Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146

DIALOGUE SOCIAL SCIENCE REVIEW

Vol. 3 No. 1 (January) (2025)

Promoting Technology Innovation Performance through High Involvement HRM, Technology Adaptation and Innovativeness

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Abstract
The impact of innovativeness, technological adaptability on employees' technology innovation performance is investigated in this study. Employees at the staff level in Pakistan's textile sector are the subject of the research. A five-point Likert scale was used for data analysis after questionnaires distributing to employees of several textile industries were used to gather data. With the help of smartPLS4, regression analysis was utilized to test the ten developed hypotheses. The results show that the performance of technology innovation is positively impacted by technology adaptation, and innovativeness. Furthermore, technology adaptation and technology innovation performance are mediated by technological adaptability and innovativeness.

Keywords: Technology innovation performance, Technology adaptation, Innovativeness, Radical performance

Introduction

Background of Study

In order to maintain success, firms need to be inventive and adaptable in the ever-changing business climate of today. The ability to innovate is essential for generating value and preserving a competitive edge. However, the knowledge, skill, and dedication of employees play a major role in achieving innovation. Practices in human resource management (technology adaptation) are essential for developing employee potential and encouraging creativity. This study looks at the relationship between employees' performance in technology innovation and technology adaptation, innovativeness, and technology adaptability. It specifically looks at pioneering results which is both profound and progressive. Organizations can foster modernization by recognizing the moderating roles that innovativeness and technological adaption play in each other. The study focuses on Pakistan textile sector, where acceptance and adaptation of new technologies are critical to the sector's survival and expansion. The research adds to the body

ISSN Online: 3007-3154
ISSN Print: 3007-3146

of literature by highlighting how employee technology innovation outcomes are promoted by technology adaptation practices. In the increasingly complicated and quickly changing environment, innovation is presented in the literature as a crucial enabler for generating value and maintaining competitive advantage (Kuncoro and Suriani, 2018; Caseiro and Coelho, 2019; Wu and Ding, 2020). Employee knowledge, skill, and dedication are frequently critical components of innovation projects and are essential to the value addition process (Fonseca et al., 2019; Melian-Alzola et al., 2020). However, because human innovation is a discontinuous activity, businesses encounter difficulties in sustaining the process (Haneda and Ito, 2018; Jaskyte, 2020). Organizations have a responsibility to explain how this intermittent development of acumen adds to the phenomena of the organization, even though it depends on human competence. (Al-Taweel, 2021; Anzenbacher and Wagner, 2020). Spending on technology by the private sector is anticipated to rise sharply in industrialized nations in 2021. The significance of novel technologies supporting the contemporary norm is reflected in the worldwide ICT expenditures on both classic developing technologies such as robots, artificial intelligence, augmented reality, and virtual reality, in addition to established technologies like software, hardware, and telecommunications. (Wu and Ding, 2020; Yiu et al., 2020). Businesses that can better embrace and adjust to digital technology would do better throughout the Covid-19 pandemic's recovery phase. This study looks at how employees' responses to technology innovation performance—both radical and incremental—are influenced by (technology adaptation), technological adaptability, and innovativeness. The influence has received a great deal of attention from academic experts of HRM on strategic choices, including innovativeness (Raj and Srivastava, 2013; Karasek, 2020), Innovation performance (Diaz-Fernandez et al., 2017; Mohinder and Ankush, 2020), as well as activities and performance connected to innovativeness (Arvanitis et al., 2016; Kianto et al., 2017; Ogalo, 2020; Tian et al., 2021). There is still a dearth of research on the connection between technology adaptation and employees' performance in technological innovation. technology adaptation refers to methods, guidelines', and processes which aim to improve employee participation while making managerial decisions enabling staff members to advance by expanding their knowledge and skill sets. The five elements of Employee involvement, sharing of knowledge, empowerment, competency development, and recognition comprise our conceptual framework for technology adaptation. How businesses use technology adaptation to support workers' technological the performance of innovation and the underlying processes that connect the two is a question. This comprehension is essential since as investigates the potential for technology adaptation to result in creative performance. According to scholars studying HRM, there are mediating mechanisms via which HRM affects employees' behavioral, attitudinal, and organizational results (Rubel et al., 2018; Rasool et al., 2019). Since current studies are currently being conducted trying to identify the facilitation method in the relationship between HRM and results for employees, it is vital to look examining "how," or the procedural processes, by which HRM are provided to employees in order to further examine the mediation of HRM (Rasool et al., 2019; Rubel et al., 2020). As a result, we answer to current requests for more thorough justifications and cutting-edge studies about the relationship between

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www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146

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technological innovation performance and technology adaptation and innovativeness and adaptation. We study the impact of the organizational macro phenomena (technology adaptation) on the performance of micro-employees in terms of technology innovation, adaptability, and innovativeness recognizing workers as essential resources for creativity. As in previous study HIHRM (High Involvement HRM) was also taken in account for the research but in this study this variable has been excluded to expand the horizon of the research. By doing this, we address the requirement to comprehend how technology adaptation affects individual employee level results by integrating macro concepts—like technology adaptation—with more micro-related psychological processes and consequences (Wright and Boswell, 2002). Van De Voorde and Boxall (2014) highlight the significance of our response to requests for the integration of important facets of employee perceptions of technology adaptation in order to comprehend the impact of organizational/macro level technology adaptation decisions on employee outcomes. Employee perceptions of HRM have an impact on employees (Rubelet al., 2020). To gain a deeper understanding of the suggested mechanism connecting technology adaptation with technology innovation performance.

Problem Statement

Keeping a competitive edge and fostering innovation are difficult tasks for firms in the quickly changing technology landscape. Even with large investments in technology, many businesses find it difficult to operate at their best when it comes to innovation. This problem is frequently linked to insufficient human resource management (HRM) procedures that do not successfully include workers and promote an innovative culture. Furthermore, a misalignment between HRM strategy and the organization's innovation objectives often impedes the adoption of new technology. This study aims to explore the issue of how organizational innovativeness and technology adaptability can be fostered by HRM practices, hence improving technological innovation performance. It specifically looks at how employee engagement with new technology, HRM involvement, and the organization's general capacity for innovation interact. The study intends to offer practical insights for firms looking to improve their technical capabilities and innovation outcomes by identifying critical HRM practices that enable technology adaptation and innovation.

Gap Analysis

Previous research has focused on IT employees only to see the impact of HRM in technology adaptation. However, this study focused on every individual employee who has direct interaction with the technology in order to find the impact of technology adaption and innovation in workplace.

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Research Objective
The objective of the research is to find the impact of HRM, technology adaptation and innovativeness.

Research Question
a) How does human resource management (HRM) practices influence technology innovation performance in organizations?
b) What is the role of technology adaptation in enhancing the relationship between HRM and technology innovation performance?
c) How does organizational innovativeness interact with HRM and technology adaptation to drive technology innovation performance?

Significance of Study
This study offers a thorough understanding of the variables that influence technology innovation performance in firms, which is valuable from both an academic and practical standpoint. Theoretically, it contributes to HRM literature by investigating how highly involved HRM practices affect innovation, combining organizational innovativeness with technology adaption, and putting forth a thorough framework that unites these components. From a practical standpoint, the results provide insightful information for HR professionals, emphasizing the significance of strategic technological adaptation, employee engagement, and cultivating an innovative culture. The study also has policy implications, educating corporate leaders and policymakers on the vital role that HRM practices and technological adaption play in boosting innovative capabilities. Overall, the study advances a deeper comprehension of how to properly drive technology, which aids in the sustainable development of businesses.

