

## Fostering Supply Chain Agility: The Power of Dynamic Capabilities

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### Abstract

**Importance:** In the context of globalization and intensifying global competition, organizations must develop strategies to enhance supply chain agility in rapidly evolving markets. Dynamic capabilities theory (DCT) provides a framework for these strategies by emphasizing the importance of the abilities to sense, seize, reconfigure, learn, and integrate.

**Purpose** This study investigates the impact of dynamic capabilities (sensing, seizing, reconfiguring, learning and integration) on the components of supply chain agility (flexibility, responsiveness, speed, and competency) specifically within the services sector.

**Methodology:** Using a descriptive analytical approach and employing SPSS 29 for data analysis, this research involved 86 managers from senior and middle management in service organizations across Jordan, Saudi Arabia, and Qatar.

**Findings:** The findings indicate that organizational managers place high importance on both dynamic capabilities and supply chain agility. Moreover, the study found a significant positive impact of dynamic capabilities on supply chain agility.

**Recommendation:** The study recommends several strategies for organizations to enhance their supply chain agility: investing in advanced data analysis and monitoring systems, fostering a culture of innovation and continuous learning, strengthening cooperation between internal departments and external partners, simplifying processes and implementing automation technologies, providing targeted personnel training, and promoting a culture of continuous improvement.

**Future Research Directions:** Future research should investigate the long-term impacts of dynamic capabilities on supply chain agility in other sectors and regions, and study the role of emerging technologies in enhancing these capabilities.

**Keywords:** Learning Capabilities, Integration Capabilities, Supply Chain Competency, Questionnaire, Service Sector.

## **Introduction**

Organizations need to adapt constantly because of fluctuations in customer demands, rapid development in technology, and changes in rules and regulations related to the service sector. To overcome these complexities and ensure high-quality service delivery, organizations can adapt quickly and effectively through agile supply chain. Dynamic capabilities enable organizations to achieve success in dynamic, uncertain environments, these capabilities include the ability to sense opportunities and threats, seize new opportunities, and reconfigure resources to meet newly generated needs. In the context of supply chain, dynamic capabilities translate into the proactive ability to identify potential supply chain requirements, rapid adjustments to meet new demands, and continuous improvement of logistics processes.

Traditionally, many organizations may have relied on a limited number of suppliers or specific sourcing regions. However, as Fisher (1997) argues, such an approach can be risky when disruptions occur, and suggests a framework for “efficient” and “responsive” supply chain, suggesting that different products benefit from either cost-reduction (efficiency) or responsiveness strategies to rapid fluctuations in demand (response). Christopher (2000) emphasizes the importance of agility, highlights the need for flexibility and adaptability within supply chain to effectively respond to unexpected changes in customer demand and volatile market conditions, and sees agility as a business-level capability that includes organizational structures, information systems, and logistics processes.

As a response to the increasingly dynamic nature of industries and markets, the concept of dynamic capabilities emerged in the mid-to-late 1990s. Unconventional capabilities are needed to rapidly and continuously adapt to the changes in the current situation because of highly competitive environments. This allows firms to create temporary competitive advantages based on new resource configurations (Davenport et al., 2006, 71). Teece (2009, 206) believes that dynamic capabilities represent an organization's ability to continuously adapt, innovate, and reshape its resources and operations in response to changing market conditions and technological progress. These capabilities enable organizations to maintain a competitive advantage by continuously identifying opportunities, effectively seizing them, and adapting strategies to achieve long-term success.

This study examines the impact of dynamic capabilities on supply chain agility in the services sector. Strong dynamic capabilities are claimed to enable service organizations to build more agile supply chain, therefore leading to improved customer service, cost efficiency, and overall operational effectiveness. By improving dynamic capabilities, service organizations can develop the agility needed to deal with the complexities of the service industry, which ultimately leads to an increase in their ability to deliver high-quality services to customers.

## **Literature Review and Hypothesis Development**

### **Dynamic Capabilities**

The dynamic capabilities approach aims to integrate concepts such as flexibility, adaptability, and reconfiguration, with increased attention to the role of knowledge assets and new technology in driving organizational change. It seeks to understand how changes in the business environment shape organizational forms and competencies, with an emphasis on the importance of organizations shaping their environments and enhancing its capabilities (Teece, 2009, 108). The framework of dynamic capabilities aims to provide a comprehensive understanding of how firms generate economic surplus over time by effectively discovering, seizing, and adapting to opportunities in a rapidly changing environment (Teece, 2009, 60).

