



## Relationship Between High-Performance Work Systems and Innovation Performance (Low-Level Employee's Perception) with Mediating Role of Dynamic Capabilities and Moderating Role of Hierarchical Culture

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### Abstract

In this research, we examined theoretically how human resource practices such as high-performance work systems help build dynamic capabilities which enhance an organization's innovation performance. We also theorized that firms within a hierarchical culture where employees follow a structured system would not have a strong influence in transforming dynamic capabilities into innovation. We analyzed and tested our hypothetical model by using cross-sectional studies from 50 pharmaceutical companies in Pakistan. Our findings demonstrate that dynamic capabilities (DCs) serve as a mediator in the relationship between high-performance work systems and innovation performance (IP). Moreover, the association of dynamic capabilities (DCs) and innovation performance is found to be significantly moderated by hierarchical culture (IP). We found that the relationship of high-performance work systems, innovation performance and dynamic capacities were not significantly influenced by hierarchical culture.

**Keywords:** High-performance work system, Employee's perception, Hierarchical culture, Dynamic capabilities, Innovation performance

### 1. Introduction

Corporations in developing economies work in potent and unpredictably changing circumstances that actively support entrepreneurship, technical developments, and constantly shifting regulations. Such factors make it challenging for firms to produce value and establish a long-lasting competitive edge so a firm should be able to adapt to change and innovation (Mehralian et al., 2022). According to the firm resource-based view (RBV), employees are a valuable resource that helps firms adapt to changing surroundings and gain a competitive advantage. According to Barney, (1991) the ability of a firm in maintaining a competitive advantage depends on accessing to unique, rare, valuable, and irreplaceable resources. Several studies have shown that strategically utilizing human resource tools like high-performance work systems (HPWS) can help a firm gain a competitive advantage. This study responds to existing literature demands by looking into HPWSs from the abilities-motivation-opportunities (AMO) theory (Dorta-Afonso, Romero-Domínguez and Benítez-Núñez, 2023, Jiang et al., 2012).

According to the theory, human resource management (HRM) has a strategic role in helping firms to achieve intermediate results such as innovation (Gahan et al., 2021). Processes, organizations, business strategies, and products all benefit from innovation. An innovation system's "innovation performance" is a key component. An innovation system has a continually evolving structure with a feature that is becoming more widespread and universal (Caird, Hallett, and Potter 2013). The development of an innovation system is crucial for improving the standard for innovation. The development of an organization's innovation capacity comes from the enhancement of innovation performance (Erdin and alar 2022). Innovation performance is a reflection of the effectiveness of the innovation system.

The globalization era has contributed to a rise in the world economy and a decrease in product life cycles due to technical advancement. In this situation, innovation has been emphasized as important for encouraging sustainable economic development and competitive advantage by researchers, business executives, and regulators. We argue that the hierarchical culture moderates the correlation between dynamic capabilities and innovation performance in high-performance work systems. According to Mehralian, Sheikhi, Zatick, and Badapora (2022), the perspective of low-level employees were not considered while evaluating the association between high-performance work systems and innovation performance. So, this research problem needs to be addressed by future studies. Therefore, the researchers would evaluate low-level employees' perspectives to evaluate this relationship. It also proposed to evaluate the value of dynamic capabilities in a less volatile culture.

This study proposes and explores moderated mediation model to understand the relationship between high-performance work systems and innovation performance. A high-performance work system encourages organizational innovation in part by helping to establish dynamic capacities (DCs). Dynamic capabilities, defined as capacity of an organization to integrate, build, and restructure internal and external competencies to address rapidly changing conditions (Teece, 2009). We argue that the three major dynamic capabilities (learning, integration, and reconfiguration) are built by a high-performance work system, which consists of human resource practices intended to improve employees' abilities, motivation, and opportunity (AMO) (Appelbaum et al., 2000). These capabilities then allow a firm to learn from inside and outside of the corporation in integrating new resources and appropriately respond to external changes by reconfiguring themselves. While other researchers have acknowledged the connection between human resource systems and dynamic capabilities (Wei & Lau, 2010; Lin & Wu,

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2014), we argue that dynamic capabilities provide a reliable but efficient procedure for comprehending the relationship between high-performance work systems and innovation performance. We evaluate how the organization environment affects and how well firms are capable of converting high-performance work systems (HPWS) and dynamic capabilities (DCs) into innovation performance with the mediating role of dynamic capabilities (Mehralian et al., 2022; Obeidat et al., 2016) who aims to enhance knowledge, skills, and abilities (KSAs) of employees, ability-enhancing activities include stringent recruitment process and selection process as well as training. Employee motivation and performance management are both aided by motivational practices, such as integrating rewards and performance evaluations altogether (Katou & Budhwar, 2010). According to Jiang et al., 2012, the focus of opportunity-enhancing practices is on encouraging employee participation and cooperation through a variety of initiatives, including flexible work arrangements and scheduling, teamwork, sharing information, and involvement of employees in decision-making.

