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Dynamic Capabilities and Their Impact on Risk Management: Evidence from Jordan

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Abstract

The study aimed to identify the impact of dynamic capabilities by its dimensions (sensing capability, learning capability, integration capability, coordination capability, and reconfiguration capability) on risk management by its combined dimensions (risk identification, risk assessment, risk response, and risk monitoring) at Jordan Food and Drug Administration (JFDA). A survey was used for the study population which consisted of (163) employees in supervisory positions at all administrative levels in JFDA. The electronic questionnaire was adopted as a tool for collecting data, and (146) valid questionnaires for statistical analysis were retrieved. This study found a significant impact of dynamic capabilities by their dimensions on risk management at JFDA, and also it found a significant impact of dynamic capabilities on each dimension of risk management. The results also indicated that the level of dynamic capabilities was high. On the other hand, integration and coordination capabilities had a medium level while risk management became at high levels.

This study recommended enhancing benchmarking with international and regional institutions, encouraging knowledge exchange, and leveraging external experiences in risk management. It also emphasized the need for increased attention to integration and coordination capabilities, suggesting ongoing efforts to enhance them by providing support and resources. Furthermore, the study advocated for a collaborative work environment, with clear mechanisms for coordination and integration among different directorates, aiming to prevent task duplication through the establishment of coordination committees.

Keywords: Dynamic Capabilities, Risk Management, Jordan Food and Drug Administration (JFDA).

Introduction

The pace of change in various markets has accelerated due to globalization and technological advancements. Organizations must keep up with these increasing changes and continuously respond to them to meet customer needs, enter new markets, develop their businesses, and utilize new resources to gain a competitive advantage (Al-Qarm & Alkashali, 2022). Teece et al (1997) argue that dynamic capabilities enhance an organization's ability to integrate, build, and reshape internal and external competencies to deal with rapidly changing environments. This includes managers' ability to adapt and continually reallocate the organization's resources through continuous acquisitions and the exploitation of new knowledge to achieve organizational effectiveness. Organizations can possess dynamic capabilities through sensing and learning from their surrounding environment, focusing on coordination, integration, and merging capabilities to address challenges and achieve organizational success (Taqi et al., 2021).

Risk management helps deal with sudden changes, especially after the Industrial Revolution, by using modern methods to handle risks and by using a dynamic approach and a formal framework for assessing integrated risks. This reduces the level of risks and organizational responses to these risks in a volatile environment. Risk management enables organizations to continuously assess the level of risks and identify key internal or external resources to overcome and reduce risks, thus improving the quality of work in organizations by achieving their goals and differentiation. It allows business managers and employees to make sound decisions that benefit the organization and help avoid negative outcomes. It also enables management to develop strategies to ensure that businesses can deal with various challenges (Darskuviene et al., 2021; Karim et al., 2022).

JFDA is a regulatory body responsible for protecting and promoting public health through the regulation and supervision of food safety, tobacco products, dietary supplements, medical drugs, medical equipment, and cosmetics. Due to the importance of its regulatory role, the organization needs to stay updated on emerging risks to carry out its tasks efficiently and effectively. This study aims to investigate the impact of dynamic capabilities on risk management at JFDA.

This study evaluates the impact of dynamic capabilities at the JFDA and provides decision-makers with valuable insights and recommendations related to dynamic capabilities. Risk management is a crucial tool in helping the organization address issues arising from risks and how to manage them effectively, thus reducing potential threats and their consequences. Additionally, the study underscores the significance of the JFDA as a reference service institution that ensures safe food and Drugs by guaranteeing the safety and quality of food and the efficacy of Drugs.

Literature Review

Dynamic Capabilities

The concept of dynamic capabilities was first introduced in 1997 in an article by Teece et al. It was defined as a strategic capability of an organization that enables it to integrate internal and external competencies and address dynamic environments and periods of rapid change.

Dynamic capabilities refer to an organization's ability to adapt to changes in the business environment, explain the sources of competitive advantage over time, and provide guidance to managers to avoid the profitless scenario that occurs when homogeneous

organizations compete in perfectly competitive markets, making this capability more tangible (Endres, 2018, 3).

Hanan and Hamed (2019) defined dynamic capabilities as a set of capabilities possessed by an organization that enables it to sense its external environment, modify and expand its information and knowledge base, and achieve integration and coordination among all its activities and resources. This, in turn, reflects and affects the reshaping of its current capabilities and their development to align with changes in its environment.

Agwunobi and Osborne (2016) added that dynamic capabilities are uncommon abilities among organizations, consisting of combinations of routines, organizational structures, and assets that lead to continuous competitive advantages.

From authors view dynamic capabilities as an organization's ability to scan, integrate, build, and reconfigure its internal and external competencies to address challenges related to the changing environment. They help organizations achieve their strategic goals aimed at increasing their competitive advantage. Dynamic capabilities are an integrated mechanism through which an organization's resources work cohesively and harmoniously to create a driving force that generates added value for the organization, enabling it to monitor and respond to environmental changes adeptly and distinctly.

Dynamic Capabilities Dimensions

The authors have adopted five dimensions to measure dynamic capabilities in this study, as follows

Sensing Capability: Teece (2018) defined sensing capability as an organization's ability to conduct external environmental scanning, and gather unstructured information and data, which are then processed by the organizational system to identify threats and opportunities (such as latent customer demand, technological possibilities, and competitor behaviors) that may impact the organization's future. Amari (2022) also defined it as the ability to sense the external environment and understand customer needs and market dynamics better than competitors. Sensing represents an organization's ability to observe changes in the environment. Organizations build their sensing capability by creating monitoring processes for the current and future business environment, regularly interpreting collected information, filtering relevant parts, and this activity involves not only investing in research activities but also in understanding latent demand, structural industry, and market developments, and potential responses from suppliers and competitors.

From authors view sensing capability as the organization's actions to discover developments and changes in its surroundings, monitor opportunities in its environment, and identify the needs of its customers and competitors' capabilities through the scanning of both internal and external environments. It also involves an emphasis on research and renewing its resources to address environmental changes. This process includes finding information, disseminating it, and ultimately responding to this information by encouraging innovation and exploring opportunities.

Learning Capability: Organizational learning refers to an organization's ability to acquire, absorb, transform, and share knowledge generated during joint activities with stakeholders and interactions among stakeholders. Adaptive and routine procedures are developed to integrate and record this knowledge into organizational practices and processes (Dentoni et al., 2016). Learning also focuses on translating knowledge and skills during coordination and

communication in internal capabilities, seizing opportunities through developing and managing service delivery with stakeholders (Zhan et al., 2023).