Dynamic capabilities refer to an organization's ability to adapt, innovate, and reconfigure its resources and operations in response to changing market conditions and technological advancements (Teece, 2009, 16-17). Some dynamic capabilities enable companies to enter into new businesses and expand old businesses through internal growth, acquisitions, and strategic alliances. Other capabilities help the organization create new products and production processes. Dynamic capabilities also include the capabilities of managers responsible for leading change and profitable growth of the company (Helfat et al., 2007, 1). In the service sector, the concept of dynamic capabilities refers to an organization's ability to continuously integrate, configure, and modify its internal and external resources and capabilities to adapt to changes in the business environment and achieve a sustainable competitive advantage.

### **Dynamic Capability Dimensions**

The study adopts the dimensions of dynamic capabilities proposed by Teece (2012; 2007; 2009); Teece et al (2016), which include sensing capabilities, seizing capabilities, and reconfiguration capabilities. Additionally, the study incorporates learning capabilities and integration capabilities, which have emerged in several studies Hernández-Linares et al (2021); Masteika & Čepinskis (2015), refer to figure (1).

### **Sensing Capabilities**

The concept of sensing refers to the ability of organizations to detect weak signals and anticipate market changes before competitors. It involves developing strong peripheral vision, using tools such as external scanning and scenario planning, and using techniques such as lead user innovation and prediction markets to effectively assess opportunities and threats in a volatile environment (Schoemaker et al. al., 2018). Sensing is very similar to the concept of "opportunity recognition". Sensing new opportunities is largely a process of scanning, creativity, learning, and interpretive activity, and investment in research and related activities is usually a necessary complement. For this activity, opportunities are discovered by the organization due to different access to existing information, taking advantage of new information and new knowledge (external or internal), as they may create opportunities. Any intentional imbalance in the economic balance by destroying all balances, or unintended It is possible to benefit from it, and this is the mechanism behind continuous industrial development, as the balance is rarely achieved (Teece, 2007).

Sensing capabilities in the service sector refer to the extent to which an organization can gather information and identify changes and trends in the internal and external environment.

### **Seizing Capabilities**

Seizing capability is defined as the mobilization of resources to meet needs and opportunities (Teece et al., 2016). It involves execution and getting things done, and once a new opportunity (technological or market) is sensed, it must be addressed through new products, processes, or services. This always requires investments in development and marketing activities (Teece, 2009, 17). The term "seizing" refers to the proactive and timely actions taken by organizations to capitalize on opportunities or effectively respond to threats in the business environment. It involves quickly recognizing external changes and acting on them through innovation and strategic decision-making. Intelligent sensing of opportunities and threats is essential but not sufficient for success when surprises occur in the business environment. The organization must also seize opportunities promptly by innovating and implementing new systems that

leverage external changes. This is the second pillar of dynamic capabilities (Schoemaker et al., 2018). The ability of companies to seize opportunities involves acquiring resources and coordination to facilitate the introduction of new business solutions. This capability differs from the concept of sensing, although these two capabilities are interconnected. Seizing focuses on using new knowledge to create new products/services while sensing focuses on gathering new market knowledge and identifying opportunities through it (Min & Kim, 2022). In the services sector, the ability to seize refers to the extent to which an organization can recognize and effectively exploit emerging opportunities to improve services, increase efficiency, and expand operations.

### **Reconfiguration Capabilities**

The successful identification and calibration of technological and market opportunities, along with the wise selection of technology and business model design, followed by a strategic commitment of financial resources, can lead to organizational growth and profitability. But as the organization evolves, the ability to recombine and reconfigure assets and organizational structures becomes critical to maintaining evolutionary fitness and escaping unfavorable path dependencies. Over time, organizations may face internal constraints, such as cognitive limitations and rigid routines, which can hinder innovation and superior performance. To maintain dynamic capabilities, top management must coordinate assets, foster organizational renewal, and redesign routines, ensuring the integration of old and new assets through periodic alignment, coordination, reorganization, and redistribution (Teece, 2009, 34-37). Teece (2007) describes reconfiguration as the ability to recombine and restructure assets and organizational structures as the organization grows and as markets and technologies change. Teece (1997) define the concept of reconfiguration as a process of adaptation, integration, and reshaping of internal and external organizational skills, resources, and functional competencies to match the requirements of the dynamic environment.

In the services sector, reconfiguration refers to the extent to which an organization can effectively reorganize and re-adapt its resources, structures, and processes to environmental, technological, and economic changes.