Literature Review
In the ever-changing realm of technology and innovation, companies are always looking for practical ways to improve their performance in this area. This review of the literature examines how organizational innovation, technology adaption, and human resource management (HRM) practices all play key roles in advancing technological breakthroughs. This research attempts to give a thorough knowledge of how firms can strategically harness their people and technological resources to develop a continuous innovation culture and sustain a competitive edge by looking at how these factors interact. The impact of high engagement HRM, technological adaption, and organizational innovativeness on technology innovation performance is discussed in the following sections, which also explore the theoretical underpinnings and empirical data associated with these concepts. In 2019, Aldahdouh, Korhonen, and Nokelainen investigated "What contributes to individual innovativeness?" A viewpoint with multiple levels. Their study concentrated on how corporate culture and psychological factors interact to influence employees' capacity for innovation. At Tampere University in Finland, 315 employees from 34 different departments and schools participated in the study. A variety of psychological components were incorporated in the model they looked at, including goal orientation (whether

ISSN Online: 3007-3154
ISSN Print: 3007-3146

people pursue performance-oriented objectives or mastery) and implicit theory (individuals' views regarding the malleability of talents). They also took into account how organizational culture affects innovation. The variables listed in the article Individual Innovativeness: The study is attempting to explain this dependent variable. It speaks to the trait of having originality on a personal degree. Psychological Elements These are independent factors that affect each person's capacity for innovation. Among them are Implicit Theory: This is the term used to describe people's underlying assumptions or theories regarding the nature of intellect and skill. Goal orientation is the term used to describe the objectives people work for when they are in a learning environment. Two categories of goal orientations are expressly mentioned in the study. Proficiency Objective-focused This shows promise as an indicator of inventiveness. Objective-Approach Performance Orientation This is not a good indicator of inventiveness. Another independent variable that the study looks at is organizational culture. Within an organization, it refers to the common ideals, beliefs, and practices. Nevertheless, the research discovered that departmental culture had no direct impact on inventiveness and no moderating influence on the associations between the psychological variables as well as creativity Features of the Work Environment These are elements of the workplace that encourage the creation of original ideas. acknowledgement. The results showed that assessing an individual's innovativeness required careful consideration of psychological variables associated with goal orientation. More specifically, innovativeness was positively correlated with mastery goal orientation. Performance-approach goal orientation, on the other hand, had a detrimental impact on innovativeness. It was surprising to find that the departmental culture had no direct impact on innovativeness and no moderating influence on the association between innovativeness and psychological characteristics. The authors emphasized the significance for further study and explored reasonable explanations for these findings. In 2021, Alikaj, Ning, and Wu conducted research to investigate the link between proactive personality and creative activity. They concentrated especially on the mediating role that an employee's prospering at work plays. Supervisors and 438 employees participated in the study. According to the study, the association between proactive personality and creative behavior is totally mediated by employee thriving at work. Stated differently, the feeling of well-being that employees receive from their workplace fosters innovative behavior. Remarkably, for proactive people, this effect is further amplified by the perception of high-involvement human resources (HR) procedures within the firm. Results: Proactive personality and creative behavior are mediated by employee thriving at work, and this relationship is strengthened by high-involvement HR practices. In 2016, Bala and Venkatesh performed research on the impact of information technology (IT) installation in enterprises. The deployment of IT is a big organizational transformation event that can seriously disturb a worker's workspace. The goal of the study was to determine how workers adjust to new IT systems and how that adjustment impacts their performance at work. A model of technology adaption behaviors that employees display to deal with IT deployment interruptions was produced by the study. The relationship between IT implementation and employee work results is largely dependent on these adaption behaviors. The study provides a comprehensive

ISSN Online: 3007-3154
ISSN Print: 3007-3146

nomological network that links different facets of technological adaption. The study's main conclusions include the following: workers use technology in four different ways. Investigating to create: Workers investigate novel IT platforms but afterwards go back to their old ways Steer clear of Workers completely avoid utilizing the new IT. Employee perceptions of control over IT and how they view it as an opportunity or a threat influence their decision regarding adaption behavior. Employee perceptions of IT are influenced by their experiences with IT implementation, including user involvement, efficacy of training, management assistance, and participation from users. Work performance and job satisfaction are two crucial work outcomes that are greatly impacted by technology adaptation practices. Although the survey does not name a specific region or sector, its conclusions offer insightful guidance to businesses on how to integrate IT and handle staff reactions to changes in technology. In 2021, Helen Beddow investigated the link between high-involvement human resource management (HRM) practices and employee innovation. The Pakistani industrial sector was the study's main emphasis. This article's variables are High-Level HRM Techniques: These are HR procedures that actively involve workers in making decisions, developing their skills, and solving problems. Employee participation in process improvement projects, training programs, and participatory decision-making are a few examples. Employee Innovation: This variable measures how innovatively employees come up with new ideas, help to enhance processes, and solve problems creatively when they're at work. Results Based on studies carried out in Pakistan's industrial sector, the study discovered that highly involved HR procedures directly improve each employee's functional flexibility—their capacity to adjust to shifting duties and responsibilities) as well as creative workplace conduct. Put another way, when businesses use highly involved HR procedures, staff members are more likely to show creative thinking and successfully adjust to changing job demands. In 2017, Junghee Han and Chang-min Park performed a case study to evaluate the role of institutional and corporate entrepreneurship in overcoming company impasses through the use of new technology. The study concentrated on the viewpoint of firms that adopt technology advancements in a proactive manner. This article's variables are the activities that organizations take to develop and mold new standards, guidelines, and procedures inside their institutional framework are referred to as institutional entrepreneurship. It entails having an impact on the larger environment in which the company functions. Corporate Venture Capital: This notion pertains to the entrepreneurial endeavors executed within a well-established institution. It covers projects like creating brand-new goods, procedures, or services. Results emphasize how crucial corporate and institutional entrepreneurship are to enabling businesses must overcome obstacles and be the first to adopt new technologies before their rivals. Organizations can improve their ability to innovate and effectively handle technological advances by utilizing their unique institutional and corporate norms. In 2020, Muhammad Yasir and Abdul Majid did an empirical study to investigate the links between high-involvement human resource management practices, employee functional flexibility (FF), and innovative work behavior. Resource-based theory (RBT) and the "AMO" framework (Ability, Motivation, Opportunity) served as the study's foundations. Its goal was to investigate how HI HRM practices affect workers' functional flexibility and, in turn, how it

ISSN Online: 3007-3154
ISSN Print: 3007-3146

influences their creative work habits. This article's variables are Elevated-Level HRM These HR practices are those that actively include workers in making decisions, developing their skills, and addressing problems. Employee participation in process improvement projects, training programs, and participatory decision-making are a few examples. Employee Functional Flexibility (FF) FF is a measure of a worker's capacity to adjust to shifting responsibilities, duties, and demands at work. It displays their dexterity and adaptability in handling changing job conditions. Innovative Work Behavior (IWB): IWB measures how much an employee comes up with original ideas, helps to improve processes, and solves problems creatively in the context of their work. The study produced a number of significant revelations. Direct Results FF and IWB both directly benefited from HI HRM methods. The connection between HI HRM practices and IWB was favorably mediated by FF. Aspects of High-Tech HRM Practices Ability-enhancing (AE), motivation-enhancing (ME), and opportunity-enhancing (OE) aspects of HI HRM practices were found to be significant predictors of FF and IWB. The study offers empirical evidence that HI HRM methods have a favorable effect on employee skills (FF) and behaviors (IWB) related to manufacturing problems. This has practical implications. These results can be used by HR managers to increase the functional adaptability of staff members and promote an innovative culture. In conclusion, this study advances our knowledge of how HR procedures can support workers' flexibility and inventiveness, which in turn improves organizational performance. In 2021 Maarten Renkema, Jan de Leede, and Llewellyn E. van Zyl carried out the study whereby they looked into the connections between nursing staff members who provide care for senior customers and high-involvement human resource management (HRM), autonomy, affective organizational commitment, and creative behaviors. The study, which was conducted in the Netherlands, was primarily concerned with the nursing staff employed by senior care facilities. One of the study's variables is high-involvement HRM practices. These are HR procedures that actively involve workers in making decisions, developing their skills, and solving problems. Independence The level of autonomy and self-governance that nursing personnel encounter in their line of work. Positive Organizational Dedication the devotion and emotional bond nursing staff members have to their employer. Creative Actions The degree to which nursing personnel demonstrate inventive and creative methods in their job. The article's findings indicate that a variety of high-involvement techniques encourage creative behavior in nursing staff members who provide care for senior clients. Fully mediating the association between high-involvement practices and nurses' innovativeness are autonomy and affective commitment. Put another way, fostering a culture of autonomy and commitment among nursing staff members improves their capacity for creative activity. In 2019 a study by Rehman, Ahmad, Allen, Raziq, and Riaz was carried out to investigate the connection between psychological empowerment, creative work behavior, and high-involvement HRM systems. The study focuses on examining the moderating effects of management and coworker support on this connection. The study focuses on Pakistani software enterprises. One of the study's variables is high-involvement HR systems. These are HR procedures that actively involve workers in making decisions, developing their skills, and solving problems. Empowerment of the

