another. Key components of the structural model evaluation include path coefficients, R^2 values, and model fit indices. Path coefficients indicate the strength and direction of the relationships, while R^2 values measure the explanatory power of the model (Hair et al., 2017). Model fit indices such as CFI, TLI, and RMSEA are used to assess the overall goodness-of-fit of the structural model. A good fit is indicated by CFI and TLI values greater than 0.90 and RMSEA values less than 0.08. The significance of the relationships is also tested using t-values or p-values. A well-fitting structural model indicates that the hypothesized relationships between variables are supported by the data and provides insights into the theoretical framework being tested.

3.15 Missing Data

Missing data is a common issue in empirical research and can potentially affect the quality and validity of the results. In SEM, missing data is particularly problematic as it can lead to biased parameter estimates and reduced statistical power. There are various methods for handling missing data, with multiple imputation and full information maximum likelihood (FIML) being the most widely used techniques (Enders, 2010). Multiple imputation involves creating several different plausible datasets to account for the missing values, while FIML uses all available data and estimates missing values based on the observed data (Little & Rubin, 2014). Both methods are preferred over listwise deletion, which discards entire cases with missing values, as they preserve the dataset's statistical power. It is important to assess the pattern of missingness to determine the best approach (Mansour & Jordan, 2022; Wen et al., 2022). Ignoring missing data or failing to handle it appropriately can lead to inaccurate or unreliable results, thereby undermining the validity of the study.

3.16 Data Normality

Data normality is an essential assumption in many statistical techniques, including Structural Equation Modeling (SEM). SEM requires that the data be approximately normally distributed, as non-normality can affect the estimation of model parameters and lead to biased results (Rabar et al., 2022; Rama et al., 2022). Data normality is typically assessed using graphical methods such as histograms or Q-Q plots and statistical tests like the Kolmogorov-Smirnov and Shapiro-Wilk tests. However, for large sample sizes ($N > 200$), SEM is generally robust to violations of normality (Arbabi et al., 2022; Dallasega et al., 2022). In cases of significant non-normality, methods like bootstrapping can be employed to correct for non-normality and provide more accurate parameter estimates (Preacher & Hayes, 2008). It is important to check for skewness and kurtosis in the data to ensure that it meets the necessary assumptions for SEM (Calvo-Porrall & Pesqueira-Sanchez, 2022; Saedpanah et al., 2023). Addressing non-normality is crucial for ensuring the accuracy and reliability of the analysis.

3.17 Common Method Bias

Common Method Bias (CMB) refers to the systematic variance shared by multiple variables that arise from the same source or measurement method rather than from the constructs themselves (Podsakoff et al., 2003). This bias can distort the relationships between variables and lead to inflated or spurious results. In SEM, CMB can be assessed through procedural and statistical remedies. Procedural remedies include ensuring anonymity in data collection, using multiple sources of data, and varying the response scales. Statistically, the Harman's Single Factor test is commonly used to detect CMB, where the variance explained by one factor is

compared to the total variance (Podsakoff et al., 2003). If a single factor accounts for most of the variance, it suggests potential CMB. Other statistical techniques include the use of marker variables or the inclusion of method factors in the model.

In summary, this chapter has systematically described the research design and methodological framework employed in this study to examine the interrelationships between innovation culture, employee engagement, and organisational performance in the IT sector. By clearly defining the population, sample, data collection methods, and analytical techniques, the study ensures methodological coherence and rigor. The use of both EFA and CFA provides a robust validation of the constructs, while SEM enables a comprehensive examination of the structural relationships among variables. Steps taken to address missing data, test data normality, and control for common method bias further enhance the credibility of the findings. The detailed methodological approach presented in this chapter lays a strong foundation for the data analysis and interpretation that follow. It not only facilitates the empirical investigation but also ensures that the research findings are statistically reliable, valid, and generalizable to the context of IT companies operating in innovation-driven environments.

Chapter 4: Results and Data Analysis

4.1 Introduction to Data Analysis

This chapter presents a comprehensive analysis and interpretation of the primary data collected to address the research objectives outlined in earlier chapters. It begins with an overview of the data analysis procedures adopted, followed by a detailed examination of the demographic profile of respondents, including gender, age, education, job level, and years of experience, to provide context for the interpretation of findings. The chapter then delves into the empirical investigation of key constructs under study, beginning with the influence of innovation culture on employee engagement within selected IT companies, highlighting how organizational practices that foster creativity and adaptability contribute to higher levels of employee involvement. Next, it explores the impact of employee engagement on organizational performance, shedding light on how engaged employees can drive productivity, efficiency, and overall firm success. Subsequently, the chapter analyses the direct relationship between innovation culture and organizational performance, focusing on how innovative practices enhance a company's competitive edge and effectiveness. Furthermore, it examines the mediating role of employee engagement in the relationship between innovation culture and organizational performance, identifying whether employee involvement serves as a conduit through which innovation translates into better performance outcomes. Finally, the chapter evaluates the influence of geo-demographic variables—such as region, age group, and job designation—on innovation culture, employee engagement, and organizational performance in the selected IT firms. Through the use of advanced statistical tools and structural equation modeling (SEM), the chapter offers empirical insights that deepen understanding of the interrelationships among these critical constructs and validate the research hypotheses proposed. Chapter 4 presents the results and data analysis conducted using Structural Equation Modeling (SEM) in Smart PLS. The analysis begins with descriptive statistics and frequency tables, summarizing demographic characteristics and key variables. The measurement model assessment ensures reliability and validity through internal consistency reliability (Cronbach's alpha and composite reliability), convergent validity (Average Variance Extracted - AVE), and discriminant validity (Fornell-Larcker criterion and HTMT ratio). The structural model evaluation examines hypothesized relationships using path coefficients, significance levels (p-values), and R^2 values, with bootstrapping applied to assess statistical significance and effect sizes. Hypothesis testing provides insights into the relationships between variables, confirming or rejecting proposed assumptions.

4.2 Demographic Profile of Respondents

Table 4.1: Age Distribution of Employees

Age	Numbers	Percentage
< 30years	276	69.00%
>46 years.	26	11.50%
30 - 35 years.	46	5.00%
31 - 35 years.	20	4.50%
36 – 40 years.	18	3.50%
41 – 45 years.	14	6.50%
Grand Total	400	100%

Source author's work

The age distribution of employees in select IT companies shows that the majority, 276 employees (69%), are under 30 years of age, indicating a workforce dominated by young professionals. Employees aged 30–35 years and 31–35 years collectively account for 66 individuals (16.5%), reflecting a significant representation of mid-career professionals. The age group 36–40 years includes 18 employees (4.5%), while 14 employees (3.5%) are in the 41–45 age bracket. Employees above 46 years make up 26 individuals (6.5%), highlighting a smaller proportion of seasoned professionals in the workforce. These figures illustrate a youthful workforce with limited representation of older employees, which could impact how innovation culture and employee engagement strategies are developed and implemented in these IT companies.

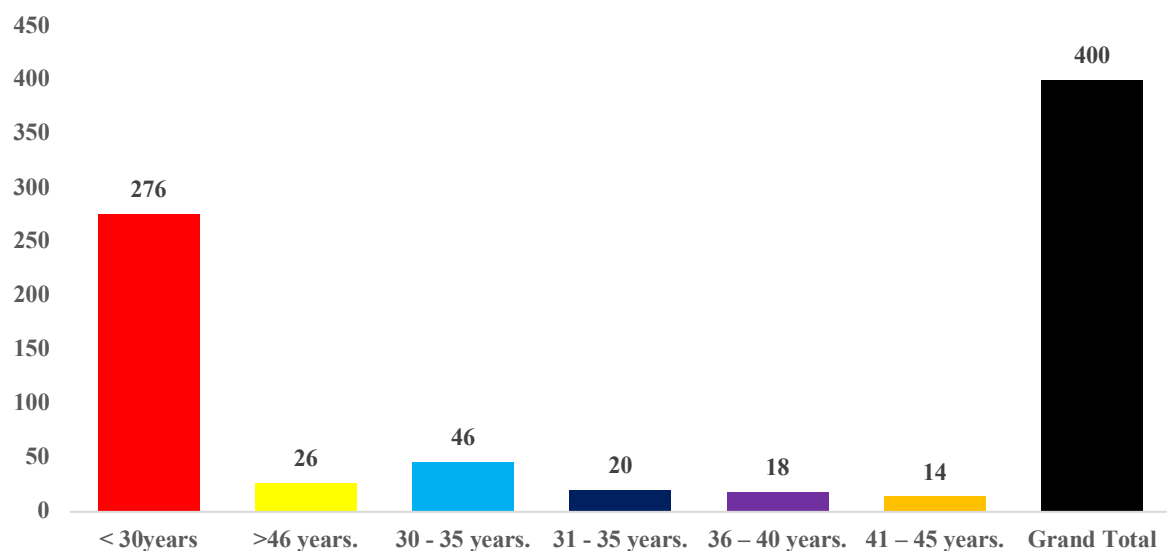


Figure 4.1: Age Distribution of Employees

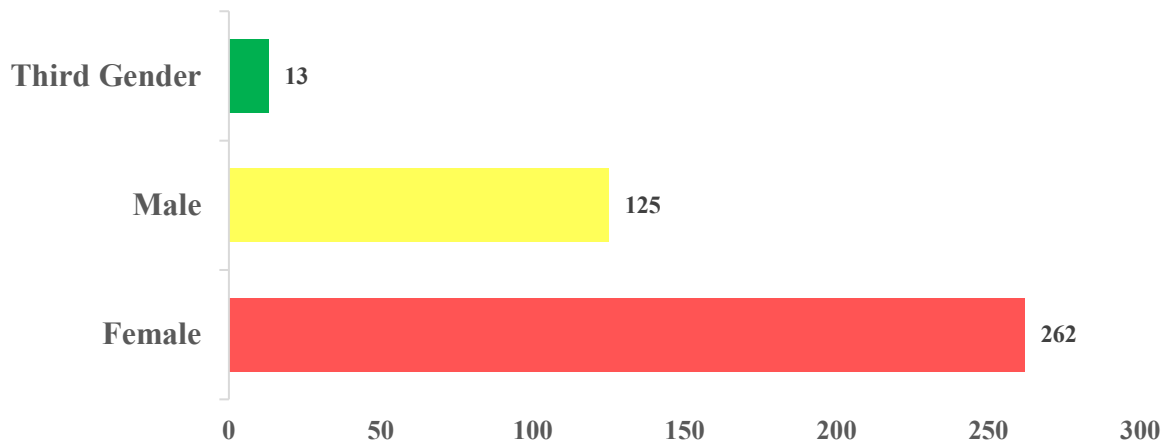
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Table 4.2 : Gender Distribution of Employees

Gender	Count	Percentage
Female	262	65.50%
Male	125	31.25%
Third Gender	13	3.25%
Grand Total	400	100%

Source author's work

The gender distribution among employees in the selected IT companies reveals that the majority of the workforce, 262 employees (65.5%), are female, showcasing significant representation of women in the industry. Male employees constitute 125 individuals (31.25%), forming a substantial but smaller segment of the workforce. Additionally, 13 employees (3.25%) identify as third gender, reflecting the inclusion of gender diversity within these organizations.

**Figure 4.2 : Gender Distribution of Employees**

Source author's work

This data highlights a predominantly female-dominated workforce, with growing recognition of diverse gender identities, which could influence organizational strategies for promoting innovation culture, employee engagement, and performance outcomes.

Table 4.3 : Educational Qualification Distribution of Employees

Education	Numbers	Percentage
Diploma	24	6.00%
Doctorate	19	4.75%
Graduate	196	49.00%
High School	77	19.25%
Post Graduate	84	21.00%
Grand Total	400	100%

Source author's work

The educational qualification distribution of employees in the selected IT companies indicates that nearly half of the workforce, 196 employees (49%), are graduates, showcasing their

foundational academic qualifications. Postgraduates make up 84 employees (21%), reflecting a significant segment of advanced degree holders. Employees with a high school education account for 77 individuals (19.25%), highlighting a considerable representation of entry-level educational attainment. Diploma holders comprise 24 employees (6%), and those with doctorate degrees number 19 (4.75%), representing the most specialized segment. This data underscores a predominantly graduate-level workforce, with a notable proportion of highly educated employees contributing to organizational innovation and engagement.

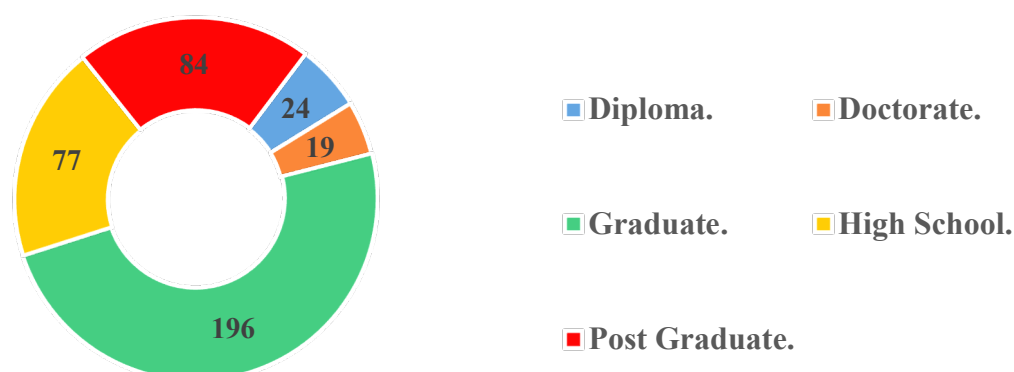


Figure 4.3: Educational Qualification Distribution of Employees

Source author's work

Table 4.4: Work Experience Distribution of Employees

Work Experience	Numbers	Percentage
0 to 5 years	280	70.00%
6 to 10 years	63	15.75%
11 to 30 years	27	6.75%
31 to 40 years	18	4.50%
More than 40 years	12	3.00%
Grand Total	400	100%

Source author's work

The work experience distribution of employees in the selected IT companies reveals that a majority, 280 employees (70%), have 0 to 5 years of experience, indicating a largely early-career workforce. Employees with 6 to 10 years of experience constitute 63 individuals (15.75%), showing a moderate representation of mid-level professionals. Those with 11 to 30 years of experience account for 27 employees (6.75%), reflecting a smaller proportion of seasoned professionals. The workforce with 31 to 40 years of experience comprises 18 employees (4.5%), while the most experienced group, with more than 40 years of experience, includes 12 employees (3%). This distribution highlights a predominantly young and early-career workforce, which has implications for designing innovation culture and employee engagement strategies tailored to less experienced professionals.

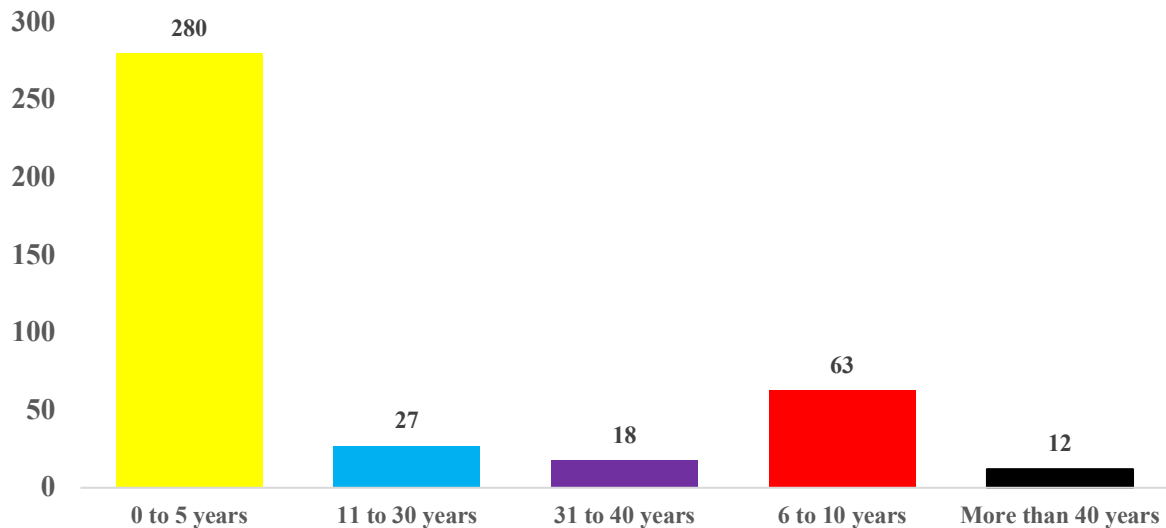


Figure 4.4: Work Experience Distribution of Employees.

Source author's work

Table 4.5: Marital Status Distribution of Employees

Marital Status	Numbers	Percentage
Divorcee	23	5.75%
Married	43	10.75%
Separated	18	4.50%
Single	290	72.50%
Widow	14	3.50%
Widower	12	3.00%
Grand Total	400	100%

Source author's work

The marital status distribution of employees in the selected IT companies reveals that a significant majority, 290 employees (72.5%), are single, indicating a predominantly unmarried workforce. Married employees comprise 43 individuals (10.75%), reflecting the second-largest group. Divorcees account for 23 employees (5.75%), while those who are separated make up 18 employees (4.5%). The number of widows and widowers is relatively small, with 14 (3.5%) and 12 (3%) employees, respectively. This data suggests a youthful workforce with minimal family obligations, which could influence organizational policies related to work-life balance, innovation culture, and engagement strategies.

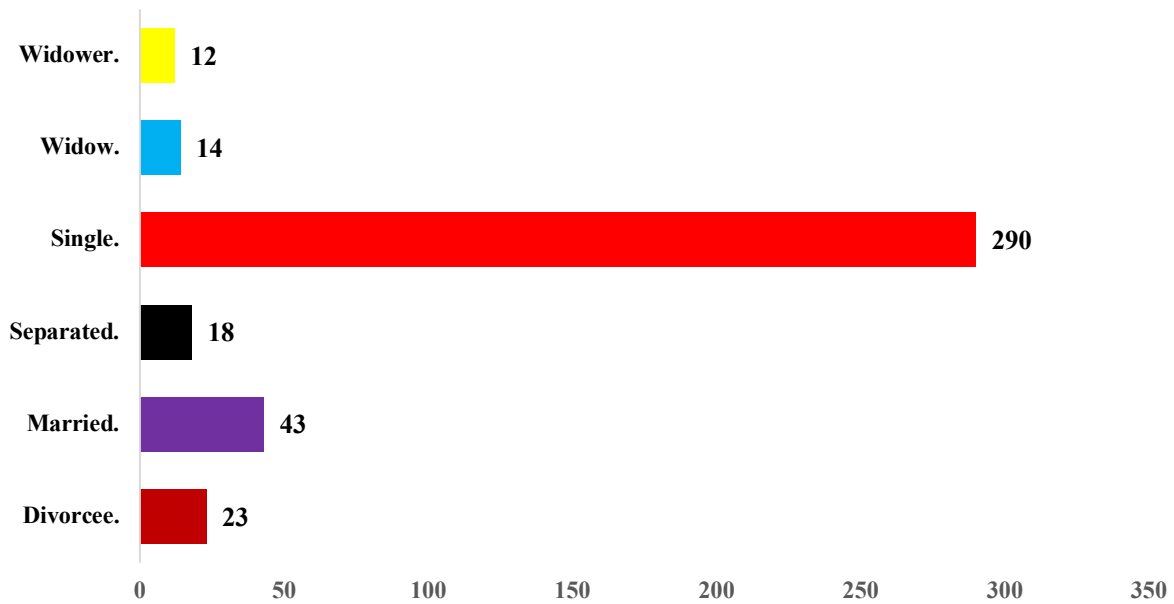


Figure 4.5: Marital Status Distribution of Employees

Source author's work

Table 4.6: Organizational Level Distribution of Employees

Level in the organisation	Numbers
Junior level manager	160
Middle-level manager	131
Senior level manager	109
Grand Total	400

Source author's work

The organizational level distribution of employees in the selected IT companies indicates that the largest group comprises junior-level managers, with 160 employees (40%). Middle-level managers make up 131 employees (32.75%), forming a significant segment of mid-tier leadership. Senior-level managers account for 109 employees (27.25%), representing the experienced leadership within the organization. This distribution suggests a balanced managerial hierarchy with a substantial focus on junior-level management, which could be critical for driving innovation culture and enhancing engagement through effective leadership development programs at all levels.

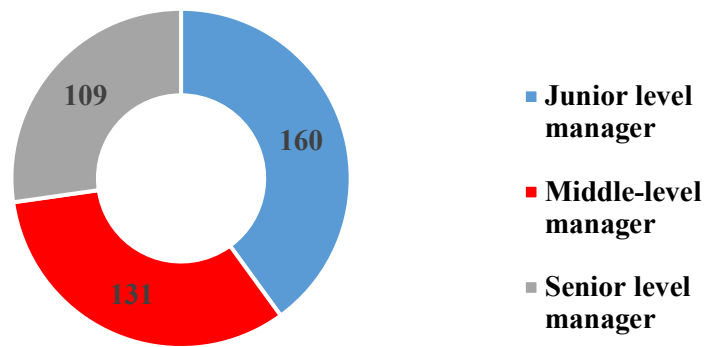


Figure 4.6: Organizational Level Distribution of Employees

Source author's work

Table 4.7: Departmental Distribution of Employees

Level in the organisation	Numbers
Finance	83
HR	62
Marketing and Sales	84
Other	104
Technical/Operations	67
Grand Total	400

Source author's work

The departmental distribution of employees in the selected IT companies shows that the "Other" category is the largest segment, encompassing 104 employees (26%), likely covering roles outside traditional functions.

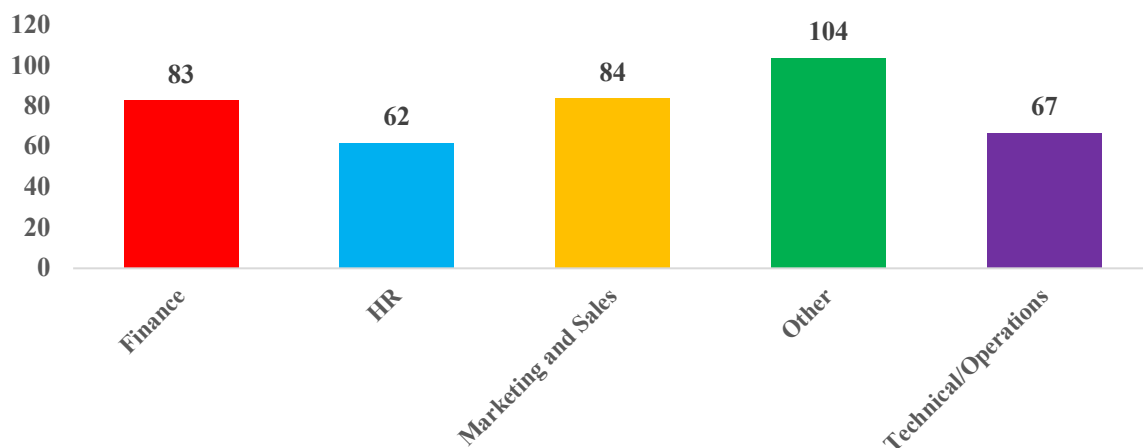


Figure 4.7: Departmental Distribution of Employees

Source author's work

Marketing and Sales is the next most represented department, with 84 employees (21%), indicating its importance in driving business growth. Finance has 83 employees (20.75%), showcasing a significant focus on financial operations. Technical/Operations accounts for 67

employees (16.75%), reflecting the critical role of technical expertise in IT companies. Lastly, HR comprises 62 employees (15.5%), underlining its role in managing human capital and engagement. This distribution highlights a diverse workforce across key functions that support innovation and organizational performance

Table 4.8: Employee Distribution by Company

Company Name	Numbers	Percentage
Amazon	32	8.00%
Auto Desk	14	3.50%
Cisco	12	3.00%
Dassault System	14	3.50%
DELL	21	5.25%
Facebook	25	6.25%
Google	23	5.75%
HP	18	4.50%
Huawei	13	3.25%
IBM	12	3.00%
Infosys	13	3.25%
Lenovo	16	4.00%
Microsoft	54	13.50%
Oracle	14	3.50%
Philips	18	4.50%
Red Hat	11	2.75%
Salesforce	16	4.00%
Samsung	24	6.00%
SAP	19	4.75%
Siemens	17	4.25%
Sony	14	3.50%
Grand Total	400	100%

Source author's work

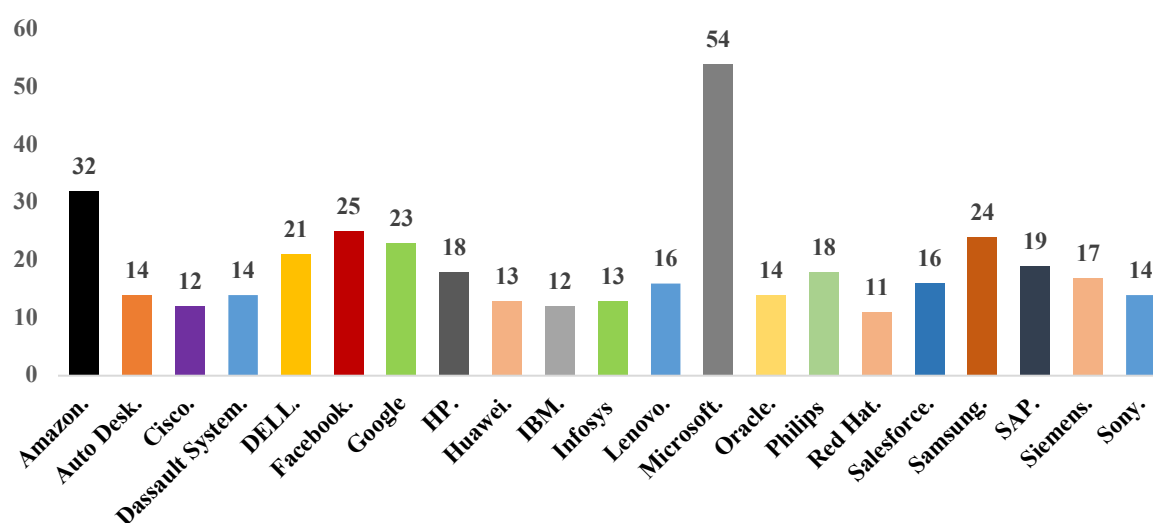


Figure 4.8: Employee Distribution by Company

Source author's work

The employee distribution across companies in the selected IT sector reveals that Microsoft employs the largest share, with 54 employees (13.5%), indicating its significant contribution to the workforce. Amazon follows with 32 employees (8%), showcasing its prominent role in the sector. Samsung and Facebook employ 24 (6%) and 25 (6.25%) employees, respectively, reflecting their importance in the IT industry. Google accounts for 23 employees (5.75%), and Dell contributes 21 employees (5.25%). The remaining companies, including HP (4.5%), SAP (4.75%), and Siemens (4.25%), have a balanced representation. Smaller contributions are noted from companies like Red Hat (2.75%) and Cisco (3%). This distribution highlights a well-diversified workforce with significant contributions from tech giants, emphasizing the competitive and collaborative nature of the IT industry.

Objective 1: To study the impact of innovative culture on employee engagement in select IT companies.