## **2. Literature Review**

A high-performance work system consists of several strategic human resource management (HRM) practices that assist organizations in decentralizing decision-making to enhance business performance and profitability. High-performance work systems (HPWS), a type of human resource management systems, are made up of a collection of interconnected human resource practices intended to improve employees and the organization's performance (Wang, Chen, and Lawler, 2021). Workers in a high-performance work system need more skills to perform their jobs well, and many of those capabilities are firm-specific, according to (Appelbaum et al., 2000). Additionally, they require incentives to invest money in learning new abilities and getting involved in activities. A high-performance work System is intended to increase employee competence, dedication, and productivity to improve organizational performance (Posthuma et al., 2013). When it comes to SMEs, the relationship between high-performance work systems and innovation performance (IP) is totally mediated by human capital, motivation, and employee voice (Shahzad et al., 2019). Not just for managers but also for employees, a clear, well-developed human resource management system promotes accuracy in high-performance work system composition. But weak learning for HPWS might lead to a skewed human resource management system and unfavorable employee attitudes (Riaz et al., 2020). A high-performance work system has a substantial impact on innovation performance by mediating dynamic capabilities and regulating the innovation culture, (Mehralian et al., 2022).

Innovation performance involves the ideas and creativity that are used to enhance services, goods, and procedures in a way that might increase efficiency and performance (Muller and Peres, 2019). Innovation performance is influenced by high-performance work systems in professional services, with the inventive work behaviors of individuals serving as a mediating factor in this relationship (Fu et al., 2015). Employee innovation performance has a good relationship with a high-performance work system (Chai & Xiao, 2018).

Dynamic capabilities have been a set of unambiguous and classifiable procedures. They are neither unclear nor conscience. Dynamic capabilities exhibit significant similarities among organizations even though they are distinctive in their specifics and direction-dependent in their creation (Kathleen and Jeffrey 2000). Through learning capability, a high-performance work system (HPWS) is strongly correlated with innovation performance (IP) (Wang et al., 2021). While operating within a dynamic environment, dynamic capabilities offer a sophisticated framework for understanding the contribution of high-performance work systems in getting a competitive advantage (Mehralian et al., 2022). Dynamic capabilities have a substantial influence on innovation performance and also enhance innovation performance (Wu et al., 2007).

A workplace with defined, regulated rules that control employee behavior is said to have a hierarchical culture (Tseng, 2010). For the last few decades, numerous studies on the relationship between an organization's culture and innovation have been done. Although it has not yet been included in management theory, the idea of culture for innovation has emerged due to the range of cultural elements. Hierarchical cultures, which prioritize control and an internal focus, are less common in innovative organizations (Büschgens et al., 2013). Organizations should avoid hierarchical cultures to promote innovation because they do not always promote it (Tian et al., 2018). One of the important factors that encourage innovation is thought to be the organization's culture. The data offer proof for the claim that hierarchical cultures discourage product innovation (Valencia, Valle, and Jimenez, 2010).

### **2.1. Theory**

Resource Based view (RBV) has served as a framework for elaborating on how human resource practices might give rise to innovative performance during the last few decades. According to this theory, which views organizations as collections of resources, having unique resources might make it easier to gain a competitive edge and produce excellent results. By using the RBV, researchers have highlighted how high-performance work systems contribute to the development of organizational-level competences like dynamic capabilities and how they affect an organization's performance (Beltrán-Martín et al., 2008). The DCs approach, which is an extension of the RBV, contends that organizations must increase their resources and skills, be reorganized, and be rejuvenated in order to survive in dynamic contexts (Baa & Ferreira, 2019). Learning, integration, and reconfiguration are three specific dynamic capabilities (DCs) actions that promote innovation and sustain competitiveness (Eisenhardt & Martin, 2000).

## 2.2. Hypothesis

### 2.3. High-Performance Work System and Dynamic Capabilities

A high-performance work system (HPWS) involves a variety of human resource functions that indicate relationships with one another and mutual assistance (Kehoe & Wright, 2013). In today's rapidly changing environment, an organization needs to build essential for the corporation to build new or updated capabilities and to address these problems (Teece et al. 1997) added the concept of dynamic capabilities to the traditional resource-based paradigm to analyze the unexplained relationship between human resource management and firm performance. The dynamic capabilities show how well businesses can able to alter and reconfigure their skills on the field. Organizations with dynamic capabilities may react to changing business environments by integrating internal and external organizational skills, knowledge, and functional competencies. A combination of interconnected human resource practices known as high-performance work systems (HPWS) develops dynamic capabilities; learning, integration, and reconfiguration) that improve innovative performance (Sheikhi et al., 2022).  
*H1: HPWS relates positively to dynamic capabilities.*

### 2.4. Mediating Dynamic capabilities (DCs) to link High-Performance Work Systems (HPWS) with Innovation Performance (IP)

In organizational-level analysis, dynamic capabilities; learning, integration, and reconfiguration mediates the relationship between high-performance work systems and innovation performance (Mehralian et al., 2022). Instead of directly resulting in organizational innovation, HR practices are first transformed into organizational capabilities to provide organizations with greater options to effectively meet market requirements (Lin & Wu, 2014). According to Patel et al. (2013), HPWS produces 'organization dynamic capabilities,' which enables firms in responding to environmental changes by adapting and innovating.  
*H2: The DCs have a strongly mediated impact on HPWS and IP.*

### 2.5. The moderating role of Hierarchal culture between Dynamic Capabilities and Innovation Performance

The environment of an organization is essential for comprehending how HR policies affect organizational outcomes from a social context perspective (Ferris et al., 1998). The culture of an organization which includes shared values, assumptions, and beliefs of organization members, is one major component of the social context. It also provides the guiding principles that influence behavior to achieve organizational objectives.

