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The moderating role of knowledge sharing between strategic flexibility and innovation: Applied study at pharmaceutical industrial sector in Jordan

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Abstract

This study aimed to explore to what extent the managerial leaderships in pharmaceutical industrial sector of Jordan practice the strategic flexibility, innovation and knowledge sharing. Also, it aims to investigate the impact of strategic flexibility on innovation through using knowledge sharing as a moderating variable. The researcher relied on analytical-descriptive method to achieve the objectives of the study. To collect data (250) questionnaires were distributed, out of which (210) were returned and analyzed using SPSS, with response rate (84%). The results of the study showed that the relative importance of strategic flexibility, knowledge sharing, and innovation practices in pharmaceutical industrial sector of Jordan was high. Also, the results revealed that there is a positive relationship and significant impact of strategic flexibility on innovation, also the results revealed that there is a significant effect of knowledge sharing on improving the effect of strategic flexibility on the innovation among managers of pharmaceutical industrial sector in Jordan.
Keywords: Strategic Flexibility, Innovation, Knowledge Sharing, Pharmaceutical Sector in Jordan.
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1. Introduction

Recently, organizations around the world are operating under uncertain, unstable, and rapid fast changing environment with multiple potential threats and opportunities (Aaker & Mascarenhas,1984). Therefore, organizations have to deal with this environment in different manner through enhancing and stimulating innovation (Shafi, et al.,2020). Because innovation is consider a very important element in achieving sustainability and competitiveness in global market (Kalmuk & Acar,2015), also, it is very essential to utilize the emerging opportunities which in turn lead to increase the performance of the organization(Brown & Eisenhard,1995), and it considers as a mean to adapt with changes that occurs in internal and external environment of the organization (Sanchez, et, al., 2011). Some researchers contended that strategic flexibility could be one of the prerequisites of innovation (Fan, et, al,.2013; Hitt et, al., 1998) . Strategic flexibility considers as one of the most modern paradigms and a critical component of any organization to deal with the environmental challenges and to achieve continuous adaptation with the dynamic environment, in comparing with the traditional strategic management paradigms (Aaker & Mascarenhas,1984). Many researchers have explored the impact of strategic flexibility on innovation, where, (Kamasak, et al.,2016) found that strategic flexibility played an important role in the relationship between the effectiveness of knowledge management and innovation performance in different industries in Turkey. While, (Beraha, et al.,2018) concluded that strategic flexibility have a significant role in product innovation. Whereas, the study of (Byun,2017) indicated that the knowledge that generated from new product development has a curvilinear relationship with strategic flexibility, whereas the utilization of loosely coupled sources has a positive relationship with strategic flexibility in the new ventures located in a large government-sponsored high-tech industrial district in the Yangtze River Delta in China. The study of (Giniuniene & Jurksiene,2015) supported the significant positive relationship between strategic flexibility and organizational innovation, also the results showed that resource flexibility has a positive relationship with product innovation, strategic flexibility has the highest impact on manufacturing innovation and has the least impact on process innovation, from the perspective of managers and staff of the cultural center of education (Ghalamchi) institute of Tran. In addition, many studies have explored the role of knowledge sharing in enhancing the innovation in organizations. For instance, (Kamasak and Bulutlar, 2010) found that knowledge collecting in various different industries in Turkey had a significant effect on the exploratory and exploitation innovation, while knowledge donating inside and outside the group did not have any impact on exploratory innovation. It also found that intergroup knowledge donating affected both exploitation and

exploratory innovations. Also, the study conducted by Akram, et al., (2018) revealed that both types of knowledge sharing (donating and collecting) have a positive significant impact on the innovation behavior of the employees working in telecommunication industry in China. Also, the study of Al Ahmad, et al,.(2020) concluded that knowledge sharing has a significant impact on process innovation and product innovation in Lebanese banking industry. In the same line, the study of Al-Husseine & Elbeltagi (2015) concluded that knowledge sharing has a significant impact on product innovation and process innovation in public and private higher education institutions in Iraq. However, Yesil et al.,(2013) do not support the relationship between knowledge sharing and innovation performance in Turkish organizations. Hence, the role of knowledge sharing needs more investigation.

Despite major advancement in knowledge concerning strategic flexibility and innovation in the last years, there is no studies available in Arab context that analyzing the impact of strategic flexibility on innovation through knowledge sharing as a moderating variable, where, many studies have examined the effect of strategic flexibility on innovation, which took place in different contexts in Europe, America, Asia, and Africa. And to the best knowledge of the researcher this linkage has not been explored in Arab context especially at pharmaceutical industrial sector in Jordan. Also, the previous literatures have ignored the role of knowledge sharing in enhancing the strategic flexibility to maintain innovation in pharmaceutical industrial sector in Jordan. As a result, there is evidently a great need for empirical research to investigate the impact of strategic flexibility on innovation through knowledge sharing as a moderating variable among managers of pharmaceutical industrial sector in Jordan.