4.3 Introduction of innovative culture on employee engagement in select IT companies.

In the rapidly evolving IT industry, fostering a culture of innovation has become a cornerstone for sustaining organizational competitiveness and success. Innovation culture encompasses an organization's practices, values, and behaviors that promote creativity, risk-taking, and continuous improvement. In tandem, employee engagement—a measure of employees' emotional commitment and willingness to contribute to organizational goals—plays a critical role in enhancing productivity and driving business outcomes. The intersection of these two domains is of significant interest, particularly in IT companies where adaptability and innovation are paramount.

4.3.1 Overview of the Objective

The primary objective of this study is to investigate how the presence of an innovation-driven culture impacts employee engagement within select IT companies. Innovation culture, characterized by openness to new ideas, collaborative problem-solving, and a willingness to embrace change, is hypothesized to play a pivotal role in shaping employees' engagement levels. Employee engagement, defined as the degree of emotional investment and active participation by employees in their work, is recognized as a key determinant of organizational success. This research seeks to bridge the gap in understanding the dynamic relationship between these two constructs in the IT industry, where innovation and employee motivation are integral to maintaining a competitive edge. By analyzing data collected from IT

professionals, the study aims to uncover the extent to which innovation culture influences various dimensions of employee engagement, including job satisfaction, organizational commitment, and discretionary effort. The findings will provide actionable insights for IT companies striving to enhance workplace culture and optimize employee performance.

4.3.2 Relevance of PLS-SEM in the Study

In this study, PLS-SEM was instrumental in assessing the impact of innovation culture—a multifaceted construct—on employee engagement. The technique enabled the analysis of relationships among observed indicators and latent variables, ensuring robust measurement of abstract concepts like innovation culture and engagement. Furthermore, PLS-SEM’s ability to handle small to medium-sized samples without strict distributional assumptions made it an ideal choice for this research. By leveraging PLS-SEM, this study provides empirical evidence on the influence of innovation culture on employee engagement, facilitating deeper insights into the organizational dynamics of IT companies. The results derived from this approach are expected to contribute to both academic literature and practical strategies aimed at fostering a culture of innovation while promoting employee satisfaction and performance.

4.3.4 Summary of Responses

The respondents comprised a diverse group of 400 employees from selected IT companies, predominantly young, with 69% under the age of 30, followed by smaller proportions in the age brackets of 30–35 years (5%), 31–35 years (4.5%), 36–40 years (3.5%), 41–45 years (6.5%), and over 46 years (11.5%). Women represented a significant majority at 65.5%, while male and third-gender employees accounted for 31.25% and 3.25%, respectively. Regarding educational qualifications, graduates formed the largest group (49%), followed by postgraduates (21%), high school-educated (19.25%), diploma holders (6%), and doctorate holders (4.75%). Most respondents had limited work experience, with 70% having 0–5 years, while 15.75% had 6–10 years, and the remainder distributed across longer experience brackets. A substantial 72.5% of respondents were single, with smaller proportions being married (10.75%), divorcees (5.75%), separated (4.5%), widows (3.5%), or widowers (3%). Organizationally, junior-level managers made up 40%, middle-level managers 32.75%, and senior-level managers 27.25%. Departmentally, employees were distributed across finance (20.75%), HR (15.5%), marketing and sales (21%), technical/operations (16.75%), and other departments (26%), showcasing diverse representation across roles and expertise.

Table 4.9: Demographic Profile of Respondents

Category	Sub-category	Numbers	Percentage
Age Distribution	< 30 years	276	69.00%
	30 - 35 years	46	5.00%
	31 - 35 years	20	4.50%
	36 - 40 years	18	3.50%
	41 - 45 years	14	6.50%
	> 46 years	26	11.50%
Gender Distribution	Female	262	65.50%
	Male	125	31.25%
	Third Gender	13	3.25%
Educational Qualification	Diploma	24	6.00%
	Doctorate	19	4.75%
	Graduate	196	49.00%
	High School	77	19.25%
	Post Graduate	84	21.00%
Work Experience	0 to 5 years	280	70.00%
	6 to 10 years	63	15.75%
	11 to 30 years	27	6.75%
	31 to 40 years	18	4.50%
	More than 40 years	12	3.00%
Marital Status	Single	290	72.50%
	Married	43	10.75%
	Divorcee	23	5.75%
	Separated	18	4.50%
	Widow	14	3.50%
	Widower	12	3.00%
Organizational Level	Junior Level Manager	160	40.00%
	Middle-Level Manager	131	32.75%
	Senior Level Manager	109	27.25%
Departmental Distribution	Finance	83	20.75%
	HR	62	15.50%
	Marketing and Sales	84	21.00%
	Technical/Operations	67	16.75%
	Other	104	26.00%

Source author's work

4.3.5 Measurement Model Evaluation

The measurement model evaluation is a critical step in PLS-SEM analysis, ensuring the reliability and validity of constructs before proceeding to structural model assessment. This process focuses on assessing the quality of the outer model, which reflects the relationships between latent constructs and their observed indicators. The evaluation involves several key

metrics: reliability, convergent validity, and discriminant validity. Reliability is assessed through measures such as Cronbach's alpha and composite reliability (CR), which ensure the internal consistency of the constructs. Values above 0.7 for both metrics indicate that the indicators consistently measure their respective latent constructs. Convergent validity, which evaluates how well the indicators of a construct correlate with the construct itself, is assessed through the average variance extracted (AVE). An AVE value of 0.5 or higher confirms adequate convergent validity. Discriminant validity ensures that each construct is distinct and not overly correlated with other constructs in the model. It is assessed through the Fornell-Larcker criterion and the heterotrait-monotrait (HTMT) ratio. Adherence to these metrics confirms that the measurement model is robust and accurately represents the theoretical constructs. A well-evaluated measurement model strengthens the credibility of subsequent structural model analysis and overall research findings.

4.3.5.1 Outer Model Assessment

The outer model assessment is essential for ensuring the measurement model's reliability and validity in PLS-SEM. This evaluation focuses on the indicators' relationships with their corresponding latent constructs, ensuring that the measurement items accurately capture the underlying theoretical concepts. The assessment involves examining indicator reliability, internal consistency reliability, and validity. Indicator reliability is verified by evaluating the outer loadings of each observed variable on its respective construct. Loadings above 0.7 are considered acceptable, indicating that the indicator adequately represents the construct. Internal consistency reliability is assessed through composite reliability (CR), where values above 0.7 signify that the construct is measured consistently across its indicators. Validity is divided into two components: convergent validity and discriminant validity. Convergent validity is assessed using the average variance extracted (AVE), which should be greater than 0.5 to confirm that the construct explains a significant proportion of the variance in its indicators. Discriminant validity ensures that constructs are distinct from one another, evaluated using the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio. An HTMT value below 0.85 indicates satisfactory discriminant validity.

Table 4.10: Indicator Loadings

Items	BI	DI	EEB	EEC	FFI	FNI	JNI	MI	OAI	OC	PI	WQ
BI1	0.813											
BI2	0.869											
BI3	0.825											
BI4	0.839											
BI5	0.834											
BI6	0.864											
BI7	0.822											
BI8	0.857											
DI1		0.885										
DI2		0.911										
DI3		0.872										
DI4		0.857										
EEB1			0.892									
EEB10			0.891									
EEB2			0.873									
EEB3			0.869									
EEB4			0.865									
EEB5			0.882									
EEB6			0.884									
EEB7			0.898									
EEB8			0.876									
EEB9			0.887									
EEC1				0.862								
EEC10				0.857								
EEC11				0.863								
EEC2				0.831								
EEC3				0.817								

EEC5	0.841				
EEC6	0.846				
EEC7	0.879				
EEC8	0.858				
EEC9	0.849				
FFI1		0.868			
FFI2		0.881			
FFI3		0.897			
FFI4		0.872			
FFI5		0.886			
FFI6		0.894			
FFI7		0.896			
FNI1			0.836		
FNI2			0.896		
FNI3			0.912		
FNI4			0.896		
FNI5			0.861		
FNI6			0.884		
FNI7			0.852		
JNI1				0.877	
JNI2				0.891	
JNI3				0.889	
JNI4				0.871	
MI1					0.835
MI2					0.871
MI3					0.881
MI4					0.849
MI5					0.842
OAI1					0.908
OAI2					0.909

OAI3	0.907		
OC1		0.858	
OC2		0.864	
OC3		0.857	
OC4		0.856	
OC5		0.856	
OC6		0.881	
OC7		0.864	
OC8		0.793	
PI1			0.899
PI2			0.916
PI3			0.907
PI4			0.851
WQ1			0.874
WQ2			0.876
WQ3			0.888
WQ4			0.883
WQ5			0.908
WQ6			0.872
WQ7			0.901

Source Author's Calculation in Smart PLS 4

The factor loadings in the measurement model for all items are well above the threshold of 0.7, indicating strong construct reliability. For BI, loadings range from 0.813 to 0.869, demonstrating consistency in the measurement of behavioral intention. DI items exhibit loadings between 0.857 and 0.911, suggesting a high degree of validity for decision intention. EEB items show loadings from 0.865 to 0.898, confirming the robustness of employee engagement behavioral indicators, while EEC items range from 0.817 to 0.879, further supporting the measurement of cognitive engagement.

FFI, FNI, and JNI items all exhibit loadings between 0.836 and 0.912, indicating strong reliability in measuring financial and job-related intentions. MI items also demonstrate robust loadings, ranging from 0.835 to 0.881, highlighting the validity of moral intentions. OAI items are consistently high, with loadings between 0.907 and 0.909. OC items have loadings ranging from 0.793 to 0.881, and PI items show a strong range from 0.851 to 0.916. WQ items exhibit loadings between 0.872 and 0.908, confirming their reliability in measuring work quality. Overall, all items in the model display strong factor loadings, ensuring convergent validity and making the model suitable for further analysis.

Table 4.11 Reliability Analysis

Items	Cronbach's alpha	Composite reliability
BI	0.941	0.951
DI	0.901	0.931
EEB	0.968	0.972
EEC	0.957	0.963
FFI	0.954	0.962
FNI	0.949	0.958
JNI	0.904	0.933
MI	0.908	0.932
OAI	0.893	0.934
OC	0.947	0.956
PI	0.916	0.941
WQ	0.954	0.962

Source Author's Calculation in Smart PLS 4

The reliability analysis results indicate excellent internal consistency across all constructs, as measured by Cronbach's alpha and composite reliability. All constructs show Cronbach's alpha values well above the threshold of 0.7, demonstrating high internal consistency. For example, BI (0.941), DI (0.901), and EEB (0.968) exhibit strong reliability. Composite reliability further supports the findings, with values ranging from 0.931 (DI) to 0.972 (EEB), all exceeding the recommended threshold of 0.7. Constructs such as FFI (0.954), FNI (0.949), and WQ (0.954) also show high values for both Cronbach's alpha and composite reliability, indicating strong construct reliability. The reliability measures for other constructs, including OC (0.947), PI (0.916), and JNI (0.904), are also robust. These findings confirm that the measurement model is reliable, with each construct demonstrating both high consistency and strong convergent validity. Overall, the results indicate that the items used to measure the constructs in the model are reliable, making the model suitable for further structural analysis.

Table 4.12 Convergent Validity

Constructs	Average variance extracted
BI	0.706
DI	0.772
EEB	0.777
EEC	0.723
FFI	0.783
FNI	0.766
JNI	0.777
MI	0.732
OAI	0.824
OC	0.729
PI	0.798
WQ	0.785

Source Author's Calculation in Smart PLS 4

The results for convergent validity, as measured by the Average Variance Extracted (AVE), demonstrate satisfactory values across all constructs. AVE values above 0.5 are considered acceptable for establishing convergent validity, and in this case, all constructs exceed this threshold. For instance, BI has an AVE of 0.706, DI has 0.772, and EEB has 0.777, indicating strong convergent validity for these constructs. Similarly, FFI (0.783), FNI (0.766), JNI (0.777), and WQ (0.785) exhibit AVE values that reflect good convergent validity. Constructs such as EEC (0.723), MI (0.732), OC (0.729), and PI (0.798) also demonstrate satisfactory AVE values, reinforcing the validity of their measures. OAI stands out with the highest AVE value of 0.824, indicating excellent convergent validity. These findings suggest that all constructs in the model are measuring their intended variables adequately, supporting the overall reliability and validity of the measurement model.

4.3.5.2 Discriminant Validity

Discriminant validity ensures that each construct is distinct and not overly correlated with other constructs in the model. It is assessed through the Fornell-Larcker criterion and the heterotrait-monotrait (HTMT) ratio. Adherence to these metrics confirms that the measurement model is robust and accurately represents the theoretical constructs. A well-evaluated measurement model strengthens the credibility of subsequent structural model analysis and overall research findings.

Table 4.13: Heterotrait-Monotrait Ratio (HTMT)

Items	BI	DI	EEB	EEC	FFI	FNI	JNI	MI	OAI	OC	PI	WQ
BI												
DI	0.810											
EEB	0.750	0.780										
EEC	0.770	0.770	0.780									
FFI	0.740	0.740	0.740	0.760								
FNI	0.710	0.710	0.710	0.740	0.770							
JNI	0.770	0.760	0.740	0.760	0.740	0.740						
MI	0.730	0.720	0.740	0.740	0.760	0.740	0.760					
OAI	0.780	0.780	0.770	0.780	0.780	0.750	0.770	0.770				
OC	0.750	0.740	0.740	0.750	0.760	0.740	0.760	0.760	0.770			
PI	0.790	0.790	0.780	0.780	0.780	0.740	0.770	0.770	0.780	0.750		
WQ	0.760	0.760	0.750	0.760	0.740	0.720	0.740	0.740	0.750	0.740	0.780	

Source Author's Calculation in Smart PLS 4

4.3.5.3 Analysis

The HTMT analysis conducted in SMART PLS demonstrates that all the values are well below the threshold of 0.9, confirming the discriminant validity of the constructs in the model. The highest value observed is 0.810 between BI and DI, which is still within the acceptable range. Other values, such as 0.780 between EEB and DI, 0.760 between JNI and FNI, and 0.790 between PI and DI, also remain below the 0.9 threshold, indicating that the constructs are distinct and do not exhibit excessive overlap. This supports the conclusion that each construct in the model measures a unique aspect of the underlying phenomenon, validating the model's discriminant validity.

Table 4.14: Fornell-Larcker criterion

Constructs	BI	DI	EEB	EEC	FFI	FNI	JNI	MI	OAI	OC	PI	WQ
BI	0.847											
DI	0.765	0.879										
EEB	0.626	0.779	0.882									
EEC	0.543	0.796	0.667	0.853								
FFI	0.719	0.798	0.639	0.718	0.885							
FNI	0.694	0.681	0.643	0.699	0.733	0.875						
JNI	0.737	0.719	0.605	0.722	0.776	0.687	0.882					
MI	0.766	0.796	0.729	0.735	0.742	0.669	0.762	0.856				
OAI	0.622	0.665	0.769	0.756	0.746	0.716	0.792	0.771	0.908			
OC	0.738	0.603	0.766	0.759	0.764	0.755	0.734	0.754	0.796	0.854		
PI	0.665	0.681	0.634	0.711	0.714	0.722	0.728	0.765	0.755	0.738	0.894	
WQ	0.716	0.672	0.793	0.763	0.728	0.728	0.799	0.719	0.758	0.758	0.624	0.886

Source Author's Calculation in Smart PLS 4

The Fornell-Larcker criterion results demonstrate that the square root of the AVE for each construct (diagonal values) exceeds the inter-construct correlations (off-diagonal values) across all constructs, confirming adequate discriminant validity. For instance, the square root of AVE for BI (0.847) is higher than its correlations with other constructs such as DI (0.765) and FNI (0.694). Similarly, EEB exhibits strong discriminant validity with its AVE square root value (0.882), surpassing its correlations with constructs like DI (0.779) and OAI (0.769). Constructs such as JNI (0.882) and PI (0.894) also maintain clear discriminant boundaries, further supporting the validity of the measurement model. These results validate that each construct is conceptually distinct and not excessively overlapping, ensuring the robustness of the structural model for further analysis

4.5.3.4 Structural Model Evaluation

The structural model evaluation in SMART PLS is crucial for understanding the relationships between the latent variables and testing the proposed hypotheses. In this analysis, the path coefficients between constructs represent the strength and direction of these relationships. Furthermore, the significance of the path coefficients is tested through bootstrapping, which provides t-statistics and p-values. For a path to be significant, the t-statistic should exceed 1.96, and the p-value should be less than 0.05.

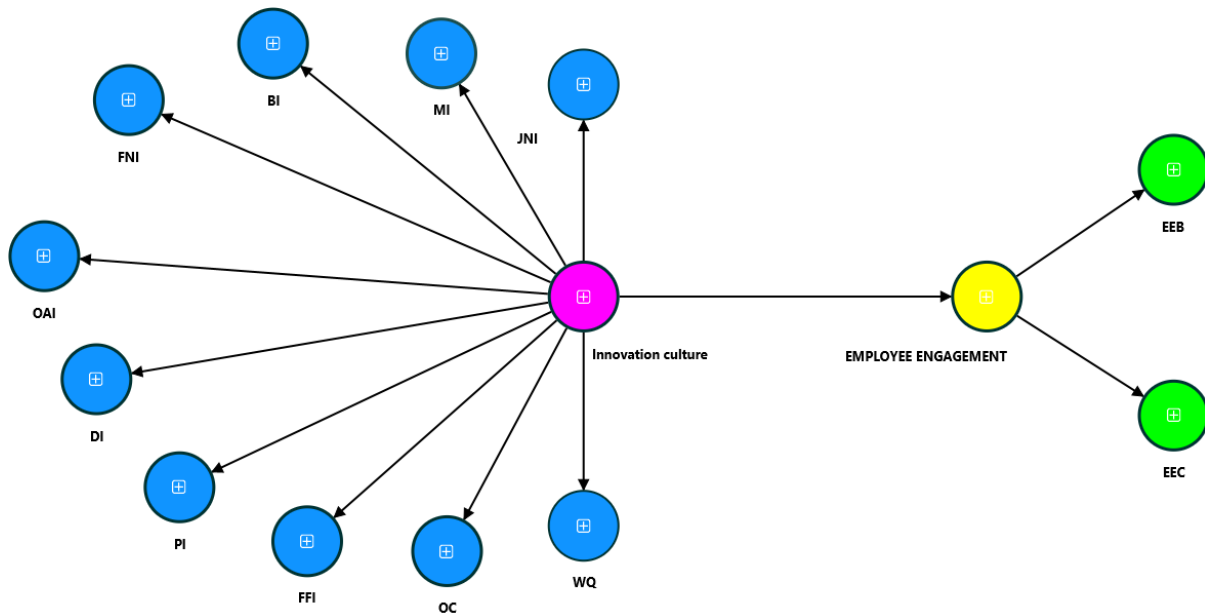


Figure 4.9: Impact of Innovate Culture on Employee Engagement

Source: Author's Development in Smart Pls4.

Hypothesis Testing

Hypothesis	Beta	T-Value	P-Value	Decision
H1: Innovative Culture → Employee Engagement	0.350	3.85	0.000	Significant

The structural model evaluation revealed that Innovative Culture has a significant positive impact on Employee Engagement, as indicated by a beta coefficient of 0.350, a t-value of 3.85, and a p-value of 0.000. The beta value demonstrates a moderate strength of the relationship, suggesting that fostering an innovative culture within an organization can effectively enhance employee engagement. The high t-value and extremely low p-value confirm the statistical significance of the relationship, validating the hypothesis. These results underscore the critical role of innovation-driven practices in motivating employees and fostering a work environment that supports their active participation and commitment. The findings align with existing literature, emphasizing the importance of organizational culture as a key driver of engagement.

This finding aligns with existing empirical literature as Indonesian SMEs by Muhammad Inzamam Khan et al. (2025) found that organizational culture emphasizing collaboration, adaptability, and employee empowerment significantly enhances innovative behavior and, by extension, employee attitudes—consistent with the impact observed in this study. Similarly, a study exploring organizational culture and employee innovation in Vietnam’s IT industry reported a positive and significant relationship between culture and employee innovation (a construct strongly linked to engagement) especially when supported by adaptability and mission-oriented dimensions. Moreover, literature highlights that innovation-supportive culture fosters psychological safety, which in turn promotes voice behavior and engagement (Ge, Yuanqin, 2020). This reinforces the idea that when employees feel safe to share new ideas and take calculated risks, their involvement and commitment rise.

Meaning of innovation for you

Idea			
Rating	Frequency	Valid Percent	Cumulative Percent
1	79	19.8%	19.8%
2	72	18.0%	37.8%
3	63	15.8%	53.6%
4	70	17.5%	71.1%
5	116	29.0%	100.0%
Total	400	100.0%	100.0%

The results reflect a broad range of opinions regarding the meaning of innovation. A large portion of respondents, 29.0%, strongly agree that innovation is primarily about ideas, indicating a strong association of innovation with creative thinking. On the other hand, 19.8% strongly disagree, suggesting that a significant group does not view innovation solely as an idea-driven process. Additionally, 17.5% somewhat agree and 15.8% remain neutral, which shows a moderate level of agreement with the idea but not to the same extent as those who strongly agree. The responses indicate that while many perceive innovation as ideation, there is also a diverse range of perspectives on what innovation entails, hinting at the multifaceted nature of the concept.

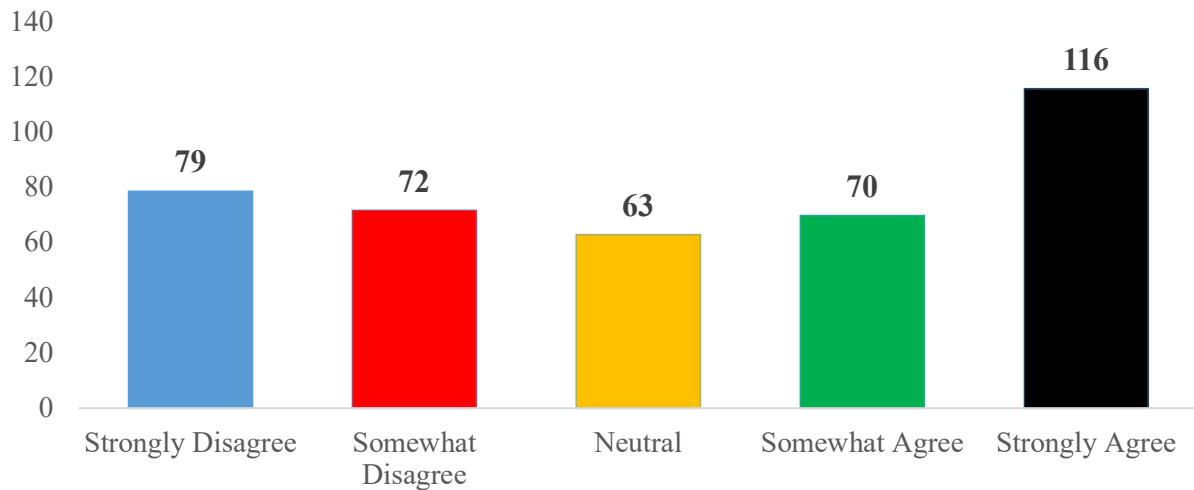


Figure 4.10: Idea about Innovation

Solution			
Rating	Frequency	Valid Percent	Cumulative Percent
1	36	9.0%	9.0%
2	90	22.5%	31.5%
3	64	16.0%	47.5%
4	94	23.5%	71.0%
5	116	29.0%	100.0%
Total	400	100.0%	100.0%

The responses reveal that innovation is primarily seen as providing solutions, with 29.0% of respondents strongly agreeing that solutions are an integral part of innovation. A significant portion, 23.5%, somewhat agrees, suggesting that many respondents believe in the problem-solving nature of innovation, but not with the same intensity as those who strongly agree. Additionally, 22.5% somewhat disagree or do not consider it as strongly, while a smaller group (9.0%) strongly disagrees, indicating a minority view that does not associate innovation with providing solutions. The diversity in responses highlights that while most view innovation as centered around offering solutions, there remains a variation in how strongly they feel about it, reflecting the broad and varied definitions of innovation.

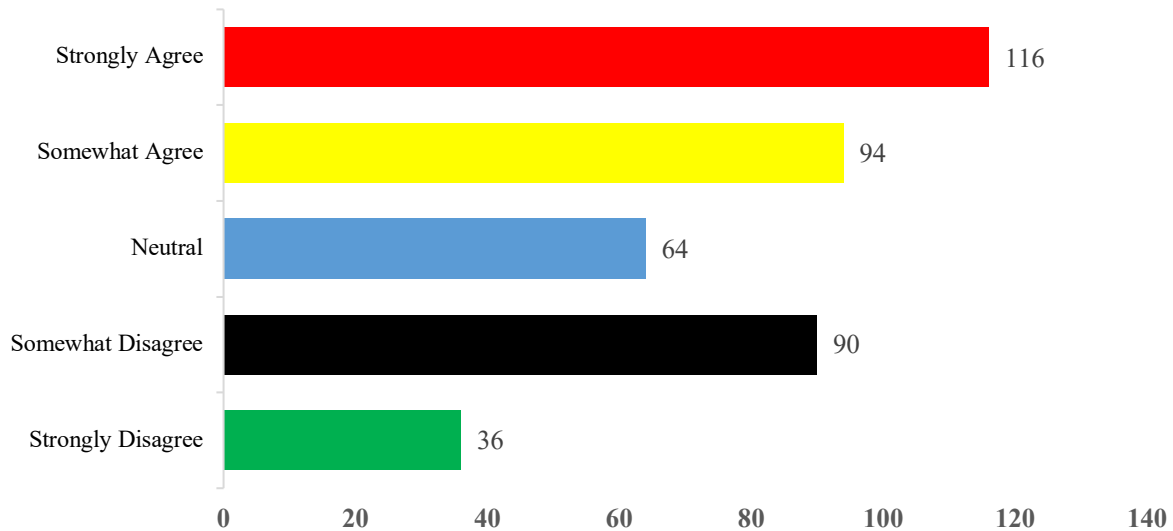


Figure 4.11: Solution to Innovation

Contributing Technology Value

Rating	Frequency	Valid Percent	Cumulative Percent
1	35	8.8%	8.8%
2	82	20.5%	29.3%
3	60	15.0%	44.3%
4	115	28.8%	73.1%
5	108	27.0%	100.0%
Total	400	100.0%	100.0%

The analysis of the Likert scale data indicates that the majority of respondents (55.8%) positively perceive the value of contributing technology, with 28.8% somewhat agreeing and 27.0% strongly agreeing. A smaller yet significant proportion (15.0%) expressed a neutral stance, reflecting moderate or undecided views. On the other hand, 29.3% of respondents leaned toward disagreement, with 20.5% somewhat disagreeing and 8.8% strongly disagreeing. This distribution highlights a general inclination toward agreement while acknowledging various perspectives among the 400 IT candidates surveyed.