The hierarchy culture refers to an organization's culture that is defined by a hierarchy of authority. The hierarchical culture's distinctive structure and level of authority are provided by the strict chain of commands enforced by formal regulations and processes (Cameron and Quinn, 1999). The hierarchical culture places a strong emphasis on work stability, security, and predictability. Individuals who work in hierarchical organizational cultures respect power structures and those in positions of authority. These companies also have well-defined policies, processes, and norms. The administrator is often the coordinator and organizer who keep an eye on events within the workplace (Cameron and Quinn, 1999). Based on the goal to improve, develop, and standardize the current models, techniques, processes, goods, and services in line with emerging business trends, hierarchical culture is changed (Cameron and Quinn, 1999).

*H3: Dynamic Capabilities have an insignificant impact on Innovation Performance within a strong Hierarchal Culture.*

### 2.6. Conceptual Framework

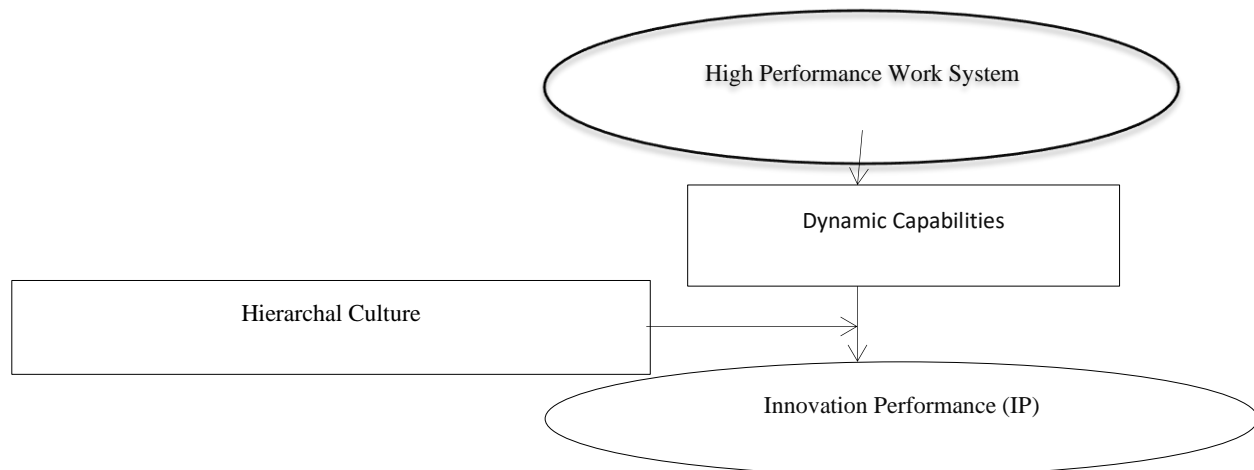


Figure 1

## 3. Methodology

This study is a resume of the proposed future directions of Mehralian et al. (2022); which are about the perception of low-level employees about high-performance work systems and innovation performance. To test the proposed hypothesis, a survey research strategy is used because this is most suitable for examining human perceptions about anything (Sekaran and Bougie 2016). Pakistan's pharmaceutical industry is suitable for testing the proposed hypothesis because of two things: (i)

this is a less volatile industry and, (ii) the culture of the industry is hierarchal. These two directions were also proposed by the previous study of Mehralian et al., 2022.

Companies in Pakistan's pharmaceutical sector provided the data for the current study. According to a report by the Trade Development Authority of Pakistan and the Ministry of Commerce from 2022, Pakistan is host to 759 pharmaceutical manufacturing plants, including 25 global companies. Around 70% of Pakistan's demand for finished medicines is satisfied by the country's pharmaceutical industry, the nationals and the multinationals hold about equal shares of the domestic pharmaceutical market. The pharmaceutical industry has grown significantly over the past few decades, both in terms of market value and the volume of newly launched goods. Local manufacturing companies account for over 75% of the market's value, and the majority of collaboration is from foreign companies on product development and marketing (Ghasemzadeh et al., 2021). The majority of organizations invest in human resource practices are concerned about how these practices impact their ability to perform the company's operations given the central role that HR plays in the pharmaceutical industry (Hess & Rothaermel, 2011).

Our involvement in the observations would be limited and a non-contrived study environment is used. Due to the dispersed nature of pharmaceutical firms and the time-consuming nature of personal visits, information would gather through alternative channels; also, we would use a cross-sectional data collection method and would be collected just once to answer the research questions. The participants would be individuals because data would be collected from low-level employees of the pharma industry.

### 3.1. Sample and Procedure

According to the Institute of Chartered Accountants of Pakistan's 2018 report, there are about 650 companies in the Pakistani pharmaceutical sector that make grade packaging, pharmaceutical components, and finished products. A total of 50 companies were selected from the developing area of Punjab, Pakistan and 410 lower-level employees including salesmen, medical representatives, and area managers were the respondents in this survey. An online survey was conducted through a questionnaire. All variables were measured using SPSS (Statistical Program for the Social Sciences) software, and as shown in Table 1, all of the variables' Cronbach's alpha coefficients are higher than the desired value of 0.7, supporting the reliability of our constructs (Mehralian et al., 2022). To assess the values of mean, skewness, kurtosis, maximum, and minimum, descriptive statistics were used. To investigate the relationship between all variables, this study used the Pearson correlation, regression test, and Cronbach's alpha analysis.