Al-Hilah et al (2020) defined it as the ability to renew current operational capabilities with new knowledge. It requires organizations to absorb new knowledge, utilize existing knowledge, and employ it to enhance overall performance. It also entails encouraging and motivating employees to acquire new information and knowledge and make use of organizational memory and employees' cognitive resources to face environmental changes and respond to their requirements.

From the author's perspective, learning is a process of repetition and experimentation that enables the organization to perform tasks more effectively by building and acquiring new knowledge, disseminating it throughout the organization, and working to renovate its operational capabilities with new knowledge. Learning represents the ability to improve the behavior and capabilities of employees, allowing the organization to respond effectively to its environment and find more responsive and effective implementation methods.

Integration Capability

Integration is the process of acquiring, absorbing, and developing new resources, such as acquisitions or alliances, to gain access to technology for creating new procedures or patterns of practices within the organization (Wall, 2010). Gonzalez (2022) indicates that integration is the degree to which different agents' activities in the organization can be coordinated through formal mechanisms to achieve common goals and purposes. During times of increased competitiveness and dynamic environments, organizational performance relies on high levels of differentiation and the integration of activities.

Al-Hajjim and Al-Salman (2021) defined integration capabilities as the efficiency an organization possesses to acquire available resources, combine them, and then deploy them to achieve the organization's management visions. It also involves incorporating new capabilities and linking them with existing resources and capacities within the organization. To achieve a competitive advantage, organizations must leverage the knowledge capabilities stored within their employees.

The authors believe that integration emphasizes the interconnectedness of different elements. It involves unifying or developing various components, systems, or entities uniformly and cohesively. It entails bringing together diverse parts or processes to create synergy, simplify operations, and achieve seamless collaboration. Key features of integration capabilities include system integration, process integration, data integration, inter-organizational integration, and cross-functional integration.

Coordination Capability

Coordination capability is the amalgamation of organizational efforts from different functional groups to maintain individual alignment toward achieving the organization's common objectives. It serves as the linchpin responsible for integrating the functions of management. Through it, a good relationship is maintained between organizational and individual objectives (Ayesh, 2021). Coordination capabilities are considered important managerial activities, and their significance increases as an organization's scope of work expands and its activities and events overlap with each other. Top management needs to create alignment between the activities of its organizational units in a way that ensures goal achievement and the ability to work collectively harmoniously and in a common language.

Coordination capabilities and integration capabilities are theoretically and experimentally different. Coordination capabilities focus on organizing the activities and tasks performed by individuals, while integration capabilities focus on building a collective general sense (Majeed & Ahmed, 2022). Coordination is the process of linking different parts of the organization, whether they are systems or market participants, to achieve a collective task. This process underscores the importance of managing communications, especially regarding partners like customers and suppliers (Bayón et al., 2021).

From the author's perspective, coordination capability focuses on the effective management of activities and resources to ensure consistency and alignment among different parts of the organization. This entails synchronizing efforts and creating effective communication channels and information flow among different units or stakeholders to ensure mutual understanding, activity coordination, and conflict resolution or dependencies to achieve common goals. Coordination capability emphasizes the efficient management of activities and resources, emphasizing harmony, cooperation, and activity coordination, while integration capabilities involve the merging of diverse components or entities and combining them to create a unified and interconnected entity.

Reconfiguration Capability

The capability to reconfigure is, in itself, an acquired organizational skill, and the more frequently it is practiced, the easier it becomes to achieve. Change is costly, so organizations must develop their processes to minimize change with a low return. The ability to assess the environmental landscape, evaluate markets and competitors, and quickly accomplish reconfiguration and transformation before the competition depends on the ability to scan the environment. Organizations with reconfiguration capability are characterized by their high flexibility (Dosi et al., 2001).

Reconfiguration capability refers to an organization's ability to reconfigure its resources, capabilities, or organizational structure to respond and adapt to changing market conditions or opportunities. These capabilities include adjusting, integrating, or redeploying existing assets or current capabilities to create new offerings or valuable competitive advantages (Sirmon et al., 2007). The capability to reconfigure organizational resources allows organizations to develop new capabilities and, thus, leads to a broader range of management options. There are two possibilities for doing this: first, existing knowledge can be reconfigured by abstracting it and engaging with it in a different context; second, new knowledge can be generated by assimilating it (Cordes-Berszinn, 2013).

The authors believe that reconfiguration capability is the ability that enables the development, renewal, and coordination of resources and competencies within the organization to align with the changing environmental requirements. It involves transforming the organization's structure, processes, resources, and strategies to efficiently respond to evolving internal and external conditions. Reconfiguration involves continuously changing resources and routines to improve efficiencies and make constant enhancements to meet the organization's needs, ultimately benefiting the organization. Reconfiguration capability empowers organizations to proactively adapt to evolving environments, leverage emerging trends, and maintain a competitive edge.

Risk Management

Risks, as defined in the International Standard ISO 31000:2018, are the effect of uncertainty on objectives. The standard also defines risk management as the coordinated

activities to direct and control an organization concerning risks. The risk management framework is a set of components that provide the foundations and organizational arrangements for designing, implementing, monitoring, reviewing, and continually improving risk management throughout the organization. Risk management is the systematic application of management policies, procedures, and practices to communication, consultation, context setting, risk identification, risk analysis, risk evaluation, risk treatment, monitoring, and review.

Risk management is the process of identifying and implementing measures to reduce risks to an acceptable level (Molak, 1997). It also involves understanding and analyzing risks to ensure organizations achieve their objectives. This process must be tailored to the specific organization and its complexity. It involves coordinated activities to guide and control the organization through the use of risk management tools. The goal is to make the right choices to help the organization achieve its future objectives (Al-Duwaikhi, 2022). Some view risk management as a systematic approach to all potential risks before they occur, putting in place measures to avoid, minimize their impact, or deal with them (Bani Abdo & Al-Khawaldeh, 2022).

Risk management is an ongoing process of identifying, analyzing, evaluating, and controlling risks to mitigate the negative effects of potential loss consequences. The primary objectives of this process include cost and time containment, particularly in extreme cases (Saeed, 2018).