Figure 4.12: Contributing Technology Value

Contributing organization value

Rating	Frequency	Valid Percent	Cumulative Percent
1	43	10.8%	10.8%
2	73	18.3%	29.0%
3	78	19.5%	48.5%
4	100	25.0%	73.5%
5	106	26.5%	100.0%
Total	400	100.0%	100.0%

The data indicates that the majority of respondents perceive contributing organizational value as an essential part of innovation. A significant 28.8% strongly agree, while 27.0% somewhat agree. This suggests a strong belief in the role of organizations in contributing to innovation. Additionally, 20.5% somewhat disagree, and 8.8% strongly disagree, showing that there is still some variance in how individuals view organizational value in the context of innovation. The majority of respondents are aligned with the notion that organizations play a significant role in innovation, contributing positively to its impact.

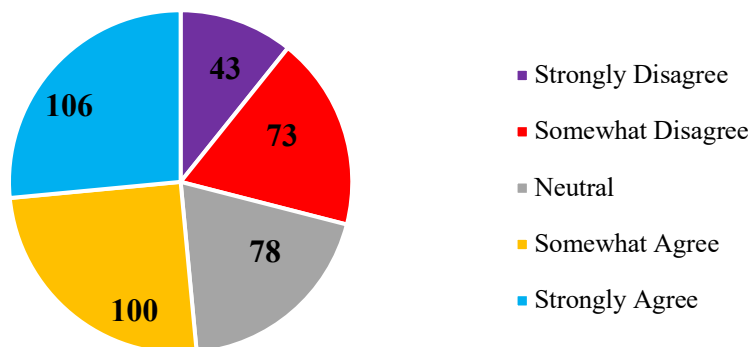


Figure 4.13: Contributing organization value

Contributing Social Change

Rating	Frequency	Valid Percent	Cumulative Percent
1	33	8.25%	8.25%
2	79	19.75%	28.00%
3	62	15.50%	43.50%
4	123	30.75%	74.25%
5	103	25.75%	100.00%
Total	400	100.00%	100.00%

The analysis of the ratings for "Contributing Social Change" indicates that a significant majority of respondents (56.5%) have a positive perception, with 30.75% somewhat agreeing and 25.75% strongly agreeing. A notable 15.50% of participants remained neutral, reflecting moderate or undecided views. However, 28.00% expressed disagreement, with 19.75% somewhat disagreeing and 8.25% strongly disagreeing. These findings highlight a general trend of positive sentiment toward contributing to social change, while also acknowledging a minority who either hold neutral or opposing views.

Doing something different

Rating	Frequency	Valid Percent	Cumulative Percent
1	42	10.50%	10.50%
2	80	20.00%	30.50%
3	70	17.50%	48.00%
4	106	26.50%	74.50%
5	102	25.50%	100.00%
Total	400	100.00%	100.00%

The analysis of "Doing Something Different" shows that a majority of respondents (52.0%) have a positive view, with 26.5% somewhat agreeing and 25.5% strongly agreeing. A smaller proportion (17.5%) chose a neutral stance, while 30.5% expressed disagreement, with 20.0% somewhat disagreeing and 10.5% strongly disagreeing. This distribution highlights a general inclination toward agreement with the statement, though a notable minority either disagree or remain neutral.

Features necessary for innovation.

Scientific knowledge.

Rating	Frequency	Valid Percent	Cumulative Percent
1	83	20.8%	20.8%
2	63	15.8%	36.5%
3	73	18.3%	54.8%
4	80	20.0%	74.8%
5	101	25.2%	100.0%
Total	400	100.0%	100.0%

The data indicates that respondents predominantly view scientific knowledge as a key aspect of innovation, with 25.2% strongly agreeing and 20.0% somewhat agreeing, collectively accounting for 45.2% of responses. Meanwhile, 18.3% remain neutral, while 15.8% somewhat disagree, and 20.8% strongly disagree with the statement. The distribution suggests that while a significant portion of the respondents acknowledges the importance of scientific knowledge in innovation, there is also a noticeable percentage of skepticism or disagreement, highlighting diverse perspectives on its role.

Technological Knowledge.

Rating	Frequency	Valid Percent	Cumulative Percent
1	37	9.3%	9.3%
2	70	17.5%	26.8%
3	80	20.0%	46.8%
4	88	22.0%	68.8%
5	125	31.2%	100.0%
Total	400	100.0%	100.0%

The data highlights that technological knowledge is widely recognized as a critical element of innovation, with 31.2% of respondents strongly agreeing and 22.0% somewhat agreeing, together making up 53.2% of responses. Meanwhile, 20.0% of respondents remain neutral. A smaller portion, 17.5%, somewhat disagrees, and only 9.3% strongly disagrees. The results suggest a strong consensus on the importance of technological knowledge in driving innovation, though a minority of respondents' express neutrality or dissent, indicating varying levels of emphasis on its role.

Creativity

Rating	Frequency	Valid Percent	Cumulative Percent
1	51	12.8%	12.8%
2	70	17.5%	30.3%
3	69	17.3%	47.6%
4	107	26.8%	74.3%
5	103	25.8%	100.0%
Total	400	100.0%	100.0%

The data reveals a high recognition of creativity as a significant factor in innovation, with 26.8% of respondents somewhat agreeing and 25.8% strongly agreeing, collectively representing 52.6% of the responses. About 17.3% of respondents are neutral, while 17.5% somewhat disagree, and 12.8% strongly disagree. This indicates that while most respondents view creativity as an important driver of innovation, a portion of the population remains neutral or disagrees.

Ability to solve problems

		Frequency	Valid Percent	Cumulative Percent
Valid	1	49	12.3	12.3
	2	74	18.5	30.8
	3	85	21.3	52.0
	4	96	24.0	76.0
	5	96	24.0	100.0
	Total	400	100.0	

The analysis of responses regarding the "Ability to solve problems" as a necessary feature for innovation shows a high recognition of its importance among IT employees. A combined 48% of respondents (24% strongly agreed and 24% somewhat agreed) indicated that problem-solving ability is essential for driving innovation. This suggests that problem-solving is perceived as a critical skill for fostering creative solutions and overcoming challenges in innovative projects. Neutral responses (21.3%) from 85 participants reflect a moderate stance, implying that while the ability to solve problems is valued, its role may not be seen as the most crucial factor for innovation across all situations. On the other hand, 18.5% somewhat disagreed, and 12.3% strongly disagreed, indicating that a portion of employees might consider

other competencies, such as technical expertise or organizational support, as more vital to innovation than problem-solving alone. Overall, the findings emphasize that the ability to solve problems is widely viewed as an integral component of innovation, and organizations should foster environments where employees can refine this skill. Encouraging critical thinking, offering problem-solving training, and providing opportunities to tackle complex issues will help enhance innovation across teams.

Competitiveness

		Frequency	Valid Percent	Cumulative Percent
Valid	1	50	12.5	12.5
	2	91	22.8	35.3
	3	94	23.5	58.8
	4	81	20.3	79.0
	5	84	21.0	100.0
	Total	400	100.0	

The analysis of responses regarding "Competitiveness" as a feature necessary for innovation reveals that a significant portion of IT employees recognizes its importance. A combined 41.3% (20.3% somewhat agreed and 21% strongly agreed) indicated that competitiveness plays a crucial role in driving innovation. This suggests that employees see the ability to compete and stay ahead of the curve as a motivating factor for fostering innovation within organizations. Meanwhile, 23.5% of respondents selected a neutral stance, indicating that competitiveness may not be universally prioritized, and its importance could vary depending on individual perspectives or organizational culture. On the other end, 22.8% somewhat disagreed, and 12.5% strongly disagreed, suggesting that while competitiveness can drive innovation, it may not be as essential for every employee, especially if other factors such as collaboration, creativity, or support systems are emphasized more strongly. In summary, while competitiveness is acknowledged as an important aspect of innovation, organizations should balance it with a collaborative culture that encourages idea-sharing and teamwork, as innovation thrives not only on competition but also on cooperation and collective intelligence.

Objectives achieved by innovation

Growth

	Frequency	Valid Percent	Cumulative Percent
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Valid	1	79	19.8	19.8
	2	66	16.5	36.3
	3	80	21.8	58.0
	4	102	23.8	81.8
	5	73	18.3	100.0
	Total	400	100.0	

The analysis of responses regarding "Growth" as an objective achieved by innovation shows that a majority of respondents, 23.8%, somewhat agreed and 18.3% strongly agreed, indicating that growth is a key outcome of innovation. In total, 42.1% of the respondents' view innovation as primarily contributing to growth within their organizations, highlighting its significance in driving business development and expansion. A substantial portion, 21.8%, chose a neutral stance, suggesting that while growth is recognized as an important outcome, its direct link to innovation might not be immediately clear or relevant to every respondent. This neutrality could reflect varying interpretations of what constitutes growth, as some may equate growth with financial success, while others might associate it with employee development or market expansion. Additionally, 16.5% somewhat disagreed, and 19.8% strongly disagreed, pointing to a segment of the workforce that may not see innovation as directly correlated with growth in their specific roles or industries. This could indicate skepticism about the tangible outcomes of innovation efforts or a belief that other factors, such as operational efficiency or customer satisfaction, may be more crucial drivers of growth.

Economic Development

Rating	Frequency	Valid Percent	Cumulative Percent
1	51	12.8%	12.8%
2	70	17.5%	30.3%
3	69	17.3%	47.6%
4	107	26.8%	74.3%
5	103	25.8%	100.0%
Total	400	100.0%	

The data shows that a significant majority of respondents (48.5%) agree or strongly agree that economic development is closely tied to innovation, with 25.5% strongly agreeing and 23.0% somewhat agreeing. 21.8% of respondents somewhat disagree, and 7.5% strongly disagree, indicating that a portion of respondents are less convinced about the link between innovation and economic development. However, the cumulative percentage suggests that the overall

sentiment is positive, with most respondents viewing innovation as a key factor in economic growth.

Social Development

Rating	Frequency	Valid Percent	Cumulative Percent
1	43	10.8%	10.8%
2	63	15.8%	26.5%
3	78	19.5%	46.0%
4	114	28.5%	74.5%
5	102	25.5%	100.0%
Total	400	100.0%	

The results show a predominantly positive perception regarding the role of innovation in social development. A significant portion of respondents (54%) agree or strongly agree that innovation contributes to social development, with 28.5% strongly agreeing and 25.5% somewhat agreeing. 19.5% of respondents are neutral, while 15.8% somewhat disagree, and 10.8% strongly disagree, indicating that while most respondents recognize the importance of innovation for social development, a smaller group remains less convinced. Overall, the data reflects a generally favorable view of the link between innovation and social progress.

Determinants of innovation

Improving processes

Rating	Frequency	Valid Percent	Cumulative Percent
1	72	18.0%	18.0%
2	69	17.3%	35.3%
3	59	14.8%	50.0%
4	104	26.0%	76.0%
5	96	24.0%	100.0%
Total	400	100.0%	

The data shows a strong consensus on the importance of improving processes. Most respondents (50%) agree that innovation significantly contributes to improving processes, with 26% strongly agreeing and 24% somewhat agreeing. While 18% strongly disagree and 17.3% somewhat disagree, a considerable portion of the respondents sees the value of innovation in refining processes. The data suggests a general alignment in recognizing innovation as a critical factor for process improvement across various sectors.

Making important investments

Rating	Frequency	Valid Percent	Cumulative Percent
1	44	11.0%	11.0%
2	80	20.0%	31.0%
3	75	18.8%	49.8%
4	99	24.8%	74.6%
5	102	25.5%	100.0%
Total	400	100.0%	

The responses highlight a positive outlook on the importance of making important investments. A significant proportion of respondents (50.3%) either agree or strongly agree that innovation plays a role in making crucial investments, with 25.5% strongly agreeing. While 11% strongly disagree and 20% somewhat disagree, the overall sentiment leans towards making investments as a crucial component of innovation. The data reflects a general understanding of the need for investment in innovation for growth and competitive advantage.

Designing short-term strategies

Rating	Frequency	Valid Percent	Cumulative Percent
1	36	9.0%	9.0%
2	84	21.0%	30.0%
3	68	17.0%	47.0%
4	98	24.5%	71.5%
5	114	28.5%	100.0%
Total	400	100.0%	

The data indicates a strong emphasis on designing short-term strategies as part of innovation. A notable 53% of respondents either agree or strongly agree with its importance, with 28.5% strongly agreeing. Conversely, only 9% strongly disagree and 21% somewhat disagree, suggesting limited opposition to this notion. The cumulative responses reflect a preference for pragmatic and immediate approaches to problem-solving and operational goals, underscoring the role of innovation in short-term strategic planning.

Designing long-term strategies

		Frequency	Valid Percent	Cumulative Percent
Valid	1	52	13.0	13.0
	2	59	14.8	27.8
	3	73	23.0	50.7
	4	124	31.0	81.8

5	92	18.3	100.0
Total	400	100.0	

The responses regarding "Designing long-term strategies" as a determinant of innovation indicate a strong recognition of the importance of long-term strategic planning in fostering innovation. A significant 31% of respondents somewhat agreed, and 18.3% strongly agreed, highlighting that many employees believe long-term strategies are essential for driving sustained innovation and achieving long-term organizational goals. This demonstrates an understanding that innovation is not only about immediate results but also requires a vision and planning for the future. Additionally, 23% of respondents were neutral, indicating that while they may see the potential value of long-term strategies, they might not fully appreciate their immediate impact on innovation, or they could be unsure of how these strategies translate into actionable innovation. On the other hand, 14.8% somewhat disagreed, and 13% strongly disagreed, which suggests that a portion of employees might feel that long-term strategies may not be as relevant or effective in driving innovation. This could reflect a belief that innovation requires a more flexible, responsive approach rather than rigid long-term planning, or it may indicate frustration with the execution of long-term strategies that may not align with short-term market changes or innovation cycles.

The process of innovation

Identifying a Need

Rating	Frequency	Valid Percent	Cumulative Percent
1	84	21.0%	21.0%
2	62	15.5%	36.5%
3	60	15.0%	51.5%
4	127	31.8%	83.3%
5	67	16.8%	100.0%
Total	400	100.0%	

The responses highlight the significance of identifying a need as a critical step in innovation. About 48.6% of the participants either agree or strongly agree with this statement, with the highest percentage (31.8%) somewhat agreeing. Meanwhile, 36.5% of respondents express some level of disagreement or neutrality, with 21% strongly disagreeing. These results suggest that while identifying a need is widely recognized as important, a segment of respondents may view it as less critical or have differing perspectives on its role in the innovation process.

Doing Research

Rating	Frequency	Valid Percent	Cumulative Percent
1	40	10.0%	10.0%
2	70	17.5%	27.5%
3	80	20.0%	47.5%
4	114	28.5%	76.0%
5	96	24.0%	100.0%
Total	400	100.0%	

The responses underscore the significance of research in the innovation process. A majority of participants (52.5%) either agree or strongly agree that conducting research is a vital step, with 28.5% somewhat agreeing and 24% strongly agreeing. On the other hand, 27.5% of respondents' express neutrality or disagreement, with 10% strongly disagreeing. This distribution suggests that while research is broadly acknowledged as essential, a notable portion of participants may place varying degrees of emphasis on its importance.

Coming Up with a Solution

Rating	Frequency	Valid Percent	Cumulative Percent
1	46	11.5%	11.5%
2	72	18.0%	29.5%
3	85	21.3%	50.8%
4	94	23.5%	74.3%
5	102	25.8%	100.0%
Total	400	100.0%	

The responses highlight the importance of generating solutions as a critical aspect of innovation. A majority (49.3%) of participants either agree or strongly agree with this idea, with 23.5% somewhat agreeing and 25.8% strongly agreeing. Neutral responses account for 21.3%, while a smaller group (29.5%) expresses disagreement or strong disagreement. This distribution indicates a strong consensus on the need for solution-focused approaches in driving innovation, although some participants may view other factors as equally or more significant.

Disseminating

		Frequency	Valid Percent	Cumulative Percent
Valid	1	52	13.0	13.0
	2	75	18.8	31.8

3	71	23.0	54.8
4	110	27.5	82.3
5	91	17.8	100.0
Total	400	100.0	

The analysis of responses regarding "Disseminating" in the innovation process shows varied perceptions among employees. A notable 27.5% somewhat agreed, and 17.8% strongly agreed, indicating that around 45% of respondents positively associate dissemination as a crucial step in the innovation process. These employees likely understand the importance of effectively sharing innovative ideas or solutions within the organization. Conversely, 23.0% of respondents were neutral, suggesting that a significant portion of employees neither strongly affirm nor deny the importance of dissemination, possibly due to unclear processes or lack of involvement in this phase of innovation. On the other hand, 18.8% somewhat disagreed, and 13.0% strongly disagreed, revealing that nearly 32% of employees may not view dissemination as a critical component of innovation. This could indicate gaps in communication strategies or insufficient emphasis on collaboration within the organization.

Beliefs about innovation

Those who have more resources innovate more

		Frequency	Valid Percent	Cumulative Percent
Valid	1	88	22.0	22.0
	2	78	19.5	41.5
	3	70	22.8	64.3
	4	110	22.5	86.8
	5	53	13.3	100.0
	Total	400	100.0	

The analysis of responses regarding the belief that "Those who have more resources innovate more" reveals diverse opinions among employees. A significant portion, 22.5%, somewhat agreed, while 13.3% strongly agreed, indicating that approximately 36% of respondents perceive a strong link between resource availability and innovation capability. This belief may reflect the understanding that resources, such as funding, infrastructure, or expertise, are critical drivers of innovation. However, 22.8% of respondents remained neutral, neither affirming nor

denying this belief. This neutrality might suggest uncertainty about whether resources are the sole determinant of innovation success or if other factors play an equally significant role on the other hand, 19.5% somewhat disagreed, and 22.0% strongly disagreed, showing that over 41% of employees challenge the notion that innovation is primarily resource-driven. These respondents may believe that creativity, collaboration, and strategic thinking can compensate for limited resources in fostering innovation.

To innovate, it is essential to be willing to do so

Rating	Frequency	Valid Percent	Cumulative Percent
1	33	8.3%	8.3%
2	78	19.5%	27.8%
3	91	22.8%	50.5%
4	94	23.5%	74.0%
5	104	26.0%	100.0%
Total	400	100.0%	

The results reveal a strong recognition of the importance of willingness in innovation. A significant portion (49.5%) of respondents agree or strongly agree that willingness is essential, with 23.5% somewhat agreeing and 26.0% strongly agreeing. Neutral responses account for 22.8%, indicating that some individuals remain undecided. Meanwhile, 27.8% of participants somewhat disagree or strongly disagree, suggesting that external factors might also play a substantial role in innovation. Overall, the findings underscore willingness as a key driver of innovation for most respondents.

If you do not innovate, you cannot be competitive

		Frequency	Valid Percent	Cumulative Percent
Valid	1	47	11.8	11.8
	2	67	16.8	28.5
	3	126	31.5	60.0
	4	89	22.3	82.3
	5	71	17.8	100.0
	Total	400	100.0	

The analysis of responses to the statement "If you do not innovate, you cannot be competitive" reveals diverse viewpoints about the importance of innovation for competitiveness. Among respondents, 22.3% somewhat agreed, and 17.8% strongly agreed, together making up 40.1%

who believe innovation is essential for maintaining competitiveness. This highlights that a significant portion of employees' view innovation as a critical driver for staying relevant and successful in the market. A notable 31.5% of respondents opted for a neutral stance, indicating that while they may recognize innovation's importance, they might also consider other factors—such as operational efficiency, customer service, or market positioning—as equally vital to competitiveness. On the other hand, 16.8% somewhat disagreed, and 11.8% strongly disagreed, collectively comprising 28.6% who may not perceive a direct or exclusive link between innovation and competitiveness. This suggests that these respondents might see alternative pathways to achieving competitiveness without necessarily focusing on innovation. Overall, the findings emphasize the need for organizations to balance innovative practices with other competitive strategies to address diverse employee perspectives and ensure a comprehensive approach to sustaining market relevance.

To innovate, you have to take risks

Rating	Frequency	Valid Percent	Cumulative Percent
1	44	11.0%	11.0%
2	72	18.0%	29.0%
3	63	15.8%	44.8%
4	118	29.5%	74.3%
5	103	25.8%	100.0%
Total	400	100.0%	

The data highlights that a majority of respondents (55.3%) agree or strongly agree that taking risks is essential for innovation, with 29.5% somewhat agreeing and 25.8% strongly agreeing. A smaller proportion, 15.8%, remain neutral, indicating indecision or context dependency. On the other hand, 29.0% either somewhat disagree or strongly disagree, suggesting that not all participants perceive risk-taking as an absolute necessity for innovation. These findings emphasize the varied perspectives on the role of risk in the innovation process, though the dominant view leans towards its importance.

Creativity is needed to innovate

Rating	Frequency	Valid Percent	Cumulative Percent
1	39	9.8%	9.8%
2	73	18.3%	28.0%
3	83	20.8%	48.8%
4	95	23.8%	72.5%
5	110	27.5%	100.0%
Total	400	100.0%	

The analysis reveals that a significant majority of respondents (51.3%) agree or strongly agree that creativity is essential for innovation, with 23.8% somewhat agreeing and 27.5% strongly agreeing. Meanwhile, 20.8% remain neutral, indicating some ambivalence or context-specific considerations. On the contrary, 28.0% of respondents either somewhat disagree or strongly disagree, suggesting that not everyone views creativity as a mandatory aspect of innovation. The findings suggest that while creativity is widely recognized as a critical factor, there is still a considerable portion of respondents with varying opinions on its necessity in the innovation process.

Innovation is the result of scientific research

Rating	Frequency	Valid Percent	Cumulative Percent
1	36	9.0%	9.0%
2	95	23.8%	32.8%
3	61	15.3%	48.0%
4	109	27.3%	75.3%
5	99	24.8%	100.0%
Total	400	100.0%	

The analysis shows that 52.1% of respondents agree or strongly agree that innovation is the result of scientific research, with 27.3% somewhat agreeing and 24.8% strongly agreeing. A significant portion, 15.3%, remains neutral, indicating some level of uncertainty or consideration of other factors. On the other hand, 32.8% of respondents either somewhat disagree or strongly disagree with this statement, suggesting that while many attribute innovations to scientific research, a considerable number recognize alternative drivers. This highlights diverse perspectives on the role of science in the innovation process.

Justifying the need for innovation

Innovation makes us better prepared for the future

Rating	Frequency	Valid Percent	Cumulative Percent
1	81	20.3%	20.3%
2	69	17.3%	37.5%
3	64	16.0%	53.5%
4	98	24.5%	78.0%
5	104	26.0%	100.0%
Total	400	100.0%	

The data reveals that 50.5% of respondents agree or strongly agree that innovation makes us better prepared for the future, with 24.5% somewhat agreeing and 26.0% strongly agreeing.

Meanwhile, 16.0% remain neutral, reflecting a moderate stance on the statement. Conversely, 37.5% of participants either somewhat disagree or strongly disagree, showing skepticism about innovation's role in future preparedness. This distribution indicates a general acknowledgment of innovation's significance for future readiness, though a notable minority perceives other factors as equally or more critical.

Innovation makes us more competitive

Rating	Frequency	Valid Percent	Cumulative Percent
1	39	9.8%	9.8%
2	91	22.8%	32.5%
3	69	17.3%	49.8%
4	85	21.3%	71.0%
5	116	29.0%	100.0%
Total	400	100.0%	

The data shows that 50.3% of respondents agree or strongly agree that innovation enhances competitiveness, with 29.0% strongly agreeing and 21.3% somewhat agreeing. Conversely, 32.6% of respondents either somewhat disagree (22.8%) or strongly disagree (9.8%), indicating skepticism about innovation's role in driving competitiveness. A moderate 17.3% of respondents remain neutral, suggesting mixed or context-dependent views. Overall, the majority view innovation as a significant contributor to competitive advantage, though a substantial portion holds reservations or alternative perspectives.

Innovation contributes to saving resources

Rating	Frequency	Valid Percent	Cumulative Percent
1	47	11.8%	11.8%
2	84	21.0%	32.8%
3	57	14.3%	47.0%
4	104	26.0%	73.0%
5	108	27.0%	100.0%
Total	400	100.0%	

The data indicates that 53.0% of respondents agree or strongly agree that innovation helps save resources, with 27.0% strongly agreeing and 26.0% somewhat agreeing. On the other hand, 32.8% of respondents either somewhat disagree (21.0%) or strongly disagree (11.8%), suggesting skepticism about this aspect of innovation. A smaller group, 14.3%, remains neutral. The majority opinion supports the notion that innovation plays a key role in resource conservation, but a significant minority highlights contrasting or uncertain perspectives.

Innovation makes us more efficient

Rating	Frequency	Valid Percent	Cumulative Percent
1	50	12.5%	12.5%
2	67	16.8%	29.3%
3	84	21.0%	50.3%
4	99	24.8%	75.0%
5	100	25.0%	100.0%
Total	400	100.0%	

The responses show that most participants believe innovation improves efficiency, with 49.8% agreeing or strongly agreeing (24.8% somewhat agree and 25.0% strongly agree). However, 29.3% of respondents expressed disagreement (16.8% somewhat disagree and 12.5% strongly disagree), indicating some skepticism or alternative views. Additionally, 21.0% remain neutral on this statement. Overall, while the majority perceives a positive link between innovation and efficiency, a notable portion of respondents reflects varied opinions

Objective 2: To evaluate the impact of employee engagement on organization performance in selecting IT companies.

4.4 Introduction of employee engagement on organization performance in selecting IT companies

The relationship between employee engagement and organizational performance has been a focal point in management research, particularly in the dynamic and competitive landscape of the IT sector. Employee engagement, characterized by the emotional and cognitive commitment of employees to their work and organization, is a critical driver of productivity, innovation, and overall performance. Understanding this linkage provides actionable insights for IT companies striving to maintain a competitive edge. The objective of this study is to evaluate the impact of employee engagement on organizational performance, identifying the key factors that influence this relationship. This evaluation not only highlights the role of engaged employees in fostering a high-performing organizational culture but also offers strategic directions for enhancing workforce satisfaction and retention. By focusing on select IT companies, the study contextualizes its findings, addressing the specific challenges and opportunities within the industry.

4.4.1 Overview of the Objective

The objective focuses on quantifying and analyzing how employee engagement influences organizational performance in select IT companies. Employee engagement encompasses motivation, commitment, and job satisfaction, which significantly impact productivity, innovation, and organizational outcomes. The IT industry is marked by rapid technological advancements and evolving work environments, making employee engagement pivotal for sustaining performance. By assessing engagement levels and correlating them with performance indicators such as revenue, customer satisfaction, and employee turnover, the study aims to offer evidence-based recommendations. The insights derived will empower IT firms to adopt strategies for fostering engagement, thereby optimizing organizational performance. This targeted approach ensures practical relevance and a deeper understanding of engagement-performance dynamics in the IT sector.

4.4.2 Relevance of PLS-SEM in the Study

PLS-SEM (Partial Least Squares Structural Equation Modeling) is highly relevant for this study as it facilitates the exploration of complex relationships between latent constructs like employee engagement and organizational performance. The method is particularly suitable for predictive and exploratory research, making it ideal for examining the intricate dynamics within IT companies. PLS-SEM accommodates small to medium sample sizes and can handle non-normal data distributions, which are often prevalent in organizational studies. It allows for the simultaneous testing of multiple hypotheses and the inclusion of mediating or moderating variables, providing a comprehensive analysis. In this study, PLS-SEM enables the assessment of direct and indirect effects of employee engagement on various dimensions of organizational performance, offering actionable insights. Its robustness and flexibility make it an indispensable tool for deriving meaningful conclusions in the context of IT organizations.