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ISSN Online: 3007-3154
ISSN Print: 3007-3146

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Mind The degree of independence, proficiency, and influence that workers feel at work. Creative Workplace Conduct. The degree to which workers use innovative and creative methods in their profession. The association between psychological empowerment and innovative work behavior is moderated by manager support and coworker support Among the conclusions are High level of engagement Innovative work practices and HR systems are connected by psychological empowerment's mediation effect. This interaction is moderated by the management and coworkers, highlighting the role that social support plays in encouraging creative activity. In 2022 Zargham Ullah Khan, Muhammad Bilal Ahmad, Fatima Shaukat, and Munawar Kashif conducted a study on the impact of high-performance human resource (HR) practices on employee innovative behavior during digital transformation in Pakistan's information technology sector. The study's primary focus is Pakistan's IT industry. This article's variables are High-Efficiency HR Methods These are HR procedures that improve the productivity, development, and involvement of workers. Innovative Behavior of Employees The degree to which workers throughout the digital transformation use innovative and creative methods in their work. The research examined how innovative employee behavior during digital transformation is influenced by high-performance HR strategies, as the findings of this article demonstrate. Through the creation of a positive HR environment, businesses can inspire staff members to offer creative solutions and adjust to changes in technology. The study highlights how important HR procedures are to the IT industry in Pakistan's successful implementation of digital transformation projects.

In 2019, Abdul Waheed, Xiaoming Miao, Salma Waheed, Naveed Ahmad, and Abdul Majeed conducted a study to evaluate how NHRM practices influence innovation performance, taking into account the mediating effect of organizational innovation and the moderating role of inventive climate. The study focuses on the IT industry, albeit the precise location is not specified. This article's variables are new HRM practices (NHRM), which are meant to enhance organizations' skilled, driven, dedicated, and creative workforces. The degree to which an organization implements innovative procedures, goods, or services is known as organizational innovation. The organizational climate known as the "Innovative Climate" fosters and supports creative activity. Innovation Performance: The degree to which an organization's innovation initiatives are successful. This article's conclusion is that there is a strong correlation between NHRM practices and performance in innovation. It was determined that organizational innovation has a mediating role, indicating that NHRM practices foster innovation by altering organizational structures. Remarkably, the findings also show that when a creative organizational climate exists, organizational innovation plays a bigger mediating function. These results offer insightful managerial guidance for advancing NHRM practices to improve innovation performance in the IT sector, particularly in Pakistani semi-government enterprises. A 2019 study by Imran Ali was written up in the Journal of Innovation & Knowledge. The study investigated the connection between life satisfaction, individual inventiveness, and personality factors. The goal of the study was to determine how particular personality factors affect a person's likelihood of being innovative and their level of overall life happiness. Extraversion, agreeableness, conscientiousness, and openness to new

ISSN Online: 3007-3154
ISSN Print: 3007-3146

experiences were found to have a beneficial impact on an individual's capacity for innovation and their level of contentment with their impressions of life. Furthermore, it was discovered that neuroticism had a negative relationship with both personal inventiveness and life pleasure. In conclusion, this study highlights the critical role that personality qualities play in helping people be creative, innovative, and generally happy. In 2016, Arvanitis, Seliger, and Stucki explored how human resource management (HRM) practices affect innovation. The goal of their research was to identify the HRM practices that are most important for encouraging creativity in businesses. Through an analysis of the relative significance of various HRM strategies, they provide insight into how organizations might improve their capacity for innovation. The results underscored the importance of particular HRM approaches in propelling innovative outcomes. In 2009, Bhattacherjee and Harris investigate the topic of individual information technology adaption (IT). They utilize the firm's resource-based view (RBV) to identify different aspects of information systems (IS) resources. They explore whether these resources have complementary effects on outcomes by looking at the links between enterprise resource planning (ERP) skills and information systems (IS) resources. Their proposed model is supported by empirical findings from a survey of industrial companies that recently installed ERP systems. By elaborating on the complementing and capability-building roles of IS resources, the paper advances IS research. Results show that IS resources are critical in forming ERP capabilities and that the combined effects of these resources have a beneficial impact on the performance of manufacturing companies that have adopted ERP systems. In 2022, Bibi, Khan, Hayat, Panniello, and Alam studied An Approach to Employee Innovation Based on Happiness published in issues arise in tourism currently. The relationship between hotel staff members' inventiveness and their concern for corporate social responsibility (CSR) is examined by Bibi et al. Using a happiness-based methodology, the authors look into how employee behavior is affected by CSR initiatives. Although the overview omits specifics about the industry and region, the study makes a contribution by analyzing how employee inventiveness and CSR interact. Employee innovativeness is the dependent variable, and the degree of CSR concern is the independent variable. Research indicates that employee inventiveness in the hotel industry is positively correlated with CSR concern. In 2022, Cao, Le, and Nguyen publish their work The International Journal of Innovation Science published a paper titled "Impacts of high-involvement HRM practices on organizational innovation capability: the mediating mechanism of tacit and explicit knowledge sharing". The relationship between organizational innovation capabilities and high-involvement human resource management (HRM) practices is examined by Cao, Le, and Nguyen. They concentrate on how knowledge sharing (KS) mechanisms, both explicit and tacit, play mediating roles. The authors discover that KS processes positively influence the relationship between high-involvement HRM practices and innovation capabilities by using survey data from 111 manufacturing and service companies. Interestingly, compared to implicit KS, explicit KS has a greater impact in promoting innovation capability. HRM procedures and information exchange to improve product and process innovation in businesses. In 2017, Diaz-Fernandez, Bornay-Barrachina, and Lopez-Cabrales published their study on HRM Practices

ISSN Online: 3007-3154
ISSN Print: 3007-3146

and Innovation Performance in the International Journal of Manpower, which investigates the relationship between human resource management (HRM) practices and innovation performance in Spanish manufacturing firms. The number of active patents as a measure of innovation is the main focus of the study. During a period of notable economic expansion in Spain, from 2001 to 2008, the authors examined data from the Spanish Survey of Industrial Strategic Behavior and discovered that the most inventive companies are also the most competitive. In example, job security fosters innovation over time, and the quantity of patents is correlated with training in new technologies, especially in cases when remuneration practices are generally high. This research highlights the fact that putting money into HRM procedures promotes innovation and eventually improves business performance rather than being a waste of time or resources. In 2018, Eggers and Park published their work "Incumbent Adaptation to Technological Change" in the Academy of Management Annals. Although Schumpeter's theory of "creative destruction" frequently suggests that new businesses displace established ones, the truth is more complex. A few market leaders not only endure technological disruptions, but thrive on them. The study investigates why certain incumbents adapt well while others fail, moving the focus away from incumbent-entrant dynamics. The authors highlight the need of understanding the subtle differences between distinct technological advancements and how incumbent enterprises' current positions, capacities, knowledge, and cognitive processes connect with them, drawing on a range of theoretical frameworks. By comprehending these elements, we can learn which established players are overtaken by creative destruction and which are able to endure. The study bridges disparate viewpoints within the area to provide a more comprehensive knowledge of incumbent responses to technology advances. In January 2021, Alaine Garmendia, Unai Elorza, Aitor Aritzeta, and Damian Madinabeitia-Olabarria released a study on the association between high-involvement work systems (HIWS), job satisfaction, and store productivity in a Spanish retail company. Advanced human resource practices, or HIWS, involve staff members in decision-making, skill development, and collaboration. The study made use of a sizable longitudinal dataset from the retail industry that was divided into two data waves (2011 and 2015). Remarkably, the quantitative study showed that HIWS, work happiness, and retail production were negatively correlated. A later qualitative investigation, however, revealed that the company's recessionary measures in reaction to financial troubles might have had an impact on these unfavorable correlations. The study emphasizes how ownership and crisis are two contextual elements that affect the general relationship between HRM practices and performance of the organization. It is unrealistic for retail managers to anticipate a direct boost in sales from high-involvement HR practices in every situation or at every moment. In 2017 Junghee Han and Chang-min Park conducted a study that looked at the influence of institutional and corporate entrepreneurship in overcoming business impasses by adopting new technology first. The case study is on Kumho Tire, which was the pioneer tire company globally to leverage radio-frequency identification (RFID) technology for passenger car tires. RFID technology was a cutting-edge breakthrough in the tire industry, and Kumho Tire effectively applied it. The company credited a combination of corporate entrepreneurship—which

