

# THE ROLE OF DYNAMIC CAPABILITIES OF HUMAN RESOURCES IN ENHANCING ORGANIZATIONAL AMBIDEXTERITY (A CONFIRMATORY STUDY CONDUCTED ON THE MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH OF A DEVELOPING COUNTRY)

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## Abstract

The present research aims to examine the nature of the relationship between the dynamic capabilities of human resources and the organizational ambidexterity in the Iraqi context. The research method relied on a descriptive and an analytical approach, Data was collected through a questionnaire administered to a sample constituted of 330 directors of the Departments of Construction, Projects, Research and Development, representing the Ministry of Higher Education and Scientific Research community. The adopted scientific approach helps the departments' directors of this ministry in shaping their future directions towards fostering their dynamic capabilities that are capable of enhancing the organizational prowess. The present study reached several implications and its importance lies in considering it an important attempt to select the indicative plans and paths for the organizational ambidexterity and prowess. It underlines that paying attention to the dynamic capabilities of human resources would contribute to achieving the organizational ambidexterity, as such capabilities includes the ability of employees to leverage the existing opportunities and explore the new ones. Accordingly, it would be of utmost importance to put the emphasis on workers and invest in the development of their qualifications, so that they could be capable of studying the environmental changes and adapt to them, diagnosing the strengths and weaknesses of their organizational resources, and providing all the requirements for success.

**Keywords:** Dynamic Capabilities of Human Resources; Organizational Ambidexterity; Directors of the Departments of Construction, Projects, Research and Development; Ministry of Higher Education and Scientific Research.

## INTRODUCTION

One of the largest contemporary problems that are encountered by the ministry of higher education and scientific research is its capability to cope with the development of the society, to respond to the nature of its outstanding changes and needs and to ensure the extent of its suitability and influential role on its comprehensive development. Accordingly, several scholars interested in the future of research on higher education believe that the long-term success of organizations requires them to focus on their employees' dynamic

capabilities so that they move in the direction of enhancing their organizational prowess. Indeed, such capacities enable them to strengthen their ability to confront the environmental dynamism and its rapid and sudden changes and fluctuations, as well as to face the challenges represented by their organizational weaknesses ability due to their limited interest in investment and exploratory activities. Accordingly, the present research seeks to clarify the overlapping concepts of dynamic capabilities of human resources and organizational ambidexterity, as well as to examine the correlation between their main sub-research variables at the level of the ministry **of higher education and scientific research**, as well as the effect of some of them on others. Thus, it is centred on the following main research question: **“Do the dimensions of the workers’ dynamic capabilities play a role in improving the organizational ambidexterity of the ministry of higher education and scientific research?”**

In light of the problems raised above and their associated research questions, the current investigation seeks to reach three main goals that can be outlined as follows: (1) Exploring the nature of the relationship between the dynamic capabilities of human resources and the organizational ambidexterity, specifically inside the ministry of Higher Education and Scientific Research of Iraq; (2) examining the degree of influence of the dynamic capabilities of human resources on the organizational prowess in that context; and finally (3) proposing several recommendations that might help the personnel of the ministry to be more entrepreneurial so that he contributes to achieve a better organizational ambidexterity through his dynamic capabilities and continuous monitoring of the environmental dynamism.

To reach our research objectives, a quantitative research method was adopted and a questionnaire was developed on the basis of the precedent measurement scales proposed by scholars in the same area.

## **2. THEORETICAL FRAMEWORK AND DEVELOPMENT**

In what follows will be defined, presented, and decrypted the two main concepts of the current research : dynamic capabilities and organizational ambidexterity.

### **2.1. Dynamic capabilities of human resources: foundations, scope, dimensions, and virtues**

A review of the previous studies carried out on dynamic capabilities underline the importance of such a concept that has been largely examined by scholars.

#### **2.1.1. The concept of dynamic capabilities of human resources: Meaning and definitions**

Many researchers specialized in management sciences have paid attention to the concept of dynamic capabilities. For those scholars, such a concept which includes two main aspects Capability and dynamism. Capacity means adaptation, integration, and reassembly of the organization's internal and external skills, resources, and functional capabilities to adapt them to the changing environment (Teece et al., 1997, p. 515). As

for dynamism, it refers to the ability to change and renew capabilities in a way that achieves compatibility with the changes occurring in the external environment (Pavlou & El Sawy, 2011, p. 241). Accordingly, Teece et al. (1997, p. 516) have underlined that dynamic capability is assimilated to the ability to integrate, build, and reshape the internal and external competencies to face the rapid changes of the organization's environment. In the same perspective, Pavlou & Al Sawy (2011, p.242) added that this same concept encompasses the capabilities that help change and foster learning, along with the new capacities that could be acquired to increase the organizational compatibility with the environmental changes. For Ochie et al. (2022, p.496), dynamic capability might embody the whole resource array of the company so that some scholars considered that it corresponds to "the organization's ability to purposefully create, expand, or modify this base".