## 4. Measures and Results

A questionnaire was developed to examine the proposed model and hypotheses. The variables in the suggested model were measured using a total of 26 items. All questions were rated on a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). The Prieto and Santana scales were used to measure high-performance work systems (HR managers) (2012). To measure HPWS, a total of 8 items were employed. With the dependability of .850, HPWS was processed as a multidimensional system (see table 1). The components of learning (2 things), integration (2 items), and reconfiguration (2 items) were evaluated using current measures to measure dynamic capacities (Lin & Wu, 2014). Moreover, dynamic capacities were viewed as a multidimensional system with reliability of .739 (see table 1). The hierarchal culture was measured by using, Erin Mayer's scale of Hierarchal Culture proposed in her book *The Culture Map*. A total of 8 items were used to measure hierarchal culture and lower-level employees were asked to indicate the level of hierarchy with reliability .983 (see table 1). The Innovation Performance was measured by using the existing scale (Leal-Rodríguez et al., 2014), a total of 4 items were used to measure the innovation performance of the organization with a reliability of .725 (see table 1).

**Table 1: Reliability Statistics**

Variable	Cronbach's Alpha	N of Items
High performance work system (HPWS)	.850	8
Dynamic capabilities (DCs)	.739	6
Hierarchical culture (HC)	.983	8
Innovation performance (IP)	.725	4

Findings indicate that all variables' skewness are within the range of +1 to -1 (Table 2). Kurtosis's output demonstrates that all variables' values fall inside the allowable range of +3 to -3. As a result, the findings indicate that data is normally distributed. The Mean value displays a measurement of each variable's central tendency.

According to the Pearson correlation test results, there is a positive correlation between high-performance work systems (HPWS) and innovation performance (IP), with a coefficient of .317\*\* and a significance value of .000. These findings demonstrate the direction, strength, and significance of the bivariate relationship among all variables.

**Table 2: Normality Test**

		IP	HPWS	DC	HC
N	Valid	450	450	450	450
	Missing	0	0	0	0
Mean		2.0700	2.0608	2.0867	2.1200
Median		2.0000	2.0000	2.0000	2.0000
Mode		2.50	1.50	2.33	1.00
Skewness		.517	.498	.843	.450
Std. Error of Skewness		.115	.115	.115	.115
Kurtosis		-.216	-.380	.497	-.853
Std. Error of Kurtosis		.230	.230	.230	.230
Minimum		1.00	1.00	1.00	1.00
Maximum		3.75	3.63	3.83	4.00

The correlation coefficient between any two variables is shown in each cell of the table, along with its statistical significance and sample size (N). The degree and direction of the linear link between two variables are measured by the correlation coefficient. It ranges from -1 to 1, where -1 represents a perfect negative correlation, 0 represents no correlation, and 1 represents a perfect positive correlation. In this table, all correlations are positive, which means that as one variable increases, the other variable tends to increase as well. The correlation coefficients range from 0.317 to 0.947, indicating that the relationships between the variables are moderate to strong. The statistical significance of each correlation coefficient is indicated by the p-value and that is significant.

**Table 3: Correlation Analysis**

		IP	HPWS	DC	HC
IP	Pearson Correlation	1	.947**	.860**	.317**
	Sig. (2-tailed)		.000	.000	.000
	N	450	450	450	450
HPWS	Pearson Correlation	.947**	1	.892**	.457**
	Sig. (2-tailed)	.000		.000	.000
	N	450	450	450	450
DC	Pearson Correlation	.860**	.892**	1	.750**
	Sig. (2-tailed)	.000	.000		.000
	N	450	450	450	450
HC	Pearson Correlation	.317**	.457**	.750**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	450	450	450	450

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Table 4: Regression Analysis- Outcome: DC**

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.8918	.7954	.0873	1741.1914	1.0000	448.0000	.0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	.2766	.0456	6.0703	.0000	.1870	.3661
HPWS	.8783	.0210	41.7276	.0000	.8370	.9197

The regression equation is: Dynamic capabilities = .2766 + .8783 \* HPWS

From the outcome dynamic capabilities (DC) the model summary shows the model has an R-value .8918 and an R-squared value of .7954, indicating that 79.54% of the variance in dynamic capabilities can be explained by predictor high-performance work systems. The mean squared error is .0881, the F statistics 1741.1914, and the p-value is less than .0000, suggesting that the model is statistically significant. The Model table shows the coefficients and their corresponding standard errors, t-values, p-values, and lower and upper confidence intervals. The coefficient for a high-performance work system is .8783, with a t-value of 41.7276 and a p-value of less than .0000, suggesting that it is a significant predictor of dynamic capabilities. This

indicates that a high-performance work system is a significant predictor of dynamic capabilities, and as a high-performance work system increases by one unit, we expect dynamic capabilities to increase by .8783 units.