ISSN Online: 3007-3154
ISSN Print: 3007-3146

prioritizes communication procedures and the quality of human resources—and institutional entrepreneurship, which makes use of heterogeneous institutions, for its success. Growing its people resources and establishing efficient communication systems early on allowed Kumho Tire to establish a unique kind of corporate entrepreneurship that allowed it to to successfully implement new technologies. In 2018, Shin, Jeong, and Bae published their study, "Do High-Involvement HRM Practices Matter for Worker Creativity?" A Cross-Level Approach" in The International Journal of Human Resource Management, in which the authors examine how highly involved HRM practices affect employees' creative thinking. Using a cross-level methodology, the study looks at both the individual and team levels. The study makes a contribution by examining the connection between HRM practices and creativity, even though the precise location and industry are not stated in the summary. The use of high-involvement HRM methods is the independent variable; employee creativity is the dependent variable. High-involvement HRM practices are positively correlated with employee creativity, according to empirical research, highlighting the significance of HRM tactics in promoting creative work practices. In 2011, Carmen Cabello-Medina, Álvaro López-Cabrales, and Ramón Valle-Cabrera investigated the relationship between human capital, social capital, and innovative performance in Spanish enterprises. The R&D divisions of 85 companies that operate in Spain's most inventive industries were the subject of their study. The paper examined a number of important facets of the direct connection between human and social capital and inventive performance. Intellectual capital, which is essential for promoting innovation, includes both human and societal capital. The relationship between social and human capital was examined by the writers. They specifically looked at the interactions and influences between these two aspects of intellectual capital. Additionally, the study examined how several human resource management (HRM) techniques human and social capital. These methods included hiring processes, training initiatives, empowering people, and paying with incentives. Lastly, the study evaluated the relationship between inventive performance and overall firm performance. Their empirical investigation produced some important conclusions. Innovativeness within the firm was positively and immediately impacted by human capital's distinctiveness rather than just its worth. Social capital and HRM techniques like staff selection based on interpersonal and learning capacity and empowerment have further reinforced this uniqueness. Innovation was not directly impacted by social capital. However, because of how it interacted with human capital, it had an indirect impact on innovation. Choosing people with high interpersonal skills and learning potential and include them in decision-making processes are two ways to increase social capital. Interestingly, innovation has a favorable effect on overall effectiveness of the company. In conclusion, this study clarifies the complex interactions that exist between social capital, human capital, and innovation in Spanish businesses, highlighting the significance of developing distinctive human capital and building social capital for the achievement of organizational goals. In 2020, Daniel Jiménez-Jiménez, María Isabel Barba-Aragón, and Alvaro Cabrales investigated the link between HRM practices and radical innovation in organizations. Their study concentrated on 200 industrial enterprises in Spain

ISSN Online: 3007-3154
ISSN Print: 3007-3146

that were medium-sized. The direct relationship between radical innovation and Strategic Human Resource Management (SHRM) was examined in this study. Radical innovation was found to benefit from SHRM, which includes HRM approaches focused on change and creativity. This emphasizes how important HRM systems are to producing creative results. The mediating role of competence exploration was also investigated by the writers. The process of learning via investigation is known as competence exploration, and it serves as a link between radical innovation and HRM practices. In particular, an HRM framework that promotes. The process of exploration and learning is positively supported by change and innovation. The study found that radical innovation is greatly impacted by competency exploration. Businesses are better able to produce radical ideas when they aggressively encourage learning and inquiry. The significance of HRM practices, particularly SHRM, in promoting radical innovation is highlighted by these findings. Organizations can be more innovative by cultivating a culture of competence growth and exploration. In conclusion, this study provides important new understandings of the direct relationship between HRM practices and radical innovation, as well as the critical role that exploration learning plays as a mediator in this relationship. In 2019, Colakoglu, Erhardt, Pougnet-Rozan, and Martin-Rios conducted a thorough strategic examination of the complex interaction between creativity, innovation, and human resource management (HRM). The goal of their research was to determine how HRM practices affect individual and organizational creativity and innovation. The writers explored how strategic HRM directly affects creativity. Talent development, employee engagement, and organizational behavior are all shaped by strategies that fall under the umbrella of strategic HRM. Businesses can increase their capacity for innovation by cultivating a creative atmosphere. The investigation also looked at exploration learning's mediating function. The act of learning new information and abilities via investigation and experimentation is known as "exploration learning." HRM procedures that promote inquiry and learning are essential part in encouraging inventiveness. The authors used the open innovation funnel as a metaphor to structure their review. They looked at studies on HRM systems that support creativity and innovation as well as more specialized HRM strategies including hiring, training, and empowerment. The authors emphasized current advancements in ambidexterity-related HRM research. The ability of an organization to simultaneously investigate new possibilities and make use of its current resources is known as ambidexterity. Achieving this equilibrium can be greatly aided by strategic HRM practices. The chapter's consideration of potential future study topics emphasized the importance of carrying out more investigation into the relationship between HRM, creativity, and innovation. In conclusion, this study highlights the strategic significance of HRM in fostering innovation and creativity inside businesses. In 2014, Aagaard and Andersen conducted a theoretical analysis that investigated how various human resource (HR) approaches might help firms overcome problems in laying the groundwork for continual innovation and economic performance. In order to increase a company's total level of innovation, the study placed special emphasis on the front end of innovation. The front end of innovation, or the early phases of idea creation, concept formulation, and problem-solving, was emphasized as being

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www.thedssr.com

ISSN Online: 3007-3154
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crucial in the study. The foundation for succeeding innovation processes is laid at this phase. HR procedures should concentrate on larger concerns in order to facilitate front-end innovation. Companies should specifically use a team-based organizing strategy. This entails forming interdisciplinary teams to work together on creative initiatives. A mindset of inquiry and a style of leadership that Employee empowerment is a crucial element of successful team-based organizing. Conventional HR issues like hiring, development, and training are still important, but they must be understood in light of heterogeneity and polyvalence. Employers should be aware of the varied backgrounds and skill sets of their workforce and adjust their HR procedures accordingly. Talent and performance management are very important. These procedures should place a strong emphasis on the exclusive values and goal-oriented, logical behavior of staff members. Unlike the more inclusive mainstream ideals, creativity and innovation are motivated by exclusive values. The paper ends with a number of study ideas for future investigation. These include looking into how particular HR procedures affect front-end innovation and how HR may successfully strike a balance between exploration and exploitation. In conclusion, this study emphasizes how strategically important HR procedures are to fostering front-end innovation and, eventually, boosting an organization's total level of innovation. In 2020, Muhammad Zia Ul Haq, Minhao Gu, and Baofeng Huo conducted a ground-breaking study on the junction of human resource management (HRM) practices, supply chain (SC) learning, and innovation performance. Their study concentrated on 213 Chinese manufacturing companies with the goal of determining how HRM practices affect several SC learning parameters and, in turn, affect innovation success. The study's examination of HRM's function in SC learning filled a significant vacuum. It specifically looked at how three different forms of SC learning—supplier, customer, and internal—were affected by high-performance HRM methods. The results showed that all three of the SC learning elements were considerably enhanced by empowerment. Training also has a favorable effect on internal and supplier learning. Teamwork, however, did not demonstrate a substantial connection to any aspect of SC learning. Crucially, the SC learning characteristics were dynamically modified by various HRM approaches. In order to create a learning-oriented environment in businesses, empowerment and training were essential. Beyond just SC learning, the study investigated the relationship between innovation performance and SC learning. Innovation performance was directly correlated with internal and customer learning. It's interesting to see that supplier learning enhanced internal learning but substituted for customer learning when paired with it. Supervisors can encourage SC learning among staff members by utilizing training and empowerment. Moreover, placing a strong emphasis on internal and customer learning can improve an organization's overall performance in terms of innovation. To sum up, this study offers a new framework that connects HRM practices, supply chain learning, and innovation performance. This framework clarifies methods for improving supply chain dynamics and stimulating innovation. In 2022, Clíodhna MacKenzie, Alma McCarthy, Michael Morley, and Thomas Garavan investigated the complex interplay between creative work practices, incremental and radical innovation, and human resource management (HRM) practices. The purpose of their research was to determine whether HRM