### **2.1.2. The importance and virtues of the dynamic capabilities of human resources**

In the current digitized world, organizations wherever they are, are witnessing many technological, industrial and operational changes in various fields. Therefore, the concept of dynamic capabilities gained in importance mainly in Management and strategic related researches (Laaksonen & Peltoniemi, 2018, p. 184). It works to capture the new best opportunities for the organization; those which enable it to identify the available skills and energies and enhance its capabilities of modifying, changing and shaping its current resources and skills. By doing so, the organization enhances its competitiveness, and increases its performance, not only in managing its various administrative levels, but also in confronting the environmental fluctuations (Nyachanchu et al., 2017, p. 439; Teece, 2018, p. 43). According to Corbett & Neck, (2010), those dynamic capabilities have two main virtues. On the one hand, they might help senior managers elevate their awareness and responsiveness for making rational decisions regarding the exploitation and replenishment of the organizational assets. On the other hand, such capacities help employees improve their operational processes and optimize the use of resources they might need for doing so (Easterby, Smith et al., 2009, p. 4; Corbett & Neck, 2010). According to Corbett & Neck (2013), dynamic capabilities help managers enhance their awareness and ability to use and reshape the organizational assets and might foster the links between managers' awareness and their behaviours on the one hand, and their interaction with their organizational environment on the other hand. In other words, the strong dynamic capability of an organization makes it capable of building and replenishing its assets, resources, and capabilities effectively so that it becomes responsive to the fluctuations that might occur in the organizational environment (Teece, 2018, p. 43).

### **2.1.3. The dimensions associated to the human resources' dynamic capabilities through the lens of Pavlou & Sawy (2011)'s model**

While reviewing the previous literature related to the dynamic capabilities of human resources, it was found that researchers differ in detailing their dimensions, so that each scholar defined them according to his research vision and intellectual trends. However, most researchers agreed on the five following dimensions, as addressed by Pavlou &

Sawy (2011) in their proposed model: the **sensing, learning, integration, coordination, and reconfiguration capabilities**. Each dimension will be detailed in what follows.

### **a- Sensing Capabilities**

The sensing capability is defined as the process related to knowledge and technology acquisition that enables the organization to identify the environmental opportunities and ensure their conformity to the interior and external regulatory environment (Adam et al, 2018, p. 50). It represents the ability of the firm to note the environmental changes, in addition to its capacity to monitor the environmental external threats that might affect the work of the organization (Chukwuemeka & Onuoha, 2018, p. 8).

### **b- Learning Capabilities**

Learning is considered as an extremely important strategic weapon that supports the progress of organizations. It is also one of the necessary processes that complement their success, whatever their activity is (AlHila, AlMasry, and Tafesh, 2020, p.10). Learning capabilities are known as the ability to renew the operational capacity of the current organization through its knowledge (Pavlou & El Sawy, 2011, p. 247). It is also known as the ability to understand and evaluate the external knowledge, as well as to generate an interior new knowledge that helps the organization to gain in performance (Fang et al., 2014, p. 1191). Such a learning process will also enable the organization to achieve a better adaptation to its dynamic environment (John et al, 2006, p. 80).

### **c- Integration Capabilities**

Integration is defined as an activity performed by the organization to obtain new resources that the organization can absorb and develop, such as acquisitions or alliances that aim to obtain technology to create new procedures (Wall et al, 2010, p.19). It represents the organization's capacity to evaluate the actual available resources and combine them to form new capabilities (Rehman & Saeed, 2015, p.23). Integration capabilities refer also to the process by which managers coordinate and integrate knowledge within the organization, and include all the organizational internal activities (e.g. service or product development procedures, and strategic decisions) and external ones (e.g. customer relations, as well as technical and technological cooperation). Overall, through those integration capabilities, managers combine their experiences, administrative and functional skills to integrate them while making their strategic decisions (Akwel, 2007, p. 38).