2.Theoretical Background:

2.1. Strategic Flexibility:

The concept of strategic flexibility draws upon a wide number of diverse fields, where it has evolved from other disciplines such as strategy, management, marketing, entrepreneurship and operations (Herhausen, et, al.,2020). It seems that there is different definitions of strategic flexibility (Mackinnon, et, al.,2008). However, the literature shows that there are a number of perspectives to define the concept of strategic flexibility which are complement and related to each other, by being reactive and/or proactive (Herhausen, et, al.,2020). For example, from the reactive perspective, strategic flexibility has been viewed according to (Aaker & Mascarenhas,1984) as the ability of the organization to adapt with uncertain and fast environmental changes that have an important effect on organization's performance; also, Abbott & Banerji (2003) defined it as the ability of the organization to adapt and response with the surroundings environment, in a reversible manner , and to produce the suitable products, and to sell them at the right time, place and price; and Evans (1991) defined it as the ability of the organizations to respond and adapt successfully to environmental changes. While, according to the proactive perspective, where, (Sanchez,1995) proposed that the organization can achieve strategic flexibility through resource flexibility that can be used at a large range of alternative uses, without additional cost, and through coordination flexibility by configure and deploy resources through organizational structures; with the same line, Shimizu and Hitt (2004) defined strategic flexibility as the organization's capability to detect the most important changes that occur in the external environment of the organization, quickly allocate resources to new alternatives in response to those changes, and recognize and act quickly when it is time to halt or reverse existing resource allocation. While from the perspective of both reactive and proactive manner, (Sushil,2014) defined it as the proactive as well as reactive steps made by the organization to maintain internal and external change, by leveraging the vital and desirable aspects of the continuity of the organization in terms of core value, culture, core competence, and brand name. Successful organizations need strategic flexibility in a dynamic environment, to respond in a quick way to possible opportunities and threats (Shimizu & Hitt,2004), it is considered as an important instrument to achieve sustainability and competitive advantage (De Toni & Touchia,2005; Matthyssens et al.,2005; Harrigan,2016), also it is the most important driver of both customer-perceived service quality and customer-perceived value in turbulent environment.(Wang & Li-Hua,2007; Matthyssens et al.,2005), it is crucial for long-term success and growth of organizations, through addressing the current and future needs of customers. (Hatch & Zweig,2001), it may improves innovation by providing more flexible processes and structure.(Cingoz & Akdogan,2013). Also it helps organizations in achieving their strategic objectives (Awwad,2009). Vanderhaeghe & Treville (2003) indicated that the primary objective of the flexibility initiative is to increase customer satisfaction through increased product customization of dimensions. Abbott & Banerji (2003) indicted that the strategic flexibility enhances organization performance.

Some researchers indicated to the key drivers of strategic flexibility, where, Bock et al., (2011) referred to creativity, culture, organizational structure, portfolio of resources, strategic positioning and flexible capabilities;

While, Hitt et al., (1998) referred to the strategic leadership exercising, building dynamic core competencies, focusing and developing human capital, effectively using new manufacturing and information technology, employing valuable strategies and implementing new organization structure and culture.

The literature proposed a number of dimensions to measure strategic flexibility, in consistent with the objectives of current study, the researcher think that the most important dimensions of strategic flexibility are the following:

2.1.1. Resource flexibility:

Refers to the capability of the organizations to identify, acquire, and accumulate the flexible resources to make multiple alternatives in responding to competitive environment (Sanchez,1995).

2.1.2. Coordination flexibility:

Refers to the ability of the organizations to maintain flexible coordination of available resources to generate a new combination of resources (Sanchez,1995).

2.1.3. Information flexibility:

Refers to the organizations' ability to access the required information from information systems to immediate use, and it's potential to utilize the archival data as a source of information as an aid to analysis and decision making (Mackinnon et, al.,2008).

2.2. Innovation:

The term innovation is derived from the Latin word innovare, which refers "to renew or change" (Lin, 2006). Nowadays, it is constitute a central topic for business research (Hauser et al.,2006). Because, the rapid changes in external markets and technologies call for more frequent and faster innovations in different types of innovation (Robey,1986, 462).

Literature review distinguished between creativity and innovation, where, Amabile (1996) defined creativity as the production of novel and useful ideas in any domain, and the ideas must be different from what has been done before. Also, Amabile (1988) indicated that innovation is built on creative ideas as the basic elements, the ideas can be anything from ideas for new products, processes, or services within organization's line of business to ideas for new procedures or policies within the organization itself. Therefore, Amabile & Pratt (2016) defined innovation as the successful implementation of creative ideas within an organization, that linked to a socially positive system of values, morals, and ethics. Van De Ven,(1986) indicated that the usefulness of an idea can only be determined after the innovation process is completed and implemented.

The importance of innovation is numerous, where it is crucial for enhancing the quality and the process of products and enhancing organization efficiency. (Hauser et al.,2006). Moreover, for many organizations it is a critical element to adapt and sometimes even transform themselves in changing environment (Verdu-Jover et al., 2005), the new ideas in the innovation is considered as a way to solve the problems in a constructive manner (Van De Ven,1986). It is considered as a way of development and achievement of high performance and survival in the global economy.(Sattari & Mehrabi,2016). Innovation leads to achieve sustainable competitive advantage and total customer satisfaction (Ilic, et al,, 2014).