### **Learning Capabilities**

Learning capability is an organization's ability to process knowledge, including creating, acquiring, transferring, and integrating knowledge, and modifying behavior to reflect new knowledge to improve performance. It is a complex and multidimensional framework that includes various dimensions, including managerial commitment, systems perspective, openness, experimentation, and transfer of knowledge and integration (Jerez-Gomez et al., 2005). Teece (2012) describes learning capabilities as the ability to transform an old lesson, through reflection, into a new and better one, meaning that the new specific knowledge acquired is derived from selecting knowledge that aligns with a transformative opportunity. For example, choosing a skill to learn that aligns with changes in customer preferences or selecting a technology that aligns with future changes. Teece et al (1997) define learning as the process through which repetition and experimentation enable tasks to be performed better and faster and enable the identification of new production opportunities. It is described as a social and group process that involves organizational and individual skills. Learning is facilitated through shared communication rules, coordinated search procedures, and the development of new activities or routines, and emphasizes that learning is necessary

to improve operations and achieve competitive advantage and that it is often a long-term and gradual process.

Learning capabilities in the service sector mean the ability to effectively use gained knowledge, skills, and techniques and integrate them into an organization's processes and systems.

### **Integration Capabilities**

Integration capabilities refer to an organization's ability to effectively combine and coordinate various assets and resources related to knowledge. This involves creating a shared understanding and collective insight within the organization, allowing for the smooth integration of new knowledge into the organization's operational capabilities. This capability is seen as a source of competitive advantage and is positively associated with organizational performance. Integration capabilities also include the ability to coordinate and integrate the activities and resources of different individuals or groups within the organization, ensuring synergy, resource allocation, and task assignment based on experience, and maintaining consistency between experiences and work processes (Hernández-Linares et al., 2021). Integration enables organizations to transfer knowledge and competencies with their suppliers and internal functional units, which helps facilitate the reconfiguration process (Teece, 2007).

In the services sector, integration refers to the process by which different organizational units, and external partners, are rapidly and effectively coordinated and adapted to achieve the organization's common goals.

### **Supply Chain Agility**

Agility means flexibility and speed in handling innovative products and unexpected demand (Basu & Wright, 2008, 199). Christopher (2000) defines agility as achieving a rapid global response to constantly changing markets. A rapid response should cover changes in demand in terms of volume and variety, as well as lead times and the duration required to replenish goods to meet demand. Christopher (2000) proposes four characteristics of truly agile supply chain: market sensitivity and the ability to read and respond to real demand, reliance on information rather than inventory, process integration that ensures collaborative work between buyers and suppliers, and a network committed to closer and more responsive relationships with customers. Meanwhile, Fisher (1997) outlined four rules: accepting that uncertainty is inherent in innovative products, reducing uncertainty by finding data that can better support forecasting, avoiding uncertainty by reducing lead times, increasing flexibility to produce on demand or move manufacturing closer to demand, and hedging against uncertainty through buffer stock and excess capacity. In his article "What Is the Right Supply Chain for Your Product?" published in the Harvard Business Review in 1997, Fisher introduced the concepts of "efficient" and "responsive" supply chain, stating that different products require different supply chain strategies, with some benefiting more from efficiency (cost reduction) and others from responsiveness (quick response to demand changes) (Fisher, 1997).

In the services sector, supply chain agility means the ability to quickly and effectively adapt to changes and fluctuations in the internal and external supply chain environment.



### **Supply Chain Agility Dimensions**

Flexibility, speed, responsiveness, and competency were the most commonly used dimensions in previous studies that the researchers reviewed (Khalili-Damghani & Tavana, 2013; Carvalho et al., 2012; Patel & Sambasiva, 2022; Al-Zabidi et al., 2021). In this study, the same dimensions were adopted, refer to figure (1).

### **Supply Chain Flexibility**

Flexibility is a key characteristic of agile supply chain, and flexibility in manufacturing is the ability to respond quickly to changes in manufacturing requirements in product volume, product variety, and supply chain (Basu & Wright, 2008, 224). Flexibility has traditionally been defined as the ability to respond quickly to changes in demand volume or product mix for existing products, often referred to as dynamic flexibility. This aspect of flexibility is associated with concepts such as reducing setup times and the use of flexible manufacturing systems (FMS). However, in an environment, Today's rapidly changing environment, which is characterized by intermittent rather than gradual changes, requires a different form of flexibility, called structural flexibility. Structural flexibility includes the ability of supply chain to adapt or reconfigure their structure in response to significant shifts on the demand or supply side. Supply chain with high levels of flexibility can Structural flexibility can effectively manage the inherent volatility of the contemporary 21st-century business landscape and be able to quickly adapt to accommodate fundamental shifts in supply chain dynamics, ensuring continued alignment with evolving conditions (Christopher, 2011, 264).

The agility of service supply chain means the ability to adapt and respond quickly and effectively to changes and fluctuations in the internal and external environment.