In summary, risk management involves identifying, evaluating, and prioritizing risks to reduce or mitigate potential negative impacts on the organization. This entails systematically analyzing and evaluating potential risks, establishing strategies for managing or reducing those risks, and monitoring and reviewing the effectiveness of these strategies. Risk management aims to proactively identify and address potential threats and opportunities, enabling organizations to take appropriate actions and decisions to protect their interests by implementing effective risk management practices, thereby reducing the likelihood and severity of risks and enhancing their ability to respond to unexpected situations.

Risk Management Dimensions

Four dimensions have been adopted for measuring risk management in this study, as follows

Risk Identification

Risks are identified through the definition of the problem or problems. This stage involves sorting and identifying risks related to tasks. Various methods can be used for this purpose. Some are related to exposure to previous risks in other organizations, while others involve linking risks that hinder the organization from achieving its goals. Additionally, scenarios can be developed by experienced personnel, and international standards can be utilized (Al-Anzi, 2020).

Risk identification is a process that must be regularly conducted as part of risk management to mitigate potential risks. Various methods can be used to identify risks, such as risk review checklists (including expected outcomes, design and implementation errors, omissions, environmental conditions, cost estimates, and implementation deadlines), document analysis in the archives to uncover recurring problems, and utilizing the knowledge of employees directly involved, whether they are department heads, teams, or designating someone responsible for identifying external hazards such as fundamental changes in legislation, economic changes, and technology (Pop et al., 2022).

The authors consider risk identification a crucial step in the risk management process, involving the proactive identification, documentation, and understanding of potential risks that could impact the organization. By identifying risks proactively, effective strategies can be developed for mitigation or response. This process is continuous, and as activities progress or conditions change, new risks may emerge, and current risks may evolve. Therefore, it is essential to regularly review and update the risk identification process.

Risk Assessment

Risk assessment is the process of understanding the nature and severity of risks. This process requires risk management authorities to interpret risk sources appropriately and systematically. They also need to determine the consequences and the probability of risks occurring. This process is carried out even during emergencies, and each operation is evaluated separately (Penney, 2019).

Risk assessment includes identifying the relationships and implications between system variables. It also involves studying alternatives, comparing them, and establishing priorities based on the results of risk analysis (Parviainen et al., 2021). Risk assessment can be quantitative or qualitative. Qualitative assessment involves determining the probability of risks, impact, urgency, and/or recurrence, and detectability, and/or urgency using relative non-numerical values (e.g., high, medium, low). Quantitative assessment involves determining the probability of risks and/or impact, urgency, recurrence, detectability, and/or emergency using numerical values (Pritchard, 2015).

The authors believe that risk assessment is a systematic process of identifying, analyzing, and assessing risks or potential hazards associated with an activity, process, or situation. It includes evaluating the probability of a harmful event occurring and the potential consequences or effects it may entail. This analysis often considers factors such as historical data, scientific studies, expert opinions, and quantitative or qualitative assessments. The results of the analysis are then used to assess the level of risk associated with each specific hazard, taking into account the significance of potential outcomes, the likelihood of their occurrence, and any existing control measures. This helps organizations and individuals make informed decisions, allocate resources effectively, and implement measures to proactively manage risks.

Risk Response

Risk response is the process through which an organization develops its options and actions to enhance its opportunities to achieve its goals and reduce its threat potentials. This phase includes the assignment of responsible parties for all agreed-upon risk responses. These responses should be proportional to the significance of the risks, defined within an appropriate timeframe and cost agreement with relevant stakeholders within the organization (Samaqia & Ta'ata, 2014).

Risk response depends on assessing the exposure to potential risks and the acceptable tolerance level. It reflects the organization's ability to accept risks based on the estimated exposure level and the controls currently in place wherever possible. It also involves reducing risks through additional mitigation to align them with the desired tolerance levels (Hopkin, 2019).

Responding to risks is a critical element in risk management and involves taking appropriate actions to address and mitigate identified risks. The goal of risk response is to reduce the potential negative effects of risks and increase the chances of positive outcomes.

This is achieved by following various strategies used by organizations based on comprehensive risk analysis. These strategies should consider the potential impact of risks, the cost-effectiveness of response measures, and organizational objectives. These strategies may need to be adjusted and refined as new risks emerge or circumstances change. The strategies include avoidance by eliminating risks, mitigation by taking actions to reduce the likelihood or impact of risks, transfer by transferring risk responsibility to another party, acceptance when it is deemed the best course of action to accept the risks and their potential consequences, and exploitation when certain risks offer opportunities for gains or competitive advantages.

Risk Monitoring

Risk monitoring is defined in the International Standard ISO 31000:2018 as the continuous examination, surveillance, critical observation, or state determination to identify changes from the required or expected performance level. It includes evaluating the quality of the control and surveillance system over time, ensuring that control covers all activities effectively (Ali, 2020).

Risk monitoring is also known as the final stage of risk management. It focuses on identifying and examining newly emerging risks, verifying both identified and listed risks, re-evaluating existing risks, and monitoring the remaining risks. The risk response process involves assessing the specific risk response's implementation, monitoring the identified risks, discovering and evaluating new risks, and assessing the effectiveness of risk management. This process is ongoing throughout the organization's life, involving tracking identified risks, recording them, and checking them against new developments. It also includes ensuring the effectiveness of the risk response plans, evaluating their adequacy, and refining them as necessary (Gyamfi et al., 2022).

From the authors perspective risk monitoring as an ongoing process throughout the organization's life. It involves tracking identified risks, monitoring them, identifying new risks, and assessing the effectiveness of risk management. This process provides information that aids in making informed decisions before risks occur. The purpose of risk monitoring is to determine whether risk responses have been implemented as planned, whether risk response actions are effective, and whether new risk responses need to be developed. Monitoring risk exposure compared to the previous state with trend analysis, following appropriate policies and procedures, or addressing risks that have not been previously identified may also be part of risk monitoring. It may include selecting alternative strategies or implementing emergency plans or corrective actions. The person responsible for risk response should provide periodic reports to senior management and the risk team regarding the plan's effectiveness, any unexpected impacts, and any mid-course corrections needed to mitigate risks.

The Relationship between Dynamic Capabilities and Risk Management

The authors observed a scarcity in the literature that has linked dynamic capabilities to risk management. Few studies have explicitly or implicitly addressed the relationship between dynamic capabilities and risk management, utilizing tools such as the Dynamic Response Map (CDRM) model. Developed by Arena et al (2013), the CDRM model demonstrates an innovative approach by using dynamic capabilities proactively in risk management to achieve tangible results (Adam & Lindahl, 2019).