ISSN Online: 3007-3154
ISSN Print: 3007-3146

practices actually foster organizational innovation or if they are just aspirational rhetoric. The effect of HRM practices on the results of innovation was scrutinized by the writers. They concentrated on the relationship between HRM practices and creative work behavior among employees, which in turn fosters both gradual and radical innovation. The investigation was in line with theoretical stances such dynamic capability theories and the resource-based view. These viewpoints place a strong emphasis on HRM as a strategic tool that may mold organizational capacities and spur creativity. The study emphasized the critical role that of creative workplace conduct. HRM procedures can create an atmosphere that inspires workers to come up with original ideas, try new things, and solve problems creatively. The research investigated how HRM practices affect both radical and gradual innovation. While radical innovation upends established conventions and brings about revolutionary changes, incremental innovation makes improvements and adaptations gradually. The essay debated if HRM procedures actually spur innovation or if they are just aspirational language. Although studies have demonstrated how HRM practices influence creative behavior, there is still debate over how much more incremental rather than radical innovation is fueled by these practices. In conclusion, this study emphasizes the strategic significance of HRM practices in affecting organizational innovation results, whether they are gradual or drastic, and in forming innovative work behavior. In 2023, Javed, Khan, Michalk, Noor Ullah Khan, and Kamran did a study to investigate the link between high-performance work systems (HPWS), intellectual capital, and creative skills. 233 middle-to senior-level managers employed by Pakistan's banking industry were the subject of the study. The study looked into how HPWS affects the growth of capacities for both radical and incremental innovation. The authors examined the mediating impacts of the three elements of intellectual capital—human capital, social capital, and organizational capital—using theories based on knowledge and resource bases. The results demonstrated that the association between HPWS and innovative skills was mediated by all elements of intellectual capital. In particular, it acted as a mediator in the link between the two types of innovative capacities. It was discovered that social capital was a more proficient arbitrator. It helped mediate the connection as well. The study highlights how important it is for decision makers to understand this relationship. Using intellectual capital to foster innovative capabilities improves organizational performance and gives businesses a competitive edge. In conclusion, this study highlights the vital importance of fostering intellectual resources for organizational performance by illuminating the complex interactions among HPWS, intellectual capital, and creative capacities. In 2020, an empirical systematic review was carried out by Nasser Fathi Easa and Haitham El Orra to investigate the connection between innovation and human resource management practices (HRMP) in public and commercial businesses. The purpose of the study was to determine the nature of this relationship and look into any potential moderating or mediating factors. The study examined how HRM practices affect the results of innovation. Through the examination of thirty-one peer-reviewed studies from 2010 to 2018, the authors looked at the information around HRMP and its relationship to innovation. Relative to the type of human resource management systems (HRMS) in use, some intriguing results were found. HRMS was linked to

ISSN Online: 3007-3154
ISSN Print: 3007-3146

innovation in products, but its influence on process innovation required additional proof. Important HRM was highlighted in the study. procedures that direct managers in fostering creativity. It highlighted the use of several HRMS and stressed the value of having backup plans when building these kinds of systems. By shedding light on the "black box" of the relationship between HRMP and innovation, this study advances our understanding and offers new directions for investigation. In conclusion, this systematic analysis highlights the need for specialized methods and more research while shedding light on the strategic role that HRM practices play in promoting innovation. In 2017, Annabeth Aagaard carried out a case study investigating the ways in which focused HRM practices might effectively promote radical front-end innovation. The pharmaceutical sector served as the study's empirical field, with a focus on the Danish pharmaceutical giant H. Lundbeck A/S and exploratory studies of seven biotech and pharmaceutical companies in Europe and America. The goal of the study was to show how businesses may use HR procedures to actively encourage the growth of radical front-end innovation. The study outlined the ways in which particular HR procedures support creativity during the earliest phases of concept and idea development. The study emphasized the function of HR practices in fostering intellectual capital by looking at the particular opportunities and difficulties in the pharmaceutical industry. Mental a mediating function is played by capital in promoting innovation, including organizational, social, and human capital. The study adds to the body of knowledge by examining the ways in which focused HR procedures might stimulate radical front-end innovation. It highlights the necessity of HR strategies that are in line with the unique requirements of innovation in the biotech and pharmaceutical sectors. In conclusion, this study highlights the significance of intellectual capital and context-specific techniques while illuminating the strategic role that HRM practices play in fostering radical front-end innovation. In 2015, Diaz-Fernandez, Bornay-Barrachina, and Lopez-Cabrales conducted a study to investigate the link between human resource (HR) practices and innovative performance in the Spanish industry. They specifically examined innovativeness and the degree to which particular HRM practices, including training expenditures, impact this capacity. They also looked at the effects of hiring temporary or full-time employees. Using information from the Spanish Survey of Industrial Strategic Behavior, the authors evaluated these associations with a particular emphasis on the years 2001–2008, which saw notable economic expansion in Spain. Their research provided some important new insights. According to the survey, companies with the highest levels of innovation also have the highest levels of added value competitiveness. Stated differently, creativity has a major role in overall effectiveness of the company. Using full-time employees was significantly and favorably correlated with innovativeness. Within companies, full-time workers were essential in promoting innovation. Unexpectedly, it was still unclear what the temporary workers' job was. It was unclear how hiring temporary workers affected innovativeness. Investing in training for new languages, technologies, and data processing procedures did not significantly affect innovativeness, in contrast to expectations. This study's conclusion emphasizes the significance of two goals for managers: emphasizing innovation to improve company performance and funding specialized training to create more inventive and successful businesses.

Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146

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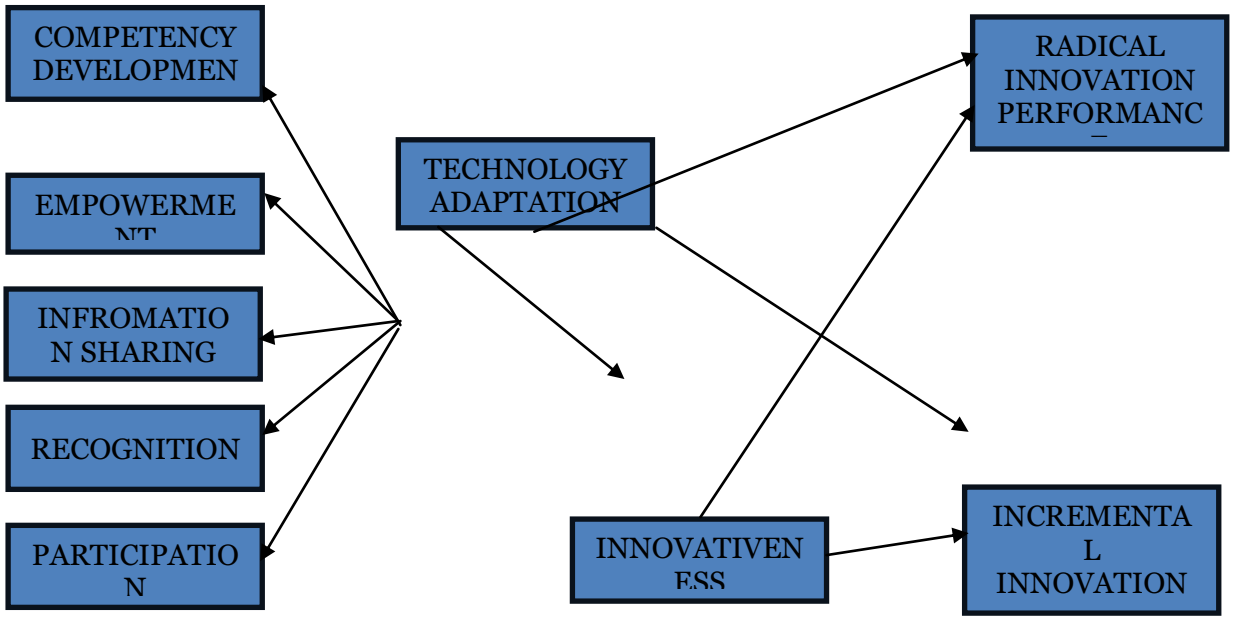
Organizations may strategically develop their workforce and gain a competitive edge by comprehending how HRM practices and innovation interact.

Conceptual Model and Hypothesis Development



Hypothesis Development

Technology Adaptation and Innovativeness

Previous studies have emphasized how technology adaptation functions as an organizational environmental component that supports people's capacity to accept or adjust to changes in the workplace, improving organizational performance and competitive advantage (Delery and Roumpi, 2017). TECHNOLOGY ADAPTATION is a crucial tool for training adaptable workers who can complete a variety of jobs in a volatile workplace (Yasir and Majid, 2020). The concept behind TECHNOLOGY ADAPTATION is that workers become actors who are willing to support the organization and that their efforts are directed toward achieving its goals (Song et al., 2020). According to Rubelet al. (2017), effective HRM makes it easier for staff members to keep up with technology advancements and become more aware of the modern environment. Human variables have a strong "bond" with technology adaption (Cardy and Miller, 2003). These components are highly modifiable by the HRM techniques referred to as "technology adaptation." Companies use technology adaptation to mold employees' attitudes and skills for better performance at work. They see HR as a strategic resource (Vazquez-Bustelo and Avella, 2019). Additionally, through involvement-oriented management strategies, firms could focus their employee-based resources—which are vital to their success—on adapting to change events. (Li et al., 2018). Kee and Rubel (2021) discovered a strong correlation between

Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146

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technology adaptation and high engagement work practices. Thus, we suggest that technology adaptation may influence workers' perspectives on embracing technological advancements.

H1. There is a favorable correlation between technology adaptation and innovativeness

Given that an organization's innovativeness paradigm largely determines its present development trend, approaches that attempt to employee perspective on high levels of participation Innovation in HRM has been rising. HRM will be essential to implementing innovation across the entire firm and inspiring and motivating people to take initiative (Karasek, 2020). Researchers have found that in various circumstances, specific HRM practices are predictive of creative thinking and inventiveness (Vanhala and Ritala, 2016; Li et al., 2018). According to Karasek (2020), there is a strong correlation between employee inventiveness and HRM methods. Creative methods require the application of HRM strategies (Jonczyk, 2015). In their 2017 study, Ropret et al. examined the relationship between HRM practices and innovativeness in public sector businesses and discovered a strong one. According to Maden (2015), technology adaptation forecasts the engagement and learning orientation of employees. Therefore, we anticipate the following:

Technology Adaptation and Technology Innovation Performance

Implementing changes requires creating an adaptable work culture (Mano, 2009). According to Kee and Rubel (2021), technological adaptation adds value when an organization's established power structure hinders it from fully utilizing new technical innovations, which could put it at a disadvantage. According to Ratna et al. (2020), when users take the time and make the effort to adapt an IT system, they are more likely to use it and reap the rewards of their labors, which in turn increases end-user performance. Bhattacherjee and Harris (2009) discover a strong correlation between IT performance and IT adaption. According to Harrison et al. (2006), employees use their creativity and adapt technology to assist them fulfill job-related needs and feel satisfied about their work. Additionally, Bala and Venkatesh (2016) reveal that effective technology adoption has improved employee happiness and performance. Our hypothesis is that workers who adopt new technologies will perform better when it comes to incremental and radical innovation.

H2a: The performance of radical innovation is positively impacted by technology adaption.
H2b: The performance of incremental innovation is positively impacted by technology adaption.

Innovativeness and Technology Innovation Performance

According to Hurt et al. (1977), innovativeness is the capacity for people to recognize and respond to innovations as well as their propensity to adapt, revitalize, and embrace change. According to Utsch and Rauch (2000), creative behavior is characterized by innovativeness, such as the constant pursuit of

ISSN Online: 3007-3154
ISSN Print: 3007-3146

process improvement. A characteristic of a company's creative culture is innovativeness, which is the openness to new ideas and originality (Yıldız et al., 2014). According to Anning-Dorson and Nyamekye (2020), employee innovation performance and capability are driven by innovativeness. According to Hsiao and Hsu (2018), innovation performance is positively impacted by innovation capability. According to Yi et al. (2006), individual innovativeness refers to one's capacity to recognize and respond to innovations; conversely, more innovativeness would elicit more favorable responses (Ali, 2019). An organization's ability for innovation is determined by both individual and organizational innovativeness (Hultet al., 2004). According to Caseiro and Coelho (2019), innovativeness increases the likelihood of creating something novel for both organizations and society. According to Weerakoon et al. (2019), inventiveness is a prerequisite for both organizational and individual innovation. According to Grissemann et al. (2013), being innovative promotes innovative behavior. Thus, it stands to reason that greater innovative performance would arise in the workplace the more positive the attitude, tendency, and reactivity to changes. Consequently, inventiveness encourages and supports innovative behaviors that could lead to new goods, services, or procedures for BPMJ (Domi et al., 2019). Therefore, it is clear from the research that there will be both short-term (incremental) and long-term (radical) technological innovation performance if employees perceive their firms to be friendly and open to encouraging and innovating human resources. Therefore, the literature mentioned above aids in the development of the following theories.

H3a: The performance of radical innovation is positively influenced by innovativeness.
H3b. Incremental innovation performance is positively impacted by innovativeness.

Technology Adaptation and Innovativeness as Mediator

We take into consideration the innovativeness and adaptability of technology as possible mediators between the technology innovation performance connection and technology adaptation. Bala and Venkatesh (2016) conduct research on employee job outcomes like performance and job satisfaction as well as cognitive evaluation and technological adaptability. They show that when workers feel they have opportunity and control over their work, they will perform better on the job and adapt positively to IT. According to earlier research, Bhattacherjee and Harris (2009) advise improving IT adaption if staff members see an atmosphere that is favorable to it (adaptability, utility, and simplicity of adaptation), which would ultimately result in effective end-user IT usage. Innovativeness is another tool used by researchers as a mediator in their work. For example, Utsch and Rauch (2000) investigate the role that innovativeness plays as a mediator between venture performance and achievement orientation and find a large moderating impact of innovation. Michna (2018) presents business innovativeness as a mediator between knowledge sharing and customer satisfaction and demonstrates that it has a somewhat significant mediating influence on this relationship. This finding implies that efficient knowledge exchange enhances a company's capacity to launch new or enhanced goods and

ISSN Online: 3007-3154
ISSN Print: 3007-3146

services, hence raising client satisfaction. According to Husain et al. (2016), employee competitiveness and organizational learning are mediated by innovativeness. They make it clear that an organizational learning culture fosters creativity, which increases an individual's competitiveness within the company and in the market. By encouraging employees to gain and develop skills and flexibility at work, technology adaptation helps employees—who are their own resources—to grow personally (Liu, 2018). Additionally, Organizational concerns on employee engagement and resource-based performance are supported by RBT accomplishing novel results (Yasir and Majid, 2020). Hence, we hypothesis that technology adaptation improves employee technology innovation performance through technological adaption and innovativeness, taking into account employees as essential resources.