### **Supply Chain Speed**

Supply chain speed refers to the rate at which products or materials move through supply chain from the initial production stage to reaching the final consumer, and includes various processes such as manufacturing, transportation, distribution, and delivery. Faster supply chain speed usually results in faster lead times and lower inventory levels. Improving customer satisfaction, and increasing market competitiveness, companies often seek to improve their supply chain to achieve higher efficiency and flexibility in order to meet changing customer demands and stay ahead of competitors (Fisher et al., 2000). Supply chain agility refers to the ability of supply chain to respond quickly to changes in customer demand and market conditions, and supply chain agility facilitates rapid responses to customer demand, leading to improved inventory management and increased supply sales performance (Basu & Wright, 2008, 234).

Agility in service supply chain refers to the ability to move quickly to execute required logistics processes, from ordering to delivery of essential supplies and services.

### **Supply Chain Responsiveness**

Responsiveness refers to an organization's ability to quickly and effectively address customer requirements within increasingly shorter periods. This not only requires reducing lead times but also providing flexibility and customized solutions tailored to meet individual customer needs. A responsive supplier must be able to meet customer requirements, more timely than ever before, responsiveness is closely linked to agility, which includes the ability to adapt quickly and immediately meet customer demand in a rapidly changing market. Additionally, responsiveness means that the organization is closely in tune with customer needs, listens

Actively and responds to market feedback, and skillfully interprets demand signals to provide appropriate and timely responses (Christopher, 2011, 23). Responding means sensing, recognizing, and anticipating changes, immediately reacting to changes by integrating them into the system, and recovering from the change (Khalili-Damghani & Tavana, 2013).

Supply chain responsiveness in the service sector refers to the ability to react quickly and effectively to changes and emerging needs.

### **Supply Chain Competency**

Competence is a broad set of capabilities that provide productive efficiency and effectiveness of activities to achieve the organization's goals (Zhang & Sharifi, 2000). These are the ability to work efficiently, produce high-quality and high-performance products, deliver on time, innovate, and manage core competencies (Zhang & Sharifi, 2007). Competency is the development of business practices that are difficult to copy, examples of these practices include strategic actions, appropriate technology (hard and soft), sufficient technological capacity, product quality, cost-effectiveness, and a high rate of new product development (Khalili-Damghani & Tavana, 2013). Competency is a high deal of capabilities that prepare the productivity of activities in accordance with the objectives of the organization. In other words, the ability to effectively, and efficiently reach an organization's goals and strategies (Yaghoubi et al., 2011).

Service supply chain competency refers to the ability to effectively manage and coordinate all activities related to securing and distributing necessary supplies and resources.

### **The relationship between dynamic capabilities and supply chain agility**

The study by Humdan et al (2023) suggests that companies need dimensions of dynamic capabilities (sensing and responding) to develop agility to accommodate emergent events along their supply chain, thus expanding the scope of dynamic capabilities from organizational boundaries to entire supply chain. The study of Raj et al (2023) highlighted the impact of sensing capability (data analytical capabilities, market orientation), seizing opportunities (entrepreneurial orientation), and reconfiguration (supply chain integration) in shaping supply chain agility in different manufacturing companies in India. The study found that data analytical capabilities play a crucial role in supporting decision-making, enhancing knowledge sharing, creating new knowledge, and improving analytical skills, which in turn leads to increased strategic entrepreneurial propensity. Market orientation and entrepreneurial orientation also affect supply chain agility through their impact on supply chain integration.

The study of Ramos et al (2021), addressed the impact of dynamic capabilities in their dimensions (organizational flexibility, internal integration of supply chain, and external integration) on the agility and performance of supply chain. Their results indicated that organizational flexibility is a driver for increasing agility in agricultural food supply chain, in addition to the integration of external and internal supply chain. , which has a direct impact on agility, which positively affects the performance of supply chain. As for the study of Alzoubi et al. (2024) aimed to explore the impact of innovative orientation on improving digital supply chain, and the role of dynamic capabilities (sensing, exploiting opportunities, and reconfiguring) as a mediator. The results showed a statistically significant positive relationship between innovation orientation and digital supply chain and confirmed that dynamic capabilities partially mediate this relationship.

### **Study Hypotheses**

Based on the main questions of the study, the study hypotheses can be determined as follows:

H1: There is a statistically significant effect of dynamic capabilities with their dimensions (sensing capabilities, seizing capabilities, reconfiguration capabilities, learning capabilities, and integration capabilities) on the agility of supply chain with their combined dimensions (supply chain flexibility, supply chain speed, supply chain responsiveness, and supply chain competency) at the services sector.

H2: There is a statistically significant effect of dynamic capabilities with their combined dimensions (sensing capabilities, seizing capabilities, reconfiguration capabilities, learning capabilities, and integration capabilities) on the flexibility of supply chain at the services sector.