Risk management has been identified as a dynamic capability critical for organizations operating in turbulent environments. Nair et al (2014) highlighted that organizations with

superior risk management capabilities may face greater complexity, but they gain a dynamic advantage during crises. The study emphasized that risk management is increasingly crucial for organizations facing rapid changes, intense competition, and high-speed environments.

To enhance the institutional risk management theory, a perspective based on resources and dynamic capability was introduced. The concept of risk management capabilities was proposed as an explanation for an organization's resilience in facing risks. This approach enables organizations to deal with unexpected events from a dynamic capability perspective. Dynamic capabilities are essential for continuous reassessment, allowing organizations to prioritize institutional risk management and effectively manage risks as an integral part of dynamic capabilities, facilitating adaptability in turbulent environments (Bongodistov & Wohlgemuth, 2017).

Study Hypotheses and Model

Based on the above, the following hypotheses have been formulated:

H_1: There is a significant impact at ($\alpha \leq 0.05$) of dynamic capabilities by their dimensions (sensing capability, learning capability, integration capability, coordination capability, and reconfiguration capability) on risk management at JFDA.

H_2: There is a significant impact at ($\alpha \leq 0.05$) of dynamic capabilities on risk identification at JFDA.

H_3: There is a significant impact at ($\alpha \leq 0.05$) of dynamic capabilities on risk assessment at JFDA.

H_4: There is a significant impact at ($\alpha \leq 0.05$) of dynamic capabilities on risk response at JFDA.

H_5: There is a significant impact at ($\alpha \leq 0.05$) of dynamic capabilities on risk monitoring at JFDA.

Based on the study hypotheses, was designed (Figure 1)

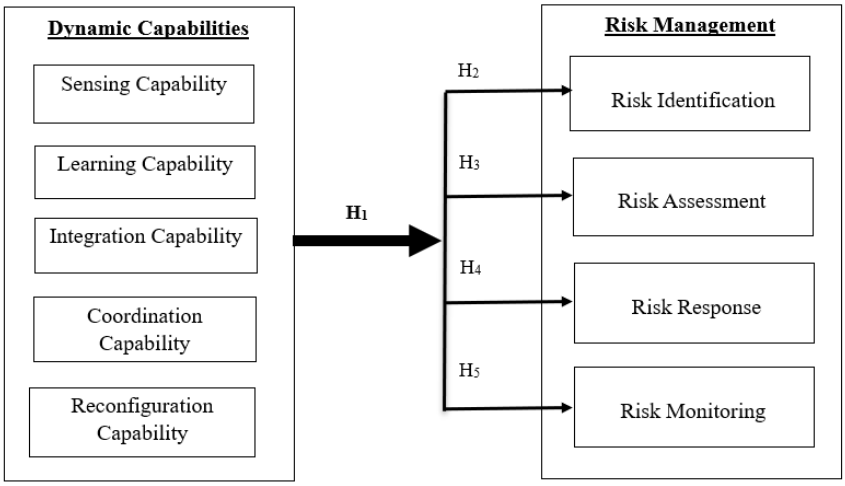

Figure 1
Study Model

Method

Study Population

The study population comprises employees in supervisory positions at all administrative levels within the JFDA, totaling 163 individuals (according to the Human Resources Directorate in JFDA, 2023). The electronic questionnaire was distributed to all members of

the study population, and (146) questionnaires were retrieved, representing a response rate of (89.57%) of the distributed surveys.

Study Tool

An electronic questionnaire was used to collect data on dynamic capabilities and risk management at JFDA. The survey consisted of three sections:

Section One: Personal and professional characteristics of the study sample, including gender, age, educational qualifications, and years of experience.

Section Two: Paragraphs related to the independent variable represented by dynamic capabilities and their dimensions. This section of the questionnaire was developed based on the following studies: (Al-Hilah et al., 2020; Garrido et al., 2020; Wilden et al., 2013; Pang et al., 2022; Pavlou & El Sawy, 2011; De Souza Santos & De Padua, 2023; Oliveira-Dias et al., 2022; Aminu & Mahmood, 2015; Valle & Sarturi, 2022; Karman & Savaneviciene, 2021).

Section Three: Comprised paragraphs related to the dependent variable represented by risk management and its dimensions. This section of the questionnaire was developed based on the following studies: (Khader & Youssef, 2018; Bani Abdo & Al-Khawalda, 2022; Bakoush & Boghazi, 2022; Ghazlan, 2022; Diop & Zreika, 2015; Al-Fawaz et al., 2016; Al-Rawashda & Al-Shura, 2023; ISO 31000:2018).

Results

Table (1) indicates the results of the descriptive analysis of the items through which the dimensions of the independent variable and the dependent variable were measured. The table also included Cronbach's alpha reliability values, where a ratio of 0.70 was adopted as the minimum percentage that can be accepted for the reliability of the scale, and the mean values were considered 1 - less. From 2.34 is a low level, 2.34 is less than 3.67 is an average level, and 3.67-5 is a high level.

The results in Table (1) show that all items of the questionnaire have good internal consistency and reliability, with Cronbach's alpha values exceeding 0.70. Regarding the mean values, which indicate the importance level of the dimensions of dynamic capabilities, they were high for sensing capability, learning capability, and reconfiguration capability, with the highest being sensing capability at 3.84. In contrast, the importance level for integration capability and coordination capability was moderate. Overall, the importance level for dynamic capabilities was high. As for the importance level of risk management dimensions, all were high, with risk assessment being the highest at 3.83.