**Table 5: Regression Analysis- Outcome: IP**

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.9944	.9888	.0057	9853.2326	4.0000	445.000	.0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	-.0132	.0312	-.4242	.6716	-.0746	.0481
HPWS	.2242	.0175	12.8066	.0000	.1898	.2586
DC	1.2493	.0316	39.5397	.0000	1.1872	1.3114
HC	-.4744	.0127	-37.3055	.0000	-.4994	-.4494
int_1	.0041	.0057	.7164	.4741	-.0071	.0153

Product terms key: int\_1 DC X HC

The regression equation is: IP = -.0132 + .2242\*HPWS + 1.2493\*DC -.4744\*HC

For the outcome innovation performance "IP", the model summary shows that the model has an R value of .9944 and an R-squared of .9888 which shows that 98.88% variance in the innovation performance can be explained by predictors of high-performance work system, dynamic capabilities, and hierarchical culture. The mean squared error is .0057, the F statistics is 9853.2326, and the p-value is less than .0000, suggesting that the model is statistically significant. The Model table shows the coefficients and their corresponding standard errors, t-values, p-values, and lower and upper confidence intervals. The coefficients for high-performance work system, dynamic capabilities, and hierarchical culture are .2242, 1.2493, -.4744 respectively, with t values 12.8066, 39.5397, -37.3055, and p values .0000, .0000, and .0000 respectively showing that high-performance work system and dynamic capabilities are significant predictors of innovation performance but the negative coefficient value of hierarchical culture shows that it has a negative impact on innovation performance. The table also shows the combined effect of dynamic capabilities and hierarchical culture with a coefficient .0041, standard error .0057, t-value .7164, and p value .4741 suggesting that the combine effect is not significant.

**Table 6: Direct and Conditional indirect effect(s) of X on Y**

Direct effect of X on Y					
Effect	SE	t	p	LLCI	ULCI
.2242	.0175	12.8066	.0000	.1898	.2586
Conditional indirect effect(s) of X on Y at values of the moderator(s):					
Mediator	HC	Effect	Boot SE	BootLLCI	BootULCI
DC	1.1343	1.1014	.0455	1.0111	1.1880
DC	2.1200	1.1049	.0439	1.0171	1.1880
DC	3.1057	1.1084	.0424	1.0251	1.1886

The direct effect of X on Y represents the impact of DC on IP when controlling for any indirect effects through other variables. The direct effect of dynamic capabilities on innovation performance is .2242 with a standard error of .0175, a t-value of 12.8066, and a p-value of .0000. This indicates that DC has a significant positive direct effect on IP, and as DC increases by one unit, we expect IP to increase by .2242 units. The lower and upper limits of the 95% confidence interval for the direct effect are .1898 and .2586, respectively.

The indirect effect of X on Y represents the impact of X on Y through one or more moderator variables. In this case, the moderator variable is hierarchical culture (HC). The indirect effect of dynamic capabilities on innovation performance through hierarchical culture is 1.1014, 1.1049, 1.1084, shows that there is a minor impact of the moderator with standard errors .0455, .0439, .0424 respectively.

**Table 6: Mediating Effect**

Mediator	Index	SE(Boot)	BootLLCI	BootULCI
DC	.0036	.0034	-.0030	.0103

This table presents the results of testing for the indirect effect of variable X on variable Y through a mediator (DC). The table shows that the estimated indirect effect of X on Y through the mediator DC is positive and statistically significant. The small standard error and narrow confidence intervals suggest that the effect is robust and unlikely to be due to chance. However, the size of the indirect effect is relatively small, as indicated by the small value of the index .0036.

## 5. Discussion

This study established and evaluated the conceptual model of high-performance work system that promotes organizations' innovation performance through the development of dynamic capacities given the fundamental role that human resource management practices play in attaining organizational objectives. We provide reasons for how a high-performance work system develops dynamic learning, integrating, and reconfiguring capabilities to enhance innovation performance. The high-performance work system is a set of procedures that enable businesses to hire and train highly skilled workers, maintain open channels of communication to exchange information, and offer flexibility and possibilities for decision-making (Mehralian et al., 2022). The study used a questionnaire to examine the proposed model and hypotheses. The questionnaire consisted of 26 items to measure the variables included in the proposed model. High-performance work systems (HPWS) were measured by using existing scales, and dynamic capabilities were assessed using existing scales. The hierarchical culture was measured using Erin Mayer's scale of hierarchical Culture, and innovation performance was measured using an existing scale. The reliability statistics of all the variables were acceptable, with Cronbach's alpha values ranging from .725 to .983 and these results are consistent with previous research of Mehralian et al. (2022) with values ranging from .82 to .890. The normality test showed that the data were normally distributed, with the mean values indicating the measure of the central tendency of all variables individually. The results of the Pearson correlation test showed that there was a positive correlation between HPWS and innovation performance, indicating that as HPWS increases, innovation performance also tends to increase. The correlations between all the variables were moderate to strong, ranging from 0.317 to 0.947. The regression analysis showed that the model had a high R-squared value of 0.7954, indicating that the model was a good fit for the data. The study's results are consistent with previous research that has shown a positive relationship between high-performance work systems and innovation performance (Saridakis, Lai, and Cooper, 2017), with a correlation value of .287, and dynamic capabilities and innovation performance with a correlation value .723 (Pai and Chang, 2013). Furthermore, we argue and find evidence in favor of the notion that an organization's hierarchical structure might influence the performance of DCs toward innovation performance. Strong hierarchical cultures ensure that employees recognize that they must follow the hierarchy and promote innovation, which enables firms to convert high-performance work systems into dynamic capabilities and, ultimately, improve innovation performance. Moreover, it ensures that a hierarchical culture won't support an organization's capacity for innovation in the absence of dynamic capabilities. In conclusion, the relationship between HPWS and innovation performance is complex and multifaceted. Low-level employees' perception of HPWS plays a crucial role in determining the effectiveness of HPWS in promoting innovation performance. Dynamic capabilities mediate the relationship between HPWS and innovation performance, while hierarchical culture moderates this relationship. Therefore, organizations need to consider these factors when designing and implementing HPWS to enhance innovation performance effectively. By doing so, organizations can create a culture of innovation that supports their long-term success and competitiveness.

### 5.1. Implications for practice and research

Our finding contributes several new insights into the field. Secondly, by proposing and experimentally confirming high-performance work systems for organizations to change their human resource to meet the demands of a dynamic environment, this study expands on the dynamic capabilities perspective of the business (Teece et al., 1997). To remain competitive in dynamic situations, prompt opportunity detection and change reaction are essential (Teece et al., 2016). While earlier research has suggested that high-performance work system can lead to a variety of organizational qualities, such as ambidexterity, flexibility, and absorptive capacity (Patel et al., 2013; Mehralian et al., 2022) To better understand how high performance contributes in getting competitive advantage when functioning in a dynamic system. As a result, we offer both theoretical and empirical support for the connections between high-performance work systems and the three dynamic capabilities dimensions. Our results have significant implications for managers and employees at pharmaceutical businesses. Pharmaceutical companies must develop the skills necessary to obtain, absorb, and combine external knowledge with their own internal expertise. Furthermore, the presence of a hierarchical culture has no strong impact on innovation within an organization.

### 5.2. Limitations and future directions

There are some limitations of this study that provide insight for future research. Firstly, the respondents were low-level employees from a developing area of Pakistan and low-level employees are highly educated and skilled in their field. Therefore, it provides an area for future research to evaluate the perception of employees and managers from highly developed areas. Secondly, we used cross-sectional studies for this research, so longitudinal studies would be used in the future so that researchers may also want to consider the use of mixed-methods approaches. Thirdly, we have examined the relationship between high-performance work systems and innovation performance within a dynamic capabilities environment and hierarchical culture that provide an insight that hierarchical culture is not that significant for this stronger relationship, so the

future study would be conducted in another culture. We recommend conducting cross-cultural studies to explore how the relationship between high-performance work systems, innovation performance, dynamic capabilities, and hierarchical culture varies across different cultures. This could help organizations understand how to adapt their practices to different cultural contexts. Looking to the future, researchers may wish to explore the role of dynamic capabilities as a moderator in the relationship between HPWS and innovation performance. By considering the mediating role of dynamic capabilities, researchers can better understand how HPWS can help organizations to develop the skills and resources necessary for innovation. Hierarchical culture can either hinder or facilitate innovation, depending on how it is managed. By exploring the moderating role of hierarchical culture, researchers can better understand how to create a culture that is supportive of innovation. Future research can focus on investigating the factors that affect the perception of HPWS among low-level employees such as employee involvement, training, and financial and non-financial rewards. Understanding these factors can help organizations design and implement HPWS that are better suited to meet the needs of low-level employees.

## 6. Conclusion

Few studies have examined how a high-performance works system enhances an organization's innovation performance. This study incorporates the dynamic capabilities perspective to understand how human resource practices affect innovation performance in a dynamic context. The contribution of hierarchical culture as a factor influencing the relationships between high-performance work systems, dynamic capabilities, and innovation performance is also stated in this research. Our findings emphasize the significance of sharing an understanding that facilitates how human resource practices are put into practice to develop capabilities and achieve goals for innovation, and they may also help to explain why some organizations perform more effectively than others when it comes to innovation and this study sheds light on human resource management function in the pharmaceutical sector. Moreover, the study highlighted that the association between DCs and IP was significantly moderated by hierarchical culture. Specifically, hierarchical culture was found to weaken the relationship between DCs and IPs, implying that firms with a hierarchical culture may have difficulty in transforming their dynamic capabilities into innovation.