H3: There is a statistically significant effect of dynamic capabilities with their combined dimensions (sensing capabilities, seizing capabilities, reconfiguration capabilities, learning capabilities, and integration capabilities) on the speed of supply chain at the services sector.

H4: There is a statistically significant effect of dynamic capabilities with their combined dimensions (sensing capabilities, seizing capabilities, reconfiguration capabilities, learning capabilities, and integration capabilities) on the response of supply chain at the services sector.

H5: There is a statistically significant effect of dynamic capabilities with their combined dimensions (sensing capabilities, seizing capabilities, reconfiguration capabilities, learning capabilities, and integration capabilities) on the competency of supply chain at the services sector.

### **Study Methodology**

#### **Study Population and Sample**

The study was based on survey data collected from 86 senior and middle managers in the services sector, specifically in the private hospital sector and logistical service companies in Jordan, Saudi Arabia, and Qatar .

#### **Study Tool**

The study tool was the questionnaire that the researchers developed in accordance with the nature of the study and its variables. The questionnaire was used as the main tool for collecting data because it is the appropriate tool for collecting this type of data. The questionnaire contained the following parts (Appendix 1):

**The first part:** includes items that measure the independent variable represented by dynamic capabilities, which includes the following dimensions: sensing capabilities, opportunities-seizing capabilities, restructuring capabilities, learning capabilities, and integration capabilities.

**The second part:** contains items that measure the dependent variable of supply chain agility, which includes the following dimensions: supply chain flexibility, supply chain speed, supply chain responsiveness, and supply chain competency.

The researchers developed the questionnaire from several references. For the purposes of dynamic capabilities, the items presented in several studies were used (Kump et al., 2019; Yassien & Alnajjar, 2020; Abdel Hadi, 2021). As for the agility of supply chain, we relied on what was used in several studies (Nazempour et al., 2018; Lotfi & Houshmand, 2015; Aslam et al., 2018; Abdoli-Bidhandi & Valmohammadi, 2017).



**Data Analysis**

The computer program (Statistical Package for the Social Sciences - SPSS-29) was used. After the collected data was coded, and entered into the computer for analysis, the following methods were used: Descriptive statistical methods, multiple linear regression, and simple linear regression.

**Measuring Variables**

For dynamic capabilities and supply chain agility, a Likert scale was used. The Likert scale consists of rating options ranging from 1 to 5 (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree).

**Relative Importance**

They are determined when commenting on the mean, according to the five-point scale for the alternatives to the answer for each paragraph, as will be in Table 1.

Table (1)  
*Measures of relative importance*

The measure	The level of relative importance
1- Less than 2.34	low
2.34 - less than 3.67	average
3.67- 5	high

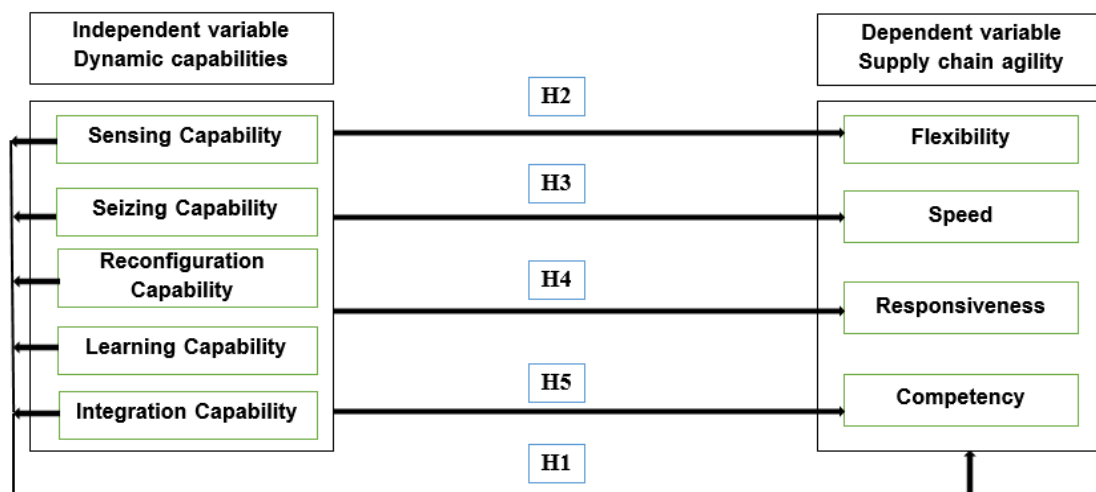


Figure (1) Research Model

## Results

The main objective of the study is to investigate the impact of dynamic capabilities on supply chain agility in the service sector.