Table 1

Descriptive Analysis Results for Study Items

Variable	Items	Alpha	Mean	Std. deviation
Sensing capability	6	0.873	3.84	0.61
Learning capability	6	0.901	3.81	0.73
Integration capability	6	0.860	3.65	0.71
Coordination capability	6	0.931	3.34	0.91
Reconfiguration capability	6	0.903	3.78	0.69
Risk identification	6	0.892	3.73	0.72
Risk assessment	6	0.921	3.82	0.71
Risk response	6	0.920	3.70	0.72
Risk monitoring	6	0.946	3.73	0.75

The multiple regression coefficient was employed to test all hypotheses, H_1-H_5. The results are presented in the following table:

Table 2
Hypothesis Testing Results

	Model Summary		ANOVA			Coefficient					
	R	R^2	F	DF	Sig.	Statement	B	Std. error	β	T	Sig.
H_1: *Impact of Dynamic Capabilities on Risk Management*	0.89	0.79	104.28	5	0.00	Sensing capability	0.06	0.08	0.06	0.79	0.43
						Learning capability	0.04	0.08	0.05	0.54	0.59
						Integration capability	0.12	0.08	0.13	1.53	0.13
						Coordination capability	0.16	0.06	0.21	2.50	0.01
						Reconfiguration capability	0.49	0.08	0.51	6.33	0.00
H_2: *Impact of Dynamic Capabilities on Risk Identification*	0.91	0.82	127.12	5	0.00	Sensing capability	0.18	0.08	0.15	2.28	0.02
						Learning capability	-0.09	0.08	-0.96	-1.26	0.21
						Integration capability	0.05	0.08	0.05	0.68	0.50
						Coordination capability	0.29	0.06	0.37	4.73	0.00
						Reconfiguration capability	0.50	0.08	0.48	6.51	0.00
H_3: *Impact of Dynamic Capabilities on Risk Assessment*	0.76	0.58	37.84	5	0.00	Sensing capability	0.02	0.12	0.2	0.17	0.87
						Learning capability	-0.06	0.11	-0.06	-0.52	0.61
						Integration capability	0.23	0.12	0.23	1.89	0.06
						Coordination capability	0.09	0.09	0.12	0.97	0.33
						Reconfiguration capability	0.51	0.12	0.50	4.38	0.00
H_4: *Impact of Dynamic Capabilities on Risk Response*	0.83	0.69	61.90	5	0.00	Sensing capability	-0.04	0.11	-0.04	-0.40	0.70
						Learning capability	0.11	0.10	0.11	1.08	0.28
						Integration capability	0.08	0.10	0.08	0.77	0.44
						Coordination capability	0.15	0.08	0.18	1.78	0.08
						Reconfiguration capability	0.56	0.10	0.54	5.56	0.00
H_5: *Impact of Dynamic Capabilities on Risk Monitoring*	0.83	0.68	59.45	5	0.00	Sensing capability	0.09	0.11	0.08	0.85	0.40
						Learning capability	0.21	0.10	0.21	2.04	0.04
						Integration capability	0.13	0.11	0.12	1.12	0.24

	Coordination capability	0.10	0.09	0.12	1.15	0.25
	Reconfiguration capability	0.40	0.11	0.37	3.76	0.00

H_1: There is a significant impact at ($\alpha \leq 0.05$) of dynamic capabilities by their dimensions (sensing capability, learning capability, integration capability, coordination capability, and reconfiguration capability) on risk management at JFDA.

The results of the analysis of the first hypothesis show that there is a correlation between dynamic capabilities and risk management at JFDA, as the value of the correlation coefficient (R= 0.89) and that dynamic capabilities explain (79%) of the variance in risk management at a degree of freedom (DF= 5) and the value of (F= 104.28), at a significance level (Sig.= 0.00), which confirms the significance of the regression at a significance level ($\alpha \leq 0.05$). The first two dimensions were influential, which were coordination capability and reconfiguration capability, where their B value reached (0.16, 0.49), beta value (0.21, 0.51), and T value (2.50, 6.33), respectively, at a level of significance (0.01, 0.00), which It indicates that they are significantly influential on risk management, while sensing capability, learning capability, and integration capability were not significantly influential on risk management, as the B value for sensing capability was (B=0.06), and the beta value was (0.06), while the T value was (0.79). At a significant level (Sig = 0.43), which shows that the effect of sensing capability is not significant, and as for learning capability and integration capability, the B value for them was (0.04, 0.12), the beta value (0.05, 0.13), and the T value (0.54, 1.53). Respectively, at a level of significance (0.59, 0.13). Thus, H1 was accepted.

H_2: There is a significant impact at ($\alpha \leq 0.05$) of dynamic capabilities on risk identification at JFDA.

The results of the analysis of the second hypothesis show that there is a correlation between dynamic capabilities and risk identification at the Food and Drug Administration, as the value of the correlation coefficient (R = 0.91), and that dynamic capabilities explain (82%) of the variance on risk identification, at a degree of freedom (DF= 5) and the value of (F= 127.12), at a significance level (Sig.= 0.00), which confirms the significance of the regression. The sensing capability, coordination capability, and reconfiguration capability were influential, as their B value reached (0.18, 0.29, and 0.50), the beta value (0.15, 0.37, and 0.48), and the T value (2.28, 4.73, and 6.51), respectively, at a level of significance (0.02, 0.00, and 0.00), which indicates that they are significantly influential on risk identification, while learning capability and integration capability were not significantly influential on risk identification, as learning capability and integration capability reached a B value (-0.09, 0.05) and a beta value (-0.96, 0.05). The T value is (-1.26, 0.68), respectively, with a significance level of (0.21, 0.50). Thus, H_2 was accepted

H_3: There is a significant impact at ($\alpha \leq 0.05$) of dynamic capabilities on risk assessment at JFDA.

The results of the analysis of the third hypothesis show that there is a correlation between dynamic capabilities and risk assessment at JFDA, as the value of the correlation coefficient (R= 0.76), and that dynamic capabilities explain (58%) of the variance on risk assessment, at a degree of freedom (DF= 5 The value of (F=37.84) reached a significance level of (Sig.=0.00), which confirms the significance of the regression. Whereas the reconfiguration capability dimension was influential on risk assessment, its B value reached (0.51), beta value (0.50), and T value (4.38), at a significant level (0.00), while sensing capability, learning capability, integration capability, and coordination capability were not

significantly influential on Risk assessment, where the B value for sensing capability, learning capability, integration capability, and coordination capability was (0.02, -0.06, 0.23, and 0.09), the beta value (0.2, -0.06, 0.23, and 0.12), and the T value (0.17, -0.52,1.89, and 0.97), respectively, with a significance level of (0.87, 0.61, 0.06, and 0.33), respectively. Accordingly, H3 was accepted.

H_4: There is a significant impact at ($\alpha \leq 0.05$) of dynamic capabilities on risk response at JFDA.