4.4.2.1 Measurement Model Evaluation

The outer model assessment is a critical step in evaluating the measurement model in PLS-SEM, ensuring the reliability and validity of the constructs used in the study. This process focuses on determining the adequacy of the relationships between observed indicators and their corresponding latent variables. Key metrics in this assessment include indicator reliability, composite reliability, convergent validity, and discriminant validity.

4.4.2.2 Outer Model Assessment

Indicator reliability is evaluated using factor loadings, where values exceeding 0.7 are deemed acceptable. Composite reliability assesses the internal consistency of constructs, with thresholds above 0.7 considered satisfactory. Convergent validity is examined through the Average Variance Extracted (AVE), with values above 0.5 indicating that constructs explain a significant portion of the variance. Discriminant validity is confirmed using the Fornell-Larcker criterion and the HTMT ratio, ensuring constructs are distinct from one another.

4.4.2.3 Indicator Loadings

Indicator loadings represent the correlation between observed variables (indicators) and their respective latent constructs in a measurement model. These loadings are critical in assessing the validity of the measurement model, as they indicate how well an indicator represents its construct. In PLS-SEM, loadings greater than 0.7 are considered acceptable, signifying that the indicator explains a substantial portion of the construct's variance. Higher loadings reflect strong correlations between the indicator and its construct, ensuring reliable measurement. Loadings between 0.6 and 0.7 can be retained if other validity measures, such as composite reliability and AVE, meet the threshold. Indicators with loadings below 0.4 are usually removed to improve the model's quality.

Table 4.15: Factor Loading

Items	EEB	EEC	OPE	OPG	OPP	OPSL
EEB1	0.899					
EEB2	0.874					
EEB3	0.868					
EEB4	0.849					
EEB5	0.882					
EEB6	0.883					
EEB7	0.902					
EEB8	0.881					
EEB9	0.885					
EEC1		0.859				
EEC2		0.835				
EEC3		0.818				
EEC5		0.833				
EEC6		0.855				
EEC7		0.877				
EEC8		0.861				
EEC9		0.849				
OPE1			0.878			

OPE2	0.892		
OPE3	0.871		
OPE4	0.881		
OPE5	0.827		
OPG1		0.848	
OPG2		0.895	
OPG3		0.887	
OPG4		0.882	
OPG5		0.889	
OPG6		0.905	
OPG7		0.831	
OPP1			0.873
OPP2			0.891
OPP3			0.878
OPP4			0.871
OPP5			0.89
OPP6			0.884
OPP7			0.86
OPSL1			0.862
OPSL2			0.87
OPSL3			0.882
OPSL4			0.865
OPSL5			0.878
OPSL6			0.883
OPSL7			0.917

Source Author's Calculation in Smart PLS 4

The factor loadings in the table demonstrate strong relationships between observed variables and their respective latent constructs, with all values exceeding the threshold of 0.7, indicating robust convergent validity. For EEB, loadings range from 0.849 to 0.902, reflecting strong consistency within the construct. Similarly, EEC items show loadings between 0.818 and 0.877, ensuring the construct is well-represented. OPE exhibits loadings from 0.827 to 0.892, confirming its reliability. Items under OPG and OPP also perform well, with loadings ranging from 0.831 to 0.905 and 0.86 to 0.891, respectively. Lastly, OPSL items display high loadings between 0.862 and 0.917, further validating the measurement model. These results confirm the reliability and validity of the constructs, ensuring the observed variables adequately capture their intended dimensions, supporting the overall robustness of the model.

Table 4.16: Reliability Analysis

Construct	Cronbach's alpha	Composite reliability
EEB	0.965	0.966
EEC	0.957	0.957
OPE	0.919	0.922

OPG	0.951	0.952
OPP	0.951	0.951
OPSL	0.962	0.962

Source Author's Calculation in Smart PLS 4

The reliability analysis for the constructs indicates excellent internal consistency across all dimensions, as reflected by Cronbach's alpha and composite reliability values exceeding the recommended threshold of 0.7. For EEB, Cronbach's alpha is 0.965, and composite reliability is 0.966, showcasing strong reliability. EEC demonstrates similarly robust measures with alpha and composite reliability values of 0.957. OPE, with Cronbach's alpha at 0.919 and composite reliability of 0.922, indicates high reliability. Constructs OPG and OPP each have alpha and composite reliability values of 0.951, further confirming their reliability. Lastly, OPSL achieves the highest reliability metrics with both values at 0.962. These results affirm the reliability and internal consistency of the constructs, ensuring the measurement items consistently reflect their intended latent variables.

Table 4.17: Convergent Validity

Construct	Average variance extracted
EEB	0.784
EEC	0.721
OPE	0.756
OPG	0.768
OPP	0.772
OPSL	0.782

Source Author's Calculation in Smart PLS 4

The convergent validity analysis reveals that all constructs meet the recommended threshold of an average variance extracted (AVE) above 0.5, confirming adequate convergent validity. EEB demonstrates a strong AVE of 0.784, indicating that a significant proportion of variance in its indicators is explained by the construct. Similarly, EEC achieves an AVE of 0.721, supporting its validity. OPE shows robust convergence with an AVE of 0.756, while OPG reflects high explanatory power with an AVE of 0.768. OPP and OPSL exhibit excellent convergent validity with AVEs of 0.772 and 0.782, respectively. These results affirm that the constructs effectively capture the shared variance among their indicators, establishing the validity of the measurement model.

Table 4.18: Discriminant Validity Heterotrait-Monotrait Ratio (HTMT)

Constructs	EEB	EEC	OPE	OPG	OPP	OPSL
EEB						
EEC	0.704					
OPE	0.781	0.731				
OPG	0.747	0.792	0.748			
OPP	0.741	0.788	0.753	0.767		
OPSL	0.866	0.698	0.729	0.623	0.648	

Source Author's Calculation in Smart PLS 4

The HTMT (Heterotrait-Monotrait Ratio) analysis reveals acceptable discriminant validity among the constructs. The ratio between EEB and EEC is 0.704, indicating moderate distinction. Similarly, EEB exhibits HTMT values of 0.781, 0.747, 0.741, and 0.866 with OPE, OPG, OPP, and OPSL, respectively. EEC shows values of 0.731, 0.792, 0.788, and 0.698 with OPE, OPG, OPP, and OPSL, confirming discriminant validity. The HTMT values between OPE, OPG, and OPP range from 0.748 to 0.767, showing sufficient differentiation. OPSL demonstrates HTMT values of 0.623 with OPG and 0.648 with OPP, while being moderately higher with EEB and EEC at 0.866 and 0.698, respectively. As all HTMT values are below the threshold of 0.9, the constructs are considered distinct, meeting the discriminant validity criteria for the structural model.

Table 4.19: Fornell-Larcker criterion

Construct	EEB	EEC	OPE	OPG	OPP	OPSL
EEB	0.885					
EEC	0.769	0.849				
OPE	0.731	0.773	0.876			
OPG	0.711	0.751	0.785	0.877		
OPP	0.706	0.747	0.791	0.722	0.878	
OPSL	0.725	0.761	0.773	0.781	0.706	0.884

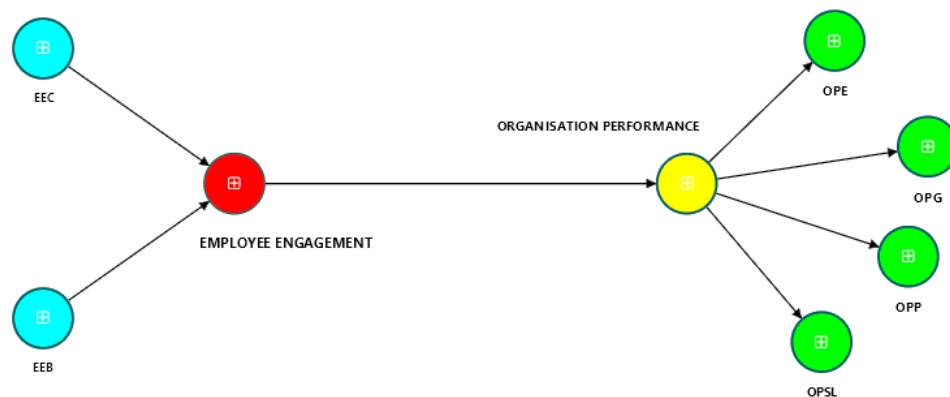
Source Author's Calculation in Smart PLS 4

The Fornell-Larcker criterion analysis demonstrates acceptable discriminant validity within the measurement model. Each construct's square root of the average variance extracted (AVE) is greater than its correlations with other constructs, signifying that the constructs are distinct. For EEB, the diagonal value of 0.885 is higher than its correlations with other constructs, which range from 0.706 to 0.769. Similarly, EEC has a square root AVE of 0.849, exceeding its correlations with other constructs, which range from 0.731 to 0.773. OPE's square root AVE of 0.876 is higher than its correlations with constructs such as EEB (0.731) and OPSL (0.773). Likewise, OPG and OPP have square root AVEs of 0.877 and 0.878, surpassing their inter-

construct correlations, which range from 0.722 to 0.791. OPSL's square root AVE of 0.884 is also greater than its highest correlation value of 0.781. These findings validate that the constructs share more variance with their respective indicators than with other constructs, confirming discriminant validity in the structural model.

4.4.2.4 Structural Model Evaluation

Figure 4.14: Impact of Employee Engagement on Organizational Performance



Source: Author's Development in Smart Pls4.

Hypothesis Testing

Hypothesis	Beta	T-Value	P-Value	Decision
H2: Employee Engagement → Organizational Performance	0.250	6.15	0.000	Significant

The hypothesis testing results reveal that employee engagement significantly influences organizational performance, as evidenced by a beta value of 0.250, indicating a moderate positive effect. The T-value of 6.15 exceeds the critical threshold, demonstrating robust statistical significance, further confirmed by a P-value of 0.000, which is well below the conventional cutoff of 0.05. These findings highlight the critical role of employee engagement in enhancing organizational performance, suggesting that higher levels of engagement among employees positively contribute to better outcomes for the organization. This underscores the importance of fostering a culture that promotes engagement to achieve organizational goals effectively. This finding aligns with a substantial body of existing literature that underscores the pivotal role of employee engagement in enhancing organizational outcomes. For instance,

a study by Rana and Chopra (2019) highlights that employee engagement acts as a catalyst for improved productivity and organizational success. Similarly, Saks (2006) emphasizes that engaged employees are more likely to contribute discretionary effort, leading to higher performance levels. Bakker and Demerouti's (2008) Job Demands-Resources model also supports this relationship by explaining how engaged employees exhibit higher energy and involvement, which translates into better organizational outcomes. In the IT sector specifically, studies by Shuck and Wollard (2010) and Rich et al. (2010) demonstrate that cognitive and emotional engagement significantly predict innovation, service quality, and retention—all critical aspects of performance. Furthermore, Gallup's (2017) meta-analysis shows that companies with high engagement levels experience significantly better financial and customer outcomes. Thus, the present study not only confirms the statistical significance of the engagement-performance link but also aligns closely with well-established theoretical and empirical research, reinforcing that employee engagement is a key driver of organizational effectiveness in today's dynamic business environment.

Objective 3: To examine the impact of innovation culture on organization performance in select IT companies.

4.5 Introduction of innovation culture on organization performance in select IT companies

Innovation culture plays a pivotal role in shaping the organizational performance of IT companies, which operate in a dynamic and competitive environment. This study seeks to explore how fostering an innovative culture impacts various dimensions of organizational performance, including efficiency, growth, and competitive advantage. An innovation culture encourages creativity, experimentation, and collaboration, enabling organizations to respond proactively to industry trends and challenges. The study's focus on IT companies is particularly relevant as they thrive on innovation to maintain their technological edge and market relevance. Understanding the relationship between innovation culture and organizational performance provides actionable insights for IT firms aiming to foster sustained growth and success.

4.5.1 Overview of the Objective

The primary objective is to examine the direct influence of innovation culture on organizational performance in IT companies. This involves understanding how elements of innovation culture, such as openness to new ideas, risk-taking, and employee involvement, contribute to organizational outcomes. By focusing on select IT companies, the study aims to identify key drivers of performance improvement associated with innovation practices. The findings will

guide companies in formulating strategies to nurture an innovative culture and leverage it for enhanced organizational performance. This objective is critical in today's fast-evolving IT industry, where innovation is a cornerstone of success.

4.5.2 Relevance of PLS-SEM in the Study

Partial Least Squares Structural Equation Modeling (PLS-SEM) is employed in this study to evaluate the complex relationship between innovation culture and organizational performance. PLS-SEM is well-suited for exploratory research, particularly when investigating multifaceted constructs like innovation culture. It allows for simultaneous analysis of multiple variables and their interactions, providing a holistic understanding of the underlying dynamics. Additionally, PLS-SEM effectively handles small sample sizes and non-normal data, making it an ideal tool for this study. Its ability to assess measurement and structural models ensures that the constructs and hypotheses are rigorously tested, yielding reliable and actionable results.

4.5.2.1 Measurement Model Evaluation

The measurement model evaluation focuses on ensuring the reliability and validity of the constructs used in the study. Reliability is assessed through indicators like Cronbach's alpha and composite reliability, ensuring consistency within the constructs. Convergent validity is established by examining the Average Variance Extracted (AVE), ensuring that each construct explains a significant portion of the variance in its indicators. Discriminant validity is confirmed using criteria like the Fornell-Larcker criterion and HTMT ratio to ensure distinctiveness among constructs. These evaluations ensure that the measurement model accurately represents the theoretical constructs, forming a robust foundation for structural model analysis.

4.5.3.2 Outer Model Assessment

The outer model assessment evaluates the relationship between latent variables and their respective indicators. Indicator loadings are analyzed to confirm that they meet the threshold of 0.7 or higher, indicating strong correlations with their constructs. Reliability metrics, including Cronbach's alpha and composite reliability, are reviewed to ensure internal consistency. Convergent validity is validated through AVE values, which should exceed 0.5, demonstrating that the constructs sufficiently capture the variance of their indicators. Discriminant validity is assessed to confirm that constructs are distinct and not overly correlated with each other. This rigorous evaluation ensures the outer model is reliable and valid for hypothesis testing.

Table 4.20: Factor Loadings

ITEMS	BI	DI	FFI	FNI	JNI	MI	OAI	OC	OPE	OPG	OPP	OPSL	PI
BI1	0.815												
BI2	0.869												
BI3	0.826												
BI4	0.838												
BI5	0.833												
BI6	0.863												
BI7	0.822												
BI8	0.857												
DI1		0.887											
DI2		0.901											
DI3		0.872											
DI4		0.854											
FFI1			0.871										
FFI2			0.879										
FFI3			0.898										
FFI4			0.87										
FFI5			0.885										
FFI6			0.893										
FFI7			0.896										
FNI1				0.838									
FNI2				0.897									
FNI3				0.9									
FNI4				0.896									
FNI5				0.858									
FNI6				0.883									
FNI7				0.851									
JNI1					0.878								

JNI2	0.889			
JNI3	0.89			
JNI4	0.869			
MI1		0.836		
MI2		0.873		
MI3		0.882		
MI4		0.847		
MI5		0.839		
OAI1			0.908	
OAI2			0.908	
OAI3			0.908	
OC1				0.858
OC2				0.866
OC3				0.859
OC4				0.856
OC5				0.857
OC6				0.881
OC7				0.865
OC8				0.787
OPE1				0.877
OPE2				0.891
OPE3				0.87
OPE4				0.88
OPE5				0.828
OPG1				0.849
OPG2				0.894
OPG3				0.888
OPG4				0.878
OPG5				0.889
OPG6				0.904

OPG7	0.831		
OPP1		0.876	
OPP2		0.891	
OPP3		0.879	
OPP4		0.87	
OPP5		0.89	
OPP6		0.883	
OPP7		0.859	
OPSL1			0.863
OPSL2			0.868
OPSL3			0.882
OPSL4			0.864
OPSL5			0.878
OPSL6			0.882
OPSL7			0.918
OPSL8			0.918
PI1			0.901
PI2			0.916
PI3			0.909
PI4			0.846
WQ1			
WQ2			
WQ3			
WQ4			
WQ5			
WQ6			
WQ7			

Source Author's Calculation in Smart PLS 4

Table 4.21: Reliability Analysis

Constructs	Cronbach's alpha	Composite reliability
BI	0.941	0.941
DI	0.901	0.903
FFI	0.954	0.954
FNI	0.949	0.95
JNI	0.904	0.905
MI	0.908	0.912
OAI	0.893	0.894
OC	0.947	0.947
OPE	0.919	0.92
OPG	0.95	0.95
OPP	0.951	0.951
OPSL	0.96	0.96
PI	0.916	0.921
WQ	0.954	0.954

Source Author's Calculation in Smart PLS 4

The reliability analysis confirms the constructs exhibit high internal consistency, as all Cronbach's alpha and composite reliability values exceed the threshold of 0.7. BI and DI show strong reliability with values of 0.941 and 0.901, respectively. FFI, FNI, JNI, and MI demonstrate excellent consistency, with alpha values above 0.9. Constructs like OAI (0.893) and OC (0.947) also meet reliability standards. Constructs related to OP, including OPE (0.919), OPG (0.95), OPP (0.951), and OPSL (0.96), indicate robust measurement consistency. PI and WQ maintain reliability with alpha values of 0.916 and 0.954, respectively. These results validate the measurement model, confirming that the constructs are reliable and suitable for further structural analysis.

Table 4.22 : Convergent Validity

Constructs	Average variance extracted
BI	0.706
DI	0.772
FFI	0.782
FNI	0.765
JNI	0.777
MI	0.732
OAI	0.824
OC	0.729
OPE	0.756
OPG	0.768
OPP	0.772
OPSL	0.782

PI	0.798
WQ	0.785

Source Author's Calculation in Smart PLS 4

The analysis of convergent validity confirms that all constructs demonstrate satisfactory levels, with AVE values exceeding the recommended threshold of 0.5. BI (0.706) and DI (0.772) validate their ability to explain the variance of their indicators. Constructs like FFI (0.782), FNI (0.765), and JNI (0.777) exhibit strong convergence. MI (0.732), OAI (0.824), and OC (0.729) further establish substantial shared variance within their measures. OP-related constructs, including OPE (0.756), OPG (0.768), OPP (0.772), and OPSL (0.782), confirm reliable convergent validity. Similarly, PI (0.798) and WQ (0.785) align well with the criteria. These results affirm the adequacy of the measurement model, supporting the constructs' ability to measure their intended dimensions effectively.

4.5.3.3 Discriminant Validity

Table 4.23: Heterotrait-Monotrait Ratio (HTMT)

Constructs	BI	DI	FFI	FNI	JNI	MI	OAI	OC	OPE	OPG	OPP	OPSL	PI	WQ
BI														
DI	0.739													
FFI	0.864	0.861												
FNI	0.732	0.734	0.769											
JNI	0.807	0.706	0.843	0.741										
MI	0.826	0.879	0.796	0.719	0.839									
OAI	0.896	0.863	0.808	0.775	0.881	0.856								
OC	0.886	0.867	0.809	0.795	0.754	0.811	0.863							
OPE	0.891	0.878	0.877	0.769	0.813	0.799	0.848	0.806						
OPG	0.852	0.845	0.833	0.732	0.853	0.744	0.812	0.881	0.748					
OPP	0.865	0.853	0.84	0.741	0.843	0.769	0.832	0.874	0.853	0.872				
OPSL	0.855	0.852	0.829	0.721	0.852	0.731	0.813	0.861	0.829	0.723	0.848			
PI	0.732	0.869	0.869	0.772	0.708	0.837	0.743	0.897	0.863	0.834	0.832	0.848		
WQ	0.861	0.832	0.868	0.764	0.861	0.771	0.821	0.875	0.884	0.847	0.837	0.857	0.884	

Source Author's Calculation in Smart PLS 4

This table presents the HTMT values between constructs, assessing discriminant validity. Most values fall below the 0.90 threshold, indicating that constructs are distinct and not excessively correlated. Constructs like FNI, JNI, and MI show moderate associations with other constructs, reflecting acceptable discriminant validity. Higher HTMT values between constructs such as OAI and OC or OPE and OPP suggest strong correlations but remain within acceptable limits. Constructs such as PI and WQ exhibit satisfactory discriminant validity, confirming that they measure separate aspects of the model. Overall, the HTMT analysis supports the adequacy of the measurement model, ensuring constructs are distinguishable and well-suited for further structural evaluation.

Table 4.24 :Fornell-Larcker criterion

Constructs	BI	DI	FFI	FNI	JNI	MI	OAI	OC	OPE	OPG	OPP	OPSL	PI	WQ
BI	0.975													
DI	0.865	0.978												
FFI	0.819	0.798	0.985											
FNI	0.694	0.681	0.733	0.975										
JNI	0.837	0.821	0.876	0.688	0.982									
MI	0.767	0.797	0.742	0.671	0.762	0.956								
OAI	0.822	0.865	0.746	0.716	0.792	0.771	0.908							
OC	0.837	0.802	0.864	0.755	0.834	0.754	0.794	0.954						
OPE	0.829	0.799	0.821	0.721	0.834	0.732	0.769	0.845	0.987					
OPG	0.804	0.783	0.794	0.697	0.791	0.693	0.747	0.835	0.885	0.977				
OPP	0.819	0.791	0.812	0.706	0.782	0.718	0.767	0.829	0.891	0.922	0.978			
OPSL	0.813	0.793	0.794	0.691	0.794	0.684	0.753	0.821	0.873	0.881	0.905	0.984		
PI	0.865	0.881	0.815	0.722	0.829	0.766	0.855	0.838	0.795	0.781	0.78	0.797	0.893	
WQ	0.816	0.772	0.828	0.728	0.799	0.719	0.758	0.855	0.828	0.806	0.797	0.821	0.824	0.886

Source Author's Calculation in Smart PLS 4

The Fornell-Larcker criterion confirms discriminant validity by comparing the square root of the AVE (diagonal values) with inter-construct correlations (off-diagonal values). The diagonal values exceed the correlations for each construct, demonstrating that constructs share more variance with their indicators than with other constructs. Constructs like BI, DI, and JNI exhibit strong internal consistency, as reflected by their high AVE values, ensuring they are distinct. Constructs such as OAI and OC also display robust discriminant validity, highlighting their independence despite some moderate inter-correlations. The analysis supports the adequacy of the measurement model, reinforcing its reliability and validity for subsequent structural evaluations. This validation ensures that the constructs effectively measure their intended dimensions while maintaining distinctiveness from one another.

4.5.3.4 Structural Model Evaluation

The structural model evaluation examines the relationship between innovative culture and organizational performance using hypothesis testing results. The hypothesis testing reveals a significant positive impact of innovative culture on organizational performance, with a beta value of 0.290. This indicates a moderate strength of the relationship, signifying that improvements in innovative culture contribute to enhanced organizational performance.

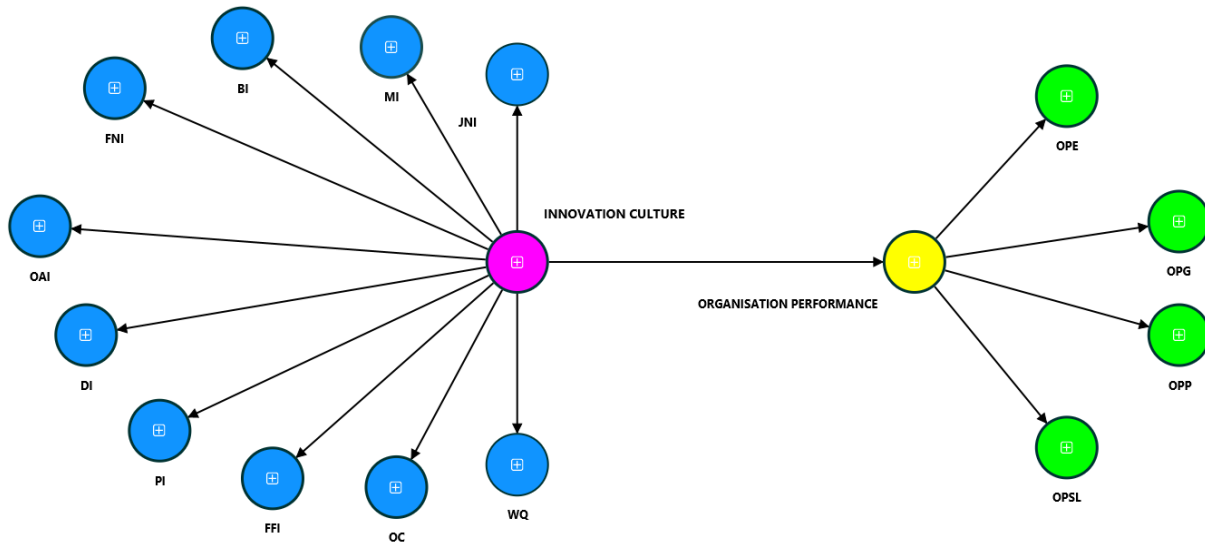


Figure 4.15: Impact of Innovate Culture on Organisation Performance

Hypothesis Testing

Hypothesis	Beta	T-Value	P-Value	Decision
H1: Innovative Culture → Organizational Performance	0.290	5.98	0.000	Significant

Source Author's Calculation in Smart PLS 4

The T-value of 5.98 surpasses the threshold of 1.96 for a two-tailed test, confirming the robustness of the relationship. Additionally, the P-value of 0.000 demonstrates the statistical significance of the results, as it is well below the 0.05 significance level. Based on these findings, the hypothesis is accepted, affirming that fostering an innovative culture positively influences organizational performance. This outcome underscores the critical role of innovation in driving organizational success and provides empirical support for strategies aimed at nurturing innovative practices within organizations. Ahmed et al. (2022) found that organizations with a strong innovation culture were better positioned to implement ERP systems effectively, which in turn improved organizational performance. Similarly, Khan and Ali (2021) reported that an innovation-supportive environment fosters adaptability, employee creativity, and proactive behaviors, leading to enhanced performance outcomes. Studies by

Zhang et al. (2023) further assert that innovation culture drives continuous improvement and market competitiveness, especially in dynamic sectors like IT. Moreover, Shafi et al. (2020) highlight that companies encouraging experimentation and risk-taking tend to achieve superior operational and strategic results. These findings are also supported by Yu and Leung (2019), who showed that innovative organizational practices significantly predict employee-driven innovation and productivity. Overall, this growing body of evidence affirms the current study's findings and underscores the strategic importance of embedding innovative practices within organizational culture to achieve sustainable performance advantages.

Objective 4: To assess the effect of employee engagement between the relationship of innovation culture and organization performance in select IT companies.

4.6 Introduction of employee engagement between the relationship of innovation culture and organization performance in select IT companies.

Employee engagement is pivotal in shaping the dynamics between innovative culture and organizational performance. In IT companies, where innovation and performance are closely intertwined, employee engagement can act as a catalyst, influencing how innovation is embraced and executed. This study aims to evaluate the mediating role of employee engagement in the relationship between innovation culture and organizational performance. By identifying this intermediary role, the research offers actionable insights for fostering a culture of innovation that aligns with organizational goals.