Table (2)

*Results of the descriptive analysis of the study data*

Dimension	No. of items	Cronbach's Alpha	Mean	Std. Deviation
Sensing Capability	4	0.86	4.12	0.63
Seizing Capability	4	0.88	3.76	0.82
Reconfiguration Capability	4	0.84	3.78	0.70
Learning Capability	4	0.88	3.77	0.87
Integration Capability	4	0.89	3.67	0.80
Supply chain Flexibility	4	0.87	3.88	0.69
Supply chain Speed	4	0.87	3.84	0.76
Supply chain Responsiveness	4	0.92	3.79	0.81
Supply chain Competency	4	0.87	3.84	0.75

According to Table (1), the arithmetic mean is considered to have high relative importance for each dimension of the independent variable and the dependent variable, as most of the arithmetic mean values for the dimensions of dynamic capabilities and the dimensions of supply chain agility exceeded 3.67, while the integration of dynamic capabilities reached 3.67. Since Cronbach's alpha is higher than 0.7, for both the dimensions of the independent variable and the dependent variable, internal consistency exists between the items of the dimensions of the study variables (Sekaran & Bougie, 2016, 289).

Table (3)

*Regression*

Hypothesis	R	R <sup>2</sup>	F	Sig.
H1	0.819	0.671	32.637	0.001

Table (3) shows the results of testing the study hypotheses using the multiple regression coefficient. The results in the table indicate the results of the H1 test, where the results indicate that there is a significant effect of dynamic capabilities on the agility of supply chain. The value of the correlation coefficient was 0.819, and this means that there is a significant relationship between dynamic capabilities and supply chain agility. The value of R<sup>2</sup> is 0.671, which means that the capabilities Dynamism explains 67.1% of the variance in supply chain agility, and the F value was equal to 32.637 at a significance level of less than 0.001, so the model is suitable for testing the hypothesis.

Table (4)

*Coefficient*

Hypothesis H1	B	Beta	T	Sig.
Sensing Capability	-0.087	-0.080	-0.770	0.444
Seizing Capability	0.334	0.399	3.035	0.003
Reconfiguration Capability	0.178	0.193	1.784	0.078
Learning Capability	0.192	0.244	2.299	0.024
Integration Capability	0.114	0.134	1.039	.0302

Coefficients Table (4) shows that the standardized beta coefficient for the individual relationships between each of the dimensions of the independent variable and the dependent variable for sensing capabilities reached  $\beta = -0.080$ , Sig. = 0.444, and this confirms its non-significance in the agility of supply chain, as is the case with integration, where the value of beta reached  $\beta = 0.134$ , Sig.=0.302, as it has no statistical significance in the agility of supply chain, and so for reconfiguration, the beta value reached  $\beta = 0.193$ , Sig.=0.078, and as is clear, it was not significant in the agility of supply chain, as for the capabilities of seizing opportunities. Learning capabilities were statistically significant in the agility of supply chain, with a beta value of  $\beta = 0.399$ , Sig. = 0.003, for seizing opportunities. As for learning capabilities, their beta value reached  $\beta = 0.244$ , Sig. = 0.024. Based on the above results, hypothesis H1 is accepted, which states: There is a statistically significant effect at a significant level ( $\alpha \leq 0.05$ ) for dynamic capabilities in their dimensions (sensing capabilities, opportunities-seizing capabilities, restructuring capabilities, learning capabilities, and integration capabilities) in... Supply chain agility in its combined dimensions (supply chain flexibility, supply chain speed, supply chain responsiveness, and supply chain competency) in the services sector.

Table (5)  
*Regression*

Hypothesis	R	R <sup>2</sup>	F	Sig.
H2	0.741	0.549	100.100	0.001
H3	0.714	0.509	87.197	0.001
H4	0.706	0.499	83.671	0.001
H5	0.755	0.570	111.208	0.001

Regarding the results of testing hypotheses H2, H3, H4, and H5, according to Table (5) the value of F with Sig. They are all significant, with a value of Sig = 0.001 for all hypotheses, and this confirms the significance of the regression. Table (6) also shows that the beta value with Sig. = 0.001 is all significant, and this confirms the significance of the coefficients and that they are statistically significant and have a moral effect, and that dynamic capabilities explain 54.9% of the variance in the flexibility of supply chain, where the value of R2 = 0.549; It explains 50.9% of the variance in the speed of supply chain, with R2 = 0.509. It explains 49.9% of the variance in supply chain response, with R2 = 0.499. It explains 57% of the variance in supply chain competency, with R2 = 0.57.