The results of the analysis of the fourth hypothesis show that there is a correlation between dynamic capabilities and risk response at JFDA, as the value of the correlation coefficient (R= 0.83), and that dynamic capabilities explain (69%) of the variance in risk response, at a degree of freedom (DF= 5) and the value of (F= 61.90), at a significance level (Sig.= 0.00), which confirms the significance of the regression. Whereas the reconfiguration capability dimension was influential on risk response, its B value reached (0.56), the beta value (0.54), and the T value (5.56), at a significant level (0.00), while sensing capability, learning capability, integration capability, and coordination ability were not significantly affected on risk response, where the B value for sensing capability, learning capability, integration capability, and coordination capability was (-0.04, 0.11, 0.08, and 0.15), the beta value (-0.04, 0.11, 0.08, and 0.18), and the T value (-0.40, 1.08, and 0.77). and 1.78), respectively, with a significance level of (0.70, 0.28, 0.44, and 0.08), respectively. Therefore, H_4 is accepted.

H_5: There is a significant impact at ($\alpha \leq 0.05$) of dynamic capabilities on risk monitoring at JFDA.

The results of the analysis of the fifth hypothesis show that there is a correlation between dynamic capabilities and risk monitoring at JFDA, as the value of the correlation coefficient (R= 0.83), and that dynamic capabilities explain (68%) of the variance on risk monitoring, at a degree of freedom (DF= 5) and the value of (F= 59.45), at a significance level (Sig.= 0.00), which confirms the significance of the regression at a significance level ($\alpha \leq 0.05$). Whereas learning capability and reconfiguration capability were significantly influential in risk monitoring, their B value reached (0.21 and 0.40), beta value (0.21 and 0.37), and T value (2.04 and 3.76), respectively, at a significant level (0.04 and 0.00). Respectively, while sensing capability, integration capability, and coordination capability were not significantly effective on risk monitoring, the B value for sensing capability, integration capability, and coordination capability were (0.09, 0.13, and 0.10), the beta value was (0.08, 0.12, and 0.12), and the T value was (0.85, 1.12 and 1.15, respectively, and at a level of significance (0.40, 0.24, and 0.25), respectively. Therefore, H_5 was accepted.

Discussion

The results of the analysis of dynamic capabilities with their dimensions (sensing capability, learning capability, integration capability, coordination capability, and reconfiguration capability) indicate that sensing capability, learning capability, and reconfiguration capability were of relatively high importance. In contrast, integration capability and coordination capability held moderate importance, but overall, all dimensions of dynamic capabilities were of high importance. This may be attributed to the organization's ability to perceive opportunities, challenges, and threats in its surrounding environment and its capacity to acquire new knowledge from continuous relationships with stakeholders. The organization relies on practices and procedures to create, acquire, and transfer knowledge to

respond to opportunities and threats, enhancing its adaptability to changes and improving services through feedback.

The results of the analysis of risk management with its dimensions (risk identification, risk assessment, risk response, and risk monitoring) indicated that all dimensions were of high relative importance, and therefore the risk management variable was of high relative importance. From these results, the institution has workers with experience in risk assessment who can classify risks into levels, and through this, it focuses on the strongest risks in terms of probability of occurrence and terms of precise impact. The institution's ability to respond is linked to some obstacles that may affect it, given the institution's financial allocations and decisions. It needs approvals related to being a government institution.

There is a significant impact of dynamic capabilities by their dimensions (sensing capability, learning capability, integration capability, coordination capability, and reconfiguration capability) on risk management with its dimensions combined (risk identification, risk assessment, risk response, and risk monitoring) at JFDA. The study concludes that there is a significant relationship between dynamic capabilities and risk management. The study also indicates that coordination capability and reconfiguration capability had a significant influence on risk management, while sensing capability, learning capability, and integration capability did not have significant effects on risk management. This does not imply that these dimensions are unimportant; on the contrary, they are vital and influential. However, coordination and reconfiguration capabilities have higher importance and greater impact on risk management, as they reflect practical applications of the organization's capabilities. These dimensions focus on organizing and distributing resources, tasks, and activities for new operational capabilities adopted by the organization. They involve continuous market monitoring and technological surveillance.

There is a significant impact of dynamic capabilities on risk identification at JFDA. This indicates that JFDA can search for, identify, and describe risks. It also identifies sources of risks, such as threats, vulnerabilities, and areas of influence, where threats, their scenarios, vulnerabilities, and unwanted incidents are identified. Thus, JFDA enhances its capabilities to identify risks by enhancing sensing capability, coordination capability, and reconfiguration capability, as the results showed that they are significant while learning capability and integration capability were not significant for risk identification.

There is a significant impact of the dynamic capabilities on risk assessment at JFDA, which is represented by understanding the nature and severity of the risks facing JFDA, as it is shown that those responsible for risk management can interpret the sources of risks appropriately and in an organized manner and are identified. Consequences and the likelihood of risks occurring. The reconfiguration capability was significantly significant on risk assessment, while the rest of the dimensions were not significant.

There is a significant effect of the dynamic capabilities on risk response on JFDA, as JFDA can develop its options and actions to work on improving its chances of achieving its goals and reducing the chances of its threats, as it indicates its possession of the tools, techniques, and methodologies used to develop courses of action. The reconfiguration capability was significantly significant on risk response, while the rest of the dimensions were not significant.

There is a significant impact of the dynamic capabilities on risk monitoring at JFDA, as JFDA focuses on identifying, examining, and planning newly emerging risks, verifying both identified risks and listed risks, re-examining existing risks, monitoring remaining risks and reviewing the implementation of risk responses during the assessment. The learning

capability and reconfiguration capability were significant on risk monitoring, while the rest of the dimensions were not significant.

The contribution of these study results is essential in persuading managers in JFDA to pay attention to dynamic capabilities, given their evident impact on managing the risks these organizations may face.

Recommendations

- **Utilizing Knowledge Inventory**
  - The organization should leverage the knowledge of its employees to enhance learning capabilities and responsiveness to environmental changes. This will enable effective handling of emerging challenges and bolster risk management in the dynamic environment.
  - Conduct regular meetings with employees.
  - Organize internal courses and facilitate knowledge exchange among staff

- **Enhancing Integration and Coordination**
  - Management should increase focus on integration and coordination capabilities, recognizing their significance.
  - Continuous efforts should be made to promote and enhance these capabilities by providing support and resources.
  - Foster a collaborative work environment to encourage their development.
  - Activate clear mechanisms for coordination among different departments to avoid task duplication by forming coordination committees.

- **Selection, Training, and Task Allocation**
  - Implement an annual performance evaluation system based on a unified performance framework for all employees.
  - Activate guiding principles to ensure the adoption of effective methods for task performance.
  -
- **Employee Engagement and Community Involvement**
  - Actively involve employees by considering their suggestions and feedback.
  - Engage local community members in identifying priorities to create an internal and external collaborative environment.
  - Build strong relationships to integrate operational capabilities and adapt performance.
  -
- **Implementation of Robust Risk Management System**
  - Develop a precise electronic system encompassing the risk management process, including identification, assessment, response, and monitoring.
  - Train and equip employees to work accurately and professionally on the system.