Through the in depth literature review the researcher concluded that there are different classifications for the types of innovation, where, Zhou & Wu (2010) proposed two types of innovation, exploitative innovation and explorative innovation. Van De Ven (1986) proposed four types of innovation: technical, product, process, and administrative innovations. According to (OECD,2005) innovation can be separated into four types: product innovation, process innovation, organizational innovation, and marketing innovation. Zhao (2005) referred to three kinds of innovation: incremental versus radical innovation, technological versus administrative innovation, and product versus process innovation.

In line with objective of this study the researcher relied on the following typology of innovation:

2.2.1. Product innovation:

Product innovation relates to the development a new product or to make a significant improvements in an existing product (OECD,2005). Developing new product is the most common type of innovation (Robey,1986, 462-463). Where it is very important to satisfy the changing needs and wants of the customers, and to face the

competitors (Srinivassn et, al.,2008). The extent of innovation in new products can be classified based on two dimensions: new-to-the company which measures the extent to which the new product introduction is innovative compared to the firm's existing product, and new-to-the market, which measures the extent to which the firm's new product is a new introduction to the market (Srinivassn et, al.,2008).

2.2.2. Process Innovation:

Process innovation is a systematic effort that includes ongoing changing in the manufacturing processes to maintain the needed improvements in terms of performance measures that encompass cost, quality, services, and speed. (Hammer & Champy,1993). Changes are made in the processes of transforming raw materials into products, as well as, other support processes and systems related to production planning, logistics, purchasing, administration, engineering, and management (Davenport & Short,1990). Process innovation encompasses technological innovation, changing work processes, material and information flows, or organizations' behavioral routines in factories. (Yamamoto & Bellgran,2013). It helps organization to achieve major reductions in process cost or time, or major improvements in quality, flexibility, service levels, or other business objectives.(Davenport,1993).

2.2.3. Marketing Innovation:

Marketing innovation refers to use the marketing mix in different and new manner including: product design or packaging, product placement, product promotion, and product pricing. (Joueid & Coenders, 2018). It plays an important role in the evolution of industries.(Chen,2006). It contributes to satisfy the customer's needs and wants, build a closer relationships and connections with customers to encourage them to promote the organization, penetration into new markets, improving the visibility level and presence of the product in the market as well as achieving large scale and sales of frequency.(Ilic et al.,2014).

2.3. Knowledge Sharing:

Knowledge is a key vital resource of any organization that contributes in achieving the sustainable competitive advantage of the organization (Voelpel & Han, 2005). A well-known classification of knowledge processes includes: knowledge discovering, knowledge capturing, knowledge sharing, and knowledge applying (Becerra-Fernandez & Sabherwal, 2010,56). Knowledge sharing is the core of knowledge processes, because of its critical impact on the growth of the organization. (Uriarte, 2008,1).

In general there are two major types of knowledge: explicit and tacit knowledge (Dalkir,2005,8). Explicit knowledge is formal and systematic, it can easily communicated in product specifications or a scientific formulas or a computer program. While, tacit knowledge is highly personal, that is not easily expressible, it is hard to formalize and, therefore, difficult to communicate to others (Nonaka,1991). The distinction between tacit and explicit knowledge suggests four basic patterns for creating and sharing knowledge in any organizations: socialization, externalization, combination, and internalization (Nonaka,1994). Knowledge sharing is the process of transferring both explicit and tacit knowledge to other people (Becerra-Fernandez & Sabherwal,2010,60). Knowledge can be shared by the organization with its employees through memos, also it can be occur between employees of the organization through group discussions and internal meetings, as well as with people outside of the organization through attending seminars and workshops. (Uriarte,2008,51)

According to Hoof & Ridder (2004) there are two dimensions of knowledge sharing, the first one is knowledge denoting, which refers to communicate your own intellectual capital to others, the second one is knowledge collecting, which refers to advising colleagues to share their intellectual capital.

There are many factors that foster knowledge sharing include employee motivation, organizational context, and information and communication technology applications. (Lin, 2007).

3. Goals of the Study:

This study has three main goals:

- Knowing the relative importance of application strategic flexibility, innovation, and knowledge sharing at pharmaceutical industrial sector in Jordan.

- To determine the impact and relationship between strategic flexibility and innovation at pharmaceutical industrial sector in Jordan.

- To determine if knowledge sharing fosters innovation and plays a moderating role between strategic flexibility and innovation at pharmaceutical industrial sector in Jordan.