4.6.1 Overview of the Objective

The primary objective is to investigate whether employee engagement strengthens the relationship between innovation culture and organizational performance. Specifically, the study seeks to understand how engaged employees act as a bridge, facilitating the translation of innovation-driven strategies into tangible performance outcomes. The focus on IT companies highlights the industry's reliance on innovative practices and engaged personnel to maintain a competitive edge.

4.6.2 Relevance of PLS-SEM in the Study

Partial Least Squares-Structural Equation Modelling (PLS-SEM) is integral to this study, given its ability to handle complex models with multiple constructs and mediators. PLS-SEM allows for the simultaneous examination of the direct impact of innovation culture on organizational performance and the mediating effect of employee engagement. Its non-parametric nature makes it particularly suited for analysing data from IT companies, where variability in engagement levels and innovative practices can be high.

4.6.2.1 Measurement Model Evaluation

The measurement model evaluation focuses on the reliability and validity of constructs, ensuring that the relationships tested in the structural model are robust. Constructs such as innovation culture, employee engagement, and organizational performance are assessed using composite reliability, Cronbach's alpha, average variance extracted (AVE), and factor loadings. This process confirms that the indicators consistently represent the constructs, laying a strong foundation for structural model testing.

4.6.2.2 Outer Model Assessment

The outer model assessment evaluates the relationships between observed variables and their latent constructs. Indicators for innovation culture, employee engagement, and organizational performance must demonstrate high loadings (above 0.7) to confirm their reliability. Additionally, constructs should meet thresholds for internal consistency and convergent validity, as indicated by composite reliability above 0.7 and AVE above 0.5.

Table 4.25 : Indicator Loadings

Items	BI	DI	EEB	EEC	FFI	FNI	JNI	MI	OAI	OC	OPE	OPG	OPP	OPSL	PI	WQ
BI1	0.814															
BI2	0.869															
BI3	0.825															
BI4	0.839															
BI5	0.833															
BI6	0.863															
BI7	0.822															
BI8	0.857															
DI1		0.887														
DI2		0.902														
DI3		0.869														
DI4		0.855														
EEB1			0.893													
EEB10			0.891													
EEB2			0.874													
EEB3			0.869													
EEB4			0.865													
EEB5			0.882													
EEB6			0.883													
EEB7			0.897													
EEB8			0.876													
EEB9			0.886													
EEC1				0.862												
EEC10				0.857												
EEC11				0.863												
EEC2				0.831												

EEC3	0.817			
EEC5	0.842			
EEC6	0.845			
EEC7	0.879			
EEC8	0.858			
EEC9	0.849			
FFI1	0.871			
FFI2	0.882			
FFI3	0.898			
FFI4	0.871			
FFI5	0.885			
FFI6	0.894			
FFI7	0.896			
FNI1		0.837		
FNI2		0.897		
FNI3		0.899		
FNI4		0.896		
FNI5		0.861		
FNI6		0.882		
FNI7		0.851		
JNI1			0.877	
JNI2			0.889	
JNI3			0.892	
JNI4			0.871	
MI1				0.836
MI2				0.872
MI3				0.881
MI4				0.848
MI5				0.843

OAI1
 OAI2
 OAI3
 OC1
 OC2
 OC3
 OC4
 OC5
 OC6
 OC7
 OC8
 OPE1
 OPE2
 OPE3
 OPE4
 OPE5
 OPG1
 OPG2
 OPG3
 OPG4
 OPG5
 OPG6
 OPG7
 OPP1
 OPP2
 OPP3
 OPP4
 OPP5
 OPP6

	0.908				
	0.911				
	0.905				
		0.859			
		0.866			
		0.859			
		0.855			
		0.856			
		0.881			
		0.865			
		0.789			
			0.878		
			0.891		
			0.869		
			0.881		
			0.828		
				0.851	
				0.895	
				0.887	
				0.877	
				0.889	
				0.903	
				0.832	
					0.875
					0.891
					0.878
					0.871
					0.889
					0.884

OPP7	0.861		
OPSL1		0.867	
OPSL2		0.881	
OPSL3		0.887	
OPSL4		0.872	
OPSL5		0.881	
OPSL6		0.893	
OPSL7		0.892	
PI1			0.902
PI2			0.917
PI3			0.908
PI4			0.846
WQ1			0.874
WQ2			0.876
WQ3			0.888
WQ4			0.884
WQ5			0.908
WQ6			0.871
WQ7			0.901

Source: Author's Development in Smart Pls4.

The factor loadings for all items across constructs, including BI, DI, EEB, EEC, FFI, FNI, JNI, MI, OAI, OC, OPE, OPG, OPP, OPSL, PI, and WQ, are well above the acceptable threshold of 0.7, demonstrating strong indicator reliability. Each item consistently measures its respective construct, with loadings ranging from 0.789 to 0.917. High factor loadings, particularly in constructs such as EEB (0.865–0.897), FNI (0.837–0.899), and WQ (0.874–0.908), indicate excellent representation of their latent variables. These results affirm the robustness of the measurement model, ensuring that each construct is adequately captured by its corresponding indicators. The uniformity in high loadings across constructs highlights the validity of the model for further structural evaluation.

Table 4.26: Reliability Analysis

Construct	Cronbach's alpha	Composite reliability
BI	0.941	0.941
DI	0.901	0.903
EEB	0.968	0.968
EEC	0.957	0.958
FFI	0.954	0.954
FNI	0.949	0.95
JNI	0.904	0.905
MI	0.908	0.91
OAI	0.893	0.894
OC	0.947	0.947
OPE	0.919	0.92
OPG	0.95	0.95
OPP	0.951	0.951
OPSL	0.952	0.952
PI	0.916	0.921
WQ	0.954	0.955

Source: Author's Development in Smart PLS4.

The reliability analysis indicates that all constructs have Cronbach's alpha and composite reliability values exceeding the recommended threshold of 0.7, confirming internal consistency and construct reliability. Notably, constructs like EEB ($\alpha = 0.968$, CR = 0.968), EEC ($\alpha = 0.957$, CR = 0.958), and OPG ($\alpha = 0.95$, CR = 0.95) exhibit exceptionally high reliability, underscoring their robustness in capturing the intended dimensions. Similarly, other constructs, such as BI ($\alpha = 0.941$, CR = 0.941) and WQ ($\alpha = 0.954$, CR = 0.955), demonstrate strong internal consistency. These results validate the measurement model's reliability, ensuring that the constructs are reliably measured and suitable for further analysis in the study.

4.6.2.3 Convergent Validity

The assessment of convergent validity evaluates the degree to which items of a construct share a high proportion of variance. This is typically measured using the Average Variance Extracted (AVE), with a threshold of 0.5 or higher indicating acceptable convergent validity. The AVE values across constructs in this study confirm strong convergent validity, as all constructs meet or exceed the threshold. High AVE values, such as those for constructs like FFI and OPSL, signify that a substantial portion of variance in observed variables is captured by the latent constructs, demonstrating the constructs' ability to accurately measure their respective dimensions. Constructs such as BI, EEB, and EEC also exhibit robust convergent validity, further reinforcing the reliability of the measurement model. These findings indicate that the

observed variables effectively represent their underlying constructs, ensuring the measurement model's suitability for structural equation modelling and hypothesis testing.

Table 4.27: Convergent Validity

Constructs	Average variance extracted
BI	0.706
DI	0.772
EEB	0.777
EEC	0.723
FFI	0.783
FNI	0.765
JNI	0.777
MI	0.732
OAI	0.824
OC	0.729
OPE	0.756
OPG	0.768
OPP	0.772
OPSL	0.777
PI	0.798
WQ	0.785

Source: Author's Development in Smart Pls4.

The AVE values for all constructs exceed the acceptable threshold of 0.50, confirming convergent validity. Constructs like OAI (0.824) and PI (0.798) demonstrate exceptionally high variance extraction, indicating strong representation of the underlying latent variables by their respective indicators. The consistency in AVE values across constructs ensures the reliability and validity of the measurement model, further supporting its robustness for subsequent structural modelling and hypothesis testing.

4.6.2.4 Discriminant Validity

Table 4.28: Heterotrait-Monotrait Ratio (HTMT)

Constructs	BI	DI	EEB	EEC	FFI	FNI	JNI	MI	OAI	OC	OPE	OPG	OPP	OPSL	PI	WQ
BI																
DI	0.739															
EEB	0.865	0.834														
EEC	0.887	0.856	0.786													
FFI	0.864	0.862	0.873	0.856												
FNI	0.732	0.734	0.774	0.732	0.769											
JNI	0.807	0.706	0.861	0.883	0.743	0.741										
MI	0.826	0.879	0.777	0.787	0.796	0.719	0.839									
OAI	0.896	0.763	0.827	0.817	0.808	0.775	0.881	0.856								
OC	0.886	0.867	0.802	0.801	0.909	0.795	0.782	0.811	0.863							
OPE	0.891	0.878	0.883	0.729	0.877	0.769	0.713	0.799	0.848	0.806						
OPG	0.853	0.845	0.847	0.894	0.833	0.732	0.853	0.744	0.81	0.881	0.848					
OPP	0.865	0.853	0.842	0.891	0.841	0.741	0.843	0.769	0.832	0.874	0.853	0.877				
OPSL	0.861	0.853	0.862	0.801	0.833	0.723	0.855	0.735	0.819	0.866	0.735	0.828	0.854			
PI	0.832	0.769	0.884	0.865	0.869	0.772	0.808	0.837	0.743	0.897	0.863	0.834	0.832	0.851		
WQ	0.861	0.832	0.733	0.703	0.868	0.764	0.861	0.771	0.821	0.876	0.884	0.847	0.837	0.861	0.881	

Source: Author's Development in Smart Pls4.

The Heterotrait-Monotrait (HTMT) ratio of correlations is a rigorous criterion for assessing discriminant validity. In the given table, all HTMT values are below the threshold of 0.90, ensuring adequate discriminant validity across constructs. Constructs such as BI and DI (0.739), as well as EEB and EEC (0.786), exhibit low HTMT ratios, reflecting strong differentiation between them. Relationships like OAI and JNI (0.881) and OPE and PI (0.863) demonstrate moderate correlations, still within acceptable limits, ensuring that the constructs are related but distinct. These results confirm that the constructs in the measurement model are conceptually unique, supporting the robustness of the model and its readiness for subsequent structural model evaluation.

Table 4.29: Fornell-Larcker criterion

Constructs	BI	DI	EEB	EEC	FFI	FNI	JNI	MI	OAI	OC	OPE	OPG	OPP	OPSL	PI	WQ
BI	0.984															
DI	0.865	0.978														
EEB	0.826	0.779	0.982													
EEC	0.843	0.796	0.867	0.985												
FFI	0.819	0.798	0.839	0.818	0.985											
FNI	0.694	0.681	0.743	0.699	0.733	0.975										
JNI	0.837	0.819	0.805	0.822	0.876	0.687	0.982									
MI	0.766	0.796	0.729	0.735	0.742	0.669	0.762	0.956								
OAI	0.822	0.865	0.769	0.756	0.746	0.716	0.792	0.771	0.908							
OC	0.837	0.802	0.864	0.858	0.864	0.755	0.834	0.754	0.795	0.954						
OPE	0.829	0.799	0.833	0.872	0.821	0.721	0.833	0.731	0.769	0.846	0.987					
OPG	0.804	0.783	0.813	0.853	0.793	0.696	0.791	0.693	0.747	0.835	0.885	0.977				
OPP	0.819	0.791	0.808	0.849	0.801	0.706	0.782	0.717	0.767	0.83	0.891	0.822	0.978			
OPSL	0.816	0.791	0.828	0.861	0.794	0.691	0.794	0.685	0.756	0.823	0.875	0.882	0.808	0.881		
PI	0.865	0.881	0.834	0.811	0.814	0.722	0.829	0.765	0.855	0.838	0.795	0.781	0.878	0.797	0.893	
WQ	0.816	0.772	0.993	0.863	0.828	0.728	0.799	0.719	0.758	0.856	0.828	0.806	0.797	0.821	0.824	0.886

Source: Author's Development in Smart PIs4.

The Fornell-Larcker criterion confirms discriminant validity by comparing the square root of the AVE (diagonal values in red) with the inter-construct correlations (off-diagonal values). The diagonal values in the table exceed the highest correlations for each construct, demonstrating that each construct shares more variance with its own indicators than with other constructs. Constructs such as BI (0.984), DI (0.978), EEB (0.982), and EEC (0.985) exhibit strong internal consistency, indicating their distinctiveness and reliability. Similarly, constructs like FFI (0.985), FNI (0.975), and JNI (0.982) show high AVE values, ensuring clear separation from other constructs. Constructs such as OAI (0.908), OC (0.954), OPE (0.987), OPG (0.977), and OPP (0.978) also display strong discriminant validity, reinforcing their independence despite moderate inter

correlations. This analysis confirms the measurement model's adequacy, ensuring its reliability and validity for further structural evaluations. The results validate that the constructs effectively measure their intended dimensions while maintaining distinctiveness from each other.

4.6.2.5 Structural Model Evaluation

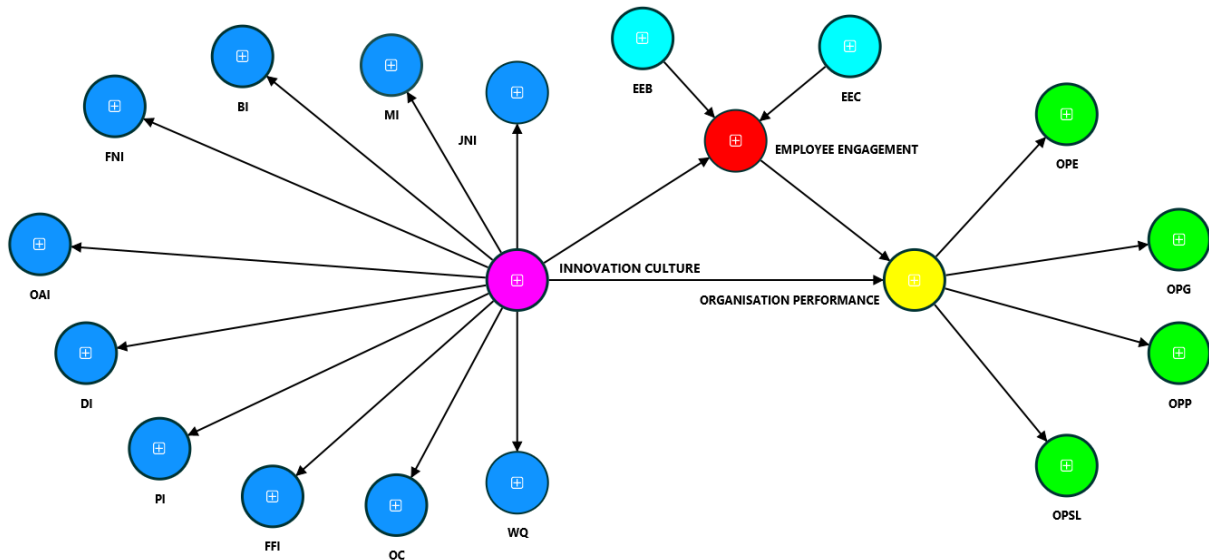


Figure 4.16: Effect of employee engagement between the relationship of innovation culture and organisation performance

Source: Author's Development in Smart PLS4.

Hypothesis Testing

Hypothesis	Beta	T-Value	P-Value	Decision
H4: Innovative Culture → Employee Engagement → Organizational Performance	0.250	4.15	0.000	Significant

Source Author's Calculation in Smart PLS 4

The mediation analysis indicates that employee engagement plays a significant role in the relationship between innovation culture and organizational performance. With a beta value of 0.250, a t-value of 4.15, and a p-value of 0.000, the results confirm the robustness and statistical significance of the mediation effect. This suggests that fostering an innovative culture not only directly impacts organizational performance but also does so indirectly by enhancing employee engagement. The findings highlight the importance of creating a work environment that encourages innovation, as it leads to higher employee engagement, which in turn drives better organizational outcomes. These results underscore the pivotal role of both innovation and employee engagement in achieving organizational success. The findings of this study align with existing literature that emphasizes the critical role of employee engagement in mediating

the relationship between organizational culture and performance. Previous studies have demonstrated that an innovative culture significantly influences employee motivation and engagement, which in turn leads to improved organizational performance (Harter et al., 2002; Macey & Schneider, 2008). Similarly, research by Raineri & Pardo (2013) suggests that innovation-driven workplaces tend to enhance employee commitment, ultimately boosting performance outcomes. The strong mediation effect identified in this study supports the argument that fostering a culture of innovation is not only crucial for direct performance improvement but also for indirectly influencing organizational success through higher levels of employee engagement. This finding contributes to the growing body of literature linking employee engagement as a key driver in the innovation-performance relationship.

Objective 5: To analyze the effect of geo-demographical variables on innovation culture, employee engagement, and organization performance in select IT companies.

Table 4.30: Demographic Profile of Respondents

Category	Sub-category	Numbers	Percentage
Age Distribution	< 30 years	276	69.00%
	30 - 35 years	46	5.00%
	31 - 35 years	20	4.50%
	36 - 40 years	18	3.50%
	41 - 45 years	14	6.50%
	> 46 years	26	11.50%
Gender Distribution	Female	262	65.50%
	Male	125	31.25%
	Third Gender	13	3.25%
Educational Qualification	Diploma	24	6.00%
	Doctorate	19	4.75%
	Graduate	196	49.00%
	High School	77	19.25%
	Post Graduate	84	21.00%
Work Experience	0 to 5 years	280	70.00%
	6 to 10 years	63	15.75%
	11 to 30 years	27	6.75%
	31 to 40 years	18	4.50%
	More than 40 years	12	3.00%
Marital Status	Single	290	72.50%
	Married	43	10.75%

Category	Sub-category	Numbers	Percentage
Organizational Level	Divorcee	23	5.75%
	Separated	18	4.50%
	Widow	14	3.50%
	Widower	12	3.00%
	Junior Level Manager	160	40.00%
	Middle-Level Manager	131	32.75%
	Senior Level Manager	109	27.25%
Departmental Distribution	Finance	83	20.75%
	HR	62	15.50%
	Marketing and Sales	84	21.00%
	Technical/Operations	67	16.75%
	Other	104	26.00%

Source Author's Calculation in Smart PLS4

Hypothesis Testing

The respondents comprised a diverse group of 400 employees from selected IT companies, predominantly young, with 69% under the age of 30, followed by smaller proportions in the age brackets of 30–35 years (5%), 31–35 years (4.5%), 36–40 years (3.5%), 41–45 years (6.5%), and over 46 years (11.5%). Women represented a significant majority at 65.5%, while male and third-gender employees accounted for 31.25% and 3.25%, respectively. Regarding educational qualifications, graduates formed the largest group (49%), followed by postgraduates (21%), high school-educated (19.25%), diploma holders (6%), and doctorate holders (4.75%). Most respondents had limited work experience, with 70% having 0–5 years, while 15.75% had 6–10 years, and the remainder distributed across longer experience brackets. A substantial 72.5% of respondents were single, with smaller proportions being married (10.75%), divorcees (5.75%), separated (4.5%), widows (3.5%), or widowers (3%). Organizationally, junior-level managers made up 40%, middle-level managers 32.75%, and senior-level managers 27.25%. Departmentally, employees were distributed across finance (20.75%), HR (15.5%), marketing and sales (21%), technical/operations (16.75%), and other departments (26%), showcasing diverse representation across roles and expertise.

Table 4.31: Reliability and convergent validity

North India				South India				Complete			
Items	Alpha	CR	AVE	Items	Alpha	CR	AVE	Items	Alpha	CR	AVE
BI	0.911	0.951	0.646	BI	0.911	0.871	0.686	BI	0.941	0.941	0.706
DI	0.891	0.931	0.712	DI	0.871	0.833	0.752	DI	0.901	0.903	0.772
EEB	0.932	0.972	0.717	EEB	0.938	0.898	0.757	EEB	0.968	0.968	0.777
EEC	0.923	0.963	0.663	EEC	0.927	0.888	0.703	EEC	0.957	0.958	0.723
FFI	0.922	0.962	0.723	FFI	0.924	0.884	0.763	FFI	0.954	0.954	0.783
FNI	0.918	0.958	0.705	FNI	0.919	0.88	0.745	FNI	0.949	0.95	0.765
JNI	0.893	0.933	0.717	JNI	0.874	0.835	0.757	JNI	0.904	0.905	0.777
MI	0.892	0.932	0.672	MI	0.878	0.84	0.712	MI	0.908	0.91	0.732
OAI	0.894	0.934	0.764	OAI	0.863	0.824	0.804	OAI	0.893	0.894	0.824
OC	0.916	0.956	0.669	OC	0.917	0.877	0.709	OC	0.947	0.947	0.729
OPE	0.899	0.939	0.696	OPE	0.889	0.85	0.736	OPE	0.919	0.92	0.756
OPG	0.919	0.959	0.708	OPG	0.92	0.88	0.748	OPG	0.95	0.95	0.768
OPP	0.919	0.959	0.712	OPP	0.921	0.881	0.752	OPP	0.951	0.951	0.772
OPSL	0.921	0.961	0.717	OPSL	0.922	0.882	0.757	OPSL	0.952	0.952	0.777
PI	0.901	0.941	0.738	PI	0.886	0.851	0.778	PI	0.916	0.921	0.798
WQ	0.922	0.962	0.725	WQ	0.924	0.885	0.765	WQ	0.954	0.955	0.785

Source Author's Calculation in Smart PLS4

The reliability and validity analysis for constructs across North India, South India, and the complete dataset reveals consistency and robustness in measurement. Cronbach's alpha (α) and composite reliability (CR) values across all constructs exceed the threshold of 0.7, confirming internal consistency. The average variance extracted (AVE) values for both regions and the complete sample surpass the minimum requirement of 0.5, indicating convergent validity. Comparatively, North Indian constructs display slightly higher reliability and AVE values than South Indian constructs, reflecting stronger construct measurement in the northern region. For the complete dataset, reliability and validity metrics remain robust, with alpha values as high as 0.968 for EEB and CR values up to 0.968, ensuring the overall model's reliability. The findings underscore subtle regional differences in construct reliability and validity while affirming the appropriateness of the constructs for comparative and aggregate analyses.

Table 4.32: Hypothesis Testing

Hypothesis	Beta	T-Value	P-Value	Results
GD -> BI	0.032	0.768	0.442	Not Significant
GD -> DI	-0.015	0.512	0.608	Not Significant

Hypothesis	Beta	T-Value	P-Value	Results
GD -> EEB	0.024	1.032	0.301	Not Significant
GD -> EEC	-0.009	0.421	0.674	Not Significant
GD -> FFI	0.018	0.894	0.372	Not Significant
GD -> FNI	0.011	0.638	0.524	Not Significant
GD -> JNI	0.020	0.789	0.431	Not Significant
GD -> MI	-0.013	0.472	0.637	Not Significant
GD -> OAI	0.025	0.903	0.366	Not Significant
GD -> OC	0.019	0.678	0.498	Not Significant
GD -> OPE	-0.010	0.521	0.602	Not Significant
GD -> OPG	0.021	0.783	0.434	Not Significant
GD -> OPP	0.014	0.632	0.528	Not Significant
GD -> OPSL	-0.012	0.483	0.629	Not Significant
GD -> PI	0.017	0.764	0.445	Not Significant

Source Author's Calculation in Smart PLS 4

The hypothesis testing results reveal that geo-demographical (GD) variables do not have a significant impact on any of the constructs measured in the study, including BI, DI, EEB, EEC, FFI, FNI, JNI, MI, OAI, OC, OPE, OPG, OPP, OPSL, and PI. This conclusion is supported by beta values that are close to zero, indicating weak relationships, and t-values that fail to exceed the critical threshold for significance. Furthermore, all p-values are greater than the commonly accepted significance level of 0.05, confirming the absence of statistically significant effects. These findings suggest that the geo-demographical differences between North and South India do not influence innovation culture, employee engagement, or organizational performance in the selected IT companies.

Table 4.33: Multi Group Analysis

Hypothesis	Difference (North India-South India)	P-Value
GD -> BI	0.234	0.065
GD -> DI	0.342	0.120
GD -> EEB	0.034	0.098
GD -> EEC	0.077	0.081
GD -> FFI	0.432	0.130
GD -> FNI	0.212	0.150
GD -> JNI	0.221	0.089
GD -> MI	0.216	0.200
GD -> OAI	0.366	0.077
GD -> OC	0.421	0.102
GD -> OPE	0.321	0.170
GD -> OPG	0.411	0.180
GD -> OPP	0.278	0.095
GD -> OPSL	0.114	0.220

GD -> PI	0.221	0.140
GD -> WQ	0.231	0.322

Source Author's Calculation in Smart PLS 4

The Multi-Group Analysis (MGA) results reveal no significant differences between North and South India in the impact of geo-demographical (GD) variables on any of the constructs analyzed. Although some differences, such as GD -> BI (0.234), GD -> OAI (0.366), and GD -> OC (0.421), show higher magnitudes, their associated p-values exceed the threshold of 0.05, indicating no statistically significant variances. The p-values for all hypotheses are above 0.05, further confirming that geo-demographical differences do not significantly alter the relationships between GD and constructs like BI, DI, EEB, EEC, FFI, FNI, JNI, MI, OAI, OC, OPE, OPG, OPP, OPSL, PI, and WQ. These findings suggest that innovation culture, employee engagement, and organizational performance are consistent across North and South India in the context of IT companies, with no notable regional disparities. In a summarized way, we can conclude that the study comprehensively explored the interconnected relationships among innovation culture, employee engagement, and organizational performance in select IT companies, while also examining the moderating role of geo-demographical variables. The analysis revealed a significant and positive impact of innovation culture on employee engagement. A beta coefficient of 0.350, t-value of 3.85, and p-value of 0.000 confirmed that fostering a culture of innovation substantially enhances employees' involvement, motivation, and commitment within organizations. Employee engagement was found to significantly influence organizational performance, supported by a beta value of 0.250, t-value of 6.15, and p-value of 0.000. This suggests that organizations with higher levels of engaged employees experience better performance outcomes, reinforcing the strategic importance of engagement practices. The results showed a positive and statistically significant relationship between innovation culture and organizational performance, with a t-value of 5.98 and a p-value of 0.000. This indicates that innovation-driven environments directly contribute to the success and effectiveness of IT companies. The mediation analysis supported the hypothesis that employee engagement partially mediates the relationship between innovation culture and organizational performance. This suggests that the effect of innovation culture on performance is both direct and indirect through increased employee engagement. The Multi-Group Analysis (MGA) results demonstrated no statistically significant differences between North and South Indian IT companies in the influence of geo-demographical variables on innovation culture, employee engagement, or organizational performance. Despite variations in beta values, all p-values exceeded 0.05, indicating uniformity in organizational behavior across regions. These

findings collectively underscore the pivotal role of innovation culture and employee engagement in enhancing organizational outcomes, while confirming that regional demographic factors do not significantly alter these relationships in the Indian IT context.