H4. Technology adaptation mediates the relationship between technology adaptation practices and (a) radical innovation performance and (b) incremental innovation performance.
H5. Innovativeness mediates the relationship between technology adaptation practices and (a) radical innovation performance and (b) incremental innovation performance.

Technology Adaptation & Competency Development

Adapting technology become easier when organization foster culture where trainings are conducted to elevate individual skill set to adapt the fast-moving changes as per the trends. During the survey it was found that employee can adapt technology when they are up to date with industry changes. The theory suggests that competency growth and technological adaptation inside an organization have a beneficial relationship. This is predicated on the notion that staff skills, confidence, and problem-solving abilities are improved through training programs and continuous learning efforts, which in turn promotes easier integration and use of new technology. According to survey data, employees who take part in competency development programs report feeling more at ease and productive when using new technologies, are less resistant to change, and have a favorable impact on the procedures involved in implementing new technologies. Consequently, making competency development investments is essential for both overall organizational performance and successful technology adaption.

H6. Technology adaptation positively influence by competency development.

Technology Adaptation and Empowerment

Empowerment play a vital role in gaining confidence to perform any task. According to the premise, an organization's use of technology and employee empowerment are positively correlated. The premise behind this is that workers become more autonomous, self-assured, and capable of making decisions as they become accustomed to new technologies, which gives them more authority in their positions. This theory is supported by survey data, which demonstrates that workers who successfully adopt new technology report higher levels of job satisfaction, feel more empowered, and demonstrate increased initiative and involvement. Therefore, encouraging technological adoption is essential to

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ISSN Print: 3007-3146

improving organizational performance overall and employee empowerment.

H7. Technology adaptation is positively influence by empowerment.

Technology Adaptation and Information Sharing

According to the premise, an organization's use of technology and employee empowerment are positively correlated. The premise behind this is that workers become more autonomous, self-assured, and capable of making decisions as they become accustomed to new technologies, which gives them more authority in their positions. This theory is supported by survey data, which demonstrates that workers who successfully adopt new technology report higher levels of job satisfaction, feel more empowered, and demonstrate increased initiative and involvement. Therefore, encouraging technological adoption is essential to improving organizational performance overall and employee empowerment.

H8. Technology adaptation is positively influenced by information sharing

Technology Adaptation and Recognition

The hypothesis suggests that employee recognition within an organization and technology adaptation are positively correlated. This is predicated on the notion that when staff members adopt new technologies, their accomplishments and contributions become more quantifiable and apparent, which increases acknowledgment. This theory is supported by survey data, which demonstrates that workers who successfully adopt new technologies are rewarded for their efforts, which raises morale and motivation. Therefore, encouraging technological adoption is essential to improving overall corporate performance and employee recognition.

H9. Technology adaptation is positively influenced by Recognition.

Technology Adaptation and Participation

The hypothesis posits that there is a positive relationship between technology adaptation and employee participation within an organization. This is based on the idea that as employees adapt to new technologies, they are more equipped and motivated to engage in collaborative processes and decision-making activities. Survey results support this hypothesis, showing that employees who effectively adapt to new technologies are more likely to participate actively in meetings, projects, and organizational initiatives. Thus, fostering technology adaptation is crucial for enhancing employee participation and overall organizational performance.

H10. Technology adaptation is positively influenced by participation.

Research Methodology

Research Paradigm

Organizations today operate in dynamic environments where technological advancements are constant. To stay competitive, they must foster innovation. Our research centers on the intersection of technology, human resource

Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146

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management (HRM), and organizational innovativeness. We have explored this paradigm within the context of contemporary workplaces, emphasizing the role of HR practices and technology adaptation. The key components of the research Technology Adaptation and innovativeness Analyze how organizations adopt and integrate new technologies. Consider factors influencing successful technology adoption and innovativeness examine the relationship between HR practices, technology adaption, and innovativeness outcomes.

Research Design

This study uses quantitative research and casual research design for study whereas cause and effect method are used to analyze the relationship between variables. This quantitative survey drives data from employees and managers through google form to collect and assess HR practices, technology adoption, and innovation outcomes. The sampling was collected by Targeting textile organizations across industries, varying in size and technological maturity Include both HR professionals and frontline employees.

Research Instrument

The study uses adopted scale and a structure questionnaire where the data was collected from a total of 74 employees of textile industries of Pakistan. The measurement scale was made using the VAM model and some paradigm of TOE model. The construct was adopted from previous researchers to ensure validity. The detail description of which is given in the table.

Measure Utilized

Construct	Code	Item	Author
Competency Development	CD2	2	Mohammad Rabiul Basher Rubel
	CD3		
Empowerment	EM1	2	
	EM2		
Incremental Innovation Performance	IIP1	3	
	IIP2		
	IIP3		
Innovativeness	INV1	3	
	INV2		
	INV3		
Information Sharing	IS1	2	Daisy Mui Hung Kee
	IS2		
Participation	PAR1	2	
	PAR3		
Recognition	RE1	3	
	RE2		
	RE3		
Radical Innovation Performance	RIP1	3	Nadia Newaz Rimi
	RIP2		
	RIP3		
Technology	TA1	5	

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Adaptation	TA2		
	TA3		
	TA4		
	TA5		

Pilot Testing

The structured questionnaire was made on google docs and distributed to the selected participants. There was total 74 respondents and the questionnaire were used without any changes. Feedback was collected on the clarity, relevance, and comprehensiveness of the questions. The responses were analyzed for reliability testing using Cronbach's alpha to insure internal consistency. Feedback from participants was also reviewed to identify any issue with the questionnaire.

Normality Testing

Normality testing is an important part of research that shows weather or not the data is available ready for testing and well modeled by normal distribution. The statistical tests include regression analysis and many others. It is important to ensure normality as it tells us about the validity and the reliability of the results.

CD	Excess kurtosis	Skewness
EM	-0.359	-0.489
IIP	1.273	-1.049
INV	0.106	-0.645
IS	5.854	-2.030
PAR	1.304	-0.968
RE	1.816	-1.153
RIP	2.736	-1.172
TA	0.033	-0.485
	4.534	-1.429

Sampling & Data Collection

An online questionnaire was distributed to employees of textile sector working in Pakistan the survey yielded 200 valid responses, collected between May and June 2024. There were 200 questionnaires were circulated among textile employees of Pakistan. First part presents descriptive statistics from the initial section of the questionnaire. The second part focused on gauging perceptions related to specified variables using adapted items from previous studies. All items employed Likert scales ranging from 5 to 1, where 1 denoted "Strongly Disagree" and 5 denoted "Strongly Agree."

Descriptive Analysis

The research gives a detailed overview of the data by using descriptive analysis revealing insights into the demographic distribution of respondents as well as the major tendencies and variances of the measured variables. This analysis lays the groundwork for more complex statistical tests and analysis. The demographic variables defining the attributes and characteristics of the respondents includes

ISSN Online: 3007-3154
ISSN Print: 3007-3146

age, gender, qualification, work experience and designation. The constructs variable includes Technological Adaptation, innovativeness, competency development, Information sharing, Empowerment, Recognition, Participation, Radical innovation performance, Incremental innovation performance. The tool used for data analysis was statistical package for social science. Meanwhile for variable analysis Smart Pls was utilized to run the data received from respondents.