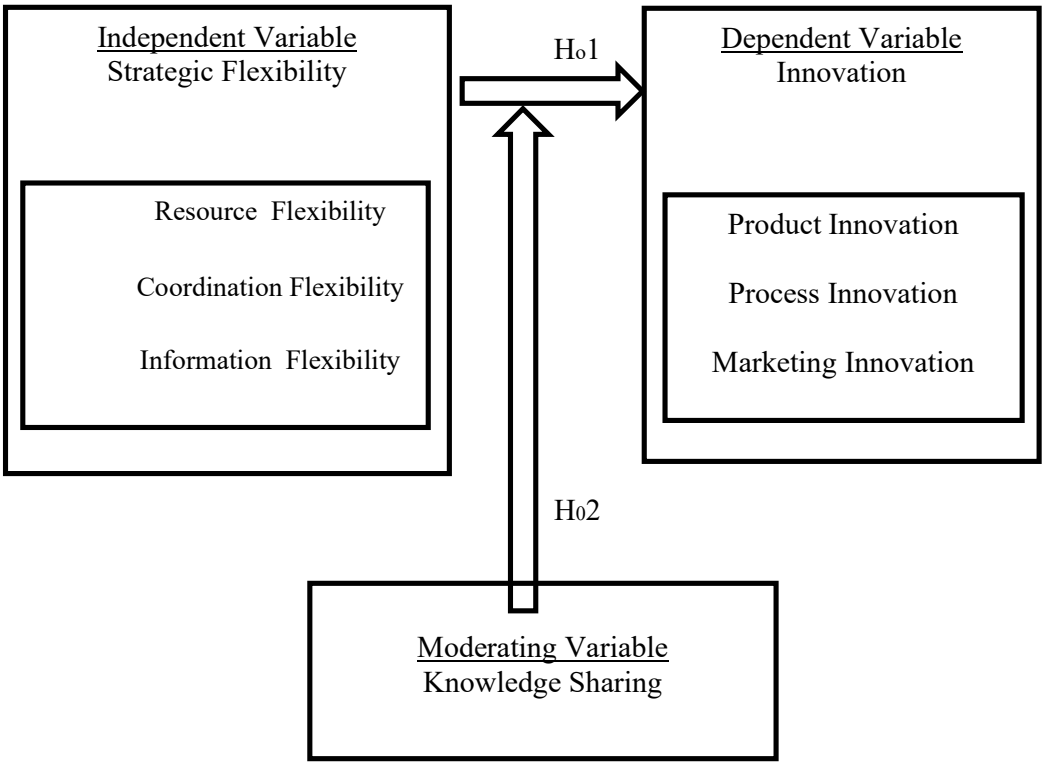
4. Research Model and Hypotheses:

Based on the problem and goals of the study, the following major hypotheses are established:

H01: There is no significant impact at the level ($\alpha \leq 0.05$) of overall strategic flexibility dimensions (resource flexibility, coordination flexibility, and information flexibility) on innovation (product innovation, process innovation, and marketing innovation) among managers of pharmaceutical industry in Jordan.

H02: There is no significant impact at the level ($\alpha \leq 0.05$) of strategic flexibility on innovation with the existence of knowledge sharing as a moderating variable among managers of pharmaceutical industry in Jordan.

Figure.1 Research Model



5. Methodology of the Study:

This study considered as an empirical research, used the analytical-descriptive approach. Books and papers were used to cover the theoretical part which is related to the strategic flexibility, innovation, and knowledge sharing, in addition to analyzing the data related to measuring the impact of independent variable on dependent variable through a moderating variable.

5.1. Population and Sample of the Study

The population of the study includes all the managers at different managerial levels, top, middle, and lower levels who worked in the (13) headquarters of pharmaceutical companies in Jordan. There were nearly (250) managers at various managerial levels. The researcher depends on comprehensive survey for all managers. Therefore, (250) questionnaires were distributed, out of which (210) were returned and analyzed using SPSS, with response rate (84%).

5.2. Measurement Scale:

To collect data a questionnaire was developed based on relevant literature and scales, the first measurement scale was strategic flexibility consists of three dimensions namely: resource flexibility, coordination flexibility and information flexibility, resources flexibility and coordination flexibility, was adapted from (Sanchez,1995;

Zhou & Wu,2010; Li et, al.,2011; Wei et, al.,2017), while, information flexibility was adapted from (Mackinnon et, al,. 2008). In regard, the second measurement scale innovation consists of three dimensions namely: product innovation, process innovation, and marketing innovation was developed and adapted from (Gunday et, al., 2011). And, the final variable knowledge sharing was developed and adapted from (Hoof & Ridder,2004), which includes two dimension: knowledge donating and knowledge collecting. With some modifications to set the scales according to Jordan culture in order to make them easily understandable for employees. The survey's answer options employed a five-point Likert-Scale, from (1) "strongly agree" to (5) "strongly disagree".

6. Results Analysis:

6.1. Validity and Reliability:

To test the validity of the instrument, five experts and scholars were asked to review the survey items to be consistent with Jordan environment and make sure the readability of questionnaire survey. Then, (20) questionnaires were randomly distributed, as a pilot study among managers at different levels at pharmaceutical industrial sector in Jordan to identify ambiguities in terms, easiness of the words, and relevance of items used in the survey instrument. Also, internal reliability of the survey instrument adapted was used and results of testing scale reliability are seen in table (1).