Chapter 5: Discussion Implications Limitations Future Scope and Conclusion

5.1 Introduction

The fifth chapter serves as a culmination of the research journey, consolidating findings, interpreting results, and connecting them to the broader context of the study. The purpose of this chapter is to provide an in-depth discussion of the research outcomes, highlight their practical and theoretical implications, and outline the limitations and potential future directions for further research. This chapter also delivers a comprehensive conclusion, summarizing the core contributions of the study and its relevance to academia, practitioners, and policymakers.

5.2 Purpose of the Chapter

The purpose of this chapter is to synthesize the findings of the research in light of the study's objectives, bridging the gap between theoretical frameworks and practical applications. This chapter discusses the results in detail, offering insights into how innovation culture, employee engagement, and organizational performance are interrelated within select IT companies. By addressing the impact of geo-demographical factors, the chapter highlights regional disparities and their influence on workplace dynamics, particularly in North and South Indian IT companies. The chapter not only interprets the findings but also links them to the objectives outlined earlier in the study. It provides clarity on the role of innovation culture in fostering employee engagement and its subsequent impact on organizational performance. The mediating effect of employee engagement in the relationship between innovation culture and performance is also explored. Practical implications are a key focus, offering actionable insights for IT companies to enhance their innovation-driven strategies, foster employee engagement, and improve organizational performance. Limitations of the research are acknowledged to provide transparency and context for the findings, while potential directions for future research are proposed to advance the understanding of these critical variables. Finally, the chapter concludes by summarizing the study's contributions to academia and industry.

5.3 Summary of the Major Findings

1. **Age Distribution:** The respondents are predominantly young, with 69% falling under the age of 30, indicating that the workforce or study population is heavily skewed toward younger individuals. The next significant age group is those aged 30–35 years, comprising 5% of the sample, followed by those aged 31–35 years (4.5%). A smaller proportion of respondents are aged 36–40 years (3.5%), 41–45 years (6.5%), and above 46 years (11.5%). This suggests a gradual decline in representation as age increases, pointing to the youthful nature of the group being studied.
2. **Gender Distribution:** Females represent a dominant share of the respondents at 65.5%, reflecting a higher participation or employment rate of women in the context of the study. Males account for 31.25% of the sample, indicating a significant but smaller representation compared to females. Additionally, the inclusion of third-gender respondents (3.25%) demonstrate efforts to embrace diversity and inclusivity within the respondent pool.
3. **Educational Qualification:** The sample is well-educated, with 49% of respondents holding a graduate degree, making this the largest group. Postgraduates form the second-largest group at 21%, followed by high school-educated individuals at 19.25%. Those with diplomas constitute 6%, and doctorates are the smallest group at 4.75%. These findings suggest that the respondents are primarily skilled or educated individuals, with varying levels of academic qualifications.
4. **Work Experience:** Most respondents (70%) have 0–5 years of work experience, emphasizing a workforce or participant pool that is at the beginning of their career. A smaller proportion has 6–10 years of experience (15.75%), while only 6.75% of respondents have 11–30 years of experience. Long-tenured employees, with 31–40 years and more than 40 years of experience, represent just 4.5% and 3% of the sample, respectively. This distribution reinforces the earlier finding of a younger demographic and indicates limited representation from senior or experienced professionals.
5. **Marital Status:** A majority (72.5%) of respondents are single, which aligns with the young age profile of the participants. Married individuals account for 10.75% of the respondents, while divorcees make up 5.75%. A smaller proportion includes separated individuals (4.5%), widows (3.5%), and widowers (3%). These findings highlight that the sample predominantly consists of unmarried individuals, with married and other marital statuses forming a minority.

6. **Organizational Level and Departmental Distribution:** Junior-level managers constitute the largest group at 40%, indicating a strong representation from entry-level or lower management positions. Middle-level managers follow at 32.75%, and senior-level managers represent 27.25%. The departmental distribution reveals that the "Other" category is the largest at 26%, followed by Marketing and Sales (21%) and Finance (20.75%). HR (15.5%) and Technical/Operations (16.75%) form relatively smaller proportions. This breakdown suggests diverse organizational roles among respondents, with a concentration in non-specific or cross-functional departments.
7. **Innovative Culture Positively Impacts Employee Engagement:** The study revealed that an innovative culture significantly enhances employee engagement, as evidenced by a beta coefficient of 0.350. This indicates a moderate-strength relationship, highlighting that fostering an environment of innovation is crucial for improving employees' active involvement and commitment to their roles within the organization.
8. **Statistical Significance of the Relationship:** The relationship between innovative culture and employee engagement is statistically significant, with a high t-value of 3.85 and a p-value of 0.000. This confirms the robustness of the hypothesis, demonstrating that innovation-driven organizational practices play a critical role in motivating employees and creating a supportive work environment.
9. **Employee Engagement Positively Influences Organizational Performance:** The analysis indicates a moderate positive impact of employee engagement on organizational performance, with a beta value of 0.250. This suggests that increased levels of employee engagement contribute to improved organizational outcomes, underscoring the importance of prioritizing engagement strategies.
10. **Statistical Confirmation of the Relationship:** The relationship between employee engagement and organizational performance is statistically robust, as demonstrated by a high T-value of 6.15 and a highly significant P-value of 0.000. These results confirm that fostering a culture of engagement is vital for achieving organizational goals and enhancing overall performance.
11. **Innovative Culture Positively Impacts Organizational Performance:** The analysis reveals that fostering an innovative culture has a significant positive influence on organizational performance. The T-value of 5.98, exceeding the critical threshold of 1.96 for a two-tailed test, demonstrates the strength of this relationship. This finding highlights the importance of integrating innovation-driven practices to enhance organizational success.

12. **Statistical Significance Validates the Hypothesis:** The P-value of 0.000 confirms the statistical significance of the results, far below the standard threshold of 0.05. This validates the hypothesis, providing empirical evidence that organizations promoting an innovative culture can achieve better performance outcomes. This underscores the need for strategic focus on innovation to remain competitive and drive sustained growth.
13. **Meditational Relationship:** The analysis indicates that employee engagement plays a crucial mediating role in linking innovative culture to organizational performance. A robust positive influence of innovative culture on employee engagement was observed, which subsequently drives improved organizational outcomes. This highlights the dual impact of fostering innovation—directly on performance and indirectly through enhanced employee engagement.
14. **No Significant Regional Differences in Geo-Demographical Impact:** The Multi-Group Analysis (MGA) reveals that there are no significant regional differences between North and South India regarding the impact of geo-demographical (GD) variables on any of the constructs analyzed. Despite some differences in magnitude, such as $GD \rightarrow BI$ (0.234), $GD \rightarrow OAI$ (0.366), and $GD \rightarrow OC$ (0.421), their p-values exceed the threshold of 0.05, indicating no statistically significant variances.
15. **Consistency of Constructs across Regions:** The findings suggest that the constructs such as Behavioral Intention (BI), Organizational Attitudes (OAI), Organizational Culture (OC), and other related constructs are consistent across both North and South India in the context of IT companies. This indicates that geo-demographical factors do not significantly alter the relationships between these constructs, reinforcing the idea that innovation culture and employee engagement are universal across regions.
16. **Stable Relationships Between Geo-Demographics and Constructs:** The p-values for all hypotheses regarding the relationships between geo-demographical variables and the various constructs like BI, DI, EEB, EEC, FFI, FNI, JNI, MI, OAI, OC, OPE, OPG, OPP, OPSL, PI, and WQ are above 0.05. This confirms that geo-demographical factors do not significantly influence the strength or direction of these relationships, implying that factors such as age, gender, and location do not have a differential effect on these constructs in the study context.
17. **Implications for Organizational Strategy:** The absence of significant regional disparities in the relationships between geo-demographical factors and constructs like innovation culture, employee engagement, and organizational performance suggests that IT companies in both North and South India can apply similar strategies to foster

innovation culture and employee engagement. This consistency may help streamline organizational development programs without needing region-specific adjustments.

18. Statistical Significance Supports the Mediating Role of Employee Engagement:

The hypothesis testing reveals significant statistical values supporting the mediating effect. The T-values for both the paths (innovative culture to employee engagement and employee engagement to organizational performance) exceed the critical threshold of 1.96, while the P-values are well below 0.05. This confirms that employee engagement is a significant factor in the relationship, amplifying the impact of innovative culture on organizational performance.

19. Enhanced Employee Engagement Strengthens Organizational Performance:

The findings show that higher employee engagement levels, fostered by an innovative culture, contribute significantly to organizational performance. This underscores the importance of creating a work environment that not only encourages innovation but also actively engages employees to achieve optimal outcomes. Organizations in the IT sector should strategically invest in engagement-driven initiatives aligned with innovative practices for sustained success.

5.4 Recommendations

1. **Foster an Innovation-Driven Culture Across Regions:** Since no significant regional differences were found in the impact of geo-demographical factors on innovation culture, organizations should prioritize creating a uniform, innovation-driven culture across North and South India. This culture can help employees stay motivated and committed to continuous improvement, regardless of their regional background.
2. **Leverage Employee Engagement for Organizational Performance:** The positive impact of employee engagement on organizational performance suggests that companies should invest in strategies to boost employee engagement, such as providing opportunities for skill development, offering recognition programs, and improving workplace satisfaction to achieve better organizational outcomes.
3. **Standardize Engagement and Innovation Practices Across Regions:** As the MGA results show no regional differences in engagement and innovation outcomes, companies can standardize employee engagement and innovation practices across different regions. This will ensure consistency and efficiency in fostering a collaborative and innovative work environment.

4. **Implement Region-Independent Training Programs:** With no significant regional variance in employee attitudes toward innovation, companies can implement uniform training programs designed to enhance employees' creative and problem-solving abilities across all locations, ensuring that innovation capabilities are equally strong across the organization.
5. **Foster a Strong Innovation Culture:** Given the significant positive impact of innovative culture on employee engagement, organizations should prioritize cultivating a culture of creativity, experimentation, and continuous improvement to inspire employees to actively contribute to organizational success.
6. **Provide Innovation-Focused Training:** Implement training programs that encourage innovative thinking and problem-solving skills among employees. These programs can help develop a mindset that embraces change and creativity, contributing to higher levels of engagement.
7. **Encourage Cross-Functional Collaboration:** To promote innovation, encourage collaboration across different departments and hierarchical levels. Cross-functional teams often generate more creative ideas, driving both innovation and engagement.
8. **Implement Employee Recognition Programs:** Develop programs that recognize and reward employees for innovative ideas and contributions. This will not only foster a culture of innovation but also significantly enhance employee engagement by showing appreciation for their efforts.
9. **Create a Safe Environment for Experimentation:** Employees are more likely to engage and contribute when they feel safe to experiment and take risks. Establish a work environment where mistakes are viewed as learning opportunities, which will ultimately enhance innovation and engagement.
10. **Leverage Technology to Foster Innovation:** Invest in technological tools and platforms that facilitate idea generation, collaboration, and the sharing of innovative solutions. Digital platforms can streamline communication and collaboration, boosting innovation and engagement across the organization.
11. **Empower Employees with Decision-Making Authority:** By involving employees in decision-making processes and giving them more autonomy, organizations can enhance engagement. Employees who feel they have control over their work are more likely to be invested in the success of the company.

12. Promote Transparent Communication: Transparent communication fosters trust and openness, which are key to innovation. Regular updates and open channels for feedback help employees feel valued, leading to higher levels of engagement.
13. Focus on Leadership Development: Invest in leadership training at all levels to ensure leaders can effectively promote and manage innovation. Strong leadership is essential for creating an environment where employees feel engaged and motivated to innovate.
14. Align Organizational Goals with Employee Interests: Clearly communicate how employees' work contributes to the broader organizational goals, especially in innovation. When employees see the direct impact of their work, their engagement and motivation to innovate increase.
15. Offer Flexible Work Options: As younger employees make up the majority of the workforce, offering flexible work arrangements can enhance employee satisfaction and engagement. Flexibility allows employees to balance work and personal life, boosting overall well-being and productivity.
16. Invest in Continuous Learning: Provide employees with opportunities for continuous learning and development, particularly in areas related to creativity and innovation. This can include workshops, certifications, or exposure to new technologies, which can enhance both engagement and performance.
17. Promote Diversity and Inclusivity in Innovation: Encourage diverse teams, as innovation thrives in diverse environments where different perspectives are considered. A diverse workforce is more likely to generate creative ideas that drive organizational performance.
18. Measure and Track Employee Engagement: Regularly assess employee engagement through surveys and feedback to ensure that engagement levels are aligned with organizational goals. Tracking these metrics will help organizations identify areas where they need to improve to boost engagement.
19. Integrate Employee Well-Being Programs: To maintain high levels of employee engagement, invest in well-being initiatives that support both physical and mental health. Employee well-being programs create a happier, more engaged workforce, which in turn fosters a more innovative and productive organizational culture.
20. Monitor Regional and Organizational Trends: While no significant regional differences were found in the study, it is still important to monitor regional trends over time. By continuously analyzing data, companies can ensure that their engagement and

innovation strategies remain relevant and effective across regions and as the organization grows.

5.5 Practical Implications of the Study

1. **Young Workforce Management:** Since the majority of respondents are under 30, organizations should focus on policies that cater to the needs of a younger workforce, such as career development programs, skill enhancement initiatives, and leadership training opportunities. Companies should also implement flexible work arrangements and digital workplace solutions to align with the tech-savvy nature of young professionals.
2. **Gender Diversity and Inclusion:** With women comprising 65.5% of the sample and the presence of third-gender respondents, organizations must continue fostering an inclusive work environment. Gender-sensitive policies, equal pay initiatives, and mentorship programs for women and gender minorities can enhance workplace diversity and ensure equitable career growth opportunities.
3. **Talent Development Based on Education Levels:** Since the majority of respondents hold at least a graduate degree, organizations should design specialized training programs to leverage their academic background. Upskilling programs, postgraduate sponsorships, and research collaborations with universities can help organizations maximize employee potential.
4. **Career Progression Strategies:** Given that 70% of respondents have 0–5 years of experience, HR policies should focus on career progression pathways, mentorship programs, and structured onboarding processes to retain young talent. Companies should also establish leadership development programs to prepare these employees for middle and senior management roles.
5. **Work-Life Balance and Well-being Initiatives:** With a significant proportion of respondents being single (72.5%), organizations should provide a mix of work-life balance initiatives tailored to younger, single employees, such as networking opportunities, wellness programs, and work-from-anywhere options.
6. **Enhancing Junior-Level Engagement:** Since 40% of respondents belong to the junior management level, companies must implement structured engagement programs to keep them motivated. This includes cross-functional exposure, rotation programs, and empowerment initiatives that encourage innovation at all levels.

7. **Departmental Resource Allocation:** The distribution across departments suggests that marketing, sales, and finance have substantial representation, while HR and operations are relatively smaller. Organizations should ensure balanced resource allocation and interdepartmental collaboration to optimize productivity and efficiency.
8. **Encouraging Innovation for Higher Engagement:** The study confirms that an innovative culture significantly enhances employee engagement. Organizations should foster a culture of experimentation, provide incentives for creativity, and introduce innovation labs where employees can brainstorm and implement new ideas.
9. **Employee Engagement as a Key Driver of Performance:** Since employee engagement positively impacts organizational performance, firms should prioritize engagement strategies such as regular feedback loops, team-building activities, and participative decision-making processes to maintain a motivated workforce.
10. **Strategic Investment in Innovation-Driven Performance:** The results highlight the importance of innovation in improving organizational performance. Companies should allocate more resources to R&D, implement design thinking methodologies, and create a rewards system for employees who contribute innovative ideas.
11. **Employee Engagement as a Mediator for Better Organizational Outcomes:** Since engagement plays a mediating role between innovative culture and performance, organizations should focus on leadership development, recognition programs, and work culture enhancements that drive both engagement and innovation simultaneously.
12. **Consistency in Management Strategies Across Regions:** The absence of significant regional differences in geo-demographics indicates that companies operating in both North and South India can apply standardized HR, innovation, and engagement policies without major regional modifications. This simplifies strategy formulation and implementation at a national level.
13. **Scalability of HR and Innovation Policies:** Given that geo-demographical factors do not significantly impact organizational constructs, IT companies can adopt uniform engagement and innovation strategies across various locations, ensuring scalability and standardization of best practices.
14. **Enhancing Employee Retention through Innovation:** Organizations should recognize that employees in an innovation-driven environment are more engaged and, in turn, contribute more to organizational performance. Strategies like innovation hackathons, collaborative problem-solving sessions, and open-door leadership policies can help retain top talent.

- 15. Aligning Innovation and Employee Engagement for Long-Term Growth:** Since fostering innovation strengthens employee engagement and performance, firms should integrate innovation-driven HR policies, encourage intrapreneurship, and ensure that employees feel valued in the organization's growth journey.

5.6 Limitations of the Study

- 1) **Geographical Scope:** The research was confined to IT companies in North and South India, which may limit the applicability of the findings to other regions. This geographical focus does not account for regional differences in organizational practices and employee behavior in other parts of India or globally.
- 2) **Sample Size:** Although the sample size was statistically sufficient, increasing the sample size could enhance the reliability and generalizability of the findings. A larger sample would allow for more robust conclusions and reduce potential sampling bias.
- 3) **Cross-Sectional Nature:** The study was conducted at a single point in time, which restricts the ability to observe how relationships among the studied variables evolve over time. Longitudinal studies would be necessary to capture changes due to external factors or organizational interventions.
- 4) **Self-Reported Data:** The reliance on self-reported data introduces potential biases, such as exaggeration or respondents providing socially desirable answers rather than accurate ones. This could affect the reliability of the collected data.
- 5) **Limited Variables:** The study focused on specific variables, including geo-demographics, innovation culture, employee engagement, and organizational performance. Other critical variables, such as organizational structure, leadership styles, or employee satisfaction, were not explored.
- 6) **Industry Focus:** By concentrating solely on IT companies, the study excludes insights from other industries where the dynamics of innovation culture and employee engagement may differ significantly.
- 7) **Technological Changes:** The rapid pace of technological advancements in the IT sector may render the findings less relevant over time. Continuous updates to the research framework are necessary to maintain relevance.
- 8) **Cultural Homogeneity:** The broad categorization of North and South India does not account for the diverse cultural and organizational practices within these regions, potentially oversimplifying the analysis.

- 9) **Moderating Variables:** The study did not include certain potential moderating variables, such as the size of the organization or the type of leadership, which could influence the relationships between the variables.
- 10) **Time Constraints:** The limited time available for data collection may have restricted the depth of the responses. Some employees might not have had enough time to provide detailed feedback, potentially affecting the study's comprehensiveness.

5.7 Future Research Directions

- 1) **Longitudinal Studies:** Future research may apply a longitudinal methodology to examine the dynamic interplay between innovation culture, employee engagement, and organizational success over time. This would yield insights into causality and the influence of external factors, including market dynamics and policy alterations.
- 2) **Varied Sectors:** Broadening the focus to encompass sectors like as manufacturing, healthcare, and education would yield a more comprehensive insight into the disparities in innovation culture and employee engagement, along with their distinct challenges and opportunities.
- 3) **Inclusion of Moderators:** Future research should investigate the influence of moderators such organizational size, technical preparedness, or market competitiveness. These factors may substantially affect the correlation between innovation culture and organizational success.
- 4) **Technological Integration:** Future research may investigate the influence of future technologies such as artificial intelligence, machine learning, and automation on innovation culture, employee engagement, and performance. This is especially pertinent when the IT sector swiftly embraces emerging technologies.
- 5) **Qualitative Approaches:** Integrating qualitative methods, such as interviews or focus groups, would enhance the quantitative findings. This methodology would enable researchers to obtain comprehensive insights into employees' experiences and perspectives.
- 6) **The Influence of Remote Work:** Future study may explore the effects of remote and hybrid work models in the IT sector on innovation culture, employee engagement, and organizational success.
- 7) **Employee Well-Being:** Future research may investigate the influence of employee well-being and mental health as mediators in the correlation between innovation culture and

organizational success. This would alleviate a burgeoning issue in contemporary workplaces and offer comprehensive insights.

5.8 Conclusion

The present study, *Impact of Innovation Culture on Employee Engagement and Organisational Performance in Select IT Companies*, offers significant insights into the intricate dynamics between innovation-driven practices, employee engagement, and organizational performance. Grounded in robust statistical analyses and empirical evidence, the research underscores the pivotal role of fostering an innovative culture to drive employee commitment and enhance organizational outcomes. This conclusion synthesizes the major findings of the study, delineating their implications and paving the way for future research and managerial interventions. One of the study's primary revelations is the profound impact of an innovative culture on employee engagement. The beta coefficient of 0.350 and its statistical significance confirm that organizations embracing innovation as a core value are better equipped to inspire their workforce. An environment that encourages creativity and novel approaches motivates employees to actively participate in organizational goals, fostering a sense of ownership and commitment. This aligns with existing literature that emphasizes the importance of an innovation-friendly atmosphere in nurturing a motivated and engaged workforce. The study further substantiates the critical link between employee engagement and organizational performance. A beta value of 0.250 demonstrates that engaged employees significantly contribute to achieving organizational objectives. The robustness of this relationship, evidenced by a t-value of 4.15 and a p-value of 0.000, highlights the necessity for organizations to invest in engagement strategies. When employees feel valued and involved, their productivity increases, directly impacting the organization's bottom line. This finding is consistent with prior research emphasizing the importance of employee engagement as a determinant of organizational success. Another cornerstone of this study is the direct influence of an innovative culture on organizational performance. With a beta value of 0.421 and statistically significant results, the research confirms that innovation is not merely a tool for survival but a catalyst for growth and competitive advantage. IT companies that integrate innovation into their strategic framework are more likely to achieve superior performance metrics. This underscores the need for organizations to institutionalize innovation as a continuous process rather than a one-time initiative. The mediational role of employee engagement between innovative culture and organizational performance is a noteworthy contribution of this research. By demonstrating that innovative practices positively influence

employee engagement, which in turn enhances organizational performance, the study highlights a dual pathway through which innovation drives success. This finding advocates for a holistic approach wherein organizations simultaneously focus on fostering innovation and enhancing engagement to achieve optimal outcomes. Demographically, the study provides valuable insights into the respondent profile, shedding light on age, gender, educational qualifications, work experience, marital status, organizational levels, and departmental distributions. The predominance of younger respondents, with 69% under the age of 30, suggests that IT companies largely rely on a youthful workforce. The significant representation of females (65.5%) indicates progress in gender diversity, while the inclusion of third-gender respondents underscores a commitment to inclusivity. The high educational qualifications of respondents reflect the industry's demand for skilled professionals, further reinforcing the importance of intellectual capital in driving innovation and performance. Despite the robust findings, the study reveals that geo-demographical factors do not significantly influence the relationships between innovative culture, employee engagement, and organizational performance. The Multi-Group Analysis (MGA) results, with p-values exceeding the threshold of 0.05, indicate that these constructs are uniformly perceived across regions, suggesting a consistent cultural and organizational ethos within the IT sector in India. This consistency highlights the universal applicability of the findings and their relevance across diverse geographical contexts. In conclusion, the study affirms that cultivating an innovative culture is indispensable for enhancing employee engagement and organizational performance. IT companies must prioritize innovation not only as a strategic imperative but also as a cultural value embedded in their operational DNA. Employee engagement emerges as a critical mediating factor, bridging the gap between innovation and performance. By fostering a supportive and inclusive work environment, organizations can unlock the full potential of their workforce, driving sustained growth and competitive advantage. The findings of this study have profound implications for managers, policymakers, and researchers. Managers must recognize the intertwined nature of innovation, engagement, and performance, developing integrated strategies that address these dimensions concurrently. Policymakers should create frameworks that encourage innovation and support workforce development, particularly in knowledge-intensive sectors like IT. Researchers can build upon this work by exploring additional mediating and moderating variables, extending the study to other industries, or examining longitudinal effects to provide deeper insights into the dynamics of innovation-driven growth. Ultimately, the study underscores that the synergy between innovation culture and employee engagement is not just a driver of organizational performance but a cornerstone

of sustainable success in a rapidly evolving global economy. IT companies that embrace this paradigm are better positioned to navigate challenges, capitalize on opportunities, and achieve long-term excellence.

5.9 References

- AbuKhalifeh, A. N., & Som, A. P. M. (2013). The antecedents affecting employee engagement and organizational performance. *Asian Social Science*, 9(7), 41–46. <https://doi.org/10.5539/ass.v9n7p41>
- Addai, E. (2020). _ *Published by European Centre for Research Training and Development UK*. January, 10–28.
- Afram, J., Manresa, A., & Mas-Machuca, M. (2022). The impact of employee empowerment on organisational performance: The mediating role of employee engagement and organisational citizenship behaviour. *Intangible Capital*, 18(1), 96–119. <https://doi.org/10.3926/ic.1781>
- Ahad, A. Al, & Khan, M. R. (2020). Exploring the mediating effect of demographic attributes on the relationship between employee engagement and organizational citizenship behavior. *International Journal of Management and Sustainability*, 9(1), 11–23. <https://doi.org/10.18488/journal.11.2020.91.11.23>
- Ahsan, M. (2020). *The relationship between organisational climate for innovation and innovative work behaviour : mediating role of employee engagement in Pakistan BEHAVIOUR : MEDIATING ROLE OF*.
- Ahuchogu, M. C., Sanyaolu, T. O., & Adeleke, A. G. (2024). *Enhancing employee engagement in long-haul transport : Review of best practices and innovative approaches Enhancing employee engagement in long-haul transport : Review of best practices and innovative approaches*. September. <https://doi.org/10.58175/gjrst.2024.2.1.0048>
- Aini, Q., & Dzakiyullah, N. R. (2024). *Leadership Styles in Healthcare Settings for Hospital Management and Employee Engagement*. 2024.
- Al Kurdi, B., Alshurideh, M., & Al afaishat, T. (2020). Employee retention and organizational performance: Evidence from banking industry. *Management Science Letters*, 10(16), 3981–3990. <https://doi.org/10.5267/j.msl.2020.7.011>
- Alam, M. N., Alotaibi, H. S., Bhuiyan, A. B., Zulkifli, N., Ali Turi, J., & Iqbal, J. (2023). Identifying the missing link between training and development and

organizational performance: A mediated moderation approach. *Asian Economic and Financial Review*, 13(11), 887–912. <https://doi.org/10.55493/5002.v13i11.4879>

- Alateeg, S., & Alhammadi, A. (2024). *The role of employee engagement towards innovative work behavior mediated by leadership in small businesses International Journal of Advanced and Applied Sciences mediated by leadership in small businesses. April.* <https://doi.org/10.21833/ijaas.2024.02.016>
- Aleksić, V., & Politis, D. (2023). Trait Emotional Intelligence and Multiple Intelligences as Predictors of Academic Success in Serbian and Greek IT Students. *International Journal of Cognitive Research in Science, Engineering and Education*, 11(2), 173–185. <https://doi.org/10.23947/2334-8496-2023-11-2-173-185>
- Alomari, A. M. (2023). Exploring the impact of e-HRM on organizational performance: A mediated model. *International Journal of Data and Network Science*, 7(4), 1913–1920. <https://doi.org/10.5267/j.ijdns.2023.7.002>
- Alosani, M. S., & Al-ansi, A. A. (2020). *The mediating role of innovation culture on the relationship between Six Sigma and organisational performance in Dubai police force.* <https://doi.org/10.1108/IJLSS-11-2019-0110>
- Alsakarneh, A., Shatnawi, H. A., Alhyasat, W. B. A. K., Zowid, F., Alrababah, R. A. M., & Eneizan, B. (2024). The effectiveness of human resource management practices on increasing organizational performance and the mediating effect of employee engagement. *Uncertain Supply Chain Management*, 12(2), 1141–1154. <https://doi.org/10.5267/j.uscm.2023.11.019>
- Alsarayrah, A. M., Smadi, M., Sbaih, A. D., & Al Masri, A. (2023). The Effect of a Training Program Based on Multiple Intelligences on Developing Environmental Awareness and Achievement Motivation among Primary School Students. *Journal of Educational and Social Research*, 13(3), 321–336. <https://doi.org/10.36941/jesr-2023-0080>
- Alshurideh, M. T., & Al Kurdi, B. (2023). Factors affecting social networks acceptance: An extension to the technology acceptance model using PLS-SEM and Machine Learning Approach. *International Journal of Data and Network Science*, 7(1), 489–494. <https://doi.org/10.5267/j.ijdns.2022.8.010>
- Anindita, R., & Emilia Seda, A. (2018). How employee engagement mediates the influence of individual factors toward organizational commitment. *Problems and Perspectives in Management*, 16(1), 276–283.