Assesment of Measurement Model

Following the guidelines established by leading authorities in the field, the measurement model's validity and reliability in partial least squares structural equation modeling (PLS-SEM). According to Hair, Risher, et al. (2019), Cronbach's Alpha (CA) values above 0.7 indicate strong internal consistency across the items within each construct, which is necessary to ensure that the items reliably measure the latent variables for which they are intended. In a similar vein, composite reliability (CR) values larger than 0.6 or 0.7, as proposed by Bagozzi & Yi (1988) and Dibbern & Chin (2010), respectively, validate the constructs' dependability. This suggests that the items evaluate the underlying concepts in a consistent manner. The rho_A statistic supports the validity of your measurement model; Henseler considers values above 0.6 to be satisfactory. Convergent validity, as defined by Average variation Extracted (AVE) values exceeding 0.5, as suggested by Chin (2010), ensures robust measurement of theoretical notions. This demonstrates that measurement error is not as good at explaining variation among the items as the constructs are. For discriminant validity, Gold et al. (2001) recommend HTMT ratio values less than 0.90 to ensure that the constructs are distinct from one another. Tables 3 and 4 of your analysis show that each indicator meets these strict requirements. Specifically, validity and reliability hold true, indicating that the measurement model appropriately captures and measures the correlations between the variables in your PLS-SEM study.

Assessment of Structural Model

The structural model is tested using Smart PLS to determine the relationships between variables. The structural model analysis reveals interesting findings about the relationship between technology adaptation, competency development, innovativeness, empowerment, radical innovative performance, engagement, information sharing, recognition & incremental innovation performance in textile industry of Pakistan. The analysis shows a strong positive relationship between technology adaptation and competency development. This is reflected by a path coefficient of 0.414, indicating that improvements in the competency development can lead to significant increases in technology adaptation. Similarly, the path coefficient (0.638) of technology adaptation and empowerment shows a positive impact that increasing the empowerment has direct impact on the TA. In continuation to other variables have shown same positive impact to technology adaptation with positive path coefficient (Incremental innovative performance (0.496), Innovativeness (0.694), Information sharing (0.553), Participation (0.509), Recognition (0.608), Radical Innovation Performance).

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Data Analysis and Result

Respondent Profile Analysis

Variable category	**Respondent**	**Percentage**
Gender		
Male	150	75.00%
Female	50	25.00%
Age		
26-30	170	85.00%
31-35	15	7.05%
36-40	10	5.00%
41-45	5	2.05%
Religion		
Muslim	190	95.00%
Non-muslim	10	5.00%

Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)

Academic qualification		
Diploma in it	45	22.05%
Bachelor	70	35.00%
Masters	65	32.05%
Mba	20	10.00%
Experience in current org		
1 to 2 years	65	32.05%
3 to 5 years	70	35.00%
6 to 10 years	40	20.00%
More than 10 years	25	12.05%
Industry experience		
1 to 5 years	50	25.00%
6 to 10 years	80	40.00%
11-15 years	40	20.00%
16 years & above	30	15.00%

Descriptive Statistic Analysis

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CD	0.727	0.905	0.872	0.773
EM	0.799	1.191	0.797	0.672
IIP	0.871	0.912	0.920	0.793
INV	0.902	0.913	0.938	0.835
IS	0.767	1.011	0.838	0.725
PAR	0.738	0.712	0.804	0.675
RE	0.721	0.731	0.841	0.638
RIP	0.761	0.780	0.864	0.680
TA	0.860	0.862	0.900	0.645

The variables have Cronbach's Alpha and composite reliability greater than and equals to 0.7 which means that it fulfils the criteria of Straub (1987). If we talk about individual item reliability (also called loadings), it too has individual reliability greater than 0.7 which means that it fulfils the criteria of Churchill (1979). The loading that is above 0.7 validates the instruments' reliability. The convergent validity was assessed via average variance extracted (AVE), thereby variables have minimum 0.50 as a value which fulfills the standard provided by Fornell and Larcker (1981).

Discriminat Validity

	CD	EM	IIP	INV	IS	PAR	RE	RIP	TA
CD									
EM	0.366								
IIP	0.331	0.496							
INV	0.521	0.787	0.549						
IS	0.454	1.119	0.310	0.578					
PAR	0.219	1.061	0.541	0.764	0.851				
RE	0.564	0.655	0.449	0.739	0.568	0.753			
RIP	0.345	0.455	0.614	0.467	0.438	0.426	0.484		
TA	0.487	0.738	0.555	0.781	0.644	0.723	0.748	0.555	

Structural Model Analysis

A total of eight hypothesis were developed ranging from H1 to H10 based on the literature review Above. Out of ten regression paths, all hypothesis were accepted. As per the table relative advantage. Technology adaptation is significantly impacted by all the hypothesis in context to textile industry of Pakistan.

	Path coefficients
TA -> CD	0.414
TA -> EM	0.638
TA -> IIP	0.496
TA -> INV	0.694
TA -> IS	0.553
TA -> PAR	0.509
TA -> RE	0.608

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TA -> RIP	0.453

Discussion

Result Interpretation

The purpose of the study was to find out how employees' success in technology innovation in Pakistan's textile industry was affected by their ability to adapt and be innovative. ten theories were created and put to the test using smartpls4 regression analysis on information gathered via a survey with a five-point Likert scale. technology innovation performance is positively affected by technology adaptation. the results of the investigation showed a strong correlation between technology innovation performance and adaption. workers who embraced new technology performed better on tasks requiring creativity. technological innovation performance is positively affected by innovativeness employees with greater levels of innovativeness were found to have made more effective contributions to technological innovation inside their firms. the relationship between technology adaptation and technology innovation performance is mediated by technological adaptability. technology adaptability was found to be a significant mediating factor in the association between technology innovation performance and technology adaptation. the favorable influence of technological adaptation on innovation performance was enhanced by the ability of employees to adjust to new technologies. the relationship between technology adaptation and technology innovation performance is mediated by innovativeness. the association between technology innovation performance and technology adaption was also mediated by innovativeness. the effect of technology adaption on employees' innovative performance was reinforced by their inclination for innovation. technology innovation performance is positively affected by both innovativeness and adaptation. the performance of technological innovation was significantly impacted by the combined effects of innovativeness and technology adaption. businesses with an innovative culture and a readiness to adapt to new technologies saw the biggest gains in innovation performance. finally, the report offers solid proof that technology in Pakistan's textile industry, creativity and adaptability are key factors that influence the performance of technology innovation. organizations can improve their capacity for innovation and keep a competitive advantage in a market that is constantly shifting by comprehending and utilizing these aspects. achieving these goals requires HRM strategies that encourage an innovative culture and assist in adapting to new technologies.

Conclusion & Recommendation

The research findings make it clear that innovativeness and technology adaptation greatly improve workers' performance in terms of technology innovation in Pakistan's textile industry. the investigation proved that favorable impact of innovativeness and technology adaptation these two variables have a favorable impact on employees' performance in terms of technology innovation, suggesting that firms should make investments in these areas to increase the results of innovation. the mediating role of innovativeness and technological adaptability these components act as mediators between the performance of technological innovation and technology adaptation, implying that enhancing innovativeness and adaptability can enhance technological innovation

ISSN Online: 3007-3154
ISSN Print: 3007-3146

performance. the significance of human resource management (hrm) good hrm techniques are essential for maximizing employee potential and fostering creativity, both of which promote innovation and technology adaption. as far the recommendation is concerned improve hrm practices employers should concentrate on hrm procedures that encourage worker participation in decision-making, skill development, and engagement. this can be accomplished by offering opportunities for staff involvement in management decisions, training initiatives, and recognition programs. promote an innovative culture it's critical to promote an innovative culture within the company. this entails offering tools for trial and error, encouraging taking calculated risks, and praising creative endeavors. invest in technology adaptation businesses ought to make investments in technology that foster workers' inventiveness and adaptability. this entails implementing new technology and making sure staff members are properly trained to utilize them. track and encourage technology adaptability through ongoing training and development initiatives, track and encourage employees' technology adaptability on a regular basis. this will guarantee that workers may continue to adjust to new technological changes and can contribute to innovation. encourage incremental and radical innovation organizations should aim to balance both incremental and radical innovation. while incremental innovation focuses on continuous improvements, radical innovation involves significant changes that can provide a competitive edge. By implementing these recommendations, organizations can enhance their technological innovation performance, thereby maintaining a competitive advantage in the rapidly changing business environment

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ISSN Online: 3007-3154
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