- **Financial Allocations for Risk Response**
  - The organization should allocate financial resources to respond quickly and control risks.
  - Allocate a portion of its revenues or annual budget.

- Seek new external funding sources, such as grants offered to the organization.

- **Benchmarking with International and Regional Institutions**
  - Emphasize benchmarking with international and regional institutions in similar fields to exchange knowledge and benefit from their experiences in risk management.

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References

Adam, A., & Lindahl, G. (2019). Dynamic capabilities and risk management: Evaluating the CDRM model for clients. *Emerald Reach Proceedings Series, 2*, 85–92. https://doi.org/10.1108/S2516-285320190000002003

Agwunobi, A., & Osborne, P. (2016). Dynamic capabilities and healthcare: A framework for enhancing the competitive advantage of hospitals. *California Management Review, 58*(4), 141-161.

Al-Anzi, M. (2020). Managing voluntary work risks during the COVID-19 pandemic. *Research Magazine,* (35), 205-213.

Al-Duwaikhi, S. (2022). Challenges in developing leadership performance in Saudi Universities in light of risk management. *Journal of Arts, Literature, Humanities, and Social Sciences,* (77), 39-50.

Al-Fawaz, T. M., Daoud, H. A., & Arabiyat, Y. A. (2016). Credit risk management in Islamic and conventional banks in Jordan. *Jordanian Journal of Business Administration, 12*(2), 289-305.

Al-Hajjim, H. N., & Al-Salman, H. A. (2021). The role of sustainable production in achieving sustainable competitive advantage through the mediating variable of dynamic capabilities. *Economic Sciences, 16*(61), 24-51.

Al-Hilah, A., Al-Masri, M., & Tafesh, A. (2020). *The degree of contribution of dynamic capabilities to improving business intelligence: An applied study on private Palestinian Universities in Gaza Governorates*. Presented at the First International Conference on Information Technology and Business, Gaza, Palestine.

Al-Rawashda, Y. A., & Al-Shura, A. A. (2023). The impact of risk management on supply chain flexibility: The modifying role of empowerment in the Arab Potash Company. *Al-Mutakal Journal of Economic and Administrative Sciences and Information Technology, 9*(1), 171-211.

Ali, A. H. (2020). Sustainable supply chain management activities and their impact on enhancing corporate risk management: a survey of the opinions of administrative leaders at Al-Kronji Beverages and Minerals Company. *Journal of the University of Iraq,* (46), 321-336.

Al-Qarm, A., & Al-Khashali, Sh. (2022). Dynamic capabilities and their impact on entrepreneurial orientation: the modified role of the creative environment in information technology companies in Jordan. *International Journal of Economics and Business, 12*(1), 20-48. https://doi.org/10.31559/GJEB2022.12.1.2

Amari, S. (2022). The role of dynamic capabilities in enhancing strategic agility: a case study of some economic institutions in the Mascara Governorate. *Journal of Economics and Finance, 8*(1), 67-81.

Aminu, M. I., & Mahmood, R. (2015). Mediating role of dynamic capabilities on the relationship between intellectual capital and performance: a hierarchical component model perspective in PLS-SEM path modeling. *Research Journal of Business Management,* (9), 443-456. https://doi.org/10.3923/rjbm.2015.443.456

Arena, M., Azzone, G., Cagno, E., Ferretti, G., Prunotto, E., Silvestri, A., & Trucco, P. (2013). Integrated risk management through dynamic capabilities within project-based organizations: the company dynamic response map. *Risk Management, 15*(1), 50–77.

Ayesh, A. (2021). Dynamic capabilities as a mechanism to enhance organizational agility: a case study of some banks in Al-Wadi Governorate. *Journal of Strategy and Development, 11*(2), 145-164.

Bakoush, M., & Boghazi, F. (2022). The impact of risk management in achieving sustainable competitive advantage for projects - a case study of the PICO Foundation. *Journal of the Institute of Economic Sciences, 25*(1), 149-168.

Al-Baldawi, A. A., & Al-Azzawi, R. F. (2018). The role of risk management programs in confronting risks at international airports: applied research at Baghdad International Airport. Journal of Accounting and Financial Studies, 13(44), 71-94.

Bani Abdo, E., & Al-Khawaldeh, K. (2022). The impact of risk management on achieving competitive advantage in Jordanian Professional Sports Clubs. *Amman Arab University Journal for Research, 7*(2), 60-86.

Bayón, T., Eisend, M., Koch, J., Söllner, A., Vodosek, M., & Wagner, H. (2021). *Dynamic capabilities and relationships discourses, concepts, and reflections*. Springer (pp. 100). https://doi.org/10.1007/978-3-030-83182-0

Bongodistov, Y., & Wohlgemuth, V. (2017). Enterprise risk management: a capability-based perspective. *The Journal of Risk Finance, 18*(3), 234-251. https://doi.org/10.1108/JRF-10-2016-0131

Cordes-Berszinn, Ph. (2013). *Dynamic capabilities how organizational structures affect knowledge processes.* Palgrave Macmillan.

Darskuviene, V., Nasteckiene, V., & Samys, E. (2021). Enterprise risk management in Lithuania. *Enterprise Risk Management in Europe*, 75–93. http://dx.doi.org//10.1108/978-1-83867-245-420211006

Dentoni, D., Bitzer, V., & Pascucci, S. (2016). Cross-sector partnerships and the co-creation of dynamic capabilities for stakeholder orientation. *Journal of Business Ethics, 135*(1), 35-53. http://doi.org/10.1007/s10551-015-2728-8

De Souza Santos, A. A. A., & De Padua, S. I. D. (2023). BPM promotion framework for startups: developing dynamic capabilities. *Business Process Management Journal, 29*(1), 140-158. https://doi.org/10.1108/BPMJ-11-2021-0727

Diop, M. A., & Zreika, W. H. (2015). The role of project risk management in the quality of decision-making: A survey study on general contracting companies on the Syrian coast. *Tishreen University Journal for Scientific Research and Studies - Economic and Legal Sciences Series, 37*(5), 101-126.