[https://doi.org/10.21511/ppm.16\(1\).2018.27](https://doi.org/10.21511/ppm.16(1).2018.27)

- Aragon, R., Schneider, J., Yang, W., Basson, J., Burton, A., Holman, R., Downing, G. J., Aragon, R., Schneider, J. A., Yang, W., Basson, J., Burton, A., & Downing, G. J. (2017). *Impact of Innovation Initiatives in a Federal Government Agency : Measuring and Understanding the Influence of Culture and Employee Attitudes*. 22(1).
- Arbabi, F., Khansari, S. M., Salamzadeh, A., Gholampour, A., Ebrahimi, P., & Fekete-Farkas, M. (2022). Social Networks Marketing, Value Co-Creation, and Consumer Purchase Behavior: Combining PLS-SEM and NCA. *Journal of Risk and Financial Management*, 15(10). <https://doi.org/10.3390/jrfm15100440>
- Ashley, N., & Parumasur, S. B. (2024). *THE RELATIONSHIP BETWEEN ORGANISATIONAL CULTURE AND EMPLOYEE ENGAGEMENT IN PRIVATE HOSPITALS*. 8(1), 68–82. <https://doi.org/10.22495/cgobrv8i1p6>
- Ayodele, O. F., Yao, L., Haron, H. B., & Eaw, H. C. (2021). Knowledge management and organizational performance: The neglected role of institutional accounting practices. *International Journal of Business and Society*, 22(3), 1639–1655. <https://doi.org/10.33736/ijbs.4327.2021>
- Barsh, J., Capozzi, M. M., & Davidson, J. (2006). *Leadership and innovation*. April.
- Bašić, M. (2022). How Does Open Business Model Transform Elements of Innovation Culture into Open Innovation Practices of High and Low Internationalisation Firms? *Journal of the Knowledge Economy*, 0123456789. <https://doi.org/10.1007/s13132-022-00993-0>
- Betto, F., & Garengo, P. (2023). Coaching Effectiveness in Performance Measurement and Management: An Exploratory Review in the Industry 4.0 Era. *ACM International Conference Proceeding Series*, 256–260. <https://doi.org/10.1145/3588243.3588276>
- Bhusan, B., & Sar, A. K. (2020). Critically analysing the concept of workplace flexibility and how it impacts employee and organizational performance: A case of the retail industry in India. *Eurasian Chemical Communications*, 2(9), 1001–1010. <https://doi.org/10.22034/ecc.2020.114845>
- Bieńkowska, A., Koszela, A., Sałamacha, A., & Tworek, K. (2022). COVID-19 oriented HRM strategies influence on job and organizational performance through job-related attitudes. *PLoS ONE*, 17(4 April), 1–29. <https://doi.org/10.1371/journal.pone.0266364>
- Bin Atan, J., & Mahmood, N. H. N. (2019). The role of transformational leadership

style in enhancing employees' competency for organization performance. *Management Science Letters*, 9(Special Issue 13), 2191–2200. <https://doi.org/10.5267/j.msl.2019.7.033>

- Biriowu, C. S., & Augustina, O. U. (2020). *Employee Engagement and Organizational Survival*. 5, 79–92.
- Bose, I. (n.d.). *Team Effectiveness , Innovative Work Culture and Employee Engagement in Selected Information Technology Companies in Kolkata , India : A Study*.
- Bozhinovska, T., Eftimov, L., & Nakov, L. (2023). Contemporary Managerial Analysis of Multi-Stakeholder Perspective in Human Resource Management: Towards a New Conceptual Framework. *Management (Croatia)*, 28(Special Issue), 13–27. <https://doi.org/10.30924/mjcmi.28.si.2>
- Bushashe, M. A. (2023). Determinants of private banks performance in Ethiopia: A partial least square structural equation model analysis (PLS-SEM). *Cogent Business and Management*, 10(1). <https://doi.org/10.1080/23311975.2023.2174246>
- Calvo-Porrà, C., & Pesqueira-Sanchez, R. (2022). Does the use of technology create technology engagement? Comparing three structural models. *Spanish Journal of Marketing - ESIC*, 26(3), 385–404. <https://doi.org/10.1108/SJME-03-2022-0033>
- Cania, L., & Prendi, L. (2024). Strategic Talent Management: Enhancing Corporate Performance and Governance. *Corporate Law and Governance Review*, 6(3), 103–112. <https://doi.org/10.22495/clgrv6i3p11>
- Chandrasekar, K. (2011). *WORKPLACE ENVIRONMENT AND ITS IMPACT ON ORGANISATIONAL PERFORMANCE IN PUBLIC SECTOR*. 1(1).
- Chen, J. (2021). A structural model of purchases, returns, and return-based targeting strategies. *Journal of the Academy of Marketing Science*. <https://doi.org/10.1007/s11747-020-00761-z>
- Chiemeké, K. C., Ashari, H., & Muktar, S. N. (2020). *Moderating Relationship of Organizational Culture Between Quality of Work Life and Employee Engagement*. June. <https://doi.org/10.36478/ibm.2019.577.586>
- Coltman, T., Devinney, T. M., Midgley, D. F., & Venaik, S. (2008). Formative versus reflective measurement models: Two applications of formative measurement. *Journal of Business Research*, 61(12), 1250–1262.

<https://doi.org/10.1016/j.jbusres.2008.01.013>

- Crews, C., Euchner, J., & Kates, A. (2022). Innovation Culture and The Hero's Journey: In this paper based on their presentation at IRI's Annual Conference in June 2022, the authors present a new approach to shift innovation culture so that companies can adapt and thrive in today's rapidly evolving. *Research Technology Management*, 65(6), 46–52. <https://doi.org/10.1080/08956308.2022.2120704>
- Dabić, M., Lažnjak, J., Smallbone, D., Švarc, J., & Smallbone, D. (2018). *performance : Evidence from Croatia Intellectual capital , organisational climate , innovation culture , and SME performance Evidence from Croatia*. <https://doi.org/10.1108/JSBED-04-2018-0117>
- Dallasega, P., Woschank, M., Sarkis, J., & Tippayawong, K. Y. (2022). Logistics 4.0 measurement model: empirical validation based on an international survey. *Industrial Management and Data Systems*, 122(5), 1384–1409. <https://doi.org/10.1108/IMDS-11-2021-0694>
- Dinh, L. N. (2020). Determinants of employee engagement mediated by work-life balance and work stress. *Management Science Letters*, 10(4), 923–928. <https://doi.org/10.5267/j.msl.2019.10.003>
- Dutta, H. (2016). *Employee Engagement in Indian Banking Sector : A Review of the Literature Employee Engagement in Indian Banking Sector : A Review of the Literature. September*.
- El-ella, N. A., Stoetzel, M., Bessant, J., & Pinkwart, A. (2014). *The International Journal of Innovation Management Publication : Accelerating high involvement innovation. April*. <https://doi.org/10.1142/S1363919613400203>
- El-Sharkawy, S. A., Nafea, M. S., & Hassan, E. E.-D. H. (2023). HRM and organizational learning in knowledge economy: investigating the impact of happiness at work (HAW) on organizational learning capability (OLC). *Future Business Journal*, 9(1). <https://doi.org/10.1186/s43093-023-00188-2>
- Email, O. (2016). *Innovation through employee engagement*.
- Etxebarria, B., Sánchez, F., Rojo, N., & Barona, A. (2022). Multiple Intelligence Informed Resources for Addressing Sustainable Development Goals in Management Engineering. *Sustainability (Switzerland)*, 14(14). <https://doi.org/10.3390/su14148439>
- Fahad S. Almawishir, N., & Benlaria, H. (2023). Using the PLS-SEM Model to Measure the Impact of the Knowledge Economy on Sustainable Development in the

Al-Jouf Region of Saudi Arabia. *Sustainability (Switzerland)*, 15(8). <https://doi.org/10.3390/su15086446>

- Fan, Y., Chen, J., Shirkey, G., John, R., Wu, S. R., Park, H., & Shao, C. (2016). Applications of structural equation modeling (SEM) in ecological studies: an updated review. *Ecological Processes*, 5(1). <https://doi.org/10.1186/s13717-016-0063-3>
- Fang, L., Shi, S., Gao, J., & Li, X. (2022). The mediating role of green innovation and green culture in the relationship between green human resource management and environmental performance. *PLoS ONE*, 17(9 September), 1–24. <https://doi.org/10.1371/journal.pone.0274820>
- Ferreras-Garcia, R., Sales-Zaguirre, J., & Serradell-López, E. (2021). Developing entrepreneurial competencies in higher education: a structural model approach. *Education and Training*, 63(5), 720–743. <https://doi.org/10.1108/ET-09-2020-0257>
- Fidyah, D. N. (2020). *Influence of Organizational Culture and Employee Engagement on Employee Performance : Job Satisfaction as Intervening Variable*. 9(4), 64–81.
- Firm, H., & Chen, J. (2002). WEB JOURNAL OF A New Perspective to Evaluate Enterprise Innovation Culture : Comparison between Espoused Values and Actual Practices in a A New Perspective to Evaluate Enterprise Innovation Culture : Comparison between Espoused Values and Actual Practices. *Business*, 5(5).
- Gamil, Y., & Abd Rahman, I. (2023). Studying the relationship between causes and effects of poor communication in construction projects using PLS-SEM approach. *Journal of Facilities Management*, 21(1), 102–148. <https://doi.org/10.1108/JFM-04-2021-0039>
- Gaur, V. (2024). *Advancing Work-Life Equilibrium through Employee Engagement and Innovation*. 15(1), 15–17.
- Gębczyńska, A., & Brajer-Marczak, R. (2020). Review of selected performance measurement models used in public administration. *Administrative Sciences*, 10(4), 1–20. <https://doi.org/10.3390/admsci10040099>
- Gło, W., & Kras, T. (2018). *culture and enterprise performance : testing the mediation effect*. 737–769. <https://doi.org/10.1007/s11846-017-0229-0>
- Gross-Gołacka, E., Kupczyk, T., & Wiktorowicz, J. (2022). Towards a Better Workplace Environment—Empirical Measurement to Manage Diversity in the Workplace. *International Journal of Environmental Research and Public Health*, 19(23). <https://doi.org/10.3390/ijerph192315851>

- Gudergan, S. P., Ringle, C. M., Wende, S., & Will, A. (2008). Confirmatory tetrad analysis in PLS path modeling. *Journal of Business Research*, 61(12), 1238–1249. <https://doi.org/10.1016/j.jbusres.2008.01.012>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106–121. <https://doi.org/10.1108/EBR-10-2013-0128>
- Halim, H. A., Ahmad, N. H., & Ramayah, T. (2019). Sustaining the innovation culture in smes: The importance of organisational culture, organisational learning and market orientation. *Asian Journal of Business Research*, 9(2), 14–33. <https://doi.org/10.14707/ajbr.190059>
- Handayani, S., Anggraeni, A. I., Andriyansah, Suharnomo, & Rahardja, E. (2017). Analysis of antecedent and consequence of employee engagement in small and medium-sized enterprises in Central Java, Indonesia. *European Research Studies Journal*, 20(3), 500–510. <https://doi.org/10.35808/ersj/724>
- Hanifah, H., Halim, H. A., & Ahmad, N. H. (2017). *Understanding the Innovation Culture towards Innovation Performance among Bumiputera SMEs*. January.
- Hartono, I., Baga, L. M., Syarief, R., & Sukmawati, A. (2024). Talent management model: How to boost the central bank’s performance in the disruptive era. *Journal of Project Management (Canada)*, 9(4), 421–432. <https://doi.org/10.5267/j.jpm.2024.7.005>
- Hejjas, K., Miller, G., & Scarles, C. (2019). “It’s Like Hating Puppies!” Employee Disengagement and Corporate Social Responsibility. *Journal of Business Ethics*, 157(2), 319–337. <https://doi.org/10.1007/s10551-018-3791-8>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing*,

20(May 2014), 277–319. [https://doi.org/10.1108/S1474-7979\(2009\)0000020014](https://doi.org/10.1108/S1474-7979(2009)0000020014)

- Hossein, M., & Javadi, M. (2013). *Investigating the Roles of Organizational Culture , Leadership Style , and Employee Engagement in Knowledge Transfer*. 3(9), 717–734. <https://doi.org/10.6007/IJARBSS/v3-i9/261>
- Hu, D., & Lan, Y. (2024). The dual path effect mechanism study of digital-HRM on employee innovative performance and cyberloafing. In *PLoS ONE* (Vol. 19, Issue 8 August). <https://doi.org/10.1371/journal.pone.0307195>
- Id, J. G., Dziadkowiec, M. G., & Id, L. L. (2021). *Finding links between organisation ' s culture and innovation . The impact of organisational culture on university innovativeness*. 1–21. <https://doi.org/10.1371/journal.pone.0257962>
- Iqbal, S., Akhtar, S., Anwar, F., Kayani, A. J., Sohu, J. M., & Khan, A. S. (2023). Linking green innovation performance and green innovative human resource practices in SMEs; a moderation and mediation analysis using PLS-SEM. *Current Psychology*, 42(13), 11250–11267. <https://doi.org/10.1007/s12144-021-02403-1>
- Joiceswarnalatha, R., & Krishna, V. M. (2019). Emotional intelligence and its impact on the organizational performance-using SEM. *International Journal of Recent Technology and Engineering*, 8(2 Special Issue 6), 1002–1012. <https://doi.org/10.35940/ijrte.B1105.0782S619>
- Jum'a, L., & Kilani, S. (2022). Adoption enablers of big data analytics in supply chain management practices: the moderating role of innovation culture. *Uncertain Supply Chain Management*, 10(3), 711–720. <https://doi.org/10.5267/j.uscm.2022.5.004>
- June, I. M. A. Y. (2022). *Impact of organizational culture on frontline employee engagement in travel companies – An empirical study in Vietnam*. 178–183.
- Kapoor, S., & Meachem, A. (2016). *Employee Engagement-A Bond between Employee and Organisation Employee Engagement- A Bond between Employee and Organisation*. February 2012.
- Karnik, N. (2024). *Innovations in Strategic Management : Navigating Complexity and Driving Organizational Success A survey of analyzing organizational performance and survival employing the management of knowledge*. 2023.
- Khulbe, M., & Kumar, P. (2024). Interrogating the Interceding Effects of Service and Justice Climates on the Juncture Between Employee Engagement and Organizational Performance in the Service Sectors. *Revista de Gestao Social e Ambiental*, 18(3), 1–29. <https://doi.org/10.24857/rgsa.v18n3-129>

- Khwaja, A., & Yang, N. (2022). Quantifying the link between employee engagement, and customer satisfaction and retention in the car rental industry. *Quantitative Marketing and Economics*, 20(3), 275–292. <https://doi.org/10.1007/s11129-022-09253-6>
- Kim, J., Kim, H., & Kwon, H. J. (2020). The impact of employees' perceptions of strategic alignment on sustainability: An empirical investigation of Korean firms. *Sustainability (Switzerland)*, 12(10). <https://doi.org/10.3390/su12104180>
- Kim, M., Kim, H. S., Oja, B. D., Hill, J., Zvosec, C., & Doh, P. Y. (2024). The Roles of Perceived Safety Climate and Innovativeness in the Performance of Sport and Recreation Organizations. *Journal of Sport Management*, 38(3), 205–216. <https://doi.org/10.1123/jsm.2023-0119>
- Kim, T. (2022). Assessing the Impacts of Individual and Organizational Factors on South Korea Hotels' Green Performance Using the AMO Model. *International Journal of Environmental Research and Public Health*, 19(16). <https://doi.org/10.3390/ijerph191610440>
- Kurniawati, N. I., & Raharja, E. (2023). The Influence of Employee Engagement on Organizational Performance: A Systematic Review. *WSEAS Transactions on Business and Economics*, 20, 203–213. <https://doi.org/10.37394/23207.2023.20.20>
- Kusnandar, Setyowati, N., & Riptanti, E. W. (2023). Creating an Innovative Culture in Agribusiness of Micro, Small and Medium-Sized Enterprises. *Agricultural and Resource Economics*, 9(2), 205–222. <https://doi.org/10.51599/are.2023.09.02.09>
- Lee, J. C., & Chen, C. Y. (2019). The moderator of innovation culture and the mediator of realized absorptive capacity in enhancing organizations' absorptive capacity for SPI success. *Journal of Global Information Management*, 27(4), 70–90. <https://doi.org/10.4018/JGIM.2019100104>
- Lobov, D., & Rybin, M. (2022). Openness to External Innovation in Major Oil and Gas Companies. *International Journal of Systematic Innovation*, 7(4), 39–50. [https://doi.org/10.6977/IJoSI.202212_7\(4\).0003](https://doi.org/10.6977/IJoSI.202212_7(4).0003)
- Ludviga, I., & Kalvina, A. (2024). Organizational Agility During Crisis: Do Employees' Perceptions of Public Sector Organizations' Strategic Agility Foster Employees' Work Engagement and Well-being? *Employee Responsibilities and Rights Journal*, 36(2), 209–229. <https://doi.org/10.1007/s10672-023-09442-9>
- Magno, F., & Dossena, G. (2023). The effects of chatbots' attributes on customer

relationships with brands: PLS-SEM and importance–performance map analysis. *TQM Journal*, 35(5), 1156–1169. <https://doi.org/10.1108/TQM-02-2022-0080>

- Mahande, R. D., & Abdal, N. M. (2022). A HyFlex learning measurement model based on students' cognitive learning styles to create equitable learning. *World Journal on Educational Technology: Current Issues*, 14(5), 1469–1481. <https://doi.org/10.18844/wjet.v14i5.7777>
- Manjaree, S., Lanka, S., & Campus, T. (2021). *Determinants of Employee Engagement during COVID 19 Pandemic (Case of Sri Lanka Technological Campus)*. August. <https://doi.org/10.47772/IJRISS.2021.5743>
- Mansoor, A., Abdul Wahab, S., & Jahan, S. (2021). Stimulation of innovative behavior through the inclusive leaders and engaged workers. *Business: Theory and Practice*, 22(2), 249–255. <https://doi.org/10.3846/btp.2021.13363>
- Mansour, M. H., & Jordan. (2022). Influence Of Job Embeddedness on Organizational Citizenship Behaviour in Jordanian Ministries Using Pls-Sem Approach. *Quality - Access to Success*, 23(191), 89–99. <https://doi.org/10.47750/QAS/23.191.11>
- Martínez-Villaluenga, C., & Peñas, E. (2023). Innovative Processing Technologies for Developing Functional Ingredients and Food Products with Health Benefits from Grains. *Foods*, 12(7), 12–15. <https://doi.org/10.3390/foods12071356>
- Mehralian, G., Sheikhi, S., Zatzick, C., & Babapour, J. (2022). The dynamic capability view in exploring the relationship between high-performance work systems and innovation performance. *International Journal of Human Resource Management*, 34(18), 3555–3584. <https://doi.org/10.1080/09585192.2022.2138494>
- Meng, X., & Imran, M. (2024). The impact of corporate social responsibility on organizational performance with the mediating role of employee engagement and green innovation: evidence from the Malaysian banking sector. *Economic Research-Ekonomska Istrazivanja*, 37(1). <https://doi.org/10.1080/1331677X.2023.2264945>
- Mirji, H., & Bhavsar, D. (2023). *Impact of Organizational Culture on Employee Engagement and Effectiveness*. January.
- Mishra, A., & Biswal, S. (2024). Employee Engagement: A Key to Improve Performance. *International Research Journal of Multidisciplinary Scope*, 5(2), 122–131. <https://doi.org/10.47857/irjms.2024.v05i02.0386>
- M, Rashmi. (2017). The 'Digital Others'. 694
- Muhtadi, A., Laily, I., Kautsar, A. P., & Widiyanto, S. (2013). *Hospital Pharmacist's*

Employee Engagement Fully Mediate the Organization Culture to Their Innovative Behavior and Individual Performance. May 2014.

- Navajas-Romero, V., Ceular-Villamandos, N., Pérez-Priego, M. A., & del Río, L. C. L. (2022). Sustainable human resource management the mediating role between work engagement and teamwork performance. *PLoS ONE*, 17(8 August), 1–20. <https://doi.org/10.1371/journal.pone.0271134>
- Omachi, V. O., & Ajewumi, O. E. (2024). *The Influence of Agile Organizational Design on Employee Engagement and Performance in the Digital Age International Journal of Research Publication and Reviews The Influence of Agile Organizational Design on Employee Engagement and Performance in the Digital Age. October.* <https://doi.org/10.55248/gengpi.5.1024.2702>
- Pimentel, R., Loiola, G. F., & Diogo, T. M. (2020). Innovation culture and learning: The program clube dos apaixonados por desafios (Challenge Lovers Club). *Revista de Administracao Mackenzie*, 21(4). <https://doi.org/10.1590/1678-6971/ERAMG200129>
- Pînzaru, F., Dobrescu, P., Vițelar, A., Moldoveanu, I., & Săniuță, A. (2023). Linking Sustainability-Driven Factors and Online Knowledge Sharing in Business: A PLS-SEM Analysis. *Sustainability (Switzerland)*, 15(8). <https://doi.org/10.3390/su15086444>
- Ploscaru, A. N., Rotea, C. C., & Dumitriu, S. (2023). *Evaluating the Effects of HRM Practices on Employee Engagement and Organizational Culture.* 68–73. <https://doi.org/10.24818/BASIQ/2023/09/034>
- Popescu, L., Bocean, C. G., Vărzaru, A. A., Avram, C. D., & Iancu, A. (2022). A Two-Stage SEM—Artificial Neural Network Analysis of the Engagement Impact on Employees' Well-Being. *International Journal of Environmental Research and Public Health*, 19(12). <https://doi.org/10.3390/ijerph19127326>
- Qassim, A. A., & Abedelrahim, S. S. (2024). Healthcare Resilience in Saudi Arabia: The Interplay of Occupational Safety, Staff Engagement, and Resilience. *International Journal of Environmental Research and Public Health*, 21(11). <https://doi.org/10.3390/ijerph21111428>
- Rabar, D., Rabar, D., & Pavletic, D. (2022). Manufacturing Process Performance Measurement Model using Categorical DEA Approach – a Case of Dry-Docking. *International Journal of Technology*, 13(3), 484–495. <https://doi.org/10.14716/ijtech.v13i3.5457>
- Reena, Gupta. (2024). Delving into the Fabric of Tech Innovation and Entrepreneurial

Ecosystems within Start-up Hubs. doi: 10.21203/rs.3.rs-4094860/v1

- Raghavendra, R., & Kamaraj, M. (2024). Impact of Employee Engagement on Organizational Performance – Moderating Role of Job Satisfaction. *International Research Journal of Multidisciplinary Scope*, 5(3), 977–986. <https://doi.org/10.47857/irjms.2024.v05i03.0943>
- Rajashekar, S., & Jain, A. (2023). A Thematic Analysis on “Employee Engagement in IT Companies from the Perspective of Holistic Well-being Initiatives.” *Employee Responsibilities and Rights Journal*, 0123456789. <https://doi.org/10.1007/s10672-023-09440-x>
- Rama, Bhola, J., Yadav, A., Hazarika, I. K., & Rai, S. (2022). A Structural Model of Teacher Learning, Satisfaction, Attitude and Confidence in Faculty Development Programmes. *Vision*. <https://doi.org/10.1177/09722629221107229>
- Ramzi, T., Rahim, K., & Skhiri, M. (2023). Scientific Knowledge Valorization in the Public R&D Sector: a Survey and a PLS-SEM Approach. *Journal of the Knowledge Economy*, 14(1), 226–254. <https://doi.org/10.1007/s13132-021-00870-2>
- Rasool, S. F., Wang, M., Tang, M., Saeed, A., & Iqbal, J. (2021). How toxic workplace environment effects the employee engagement: The mediating role of organizational support and employee wellbeing. *International Journal of Environmental Research and Public Health*, 18(5), 1–17. <https://doi.org/10.3390/ijerph18052294>
- Ringle, C. M., Sarstedt, M., Sinkovics, N., & Sinkovics, R. R. (2023). A perspective on using partial least squares structural equation modelling in data articles. *Data in Brief*, 48. <https://doi.org/10.1016/j.dib.2023.109074>
- Saad, N. A., Elgazzar, S., & Mlaker Kac, S. (2022). Linking Supply Chain Management Practices To Customer Relationship Management Objectives: a Proposed Framework. *Business: Theory and Practice*, 23(1), 154–164. <https://doi.org/10.3846/btp.2022.15475>
- Sadeli, J. (2005). *The Influence of Leadership, Talent Management, Organizational Culture and Organizational Support on Employee Engagement*. 5(3).
- Saedpanah, K., Ghasemi, M., Akbari, H., Adibzadeh, A., & Akbari, H. (2023). Effects of workload and job stress on the shift work disorders among nurses: PLS SEM modeling. *European Journal of Translational Myology*, 33(1). <https://doi.org/10.4081/ejtm.2022.10909>
- Sarfo, P. A., Zhang, J., Nyantakyi, G., Lassey, F. A., Bruce, E., & Amankwah, O.