Table (6)  
*Coefficient*

Hypothesis	B	Beta	T	Sig.
H2	0.755	0.741	10.141	0.001
H3	0.805	0.714	9.338	0.001
H4	0.846	0.706	9.147	0.001
H5	0.831	0.755	10.550	0.001

Hypothesis H2 stated that there is a statistically significant effect of dynamic capabilities on the flexibility of supply chain in the services sector. The results shown in Table 6 indicated that dynamic capabilities have a positive effect on the flexibility of supply chain, as T=10.141, and Sig. =0.001, the value is less than 0.05. Accordingly, the hypothesis H2 is accepted, which says: There is a statistically significant effect at the level of Significant ( $\alpha \leq 0.05$ ) for dynamic capabilities and their combined dimensions (sensing capabilities, seizing capabilities,

reconfiguration capabilities, learning capabilities, and integration capabilities) in the flexibility of supply chain in the services sector.

Hypothesis H3 stated that there is a statistically significant effect of dynamic capabilities on the speed of supply chain in the service sector. The results shown in Table 6 indicated that dynamic capabilities have an impact on the speed of supply chain, with  $T = 9.338$ , and  $Sig = 0.001$ , the value is less than 0.05. Accordingly, hypothesis H3 is accepted, which says: There is a statistically significant effect at a significant level ( $\alpha \leq 0.05$ ) for dynamic capabilities and their combined dimensions (sensing capabilities, seizing capabilities, reconfiguration capabilities, learning capabilities, and integration capabilities) in the speed of supply chain in the services sector.

Hypothesis H4 stated that there is a statistically significant effect of dynamic capabilities on the response of supply chain in the services sector. The results shown in Table 6 indicated that dynamic capabilities have a significant effect on the response of supply chain, with  $T = 9.147$ , and  $Sig = 0.001$ , the value is less than 0.05. Accordingly, the hypothesis H4 is accepted, which says: There is a statistically significant effect at a significant level. ( $\alpha \leq 0.05$ ) for dynamic capabilities in their combined dimensions (sensing capabilities, seizing capabilities, reconfiguration capabilities, learning capabilities, and integration capabilities) in the response of supply chain in the services sector.

Hypothesis H5 stated that there is a statistically significant effect of dynamic capabilities on the competency of supply chain in the services sector. The results shown in Table 6 indicated that dynamic capabilities have a significant effect on the competency of supply chain, as  $T=10.550$ , and  $Sig. =0.001$ , the value is less than 0.05. Accordingly, H5 is accepted, which says: There is a statistically significant effect at the level of Significant ( $\alpha \leq 0.05$ ) for dynamic capabilities and their combined dimensions (sensing capabilities, seizing capabilities, reconfiguration capabilities, learning capabilities, and integration capabilities) in the competency of supply chain in the services sector.

## **Discussion**

This study examined the impact of dynamic capabilities on supply chain agility in the services sector. The sectors were carefully selected, including private hospitals in Qatar, Saudi Arabia, and Jordan, in addition to leading logistics companies known for their dynamic capabilities and high agility. These organizations were selected for their demonstrated ability to quickly adapt to market changes and effectively enhance their operations, reflecting their advanced practices in dynamic resource management and operational flexibility. The high arithmetic mean values observed for both the dimensions of the independent variable (dynamic capabilities) and the dependent variable (supply chain agility) indicate that all dimensions have high relative importance. The findings indicated the critical role of dynamic capabilities in enhancing supply chain agility within highly demanding and changing service sector environments.

There is a clear impact of dynamic capabilities and their dimensions on the agility of supply chain. Sensing capabilities include the ability to identify and monitor changes in the market environment, allowing supply chain to participate and prepare for changes in demand or supply conditions. By effectively sensing changes, organizations can quickly adjust their strategies to maintain or improve supply chain performance. Once opportunities or threats are identified, opportunity capture capabilities involve mobilizing resources and implementing strategies to capitalize on these opportunities or decrease threats. This proactive approach ensures that supply chain remain competitive and responsive, enhancing

their agility by quickly adapting to new conditions. Reconfiguration capabilities relate to the ability to reconfigure existing assets and processes to meet new challenges or opportunities, certainly supply chain benefit from this ability because it allows resources and processes to be rearranged to improve performance, thus maintaining agility even under dynamic market conditions. Continuous learning and integration of new knowledge is critical to the agility of supply chain, learning capabilities enable organizations to innovate and improve their operations based on experiences and new trends. This constant adaptation helps supply chain stay agile through continuous development and improvement. Cohesive integration of internal and external processes and information ensures smooth coordination across supply chain. Integration capabilities facilitate better collaboration and communication between all stakeholders, resulting in a more resilience and agile supply chain network. Together, these dimensions create a strong framework for maintaining agility in supply chain, allowing them to respond quickly and effectively to dynamic market conditions.