Table 1. Cronbach's Alpha

	Dimension	Number of items	Cronbach's Alpha
1	Strategic flexibility	20	0.866
1.1	Resource flexibility	7	0.745
2.1	Coordination flexibility	7	0.746
3.1	Information flexibility	6	0.718
2	Knowledge sharing	10	0.795
3	Innovation	22	0.835
1.3	Product innovation	7	0.737
2.3	Process innovation	8	0.785
3.3	Marketing innovation	7	0.764

As shown in table (1), the Cronbach's alpha values ranges from (.0718) to (0.866), which are all more than (0.60) (Sekaran & Bougie,2010,325). Therefore, all constructs demonstrate adequate reliability.

6.2. Description of the Study Variables:

Table.2 The relative importance of strategic flexibility, knowledge sharing, and innovation practices in pharmaceutical industrial sector in Jordan

Variables	means	Standard deviation	Rank	Relative importance
Resource flexibility	4.04	0.524	1	High
Coordination flexibility	3.95	0.523	3	High
Information flexibility	3.98	0.497	2	High
Knowledge sharing	3.92	0.474	5	High
Product innovation	3.94	0.538	4	High
Process innovation	3.95	0.524	3	High
Marketing innovation	3.87	0.502	6	High

According to table (2), we note that the overall average of strategic flexibility practices in terms of relative importance is high, where, resource flexibility value has come first with a general average (4.04), then, followed by information flexibility, and coordination flexibility, with a general average (3.98), and (3.95) respectively, as they all indicate of high relative importance. Also, the overall average of innovation practices in terms of relative

importance is high, where, process innovation was ranked first with an average (3.95), then, followed by product innovation and marketing innovation respectively with a general average (3.94) and (3.87), as they all indicate of high relative importance. Also, we note that the average of knowledge sharing practices in terms of relative importance is high, with a general average (3.92).

Table. 3: Results of VIF, Tolerance and Skewness tests

	Independent variables	VIF	Tolerance	Skewness
1	Resource flexibility	1.805	0.554	-0.739
2	Coordination flexibility	1.942	0.515	-0.818
3	Information flexibility	1.899	0.527	-0.697

Before conducting the multiple regression to test the hypotheses of the study, the study should be robust with to confirm that there is no high correlation between variable items, multicollinearity test, variance inflation factor, and tolerance test should be used, in addition to skewness coefficient is used to insure normal distribution of collected data. Table (3) shows that there is no multicollinearity between the variable items, because the values of (VIF) are (1.805, 1.942, 1.899) respectively, which are less than (10). In addition, the value of tolerance more than (0.05). Also, there is a normal distribution of the data since the value of Skewness coefficients is between (±1) (Sekaran & Bouge,2010,353)

6.3. Testing the Study Hypotheses:

To test the first hypothesis, the study used the multiple regression analysis, as seen in table (4).

Table.4: Results of multiple regression analysis to test the first hypothesis

Dependent variable	Model summary			ANOVA				coefficients			
	R	R^2	Adjusted R^2	F	DF		sig	β		T	sig
Innovation	0.722	0.522	0.515	75.294	Reg	3	0.000	Resource flexibility	0.301	4.667	0.000
					residual	207		Coordination flexibility	0.235	3.515	0.000
					Total	210		Information flexibility	0.301	4.546	0.000

The results from table (4) indicates that the correlation coefficient between the two variables strategic flexibility and innovation was (R=0.722) which indicates the positive and high relationship between the two variables, in addition to that, determination coefficient was (R^2=0.522) and it indicates that (52.2%) of the change in achieving innovation can be explained by the change in the strategic flexibility dimensions (resource flexibility, coordination flexibility, and information flexibility), with the stability of other variables. The impact of the independent variable (strategic flexibility dimensions) on the dependent variable (innovation) is statistically significant, where calculated F was (75.294), at the level (sig f= 0.000), which ensures the moral impact of the multiple regression. Also, the results analysis indicates that the adjusted R^2 was (0.515) which reflects the net level of concern in strategic flexibility dimensions after the get rid of standard errors resulted from innovation.

Also, the results of regression coefficients shows that the value of impact factor (β = 0.301, 0.235, 0.301) which is statistically significant at the level ($\alpha \leq 0.05$), where calculated T equal to (4.667, 3.515, 4.546), at the level (sig f= 0.000), for resources flexibility, coordination flexibility and information flexibility respectively. And, this indicate that if we increase the level of concern with strategic flexibility dimensions by one degree, it will leads to increase innovation by (0.301, 0.225, 0.301) for resources flexibility, coordination flexibility and information flexibility respectively.

Thus we reject the first hypothesis and accept the alternative hypothesis that says: There is significant impact at the level ($\alpha \leq 0.05$) of overall strategic flexibility dimensions (resource flexibility, coordination flexibility, and information flexibility) on innovation (product innovation, process innovation, and marketing innovation) among managers of pharmaceutical industry in Jordan.

Second hypothesis testing:

H02: There is no significant impact at the level (α≤0.05) of strategic flexibility on innovation with the existence of knowledge sharing as moderating variable among managers of pharmaceutical industry in Jordan.