### **d- Coordination Capabilities**

Organizations require new configurations of operational capabilities, through an effective coordination of their tasks and resources, as well as a synchronization of their activities. In this perspective, it appears that coordination capabilities, known as "*the ability to coordinate and deploy resources, tasks, and activities in new operational capabilities*" (Pavlou & Sawy, 2011, p. 246), contribute to deploy the reconfigured operational capabilities, through an efficient resource management. According to Wall et al. (2010, p.19), those capabilities rely on the mechanism of an effective planning and organization

of companies' resources and activities. Accordingly, coordination capabilities might depend on sharing the same body of knowledge, a common language and meaning, as well as illustrative maps and diagrams. They result in a collective mind that works to maximize the synergy between the resources that should be pooled (Rengkung, 2018, p. 17). They act as a pattern for making good decisions and facilitating communication between active groups that seek to achieve the organizational objectives (Chan & Chan, 2010, p. 2796).

### **e- Reconfiguration Capabilities**

The ability to reshape or reconfigure is an essential element for determining the resources and the opportunities that are available for investment. According to Amiripour et al (2017, p. 38), as far as the environmental changes are increasing to become more complex, the need for this kind of capabilities is more and more needed by those organizations seeking to seize the available opportunities. Reconfiguration capability is also considered as a transformational concept, which might be assimilated to the process of resources' reactivation or reconfiguration. It involves also the set of important activities and competencies performed by managers who aim especially to support the formation of the structure of the organizational assets, and the completion of external and internal transformation in a rapidly changing environment (Amite & Schomaker, 1993, p. 33). Reconfiguration capabilities are defined as the ability to reunite and transform the existing resources, so that the organization could be able to adapt to the accelerating environmental changes (Teece et al., 1997, p. 515).

## **2.2. Organizational ambidexterity: Origins of the concept, virtues, dimensions, and types**

Organizational ambidexterity has been cited in many recent studies performed mainly on dynamic environments. Its historical and conceptual foundation, dimensions, and scope will be outlined in what follows.

### **2.2.1. Historical foundation of the concept of organizational ambidexterity**

The origin of the concept of organizational ambidexterity goes back to the Latin language in the middle Ages. Indeed, "ambidexterity", is a word that consists of two syllables: the first syllable 'Ambi', which means 'both sides', and the second syllable, 'Dexter', which means 'the right hand'. It takes on many meanings, including 'a person's ability to use his both hands with the same skills' level (Armour, 2015, p. 59). The same scholar Armour (2015) confirms that ambidexterity encompasses also the fact of differentiating the right and the wrong in administrative, cognitive and strategic sciences. Therefore, a successful organization should be ingenious in meeting and confronting the challenges with its focus on a continuous follow-up and an exceptional creativity and investment (Benner & Tushman, 2003, p. 247). At the global level, many organizations have paid attention to the concept of organizational ambidexterity, as it is linked to the organizational balance that relates to investment and exploration activities (Amjad & Nor, 2020, p. 1523). Duncan (1976, p.49) assimilates the concept of organizational ambidexterity to the organizational ability to deploy a dual organizational structure. Such a structure with multiple levels and

facets might, not only facilitate the innovation process into different stages, but also enable the distinct organizational units to deal with conflicts, establish effective personal relationships, and develop specific rules for change. Jansen (2005, p. 145) advances that organizational ambidexterity will provide a new vision on how a brilliant organization can create and develop important resources to achieve a sustainable competitive advantage. Sarkees (2017, p. 80) adds that the organization can simultaneously explore new possibilities to deal with future environmental changes and exploit the old constants to meet the current demands. In the same context, Ochie et al. (2022, p.495) present the concept as the organizational ability to participate effectively in exploiting its current capabilities, while continuing to explore new capacities at the same time.

### **2.2.2. The importance of organizational ambidexterity**

The importance of organizational ambidexterity stems from the various cognitive areas it might include, such as strategic management, organizational behavior, adaptation and learning. Indeed, investment enhances the organizational performance in the short term; while exploration enhances the long-term organizational performance by exploring new opportunities and responding appropriately to the environmental variables (Majid et al, 2020, p.8). In addition to its importance as an academic research topic, ambidexterity is also concerned with the administrative practices, taking into account the characteristics of the competitive environment where organizations operate, and the implementation of investment and exploration activities is highly required (Pertusa-Ortega & Molina-Azorín, 2018, p. 84). