

Article

The impact of human resource agility on the innovative performance in Jordanian pharmaceutical companies

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Abstract: The goal of this research is to focus on the impact of HR agility on Jordanian pharmaceutical manufacturing companies' innovative performance. The study population of the study consists of managers at different levels of pharmaceutical companies listed on the Amman Stock Exchange. Convenience sample consists of 450 questionnaires was sent. PLS-SEM was employed in this work to assess the measurement model and to verify the study theories. The findings revealed that human resource agility has a positive impact on innovative performance. The implications of the research as this analysis have shown, a variety of factors influence the agility of human resources, allowing organizations to create and implement strategies that lead to better adaptability in a rapidly changing environment. Significant ramifications could arise from this review for organizations that prioritize fostering employee confidence, refining strategies to gain a competitive edge, enhancing employee skills, and adapting to both internal and external shifts in the work environment.

Keywords: human resource agility; innovative performance; proactivity; resilience; adaptability; innovation efficacy; innovation efficiency

1. Introduction

Instability and a tendency for constant change, as well as the impacts of accepted globalization, increased competition, and even de-globalization, have resulted in the difficulty of the corporate atmosphere, the advancement of science and technology, the emergence of growing environmental needs, their diversity and composition, the multiplicity of consumer demands, and shorten product delivery times (Al-Abbadi et al., 2022; Carvalho et al., 2019; Mohammad, 2019).

The absence of competent personnel at all levels who can use organizational components and materials to attain objectives makes it impossible for organizations to prosper and survive. This is why human resources are crucial to the establishment and influence of successful organizations. Funds, laws, and technological advancements all play a role in the success of organizations. As human beings can make the most use of physical and institutional factors and combine them to achieve maximum efficiency, their importance outperforms that of other elements relative to their own (Al-Azzam et al., 2023a; Al-shawabkeh et al., 2022; Al-Brakat et al., 2023; Imam, 2018; Shamaileh et al., 2023). Moreover, Berahmawati et al. (2019) have elaborated that in any organization, the HR team specializes in all areas of the human element in businesses, including recruiting, selecting, hiring, and training personnel. Without this kind of workforce, businesses cannot grow or accomplish their objectives;

employment is the only way to bring in and motivate human resources to work for them.

As described by Al-Tameemi (2020), organizations are considered as open systems that are both influenced and impacted by their external environment, which is made up of various elements like political, social, economic, and legal influences. An organization needs to take advantage of the opportunities in the external surroundings to properly manage the wide variety of variables that it faces. It should possess the expertise required to take full advantage of these changes. Rapid changes in the environment and technology advancements present organizations with significant challenges. To deal with these changes, they must abandon their outdated management techniques and adopt more cutting-edge, practical approaches. One approach that helps businesses meet external changes and execute at a high level is human resource agility (Al-Hawary and Abdallah, 2023; Halalmeh, 2021).

One of the contemporary management strategies for handling unforeseen changes, the managerial and monetary uncertainties that businesses encounter, boosting their competitiveness and market share, and satisfying client demands and specifications is human resource agility (Al-Tameemi et al., 2020). The requirement for agility in utilizing and addressing the risks and uncertainties is acknowledged by both scholars and researchers. Agility was defined as the capacity to act fast in the face of unforeseen changes in a disorderly environment (Al-Shormana et al., 2021; Khodabandeh, 2018).

The human resources of any organization possess qualities that promote agility; these qualities are often called “human resource agility” (Al-Taweel and Al-Hawary, 2021; Lai et al., 2021). We use the term “human resource agility” in this work because research suggests that it is a unique approach to management that developed as a suitable reaction to situations that are overly sensitive and dynamic (Azzam et al., 2023b; Suresh and Menon, 2022). Unexpected developments can be handled by agile HR and used as a chance to increase market share and satisfy client demands (Festing et al., 2020).

The manufacturing sector of pharmaceuticals faces several difficulties, including COVID-19, as well as complications arising from the ever-changing environment. These include issues related to organizational ambidexterity, strategic agility, talent management, human resource sustainability, and flexibility in response to complex environmental variables. The inclination toward equilibrium between hardness and softness is therefore what human resource agility as an organizational theory represents (Al-Hawary and Abu-Laimon, 2013; Pallathadka et al., 2023; Saeed, 2022). Numerous elements, including societal and technical change, entrepreneurial and market orientation, investing in intellectual capital and capabilities, knowledge management techniques, marketing innovation, competitive intelligence, and total quality management, influence a company’s innovative performance. While there are a lot of variables that can influence innovative performance, HR agility was identified as the main one. Effective human resources are capable of identifying risks, seizing opportunities, and developing proactive plans to address obstacles. Keeping such risks under control requires creative thinking (Latukha et al., 2022; Majdy et al., 2023)

As the introduction above illustrates, to sustain operations, foster innovative performance, and obtain a competitive advantage, human resource agility must be implemented by all firms, regardless of their industry or location of employment.

However, there is still debate regarding the relationship between HR agility and an organization's capacity for innovation. The application of the idea of human resource agility in Jordanian pharmaceutical manufacturing companies is examined in this study. It specifically investigates the relationship between HR agility and the innovative performance of companies due to environmental and technological changes. Thus, the goal of this research is to focus on the impact of HR agility on Jordanian pharmaceutical manufacturing companies' innovative performance.

2. Literature review and hypotheses development

2.1. Literature review

Innovation can be used as a tool to solve sustainability-related issues and expand into new markets and customer segments. Businesses that use a sustainable strategy generate value for the introduction of new items into the market and promote collaboration amongst stakeholders. Innovation aimed at more environmentally friendly technologies and procedures that are structured, innovative, nonlinear, and heavily unpredictable is referred to as sustainable innovation (Al-Rwaidan et al., 2023; Lai et al., 2015). Furthermore, Mousavi et al. (2017) discussed that Sustainability-focused innovation aims to support sustainable development regardless of the organization's level of success. Organizations must adopt a more sustainable competitive strategy and human resource agility to practice sustainable innovation. Organizations must integrate social and environmental issues into their corporate agendas to innovate toward sustainability. Mohammad et al. (2020); Nevado et al. (2018) found a strong correlation between an organization's performance in terms of innovation and its intellectual and human capital. According to Wendra et al. (2019), obtaining benefits in terms of service or management quality, strategy development, originality, and other areas depends on an organization's innovation performance. As a result, the majority of research on innovation performance in the financial sector concentrated mostly on the industrial and services industries.

Organizations find it more challenging to implement and sustain innovation strategies as a result of these changes, which ultimately affect several organizational elements like product designs, market strategies, technological proficiency, etc. According to Ebrahim (2021), there is a strong, indirect, statistically significant association between HRM practices and organizational agility. It is suggested that HRM practices be used to promote organizational agility to better accommodate changing and volatile environmental factors, lessen current and potential dangers, and take advantage of future opportunities in the surrounding area.

Agility is a novel approach to corporate management in the twenty-first century. Institutions are under pressure to improve their capacity for adaptation, resilience building, and swift decision-making due to the challenging environment. Human resource agility emerged in the early 1990s as a new solution to ever-changing environments, and it quickly became essential to the prosperity and expansion of companies. Furthermore, the notion of human resource agility is considered a pragmatic approach by contemporary managers to enable organizations, through their workforce, to foster innovation and adapt to the unstable business environment's

difficulties, including global market openings, communication breakthroughs, and swift technical (Metabis and Al-Hawary, 2013; Munteanu et al., 2020)

Agility, according to Menonand and Suresh (2022), is the ability to react quickly to unforeseen events. Stated differently, the ability of human resources to be flexible is crucial for creating an agile business since it depends more on engaged employees than on inert components. One of the most crucial elements influencing an organization's success, survival in a fiercely competitive business environment, and ability to achieve its goals is the agility of its human resources. Saleem et al. (2021) stated that "proactivity, adaptability, and resilience" are the three core and important indicators of human resource agility.

Furthermore, Das et al. (2022) defined agility as the capability of employees to swiftly adjust to technological changes and react positively to uncertainties. However, Jameel and Mhaibes (2022) described HR agility as the ability of the employee to change himself according to situations and customer needs and try to increase the worth of the firm by showing excellent skills according to the changes and demands. Wei (2020) studied that HR agility helps the workforce to be more innovative and ready for new ideas and changes. The more agile the workforce is, there will be more chance of the firm's growth. Pitafi et al. (2020) discussed many factors that show the level of agility of employees of any company. The most necessary and crucial to increasing HR agility is effective communication in the workforce which can be attained through employee participation and data sharing between whole HR.

Decision-making also has a significant impact on HR agility to alter how a business reacts to problems and risks in the marketplace by enabling employees to voice their opinions, suggestions, and thoughts regarding their work, particularly if the company wants to use its workforce as a CA to remain in the corporate world (Mangundjaya and Natapoera, 2020). Work teams provide advantages that Munteanu et al. (2020) have highlighted. The workforce and employee proactiveness are allegedly impacted by empowered teams inside a corporation. Agility enhancement is most influenced by the company that supports work teams. It has also been noted that a focus on work teams helps an organization develop workforce agility by bringing focus to the inward, outward, and transactional workplaces. Additionally, work teams have a favorable effect on workforce agility.

The notion that agility is an organizational competence is upheld by Ravichandran (2018). Its innovative potential and information technology proficiency enable strategic agility. The author makes the case that businesses that prioritize information technology investments perform better and are quicker. According to Kale et al. (2019), there is an intermediary between performance and absorptive ability which is strategic agility. The writers provide evidence that agility has a favorable impact on the success of the company. According to Ashrafi et al. (2019), a company is more affected by strategic agility when it operates in a turbulent environment, such as a shifting business climate. Tallon et al. (2019) discussed that HR agility was created to help companies benefit from the opportunities presented by information technology and respond to unanticipated opportunities and risks in the environment. The study results validated the importance of the relationship between IT and agility based on how quickly the organizational structure adjusts to unforeseen changes.

2.2. Hypothesis development

The ability of the employees to cope with uncertainties, adapt to changes whether changes in technology or changes in customer needs, and face the obstacles successfully is known as HR agility. HR agility is becoming essential in today's corporate world. Companies are focusing on HR agility and the factors that are affecting it. For example, Saleem (2021) outlined resilience, adaptability, and proactivity as the three key components of HR agility. Kasasbeh (2016) describes proactivity and according to him, employee proactivity is the capacity to anticipate future market advantages and opportunities that will be advantageous for sustained success. He added that assertive employees can easily resolve problems, come up with fresh ideas and proposals, and make sound decisions in uncertain or challenging circumstances. Proactivity was defined by Mangundjaya (2020) as an employee's capacity to anticipate possible risks and concentrate on making backup plans in case of challenges. It assists HR in anticipating possible issues and challenges and offering solutions and proactive approaches to resolve the issues. This helps in improving firm performance, forecasting, and removing obstacles.

As elaborated by Saleem (2021) the second important element of HR agility is resilience which is the capability of employees to bring innovative ideas and concepts while working under different and tough situations with a positive attitude and accept other's ideas and opinions easily. Munteanu (2020) and Putri (2020) described resilience in their study as the capacity of employees to work in uncertain environments learn from failures and show flexibility and a positive attitude. A firm whose employees have this element of agility in them can deal with any problem, remove hurdles, and work in a cooperative environment. The third important element of HR agility is adaptability. Which is the ability to adapt to new circumstances, demands, or changes is known as adaptability in HR. It entails having an open mind to novel concepts, tools, and methods of operation. HR specialists must adjust to the ever-changing business environment, rapid technology development, and the nature of the workforce. A flexible HR department may successfully incorporate new procedures, instruments, and approaches to remain current and support the growth of the company (Al-Hawary and Al-Syasneh, 2020; Maduli, 2018)

Two crucial elements that affect an organization's total innovative performance are innovation efficacy and innovation efficiency. Recognizing how much a company generates, implements, and capitalizes on innovative ideas is largely dependent on these concepts. The total innovative performance of a company is greatly influenced by innovation efficacy and efficiency. Innovation efficacy is the capacity of a company to produce and apply worthwhile ideas profitably. It is a process-like approach that includes a brainstorming process to bring new ideas and select solutions according to some standards by focusing on potential opportunities. According to Tidd (2020), an agile workforce is very necessary for an effective innovation process that will be able to convert new and unique ideas into tangible results. However, innovation efficiency is the process of implementing new and innovative ideas and bringing them into the market before the competitors at less cost. For this process, proper strategies and risk management is required. Innovative efficiency and efficacy are required for the long-

term success of the business and innovative performance. For this HR agility is very important.

To support our theory, we hypothesize:

Hypothesis 1 (H1): Proactivity positively affects innovation performance.

Hypothesis 2 (H2): Resilience positively affects innovation performance.

Hypothesis 3 (H3): Adaptability positively affects innovation performance.

3. Research methodology

3.1. Questionnaire development

The influence of HR agility on attaining innovative performance in Jordanian pharmaceutical manufacturing enterprises was assessed through a survey. There are two sections to the survey. The first section covered employee profiles, which included information on gender, age, education, and work experience. The second section looked at the different concepts that were researched (Khalid et al., 2023). A questionnaire representing the responses of the chosen respondents was designed using a five-point Likert scale, from strongly disagree to strongly agree. For questions about each construct, the chosen respondents were required to choose just one response. To ensure that the study instrument was valid, a pilot test was first carried out. For the pilot test, the top 10 top executives have been chosen. Numerous talks and meetings with academics were undertaken in response to enhancing the pilot test results to enhance the survey and increase its validity.

3.2. Sampling and data collection

Since the pharmaceutical sector is one of Jordan's most important manufacturing sectors, we decided to conduct our research there. Jordan possesses the pharmaceutical industry with the highest level of sophistication in the MENA area. The primary reason for researching pharmaceuticals is the scarcity of studies demonstrating how human resource agility affects Jordanian pharmaceutical businesses' creative performance. We have selected three pharmaceutical companies of Jordan listed on the Amman Stock Exchange namely Philadelphia Pharmaceuticals, Hayat Pharmaceutical Industries Co., and Dar Al Dawa Development and Investment.

The study population of the study consists of managers at different levels of pharmaceutical companies listed on the Amman Stock Exchange. Google form was used to collect data from the study sample. The equation for an adequate sample size in terms of determining the appropriate sample size is as follows:

$$n = \frac{z^2 \times p \times q}{e^2}$$

where z refers to z -score which is calculated at 1.96 while the CI is estimated to be 95%. e refers to error which is 5% while ' p ' is estimated to be 50%. In addition to this, the q refers to the portion of the population which has not been considered in the study.

$$n = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2} = 384$$

Convenience sample consists of 450 questionnaires was sent; 50 were not returned by the respondents, and 50 were rejected for lacking sufficient information

as they were incomplete. Thus, the final analysis, which included 350 middle- and first-line employees as a sample size, was sufficient.

4. Data analysis

PLS-SEM was employed in this work to assess the measurement model and to verify the study theories. PLS-SEM is an analytical method that is frequently applied in a variety of contexts. It is a useful tool for assessing intricate structural models that use both direct and indirect connections to link multiple variables (Manley et al., 2021). For the experiments, the 4.0.7 version of Smart PLS is utilized. The factor loadings for each concept were looked at after the convergent validity test was estimated. The relatively high factor value makes it clear that there is a convergence point for each construct indicator. When assessing convergent validity, loading factor values of less than 0.6 are typically unacceptable.

Results

Table 1 shows the results of the CFA. the collected factor loadings ranged from 0.801 to 0.982. the factor loading values larger than 0.5 were acceptable. **Table 1** also demonstrates the good reliability for all variables, with composite reliability values greater than 0.7. Similarly, the values of AVE are greater than the significant value of 0.5, which verifies the convergent validity.

Table 1. Factor loadings, composite reliability, and convergent validity.

Constructs	Items	Loadings	Valid/not Valid	CR	AVE
Resilience	RL1	0.823	Valid	0.942	0.768
	RL2	0.967	Valid		
	RL3	0.956	Valid		
	RL4	0.822	Valid		
	RL5	0.801	Valid		
Proactivity	PRO1	0.832	Valid	0.948	0.785
	PRO2	0.932	Valid		
	PRO3	0.896	Valid		
	PRO4	0.867	Valid		
	PRO5	0.901	Valid		
Adaptability	ADAP1	0.817	Valid	0.942	0.802
	ADAP2	0.856	Valid		
	ADAP3	0.982	Valid		
	ADAP4	0.917	Valid		
	ADAP5	0.899	Valid		
HR Agility	HRAG1	0.952	Valid	0.908	0.848
	HRAG2	0.932	Valid		
	HRAG3	0.898	Valid		
	HRAG4	0.923	Valid		
	HRAG5	0.899	Valid		

Table 1. (Continued).

Constructs	Items	Loadings	Valid/not Valid	CR	AVE
Innovative Performance	IP1	0.965	Valid	0.96	0.831
	IP2	0.911	Valid		
	IP3	0.899	Valid		
	IP4	0.823	Valid		
	IP5	0.954	Valid		
Innovation Efficacy	IPCACY1	0.855	Valid	0.953	0.805
	IPCACY2	0.966	Valid		
	IPCACY3	0.901	Valid		
	IPCACY4	0.900	Valid		
	IPCACY5	0.861	Valid		
Innovation Efficiency	IPEFFI1	0.877	Valid	0.951	0.797
	IPEFFI2	0.960	Valid		
	IPEFFI3	0.801	Valid		
	IPEFFI4	0.898	Valid		
	IPEFFI5	0.922	Valid		

According to **Table 2**, the results of the calculation of the HTMT for validity are satisfactory, as all values were less than 0.90. The average correlations between the constructs are determined by the HTMT criteria. Thus, discriminant validity is confirmed in this study.

Table 2. Discriminant validity.

	RL	PRO	ADAP	HRAG	IP	IPCACY	IPEFFI
RL	-	-	-	-	-	-	-
PRO	0.523	-	-	-	-	-	-
ADAP	0.621	0.561	-	-	-	-	-
HRAG	0.423	0.323	0.318	-	-	-	-
IP	0.365	0.329	0.379	0.232	-	-	-
IPCACY	0.522	0.498	0.592	0.342	0.234	-	-
IPEFFI	0.455	0.298	0.352	0.511	0.375	0.392	-

Once the measurement model is accepted, the structural model is used to test the hypotheses. Here, a bootstrapping method using Smart Pls with 5000 re-samplings was used to apply structural equation modeling (SEM). This is an attempt to mitigate the problem of unusual data. The results clearly show a direct connection among the variables. The H1, H2, H3, and H4 (a & b) show that there is a direct relationship between the variables. and also demonstrated the correlation between HR agility and innovative performance.

With a beta value of = 0.049 and a value of p of $0.003 < 0.01$, H1 shows that HR agility and proactivity have a positive and significant relationship. Thus, the outcomes completely support our theory. H2 is further supported by a beta value of 0.321 and a value of p of $0.000 < 0.01$, which show that HR agility and resilience are positively

correlated. H3’s beta value of 0.117 further demonstrates the positive relationships, suggesting that adaptability positively impacts a company’s HR agility. The results of H4 (a & b) demonstrate that HR agility has a positive impact on innovative performance, with a beta value of 0.082 a value of p of $0.003 < 0.01$, and a beta value of 0.106 and a value of p of 0.002 (see **Table 3**).

Table 3. Hypotheses result.

Hypothesis	Relationships	Original sample (O)	Sample mean (M)	Standard deviation	T-statistics	P-values
H1	PRO → HRAG	0.049	0.06	0.074	0.662	0.003
H2	RL → HRAG	0.321	0.32	0.096	3.465	0
H3	ADAP → HRAG	0.117	0.116	0.083	1.382	0.008
H4a	HRAG → IPCACY	0.082	0.081	0.074	1.123	0.003
H4b	HRAG → IPEFFI	0.106	0.131	0.068	1.627	0.002

5. Discussion

This study aimed to understand better HR agility and the factors that influence it, as well as to evaluate the impact of HR agility on the innovative performance of pharmaceutical manufacturing companies. Our research shows that proactivity, resilience, and adaptability—three interrelated dimensions of human resource agility—rose as a new response to dynamic and ever-changing environments and became essential to the pharmaceutical industry’s development and success. Empirical evidence and research consistently indicate that the agility of human resources is crucial in promoting and favorably influencing innovative performance in organizations. Human resource agility describes an organization’s capacity to quickly and effectively adjust to changes in its environment. The findings of the study show that there is a strong link between HR agility and the innovative performance of the pharmaceutical companies that are listed on the Amman stock exchange. The strong correlation and significance between HR agility and innovative performance shows that HR agility helps in boosting a company’s performance and proactivity, resilience and adaptability are important elements of HR agility in increasing innovative performance.

6. Conclusion

Companies are emphasizing HR agility in order to handle ambiguities and challenging circumstances. By using contingency planning to foresee probable issues and come up with solutions, this strategy is assisting companies in gaining market share from rivals and in generating fresh, creative ideas that will contribute to their long-term innovative success. Similarly, Al Qaralleh (2022) discovered using linear modeling that the company’s creative performance is largely influenced by HR agility in addition to various HR strategies and policies. On the other side, obtaining high inventive performance requires organizational agility. While business analytics are not necessary to achieve high inventive performance. Moreover, the outcomes reported by Franco and Landini in 2022 corroborate our findings. Their study’s findings also revealed a potential relationship between IP-innovative performance and HR agility.

They came to the conclusion that companies with more HR agility are far more inventive. Task agility and process innovation are highly correlated, especially when it comes to the latter. Furthermore, HR agility increases job satisfaction and employee motivation, which in turn promotes innovative behaviors and is likely the cause of the beneficial effect on innovation.

7. Implications

The implications of this paper are numerous. Firstly, the important research drivers were identified and compiled in this study. Second, as this analysis has shown, a variety of factors influence the agility of human resources, allowing organizations to create and implement strategies that lead to better adaptability in a rapidly changing environment. Significant ramifications could arise from this review for organizations that prioritize fostering employee confidence, refining strategies to gain a competitive edge, enhancing employee skills, and adapting to both internal and external shifts in the work environment. Similarly, when decision-makers within an organization are aware of these variables, they are more likely to implement and improve procedures that establish appropriate guidelines for formulating and carrying out successful decisions regarding agility.

Increasing the agility of human resources may also boost productivity and market competitiveness. Employers ought to think about putting HR agility tactics into practice, like offering chances for training and growth, fostering good communication, and enticing staff members to participate in decision-making. All things considered; our review has implications for policy for various stakeholders in various contexts. Companies may need to pay closer attention to variables that impact the agility of their human resources. To foster HR agility, HR professionals might need to make investments in employee training, foster an innovative culture, and support workplace flexibility. Regulators and policymakers should think about whether the rules and guidelines in place help or hinder HR agility. To gain a deeper understanding of HR agility, researchers might need to build new studies in different settings and carry out these.

8. Limitations

Scholarly literature on this subject is scarce, as was already mentioned. The topic is limited because of its novelty. The problem of viewing the subject through a limited lens arises from the fact that very few researchers have examined the influence of HR agility on innovative performance. The study's other restraint is that it was conducted only until 2022, which affects the data's accuracy. Subsequent research endeavors ought to expand the sample size to obtain supplementary data regarding the variables influencing human resource agility and innovative performance.

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supervision, MSA; project administration, MSA; funding acquisition, SAA. All authors have read and agreed to the published version of the manuscript.

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