To test the second hypothesis, Hierarchical Multiple Regression was used, and the results of analysis were introduced in table (5).

Table.5: Results of hierarchical multiple regression analysis to test the second hypothesis

Dependent variable	Independent variable	First model			Second model		
		β	T	Sig*	β	T	Sig*
Innovation	Strategic flexibility	0.271	15.054	0.000			
	Strategic flexibility × Knowledge sharing				0.562	5.323	0.000
	R	0.721			0.760		
	R^2	0.520			0.578		
	ΔR^2	0.520			0.058		
	ΔF	226.610			28.339		
	Sig ΔF	0.000			0.000		

The table (5) shows results of the Hierarchical Multiple Regression based on two models, where, the results of the first model reveals that the correlation coefficient (R=0.721) indicates the positive relationship between strategic flexibility and innovation, in addition to that, the results reveal the presence of the effect with statistical significance of the strategic flexibility on the innovation since F value = 226.610 with significance level (sig F = 0.000), which is less than (0.05), and the value of determination coefficient (R^2=0.520) and it indicates that (52%) of the change in innovation can be explained by the change in the strategic flexibility.

In the second step knowledge sharing variable was inserted in the regression model, where R^2 value increased by (5.8%), this percentage with statistical significant, since ΔF value = 28.339, and sig ΔF = 0.000 which is less than (0.05), and β = 0.562 at knowledge sharing and (t = 5.323) with sig = 0.000 this confirms the significance effect of knowledge sharing on improving the effect of strategic flexibility on the innovation, where the total variance explanation percentage improved by (5.8%) to raise from (52%) to (57.8%). So, we rejected the second null hypothesis and accepting the alternative hypothesis that says: There is significant impact at the level (α≤0.05) of strategic flexibility on innovation with the existence of knowledge sharing as moderating variable among managers of pharmaceutical industry in Jordan.

7. Discussion and Conclusion:

The main aim of this study is to identify to what extent the managerial leaderships in top, middle, and lower levels of pharmaceutical industrial sector in Jordan practice the strategic flexibility, innovation, and knowledge sharing. Also, it aims to explore the impact of strategic flexibility on innovation through using knowledge sharing as a moderating variable. The results of the study showed that the relative importance of strategic flexibility practices in pharmaceutical industrial sector of Jordan was high, which indicates that the managerial leaderships in pharmaceutical industrial sector of Jordan acknowledged the importance of resource flexibility, coordination flexibility, and information flexibility in achieving sustainable competitive advantage through reactive and proactive manner in dealing with uncertain environment. Also, the results of the study revealed that the innovation in terms of product, process, and marketing innovations have scored high levels of importance from the respondents' point of view, which indicate that the managerial leaderships in pharmaceutical industrial sector of Jordan recognized the importance of investing in innovations to achieve a positive outcomes such as enhancing organization efficiency, adapt with uncertain environment, high performance and survival in the global economy, and competitive advantage. Finally, the results concluded that the relative importance of knowledge sharing in terms of knowledge denoting and knowledge collecting have scored high levels of importance from the respondents' point of view, which indicates that the managerial leaderships in pharmaceutical industrial sector of Jordan recognized the importance of knowledge sharing in organizational survival. In regard to the second aim of the study, the results revealed that there is a positive relationship and

significant impact of overall strategic flexibility dimensions on product innovation, process innovation, and marketing innovation among managers of pharmaceutical industrial sector in Jordan. Which indicate that improving the level of strategic flexibility in pharmaceutical industrial sector of Jordan leads to enhancing the innovation, in terms of product innovation, process innovation, and marketing innovation. This result came consistent with the studies of (Kamasak, et al.,2016; Beraha, et al.,2018; Giniuniene & Jurksiene,2015). Also, the analysis of the second hypothesis revealed that there is a significant impact of knowledge sharing on improving the effect of strategic flexibility on the innovation among managers of pharmaceutical industrial sector in Jordan. Which indicate that the knowledge sharing in terms of knowledge denoting and knowledge collecting playing a significant role in enhancing the role of strategic flexibility on innovation in pharmaceutical industrial sector of Jordan.

8. Limitations and Recommendations:

There are a number of limitations of the current study, the first is that this study is limited to pharmaceutical industrial sector in Jordan, so, it may gain different findings when it is applied on other industries and other sectors, therefore, the researcher recommend to implement this study at different industries in addition to different sectors like trading sector, telecommunication sector and so on, to make a comparison between the results. The second limitation, the questionnaire was distributed to the managerial leaderships at top, middle, and lower levels whom worked at the head offices of pharmaceutical industrial sector in Jordan, hence, future research should empirically implement this linkage between strategic flexibility and innovation from the point view of subordinates.

References

Aaker, D. A. & Massarenhas, B. (1984). The need for strategic flexibility. *Journal of Business Strategy*, 5(2), 74-82.