## References

- Appelbaum, E., Bailey, T. A., Berg, P. B., Kalleberg, A. L., & Bailey, T. A. (2000). *Manufacturing advantage: Why high-performance work systems pay off* (Vol. 18). Cornell University Press.
- Baía, E. P., & Ferreira, J. J. M. (2019). Dynamic capabilities and performance: How has the relationship been assessed? *Journal of Management & Organization*, 1–30. <https://doi.org/10.1017/jmo.2019.88>
- Beltrán-Martín, I., Roca-Puig, V., Escrig-Tena, A., & Bou-Llusar, J. C. (2008). Human resource flexibility as a mediating variable between high performance work systems and performance. *Journal of Management*, 34(5), 1009–1044. <https://doi.org/10.1177/0149206308318616>
- Büschgens, T., Bausch, A., & Balkin, D. B. (2013). Organizational Culture and Innovation: A Meta-Analytic Review. *Journal of Product Innovation Management*, 30(4), 763–781. <https://doi.org/10.1111/jpim.12021>
- Caird, S., S. Hallett, and S. Potter. 2013. “The Open2-Innovation Tool – A Software Tool for Rating Organisational Innovation Performance.” *Technovation* 33: 381–385. [doi:10.1016/j.technovation.2013.06.003](https://doi.org/10.1016/j.technovation.2013.06.003)
- Cameron, K. and Quinn, R. (1999), *Diagnosing and Changing Organizational Culture. Based on the Competing Values Framework*, Addison-Wesley, Reading, Massachusetts, MA
- Chai, L., & Xiao, Y. (2018). High-Performance Work System and Employee Innovation Performance: The Role of Obse and Power Distance Orientation. *Proceedings of the Third International Conference on Economic and Business Management (FEBM 2018)*. <https://doi.org/10.2991/febm-18.2018.93>
- Detert, J.R., Schroeder, R.G. and Mauriel, J.J. (2000), “A framework for linking culture and improvement initiatives in organizations”, *Academy of Management Review*, Vol. 25 No. 4, pp. 850-63.
- Dorta-Afonso, D., Romero-Domínguez, L. and Benítez-Núñez, C. (2023) “It’s worth it! High performance work systems for employee job satisfaction: The mediational role of burnout,” *International Journal of Hospitality Management*, 108, p. 103364. Available at: <https://doi.org/10.1016/j.ijhm.2022.103364>.
- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, 21(10–11), 1105–1121. [https://doi.org/10.1002/1097-0266\(200010/11\)21:10<1130::CO;2-E](https://doi.org/10.1002/1097-0266(200010/11)21:10<1130::CO;2-E)
- Erdin, C., and M. Çağlar. 2022. “National Innovation Efficiency: A DEA-Based Measurement of OECD Countries.” *International Journal of Innovation Science*. [doi:10.1108/IJIS-07-2021-0118](https://doi.org/10.1108/IJIS-07-2021-0118)
- Ferris, G. R., Arthur, M. M., Berkson, H. M., Kaplan, D. M., Harrell-Cook, G., & Frink, D. D. (1998). Toward a social context theory of the human resource management-organization effectiveness relationship. *Human Resource Management Review*, 8(3), 235–264. [https://doi.org/10.1016/S1053-4822\(98\)90004-3](https://doi.org/10.1016/S1053-4822(98)90004-3)
- Fu, N., Flood, P. C., Bosak, J., Morris, T., & O’Regan, P. (2015). How do high performance work systems influence organizational innovation in professional service firms? *Employee Relations*, 37(2), 209–231. <https://doi.org/10.1108/er-10-2013-0155>



- Gahan, P. *et al.* (2021) “Between fit and flexibility? The benefits of high-performance work practices and leadership capability for innovation outcomes,” *Human Resource Management Journal*, 31(2), pp. 414–437. Available at: <https://doi.org/10.1111/1748-8583.12316>.
- Ghasemzadeh, P., Rezayat Sorkhabadi, S. M., Kebriaeezadeh, A., Nazari, J. A., Farzaneh, M., & Mehralian, G. (2021). How does organizational learning contribute to corporate social responsibility and innovation performance? The dynamic capability view. *Journal of Knowledge Management*, <https://doi.org/10.1108/JKM-01-2021-0069>
- Hess, A. M., & Rothaermel, F. T. (2011). When are assets complementary? star scientists, strategic alliances, and innovation in the pharmaceutical industry. *Strategic Management Journal*, 32(8), 895–909. <https://doi.org/10.1002/smj.916>
- Jiang, K. *et al.* (2012) “How Does Human Resource Management Influence Organizational Outcomes? A Meta-analytic Investigation of Mediating Mechanisms,” *Academy of Management Journal*, 55(6), pp. 1264–1294. Available at: <https://doi.org/10.5465/amj.2011.0088>.
- Kathleen M. Eisenhardt, & Jeffrey A. Martin. (2000). Dynamic capabilities: what are they? *Strategic Management Journal*, 21(10–11), 1105–1121. [https://doi.org/10.1002/1097-0266\(200010/11\)21:10/11](https://doi.org/10.1002/1097-0266(200010/11)21:10/11)
- Katou, A.A. and Budhwar, P.S. (2010) “Causal relationship between HRM policies and organisational performance: Evidence from the Greek manufacturing sector,” *European Management Journal*, 28(1), pp. 25–39. Available at: <https://doi.org/10.1016/j.emj.2009.06.001>.
- Kehoe, R. R., & Wright, P. M. (2013). The impact of high-performance human resource practices on employees’ attitudes and behaviors. *Journal of Management*, 39(2), 366–391. <https://doi.org/10.1177/0149206310365901>
- Leal-Rodríguez, A. L., Roldán, J. L., Ariza-Montes, J. A., & Leal-Millán, A. (2014). From potential absorptive capacity to innovation outcomes in project teams: The conditional mediating role of the realized absorptive capacity in a relational learning context. *International Journal of Project Management*, 32(6), 894–907. <https://doi.org/10.1016/j.ijproman.2014.01.005>
- Lin, Y., & Wu, L.-Y. Y. (2014). Exploring the role of dynamic capabilities in firm performance under the resource-based view framework. *Journal of Business Research*, 67(3), 407–413. <https://doi.org/10.1016/j.jbusres.2012.12.019>
- 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. *The International Journal of Human Resource Management*, 1-30.
- Muller, E. and Peres, R. (2019) “The effect of social networks structure on innovation performance: A review and directions for research,” *International Journal of Research in Marketing*, 36(1), pp. 3–19. Available at: <https://doi.org/10.1016/j.ijresmar.2018.05.003>.
- Naranjo Valencia, J. C., Sanz Valle, R., & Jiménez Jiménez, D. (2010). Organizational culture as determinant of product innovation. *European Journal of Innovation Management*, 13(4), 466–480. <https://doi.org/10.1108/14601061011086294>
- Obeidat, S.M., Mitchell, R. and Bray, M. (2016) “The link between high performance work practices and organizational performance,” *Employee Relations*, 38(4), pp. 578–595. Available at: <https://doi.org/10.1108/er-08-2015-0163>.
- Pai, F.-Y. and Chang, H. (2013) “The Effects of Knowledge Sharing and Absorption on Organizational Innovation Performance – A Dynamic Capabilities Perspective,” *Interdisciplinary Journal of Information, Knowledge, and Management*, 8, pp. 083–097. Available at: <https://doi.org/10.28945/1904>.
- Patel, P. C., Messersmith, J. G., & Lepak, D. P. (2013). Walking the tightrope: An assessment of the relationship between high-performance work systems and organizational ambidexterity. *Academy of Management Journal*, 56(5), 1420–1442. <https://doi.org/10.5465/amj.2011.0255>
- Posthuma, R. A., Campion, M. C., Masimova, M., & Campion, M. A. (2013). A High Performance Work Practices Taxonomy. *Journal of Management*, 39(5), 1184–1220. <https://doi.org/10.1177/0149206313478184>
- Prieto, I. M., & Santana, P. P. M. (2012). Building ambidexterity: The role of human resource practices in the performance of firms from Spain. *Human Resource Management*, 51(2), 189–211. <https://doi.org/10.1002/hrm.21463>
- Riaz, S., Townsend, K., & Woods, P. (2020). Understanding HRM philosophy for HPWS and employees’ perceptions. *Personnel Review*, 50(3), 812–828. <https://doi.org/10.1108/pr-11-2019-0640>
- Santoro, G., Bhatti, S. H., & Zakariya, R. (2020). High-performance work systems, innovation and knowledge sharing An empirical analysis in the context of project-based organizations. *Employee Relations: The International Journal* © Emerald Publishing Limited. <https://doi.org/DOI.10.1108/ER-10-2019-0403>
- Saridakis, G., Lai, Y. and Cooper, C.L. (2017) “Exploring the relationship between HRM and firm performance: A meta-analysis of longitudinal studies,” *Human Resource Management Review*, 27(1), pp. 87–96. Available at: <https://doi.org/10.1016/j.hrmr.2016.09.005>.
- Sekaran, U. and R. Bougie (2016). *Research methods for business: A skill building approach*, John Wiley & Sons.