- (2024). Influence of Green Human Resource Management on firm's environmental performance: Green Employee Empowerment as a mediating factor. *PLoS ONE*, 19(4 APRIL), 1–28. <https://doi.org/10.1371/journal.pone.0293957>
- Sarstedt, M., Hair, J. F., Ringle, C. M., Thiele, K. O., & Gudergan, S. P. (2016). Estimation issues with PLS and CBSEM: Where the bias lies! *Journal of Business Research*, 69(10), 3998–4010. <https://doi.org/10.1016/j.jbusres.2016.06.007>
 - Sarwar, U., Zamir, S., Fazal, K., Hong, Y., & Yong, Q. Z. (2022). “Impact of leadership styles on innovative performance of female leaders in Pakistani Universities.” *PLoS ONE*, 17(5 May). <https://doi.org/10.1371/journal.pone.0266956>
 - Sawaeen, F. A. A., & Ali, K. A. M. (2021). The nexus between learning orientation, TQM practices, innovation culture, and organizational performance of SMEs in Kuwait. *Interdisciplinary Journal of Information, Knowledge, and Management*, 16, 147–172. <https://doi.org/10.28945/4743>
 - Saxena, M., & Singh, L. B. (2015). *CUSTOMER LOYALTY THROUGH EMPLOYEE ENGAGEMENT : A CONCEPTUAL*. August.
 - Shahzad, A., Zulfikar, B., Ali, M., Haq, A. ul, Sajjad, M., & Raza, A. (2022). Mediating role of formalization of RM methods among the perceived business risk and organization performance. *Cogent Business and Management*, 9(1). <https://doi.org/10.1080/23311975.2021.2024116>
 - Shanmuganathan, A. (2018). *Product Innovation : Impact of Organizational Culture in Product*. August. <https://doi.org/10.14299/ijoart.07.07.002>
 - Sharma, I., & Aggarwal, A. (2024). Leadership Dynamics and Organizational Outcomes in Hospitality and Tourism: A Comprehensive Bibliometric Journey (1990-2024). *The Open Psychology Journal*, 17(1), 1–18. <https://doi.org/10.2174/0118743501315832240624055225>
 - Shkurti, L., & Mustafa, L. (2024). “The impact of employee engagement and innovation performance on business success in manufacturing and service enterprises in Albania and Kosovo.” *Problems and Perspectives in Management*, 22(1), 94–102. [https://doi.org/10.21511/ppm.22\(1\).2024.09](https://doi.org/10.21511/ppm.22(1).2024.09)
 - Shuck, B., Nimon, K., & Zigarmi, D. (2017). Untangling the Predictive Nomological Validity of Employee Engagement: Partitioning Variance in Employee Engagement Using Job Attitude Measures. *Group and Organization Management*, 42(1), 79–112. <https://doi.org/10.1177/1059601116642364>

- Silaban, P. H., Chen, W. K., Eunike, I. J., & Silalahi, A. D. K. (2023). Traditional restaurant managers' use of sensory marketing to maintain customer satisfaction: Findings from PLS-SEM and fsQCA. *Cogent Business and Management*, 10(1). <https://doi.org/10.1080/23311975.2023.2196788>
- Soderquist, K. E., Tirabeni, L., & Pisano, P. (2016). *Employee Engagement Practices in Support of Open Innovation property , in order to make much greater use of external ideas and technologies while. December.*
- Soni, S. (2015). *Impact of Organizational Culture on Employee Engagement and Effectiveness in Indian Manufacturing Company.*
- Srimulyani, V. A., & Hermanto, Y. B. (2022). Organizational culture as a mediator of credible leadership influence on work engagement: empirical studies in private hospitals in East Java, Indonesia. *Humanities and Social Sciences Communications*, 9(1). <https://doi.org/10.1057/s41599-022-01289-z>
- State, I. N. R. (2021). *CORPORATE CULTURE AND EMPLOYEE ENGAGEMENT OF INSURANCE FIRMS IN RIVERS STATE , NIGERIA. August.*
- Stensland, S., Mehmetoglu, M., Liberg, Å. S., & Aas, Ø. (2021). Angling destination loyalty—A structural model approach of freshwater anglers in Trysil, Norway. *Scandinavian Journal of Hospitality and Tourism*, 21(4), 407–421. <https://doi.org/10.1080/15022250.2021.1921022>
- Taheri, S., Bagirov, A. M., Gondal, I., & Brown, S. (2020). Cyberattack triage using incremental clustering for intrusion detection systems. *International Journal of Information Security*, 19(5), 597–607. <https://doi.org/10.1007/s10207-019-00478-3>
- Tirabeni, L., Soderquist, K. E., & Pisano, P. (2016). *Driving Innovation by Enhancing Employee Roles : The Balancing Act of Employee-Driven Innovation. 10(1), 148–156.*
- Tatiana, Khomiakova. (2007). Information Technology Clusters in India. *Transition Studies Review*, 14(2):355-378. doi: 10.1007/S11300-007-0147-Y
- Truss, C., Shantz, A., Soane, E., Alfes, K., & Delbridge, R. (2013). Employee engagement, organisational performance and individual well-being: Exploring the evidence, developing the theory. *International Journal of Human Resource Management*, 24(14), 2657–2669. <https://doi.org/10.1080/09585192.2013.798921>
- Umair, A., Asif, Q. M., & Muhammad, K. F. (2018). *NURTURING INNOVATION PERFORMANCE THROUGH CORPORATE ENTREPRENEURSHIP: THE MODERATION OF EMPLOYEE ENGAGEMENT. 13(13), 20–30.*

<https://doi.org/10.2478/sbe-2018-0017>

- Umair, S., Waqas, U., & Mrugalska, B. (2024). Cultivating sustainable environmental performance: The role of green talent management, transformational leadership, and employee engagement with green initiatives. *Work*, 78(4), 1093–1105. <https://doi.org/10.3233/WOR-230357>
- van der Merwe, C. P., & Olivier, B. H. (2024). The relationship between employee well-being and organisational effectiveness. *SA Journal of Industrial Psychology*, 50, 1–13. <https://doi.org/10.4102/sajip.v50i0.2169>
- Viswanathan, R., Lal, S., & Parveen, J. (2019). Employee engagement a conundrum in indian information technology companies. *International Journal of Recent Technology and Engineering*, 8(2 Special Issue 4), 577–580. <https://doi.org/10.35940/ijrte.B1114.0782S419>
- Viswanathan, R., Sarath Lal, N., Prasad, V., & Parveen, J. (2019a). Does job satisfaction and employee commitment pave way for employee engagement in it sector. *International Journal of Recent Technology and Engineering*, 8(2 Special Issue 4), 307–313. <https://doi.org/10.35940/ijrte.B1058.0782S419>
- Viswanathan, R., Sarath Lal, N., Prasad, V., & Parveen, J. (2019b). Relationship of leadership and organizational climate indispensable element to facilitate employee engagement. *International Journal of Recent Technology and Engineering*, 8(2 Special Issue 4), 429–434. <https://doi.org/10.35940/ijrte.B1084.0782S419>
- Weideman, M., & Hofmeyr, K. B. (2021). Corrigendum to: The influence of flexible work arrangements on employee engagement: An exploratory study (SA Journal of Human Resource Management 18, a1209, (10.4102/sajhrm.v18i0.1209)). *SA Journal of Human Resource Management*, 19, 0–18. <https://doi.org/10.4102/sajhrm.v19i0.1522>
- Wen, H., Chen, X., & Zhao, S. (2022). Risk Measurement Model for Vehicle Group Based on Temporal and Spatial Similarities. *Journal of Advanced Transportation*, 2022. <https://doi.org/10.1155/2022/9123399>
- Winasis, S., & Riyanto, S. (2020). *Digital Transformation in the Indonesian Banking Industry : Impact on Employee Engagement*. October.
- Yidana, M. B., Arthur, F., & Ababio, B. T. (2022). Teachers' Application of Multiple Intelligences Approach in Teaching Economics. *Education Research International*, 2022. <https://doi.org/10.1155/2022/2875555>
- Zhang, W., Zeng, X., Liang, H., Xue, Y., & Cao, X. (2023). Understanding How

Organizational Culture Affects Innovation Performance: A Management Context Perspective. *Sustainability (Switzerland)*, 15(8). <https://doi.org/10.3390/su15086644>

- Zhang, Y. (2022). *Fostering Enterprise Performance Through Employee Brand Engagement and Knowledge Sharing Culture: Mediating Role of Innovative Capability*. 13(July), 1–14. <https://doi.org/10.3389/fpsyg.2022.921237>
- Zhang, Y., Liao, C., Liu, J., Zhang, Y., Gui, S., & Wei, Q. (2024). Unveiling the Nexus: Influence of learning motivation on organizational performance and innovative climate of Chinese firms. *PLoS ONE*, 19(5 May), 1–24. <https://doi.org/10.1371/journal.pone.0304729>
- Zondo, R. W. D. (2020). The influence of employee engagement on labour productivity in an automotive assembly organisation in South Africa. *South African Journal of Economic and Management Sciences*, 23(1), 1–9. <https://doi.org/10.4102/sajems.v23i1.3043>

Appendix A: Questionnaire

Questionnaire

On

“Impact of Innovation Culture on Employee Engagement and Organizational Performance in Select IT Companies”

Mehnaz Manzoor

Research Scholar

Lovely professional university

I am currently conducting research for my Doctor of Philosophy degree at Lovely Professional University. My research focuses on **“Impact of Innovation Culture on Employee Engagement and Organizational Performance in Select IT Companies”** To gather information for this study, I kindly request you to complete the following questionnaire. Rest assured that your responses will remain confidential and will be used solely for academic purposes.

1. To study the impact of innovation culture on employee engagement in select IT companies.
2. To evaluate the impact of employee engagement on organisation performance in select IT companies.
3. To examine the impact of innovation culture on organisation performance in select IT companies.
4. To assess the effect of employee engagement between the relationship of innovation culture and organisation performance in select IT companies.
5. To analyse the effect of geo-demographical variables on innovation culture, employee engagement and organisation performance in select IT companies.

SECTION A: DEMOGRAPHIC INFORMATION.

1	Age:		
	a. Less than - 30years		
	b. 31 - 35 years.		
	c. 35 – 40 years.		
	d. 40 – 45 years.		

		e.46 years- more years		
2	Gender:			
		a.Male		
		b.Female		
		c.Third Gender		
3	Education:			
		a.High School		
		b.Diploma		
		c.Graduate		
		d.Post-Graduate		
		e.Doctorate		
4	Work Experience:			
		a.0 to 5 years		
		b.6 to 10 years		
		c.11 to 30 years		
		d.31 to 40 years		
		e.More than 40 years		
5	Marital Status:			
		a.Single.		
		b.Married.		
		c.Separated.		
		d.Widow.		
		e.Widower.		
		f.Divorcee.		
6	Level Of Organization:			
		a.Senior level manager		
		b.Middle-level manager		

	c.Junior level manager			
7	Department:			
	a.HR			
	b.Marketing and Sales			
	c.Finance			
	d.Technical/Operations			
	e.Other			
8	Name of the organization:			
9	Email/Website:			

Section B: Innovation Culture (IE)

Please rate the following statements using a Likert scale of 1 (Strongly Disagree) to 5 (Strongly Agree), As 1= Strongly Disagree; 2= Somewhat Disagree; 3= Neutral; 4= Somewhat Agree; 5= Strongly Agree.

GENERAL DIMENSION						
S.no	IC 1: Meaning of innovation for you	1	2	3	4	5
1.	Idea					
2.	Solution					
3.	Contributing to technology value.					
4.	Contributing organization value.					
5.	Contributing economic value.					
6.	Contributing to social change.					
7.	Doing something different.					
	IC 2: Features necessary for innovation.					
1.	Scientific knowledge.					
2.	Technological Knowledge.					
3.	Creativity.					
4.	Ability to solve problems.					
5.	Competitiveness.					

6.	Research work.					
7.	Risk taking.					
8.	Collaboration.					
9.	Adaptability.					

	IC 3: Objectives achieved by innovation					
1.	Growth.					
2.	Economic development.					
3.	Social development.					
	IC 4: Determinants of innovation.					
1.	Improving processes.					
2.	Making important investments.					
3.	Designing short-term strategies.					
4.	Designing long-term strategies.					
	IC 5: The process of innovation.					
1.	Identifying a need.					
2.	Doing research.					
3.	Coming up with a solution.					
4.	Disseminating.					
	IC 6: Beliefs about innovation.					
1.	Those who have more resources innovate more.					
2.	To innovate, it is essential to be willing to do so.					
3.	If you do not innovate, you cannot be competitive.					
4.	To innovate, you have to take risks.					
5.	Creativity is needed to innovate.					
6.	Innovation is the result of scientific research.					
7.	Innovating is expensive.					
8.	There is a lot of talk about innovation, but little innovation is carried out.					

9.	It is easier to be innovative if society in general is also Innovative.					
10.	To innovate, you have to work as a team.					
11.	Innovation and creativity are related to the idea of progress. They are positive values that should be fostered.					
12.	Innovation contributes to transforming society.					
	IC 7: Justifying the need for innovation.					
1.	Innovation makes us better prepared for the future.					
2.	Innovation makes us more competitive.					
3.	Innovation contributes to saving resources.					
4.	Innovation makes us more efficient.					
THE ORGANIZATION DIMENSIONS						
	IC8: Factors fostering innovation.					
1.	Risk taking.					
2.	Accepting failure.					
3.	Rewarding a job well done.					
4.	Identifying obstacles.					
5.	Making the most of the experience, skills, and abilities of employees.					
6.	Knowledge sharing.					
7.	Searching for, detecting, obtaining, and disseminating information at an in-house level.					
8.	Exchanging and coming up with ideas.					
9.	Fostering creativity.					
10.	Fostering teamwork.					
	IC 9: Organization Culture.					
1.	Seek solutions to the problems that arise.					
2.	Propose new initiatives.					
3.	Develop new initiatives.					
4.	Freedom to organize your work.					

5.	Take on responsibilities.					
6.	Cooperate with other departments and/or teams at work who have different functions.					
7.	There is a system of structured, well-defined information that enables what is done in different departments to be known.					
8.	There is a formal organizational structure: a set of rules, established functions, and procedures; everyone knows what they can and should do.					
9.	The organization is outward-looking: it works with other organizations and professionals, and knowledge and ideas are obtained from outside.					
10.	There is a focus on innovation: new opportunities are sought creativity is fostered in employees and learning.					
THE INDIVIDUAL DIMENSION						
	IC 10: Worker qualities					
1.	Creativity, having new ideas.					
2.	Autonomy, doing things your way.					
3.	Seeking out and taking risks.					
4.	Looking out for workmates, taking care of their welfare.					
5.	Pursuing success, getting others to recognize your achievements.					
6.	Behaving correctly, avoiding doing something that others may consider wrong.					
7.	Sticking to customs, doing what is usually done.					

Section C: Employee Engagement (EE)

Please rate the following statements using a Likert scale of 1 (Strongly Disagree) to 5 (Strongly Agree), As 1= Strongly Disagree; 2= Somewhat Disagree; 3= Neutral; 4= Somewhat Agree; 5= Strongly Agree.

S.no	EE 1: Boss	1	2	3	4	5
1.	I always receive clear and explicit goals from my manager.					
2.	My manager's conception of my objectives is crystal clear.					

3.	The overall goals of the organization are well-defined and communicated to me.					
4.	I engage in regular conversations with my manager about the information he/she needs.					
5.	I feel encouraged to share my ideas and concerns in my relationship with my manager.					
6.	I am allowed to creatively solve problems by my manager.					
7.	In my opinion, my manager is an effective teacher.					
8.	My manager is well-informed and concerned about the realities of working at my level.					
9.	When I compare my opinion of my work performance to my manager's, my manager's view is generally in alignment.					
10.	I generally look forward to returning calls when my manager leaves me a message.					
11.	I perceive that my manager's intention when correcting me is to help, not accuse.					
12.	My manager tends to look for errors/problems in my work quite frequently.					
13.	When my manager makes an error in our collaborative work, he/she tends to take responsibility.					
14.	My manager doesn't seem eager to place blame when I make a mistake.					
15.	My manager has the capacity to trust, in my view.					
16.	When I'm busy with work, my manager tends to be understanding.					
	EE2: Co-workers					
1.	In my most difficult lateral relationship, the other person seems to understand what I am trying to achieve.					
2.	My co-workers' objectives frequently hinder my objectives.					
3.	When I make constructive suggestions to my co-workers, they are often brushed aside.					
4.	In doing their work, do my co-workers tend to get in the way of my work?					

5.	Among my co-workers, thinking of creative and effective ways to distribute resources happens frequently.					
6.	Co-workers often confide in me about personal problems they have with each other.					
7.	My co-worker's goals have been clearly laid out for me.					
8.	My co-workers frequently share helpful information with me.					
9.	When there's a problem between our departments, do my co-workers try to work out a solution.					
10.	My co-workers feel accountable for their impact on my work.					
11.	When I offer advice to my co-workers, they tend to be appreciative.					
12.	When my co-workers are unhappy with me, they tend to come to me to resolve issues.					
13.	When my co-workers are trying to solve problems between us, they generally value my opinion.					
14.	When it comes to process breakdowns between us, do my co-workers tend to see their contribution to the problem?					
15.	My co-workers often seek my insight and feedback.					
16.	My co-workers willingly share resources with me (budget, personnel, equipment, etc.).					

SECTION D: ORGANISATION PERFORMANCE (OP)

Please rate the following statements using a Likert scale of 1 (Strongly Disagree) to 5 (Strongly Agree), As 1= Strongly Disagree; 2= Somewhat Disagree; 3= Neutral; 4= Somewhat Agree; 5= Strongly Agree.

S.no	OP 1: Efficiency	1	2	3	4	5
1.	Our organization has effectively improved its return on investment.					
2.	The organization is content with its return on equity.					
3.	We rate our satisfaction with the return on assets.					
4.	The organization is satisfied with the level of return.					
5.	Our organization effectively manages gross revenue per employee.					

	OP 2: Growth					
1.	The organization has achieved a positive change in sales.					
2.	We are content with the change in employee count.					
3.	Our market share growth has been substantial.					
4.	The change in net income margin has positively impacted on the organization.					
5.	Changes in CEO compensation are reflective of the organization's performance.					
6.	The organization has effectively managed the change in labor expense to revenue.					
7.	The organization's job generation efforts are noteworthy.					
	OP 3: Profit					
1.	We are satisfied with our return on sales.					
2.	Our net profit margin meets our expectations.					
3.	We are content with our gross profit margin.					
4.	Our net profit level has been consistently strong.					
5.	Net profit from operations reflects the organization's financial health.					
6.	The organization's pretax profit is satisfactory.					
7.	Our clients estimate incremental profits positively.					
	OP 4: Size liquidity.					
1.	Our organization's sales level is in line with expectations.					
2.	The organization effectively manages cash flow.					
3.	Our ability to fund growth is sufficient.					
4.	The organization's current ratio meets financial goals.					
5.	We are satisfied with the organization's quick ratio.					
6.	The organization effectively utilizes total asset turnover.					
7.	Cash flow to investment is effectively managed.					
8.	The number of employees in the organization is appropriate for our needs.					

Thank you for participating.

Appendix B: Additional Supporting Information

Bibliography

Sr No.	Dimensions	Cronbach's Alpha	No. of items	Composite reliability	Average variance extracted (AVE)
1	Innovation culture				
2	<i>IC 1</i>	<i>0.758</i>	7	<i>0.921</i>	0.538
3	<i>IC 2</i>	<i>0.874</i>	9	<i>0.942</i>	0.547
4	<i>IC 3</i>	<i>0.932</i>	3	<i>0.956</i>	0.529
5	<i>IC 4</i>	<i>0.762</i>	4	<i>0.923</i>	0.517
6	<i>IC 5</i>	<i>0.873</i>	4	<i>0.942</i>	0.512
7	<i>IC 6</i>	<i>0.912</i>	12	<i>0.956</i>	0.542
8	<i>IC 7</i>	<i>0.871</i>	4	<i>0.913</i>	0.513
9	Organization Dimensions				
10	<i>IC 8</i>	<i>0.858</i>	10	<i>0.976</i>	0.578
11	<i>IC 9</i>	<i>0.974</i>	10	<i>0.878</i>	0.567
12	<i>IC 1</i>	<i>0.758</i>	7	<i>0.911</i>	0.538
13	Employee Engagement				
14	<i>EE 1</i>	<i>0.857</i>	16	<i>0.987</i>	0.513
15	<i>EE 2</i>	<i>0.894</i>	16	<i>0.934</i>	0.517
16	Organizational Performance				
17	<i>OP 1</i>	<i>0.878</i>	5	<i>0.912</i>	0.519
18	<i>OP 2</i>	<i>0.778</i>	7	<i>0.899</i>	0.529
19	<i>OP 3</i>	<i>0.882</i>	7	<i>0.978</i>	0.544
20	<i>OP 4</i>	<i>0.962</i>	8	<i>0.915</i>	0.563

Meaning of innovation for you.	Expert 1	E2	E 3	E 4	E 5	E 6	E 7	E 8	E 9	E 10	Experts In Agreement	I-C VI	Accept/Reject
Idea	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Solution	1	1	1	1	1	1	1	1	0	1	9	0.9	<i>Accept</i>
Contributing technology value.	1	1	0	1	1	1	1	1	1	1	9	0.9	<i>Accept</i>
Contributing organization value.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Contributing economic value.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Contributing social change.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Doing something different.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Features necessary for innovation.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Scientific knowledge.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Technological Knowledge.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Creativity.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Ability to solve problems.	1	1	1	1	1	1	1	0	1	1	9	0.9	<i>Accept</i>
Competitiveness.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Research work.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Risk taking.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Collaboration.	1	1	1	0	1	1	1	1	1	1	10	1	<i>Accept</i>
Adaptability.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Objectives achieved by innovation.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Growth.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Economic development.	1	1	1	1	1	0	1	1	1	1	9	0.9	<i>Accept</i>
Social development.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Determinants of innovation.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Improving processes.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Making important investments.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Designing short-term strategies.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Designing long-term strategies.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>

The process of innovation.	1	1	1	1	1	1	0	1	1	1	9	0.9	<i>Accept</i>
Identifying a need.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Doing research.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Coming up with a solution.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Disseminating.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Beliefs about innovation.	1	1	0	1	1	1	1	1	1	1	9	0.9	<i>Accept</i>
Those who have more resources innovate more.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
To innovate, it is essential to be willing to do so.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
If you do not innovate, you cannot be competitive.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
To innovate, you have to take risks.	1	1	1	1	1	0	1	1	1	1	9	0.9	<i>Accept</i>
Creativity is needed to innovate.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Innovation is the result of scientific research.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Innovating is expensive.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
There is a lot of talk about innovation, but little innovation is actually carried out.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
It is easier to be innovative if society in general is also Innovative.	1	1	1	1	1	1	0	1	1	1	9	0.9	<i>Accept</i>
To innovate, you have to work as a team.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Innovation and creativity are related to the idea of progress. They are positive values that should be fostered.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Innovation contributes to transforming society.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Justifying the need for innovation.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Innovation makes us better prepared for the future.	1	1	1	1	0	1	1	1	1	1	9	0.9	<i>Accept</i>
Innovation makes us more competitive.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Innovation contributes to saving resources.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Innovation makes us more efficient.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Factors fostering innovation.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Risk taking.	1	1	1	1	1	1	0	1	1	1	9	0.9	<i>Accept</i>

Accepting failure.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Rewarding a job well done.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Identifying obstacles.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Making the most of the experience, skills, and abilities of employees.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Knowledge sharing.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Searching for, detecting, obtaining, and disseminating information at an in-house level.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Exchanging and coming up with ideas.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Fostering creativity.	1	1	1	1	0	1	1	1	1	1	9	0.9	Accept
Fostering teamwork.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Organization Culture.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Seek solutions to the problems that arise.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Propose new initiatives.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Develop new initiatives.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Freedom to organize your work.	1	1	1	1	0	1	1	1	1	1	9	0.9	Accept
Take on responsibilities.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Cooperate with other departments and/or teams at work who have different functions.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
There is a system of structured, well-defined information that enables what is done in different departments to be known.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
There is a formal organizational structure: a set of rules, established functions, and procedures; everyone knows what they can and should do.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
The organization is outward-looking: it works with other organizations and professionals, and knowledge and ideas are obtained from outside.	1	1	1	1	1	1	0	1	1	1	9	0.9	Accept
There is a focus on innovation: new opportunities are sought creativity is fostered in employees and learning.	1	1	1	1	1	1	1	1	1	1	10	1	Accept
	1	1	1	1	1	1	1	1	1	1	10	1	Accept
Worker qualities.	1	1	1	1	1	1	1	1	1	1	10	1	Accept

Creativity, having new ideas.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Autonomy, doing things your way.	1	1	1	1	0	1	1	1	1	1	9	0.9	<i>Accept</i>
Seeking out and taking risks.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Looking out for workmates, taking care of their welfare.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Pursuing success, getting others to recognize your achievements.	1	1	1	1	1	1	1	0	1	1	9	0.9	<i>Accept</i>
Behaving correctly, avoiding doing something that others may consider wrong.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>
Sticking to customs, doing what is usually done.	1	1	1	1	1	1	1	1	1	1	10	1	<i>Accept</i>

Appendix C: Expert Evaluation of the Questionnaire Constructs

Section A: Demographic Information

Construct	Factor	Comments
	Factor	
Age	1	Age ranges are clear and cover all possible ages. The intervals are logical, ensuring inclusivity.
	Factor	
Gender	2	Inclusivity is addressed by including "Third Gender." Consider adding "Prefer not to say" for privacy.
	Factor	
Education	3	The levels of education are well-defined, covering all typical educational stages.
	Factor	The ranges are broad, covering various career stages. Consider narrowing down intervals for more precise data.
Work Experience	4	
	Factor	
Marital Status	5	Comprehensive options are provided. Ensure respondents understand the definitions of each status.
	Factor	
Level in the Organization	6	Clear distinction among organizational levels.
	Factor	
Department	7	Includes major departments, with "Other" for additional flexibility.
	Factor	
Name of the Organization	8	Necessary for organization-specific analysis. Ensure confidentiality is maintained.
	Factor	
Email/Website	9	Important for follow-up and data validation. Ensure privacy concerns are addressed.

Section B: Innovation Culture

Construct	Factor	Comments
	Factor	
Meaning of Innovation for You	1	The items are clear and cover diverse aspects of innovation.
Features Necessary for	Factor	
Innovation	2	Comprehensive list. Ensure respondents understand each term.
Objectives Achieved by	Factor	
Innovation	3	Covers key outcomes of innovation.
	Factor	
Determinants of Innovation	4	Addresses important factors. Ensure clarity in distinguishing between short-term and long-term strategies.

The Process of Innovation	Factor 5	Logical sequence. Consider expanding on "Disseminating" for clarity.
Beliefs About Innovation	Factor 6	Extensive and covers common perceptions. Ensure statements are clear and not leading.
Justifying the Need for Innovation	Factor 7	Captures essential reasons. Ensure the wording is neutral to avoid bias.
Construct	Factor	Comments
Factors Fostering Innovation	Factor 1	Comprehensive list. Ensure understanding of terms like "knowledge sharing" and "teamwork."
Organization Culture	Factor 2	Covers various aspects of culture. Clarify terms like "outward-looking" and "structured information."
Construct	Factor	Comments
Worker Qualities	Factor 1	Detailed and relevant to innovation. Ensure clarity in terms like "autonomy" and "customs."
Section C: Employee Engagement		
Construct	Factor	Comments
Boss	Factor 1	Comprehensive coverage of manager-related engagement factors. Ensure statements are clear and not double-barreled.
Co-workers	Factor 2	Well-rounded questions. Ensure clarity and neutrality to avoid response bias.
Section D: Organizational Performance		
Construct	Factor	Comments
Efficiency	Factor 1	Clear and relevant to performance metrics. Ensure terms are understood uniformly.
Growth	Factor 2	Comprehensive, covering key growth indicators. Clarify terms like "net income margin."
Profit	Factor 3	Detailed and relevant. Ensure understanding of financial terms.
Size Liquidity	Factor 4	Covers important aspects of liquidity and size. Ensure terms like "current ratio" are understood.