Regarding the impact of dynamic capabilities on supply chain agility, it is clear from the results that dynamic capabilities have a positive and significant impact on each dimension of supply chain agility. Dynamic capabilities enhance supply chain agility by enabling organizations to adjust their operations in response to changing market conditions. Sensing capabilities help identify changes in demand and supply, while reconfiguration capabilities allow rapid adaptation of resources and processes, ensuring supply chain can handle changes. In addition, dynamic capabilities contribute to the agility of supply chain by facilitating rapid decision-making and execution. Reconfiguration capabilities ensure that once a market opportunity or threat is identified, supply chain can quickly mobilize resources to take advantage. Integration capabilities simplify communication and coordination across supply chain, reducing delays and accelerating the overall process. Furthermore, dynamic capabilities are vital for supply chain responsiveness, because they enable supply chain to respond quickly to customer requirements and market changes. By constantly monitoring the environment and incorporating new knowledge, organizations can anticipate customer needs and adjust their strategies accordingly, leading to agile supply chain, and responding to any changes in customer preferences or market dynamics. Finally, dynamic capabilities improve the competency of supply chain by optimizing the use of resources, reconfiguration capabilities allow supply chain to re-arrange their operations to reduce waste and maximize productivity, while learning capabilities master continuous improvement, leading to efficient operations. Integration capabilities ensure that all parts of supply chain work consistently and synchronously eliminating repetition, and improving overall efficiency.

This study contributed to clarifying the relationship between dynamic capabilities and supply chain agility, enhancing theoretical frameworks and providing a deeper understanding of the dynamics of supply chain operations, especially in the service sector. It also provided practical recommendations to managers of these organizations to improve service delivery and operational efficiency through ways to sense changes, respond to them efficiently, and reshape resources, which enhances service quality and reduces waste and costs.

### **Recommendations**

To improve the agility of supply chain in the services sector through dynamic capabilities, organizations must first enhance sensing capabilities by investing in data analysis through monitoring systems. They should then create a culture of innovation to seize rapidly emerging opportunities, facilitate reconfiguration by establishing common standards and procedures that ensure that all overlapping parts of the supply chain work in coordination and harmony,

and emphasize continuous learning through training programs and knowledge-sharing platforms. In addition, organizations should prioritize integration by enhancing cooperation between internal departments and external partners. To enhance agility, they must implement flexible sourcing strategies and diversify supplier sources, while improving responsiveness through demand-based forecasting and agile inventory management. Smoothing processes and implementing automation techniques can increase speed, and competency can be developed by training the personnel and assuring a culture of continuous improvement.

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**Appendix I (Questionnaire)**

**Dynamic Capability/ Sensing Capability**

The company is aware of best practices in the market.  
The company quickly notices changes in the market.  
The company systematically searches for information about the current market situation  
The company monitors the activities of its competitors.

**Dynamic Capability/ Seizing Capability**

The company can choose the right opportunities to exploit.  
The company can efficiently allocate human resources to manage opportunities.  
The company can efficiently allocate technological resources to manage opportunities.  
The company can efficiently allocate physical resources to manage opportunities

**Dynamic Capability/ Reconfiguration Capability**

The company successfully implements changes plans by defining clear responsibilities.  
Company change projects can be implemented alongside day-to-day business.  
The company's change plans can be flexibly adapted to the current situation.  
Decisions regarding planned changes in the company are constantly followed up

**Dynamic Capability/ Learning Capability**

The company has diverse experiences that can be used to solve problems  
The company uses knowledge acquired from outside itself to improve its performance.  
The company encourages employees to acquire new skills.  
The company directs employees towards learning by creating a positive and encouraging environment.

**Dynamic Capability/ Integration Capability**

Company employees have a common understanding of each other's tasks.  
The company has knowledge of its employees with specialized skills relevant to its work.  
The company is working to activate its activities in all departments to meet changing circumstances  
The company is managed in a way that ensures integration between its various activities.

**Supply Chain Agility/ Flexibility**

The company can expand its supply chain operations if necessary  
The organization can adjust capacity in the short term, if necessary  
The company can speed up the delivery time if necessary  
The company has a set of adjustments policies to create value for customers

**Supply Chain Agility/ Speed**

The company quickly deals with all threats during changes  
The company deals quickly with changes.  
The company's supply chain operations are characterized by speed in implementation compared to competitors  
The company outperforms competitors in addressing opportunities.

**Supply Chain Agility/ Responsiveness**

The company responds quickly to changing customer requirements  
The company responds effectively to changing customer requirements  
The company responds quickly to changes in competitors' strategies  
The company responds effectively to changes in competitors' strategies

**Supply Chain Agility/ Competency**

The company encourages different perspectives in supply chain  
The company's supply chain are characterized by a high level of trust  
The company's senior management is committed to supply chain agility  
The company uses appropriate technology to manage supply chain