- Shahzad, K., Arenius, P., Muller, A., Rasheed, M. A., & Bajwa, S. U. (2019). Unpacking the relationship between high-performance work systems and innovation performance in SMEs. *Personnel Review*, 48(4), 977–1000. <https://doi.org/10.1108/pr-10-2016-0271>
- Sheikhi, S., Zatzick, C. D., Heidarian Ghaleh, H., & Mehralian, G. (2022). High-Performance Work Systems and Innovation Performance Link: How Dynamic Capabilities Mediate. *Academy of Management Proceedings*, 2022(1). <https://doi.org/10.5465/ambpp.2022.14268abstract>
- Teece, D. J. (1997). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28(13), 1319–1350. <https://doi.org/10.1002/smj.640>
- Teece, D. J., Peteraf, M., & Leih, S. (2016). Uncertainty, innovation, and dynamic capabilities: An introduction. *California Management Review*, 58(4), 5–12. <https://doi.org/10.1525/cmr.2016.58.4.5>
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533. [https://doi.org/10.1002/\(SIC D\)1097-0266\(199708\)18:73.0.CO;2-Z](https://doi.org/10.1002/(SIC D)1097-0266(199708)18:73.0.CO;2-Z)
- Teece, D.J. (2009) “Dynamic Capabilities and Strategic Management: Organizing for Innovation and Growth,” *Strategic Management Journal* [Preprint].
- The institute of chartered accountants of Pakistan. <https://www.icap.org.pk/paib/pdf/guidelines/PharmaIndustry.pdf>
- Tian, M.Q. et al. (2018) “How does culture influence innovation? A systematic literature review,” *Management Decision*, 56(5), pp. 1088–1107. Available at: <https://doi.org/10.1108/md-05-2017-0462>.
- Trade Development Authority of Pakistan, Ministry of Trade and Commerce Pakistan’s report 2022.
- Tseng, S.-M. (2010) “The effects of hierarchical culture on knowledge management processes,” *Management Research Review*, 33(8), pp. 827–839. Available at: <https://doi.org/10.1108/01409171011065635>.
- Valencia, J.C.N., Valle, R.S. and Jimenez, D.A. (2010) “Organizational culture as determinant of product innovation,” *European Journal of Innovation Management*, 13(4), pp. 466–480. Available at: <https://doi.org/10.1108/14601061011086294>.
- Wang, P., Chen, X., & Lawler, J. J. (2021). Unraveling the relationship between High-performance work systems and firm performance: A mediation analysis. *Human Resource Management*, 61(2), 181–197. <https://doi.org/10.1002/hrm.22087>
- Wei, L.-Q., and Lau, H.C. (2010) “High performance work systems and performance: The role of adaptive capability,” *Human Relations*, 63(10), pp. 1487–1511. Available at: <https://doi.org/10.1177/0018726709359720>.
- Wu, S. H., Lin, L. Y., & Hsu, M. Y. (2007). Intellectual capital, dynamic capabilities and innovative performance of organisations. *International Journal of Technology Management*, 39(3/4), 279. <https://doi.org/10.1504/ijtm.2007.013496>