Dosi, G., Nelson, R. R., & Winter, S. (2001). *The nature and dynamics of organizational capabilities*. Oxford Academic (pp.
345). https://doi.org/10.1093/0199248540.001.0001

Endres, H. (2018). *Adaptability through dynamic capapilities how management can recoognize opportunities and threats.* Springer. https://doi.org/10.1007/978-3-658-20157-9

Garrido, I., Kretschmer, C., de Vasconcellos, S., & Gonçalo, C. (2020). *Dynamic capabilities: A measurement proposal and its relationship with performance. Brazilian Business Review,* (17), 46-65. https://doi.org/10.15728/bbr.2020.17.1.3.

Ghazlan, M. H. (2022). Risk management for investment projects in youth centers. *Journal of Sports Science Applications*, (112), 341-373.

Gonzalez, R. V. D. (2022). Innovative performance of project teams: the role of organizational structure and knowledge-based dynamic capability. *Journal of Knowledge Management, 26*(5), 1164-1186. https://doi.org/10.1108/JKM-03-2021-0259

Gyamfi, T. A., Aigbavboa, C. O., & Thwala, W. D. (2022). Risk resource management influence on public -private partnership risk management in construction industry. *Journal of Engineering Design and Technology*. https://doi.org/10.1108/JEDT-12-2021-0699

Hanan, S., & Hamed, S. (2019). The impact of dynamic capabilities on competitive advantage: an analytical study in the Iraqi Cement Public Company. *Journal of Economic and Administrative Sciences, 25*(111), 138-159.

Hopkin, P. (2019). *Fundamentals of risk management* (5th ed.). The Institute of Risk Management. *ISO 31000:2018(en).* Risk management – Guidelines.

Karim, S., Vigne, S. A., Lucey, B. M., & Naeem, M. A. (2022). Discretionary impacts of the risk management committee attributes on firm performance: do board size matter? *International Journal of Emerging Markets*, 1746-8809. https://doi.org/10.1108/IJOEM-05-2022-0782

Karman, A., & Savaneviciene, A. (2021). Enhancing dynamic capabilities to improve sustainable competitiveness: insights from research on organisations of the Baltic region. *Baltic Journal of Management, 16*(2), 318-341. https://doi.org/10.1108/BJM-08-2020-0287

Khader, T., & Youssef, M. (2018). The impact of risk management on project performance an applied study of the Baniyati project, the General Company for Agricultural Equipment, one of the formations of the Iraqi Ministry of Agriculture. *Journal of Baghdad University College of Economic Sciences,* (56), 145-164.

Majeed, M., & Ahmed, A. (2022). The extent of the availability of dynamic capabilities in educational organizations: an applied study at the University of Mosul and Northern Technical University. *Rafidain Development Journal, 41*(135), 72-88.

Molak, V. (1997). *Fundation of risk analysis and risk management.* Gaia Unlimited, Inc.

Nair, A., Rustambekov, E., McShane, M., & Fainshmidt, S. (2014). Enterprise risk management as a dynamic capability: a test of its effectiveness during a crisis. *Managerial and Decision Economics,* (35), 555-566. https://dx.doi.org/ 10.1002/mde.2641

Oliveira-Dias, D., Kneipp, J. M., Bichueti, R. S., & Gomes, C. M. (2022). Fostering business model innovation for sustainability: a dynamic capabilities perspective. *Management Decision, 60*(13). 105-129. https://doi.org/10.1108/MD-05-2021-0590

Parviainen, T., Goerlandt, F., Helle, I., Haapasaari, P., & Kuikka, S. (2021). Implementing bayesian networks for ISO 31000:2018-based maritime oil spill risk management: State-

of-art, implementation benefits and challenges, and future research directions. *Journal of Environmental Management, 278*.
https://doi.org/10.1016/j.jenvman.2020.111520

Pavlou, P. A., & El Sawy, O. A. (2011). Understanding the elusive black box of dynamic capabilities. *Decision Sciences Journal, 42*(1), 239-273. https://doi.org/10.1111/j.1540-5915.2010.00287.x

Penney, G. (2019). Exploring ISO31000 risk management during dynamic fire and emergency operations in western Australia. *Fire, 2*(2), 21-32. https://doi.org/10.3390/fire2020021

Pop, C., Drenţa, R. Florentin, U., & Nicolae S. (2022). Risks management- evaluation and minimization. *Review of Management and Economic Engineering, 21*(2), 176-184.

Pritchard, C. L. (2015). *Risk management concepts and guidance* (5th ed.). CRC Press Taylor & Francis Group.

Saeed, Y. (2018). Cost and time risk management in construction projects. *Tikrit Journal of Engineering Sciences, 25*(1), 42-48. https://doi.org/10.25130/tjes.25.1.07

Samaqia, B., & Ta'ata, B. (2014). Risk management in textile industries in Aleppo using analytical hierarchical process (AHP*). Journal of Al-Quds Open University for Research and Studies, 1*(34), 341-369.

Sirmon, D. G., Hitt, M. A., & Ireland, R. D. (2007). Managing firm resources in dynamic environments to create value: looking inside the black box. *Academy of Management Review, 32*(1), 273-292. https://doi.org/10.5465/amr.2007.23466005

Taqi, D., Amanah, A., & Mohsen, A. (2021). The impact of dynamic capabilities on achieving strategic success: a descriptive analytical study of the opinions of a sample of employees in some colleges at the University of Karbala. *Journal of Management and Economics, University of Karbala, 10*(40), 85-113.

Teece, D. J. (2018). Business models and dynamic capabilities. *Elsevier*, (51), 40-49.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*(7), 509-533.

Valle, C. D., & Sarturi, G. (2022). Dynamic capabilities for stakeholder management. *Cadernos Ebape.BR, 20*(4), 527-542. https://doi.org/10.1590/1679-395120210190x

Wall, S., Zimmermann, C., Klingebiel, R., & Lange, D. (2010). *Strategic reconfigurations building dynamic capabilities in rapid innovation-based industries*. Edward Elgar Publishing Limited.

Wilden, R., Gudergan, S. P., Nielsen, B. B., & Lings, I. (2013). Dynamic capabilities and performance: strategy, structure and environment. *Elsevier,* (46), 72-96.

Zhan, J., Zhang, Z., Zhang, Sh., Zhao, J., & Wang, F. (2023). Manufacturing servitization in the digital economy: A configurational analysis from dynamic capabilities and lifecycle perspective. *Industrial Management & Data Systems, 123*(1), 79-111. https://doi.org/10.1108/IMDS-05-2022-0302