Abbott, A., & Banerji, K. (2003). Strategic flexibility and firm performance: The case of US based transnational corporations. *Global Journal of Flexible Systems and Management,* 4(1+2), 1-8.

Akram, T. et al. (2018). Exploring the impact of knowledge sharing on innovative work behavior of employees: A study in China. *International Business Research*, 11(3),186-194.

Al Ahmad, S. et al. (2020). Knowledge sharing and innovation at the Lebanese banking industry. *BAU Journal-Creative Sustainable Development,* 1(2),1-21.

Al-Husseini, S., & Elbeltagi, I.(2015). The role of knowledge sharing in enhancing innovation: A comparative study of public and private higher education institutions in Iraq. *Innovations in Education and Teaching International*, 1-17.

Amabile, T. M. (1988). A model of creativity and innovation in organization's in research in organizational behavior, B. M. Stau & L. L. Cummings (eds), 123-167, Greenwich C T: AI Press.

Amabile, T. M. (1996). Creativity and innovation in organizations. *Harvard Business School*, 9,396-239.

Amabile, T. M., & Pratt, M. G. (2016). The dynamic componential model of creativity and innovation in organizations: Making progress, making meaning. *Research in Organizational Behavior*, 36, 157-183.

Awwad, A. S. (2009). The influence of strategic flexibility on the achievement of strategic objectives: An empirical study on the Jordanian manufacturing companies. *Jordan Journal of Business Administration*, 5(3), 415-431.

Becerra-Fernandez, I. & Sabherwal, R. (2010). Knowledge Management Systems and Processes. M.E. Sharpe, Inc., 80 Business Park Drive, Armonk, New York.

Beraha, A. et al. (2018). The effect of strategic flexibility configurations on product innovation. *European Journal of Management and Business Economics*, 27(2), 129-140.

Bock, A., Opsahi, T., & George, G. (2011). The effect of culture and structure on strategic flexibility during business model innovation. *Paper presented at Academy of Management*, San Antonio, USA, 1-38.

Brown, S. L., & Eisenhardt, K. M. (1995). Product development: Past research, present findings and future directions. *Academy of Management Review, 20,343-378.*

Byun, G.(2017). Strategic flexibility in new High-Technology ventures. *Journal of Management Studies*, 55(2), 265-294.

Chen, Y.(2006). Marketing innovation. *Journal of Economic and Management Strategy*, 15(1),101-123.

Cingoz, A. & Akdogan, A. A. (2013). Strategic flexibility, environmental dynamism, and innovation performance: An empirical study. *Procedia- Social and Behavioral Sciences*, 99, 582-589.

Dalkir, K. (2005). Knowledge Management in Theory and Practice. Elsevier Inc, Oxford, UK.

Davenport, T. & Short, J. E. (1990). The new industrial engineering: Information technology and business process redesign. *Sloan Management Review*, 31(4),11-27.

Davenport, T. H. (1993). Process innovation: reengineering work through information technology. Harvard Business School Press, Boston, Massachusetts.

De Toni, A., & Tonchia, S. (2005). Definitions and linkages between operational and strategic flexibilities. *The International Journal of Management Science*, 33, 525-540.

Evans, J. S. (1991). Strategic flexibility for high technology maneuvers: A conceptual framework. *Journal of Management Studies*, 28(1), 69-89.

Fan, Z., Wu, D., & Wu, X., (2013). Proactive and reactive strategic flexibility in coping with environmental change in innovation. *Asian Journal of Technology Innovating*, 21(2), 187-201.

Giniuniene, J., & Jurksiene, L. (2015). Dynamic capabilities, innovation and organizational learning: Interrelations and impact on firm performance. *Procedia Social and Behavioral Sciences*, 213, 985-991.

Gunday, G. et al. (2011). Effects of innovation types on firm performance. *International Journal of Production Economics*. 133(2), 662-676.

Hammer, M., & Champy, J. (1993). Reengineering the corporation: A manifesto for business revolution. Harper Business, New York.

Harrigan, K. R.(2016). Strategic flexibility and competitive advantage. Oxford Research Encyclopedia, Business and Management, USA: Oxford University Press.

Hatch, J. & Zweig, J. (2001). Strategic flexibility: The key to growth. *Ivey Business Journal,* 65(1), 4-44.

Hauser, J. et al. (2006). Research on innovation: A review and agenda for marketing science. *Marketing Science*, 25(6), 687-717.

Herhausen, D. et al. (2020). Re-examining strategic flexibility: A meta-analysis of its antecedents, consequences and contingences. *British Journal of Management*, 00, 1-21.

Hitt, M. A. et al. (1998). Navigating in the new competitive landscape: Building strategic flexibility and competitive advantage in the 21st century. *Academy of Management Executives*, 12(4), 22-42.

Hoof, B. V. D., & Ridder, J. A. (2004). Knowledge sharing in context: The influence of organizational commitment, communication climate and CMC use on knowledge sharing. *Journal of Knowledge Management*, 8(6),117-130.

Ilic, D. et al. (2014). The importance of marketing innovation in a new economy. *Singidunum Journal of Applied Sciences*, 11(1), 34-42.

Joueid, A. & Coenders, G. (2018). Marketing innovation and new product portfolios: A compositional approach. *Journal of Open Innovation*, 4(19),1-13.

Kalmuk, G., & Acar, A. (2015). The mediating role of organizational learning capability on the relationship between innovation and firm's performance: A conceptual framework. *Procedia-Social Behavioral Sciences*, 210, 164-169.

Kamasak, R., & Bulutlar, F. (2010). The influence of knowledge sharing on innovation. *European Business Review*, 22(3), 306-317.

Kamasak, R. et al. (2016). Importance of strategic flexibility on the knowledge and innovation relationships: An emerging market study. *Procedia Social and Behavioral Sciences*, 229, 126-132.

Lin, C-Y. (2006). A study on the organizational innovations in Taiwan's logistics industry. *The Business Review*, 5(1), 270-275.

Lin, H.F. (2007). Knowledge sharing and firm innovation capability: An empirical study. *International Journal of Manpower*, 28(3/4),315-332.

Li, Y. et al. (2011). Fast adaptation, strategic flexibility and entrepreneurial roles. *Chinese Management Studies*, 5(3), 256-271.

Mackinnon, W. et al. (2008). Enterprise information systems and strategic flexibility. *Conference in 1st Hawaii International Conference on Systems Science*, Proceedings 7-10 Jan 2008, Waikoloa, Big Island, HI, USA.

Matthyssens, P. et al. (2005). Strategic flexibility, rigidity and barriers to the development of absorptive capacity in business market: Themes and research perspectives. *Industrial Marketing Management,* 34, 547-554.

Nonaka, I. (1991). The knowledge-creating company. *Harverd Business Review.* 69(6), 96-104.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1), 14-37.

OECD. Oslo Manual, 3rd ed., Guidelines for collecting and interpreting technological innovation data, OECD: Paris, France, 2005

Robey, D. (1986). Designing organizations. (2nd ed) , Richard D. IRWIN, INC., USA.

Sanchez, A. et al. (2011). Innovation management practices, strategic adaptation, and business results: Evidence from the electronics industry. *Journal of Technology Management and Innovation*, 6(2), 14-38.

Sanchez, R. (1995). Strategic flexibility in product competition. *Strategic Management Journal*, 16, 135-159.

Sattari, B., & Mehrabi, J. (2016). Model of marketing innovation strategies in international entrepreneurship: A global business environment. *Asian Social Science,* 12(10), 76-91.

Sekaran, U. & Bougie, R. (2010). Research Methods for Business: A Skill Building Approach (5th ed). New York: John Wiley & Sons Inc.

Shafi, M. et al. (2020). The effects of transformational leadership on employee creativity: Moderating role of intrinsic motivation. *Asia Pacific Management Review*, 25(3), 166-176.

Shimizu, K., & Hitt, M. A. (2004). Strategic flexibility: Organizational preparedness to reverse ineffective strategic decisions. *Academy of Management Executive,* 15(4), 44-59.

Srinivasan, S. et al. (2008). Product innovation, advertising and stock return. *Journal of Marketing***,** 73(1), 24-43.

Sushil. (2014). Managing continuity and change for strategic performance. *Global Journal of Flexible Systems Management*, 14(4), 275-279.

Uriarte, F. A. (2008). Introduction to knowledge management. ASEAN Foundation, Jakarta, Indonesia.

Vanderhaeghe, A., & Treville, S. (2003). Losing the fight with flexibility: The Xygma plant. *An International Journal***,** 4(1), 64-73.

Van De Ven, A. H. (1986). Central problems in the management of innovation. *Management Science*, 32(5),590-607.

Verdu-Jover, A. J. et al. (2005). Flexibility, fit and innovative capacity: An empirical examination. **I***nt. J. Technology management,* 30(1/2), 131-146.

Voelpel, S.C. & Han, Z. (2005). Managing knowledge sharing in China: The case of Siemens Share Net. *Journal of Knowledge Management***.** 9(3), 51-63.

Wang, Y. & Li-Hua, R. (2007). Marketing competencies and strategic flexibility in China. Palgrave Macmillan, Houndmils, Basingstoke, Hampshire, New York, N.Y.

Wei, Z., Yi, Y., & Guo, H. (2014). Organizational learning ambidexterity, strategic flexibility, and new product development. *J Prod Innov Manag*, 31(4), 832-847.

Yamamoto, Y., & Bellgran, M. (2013). Four types of manufacturing process innovation and their managerial concerns. *Procedia CIRP*,7, 479-484.

Yesil, S. et al. (2013). Knowledge sharing process, innovation capability and innovation performance: An empirical study. *Procedia- Social and Behavioral Sciences***,** 75, 217-225.

Zhao, F. (2005). Exploring the synergy between entrepreneurship and innovation. *International Journal of Entrepreneurial Behavior and Research*, 11(1),25-41.

Zhou, K.Z. & Wu, F. (2010). Technological capability, strategic flexibility, and product innovation. *Strategic Management Journal*, 31, 547-561.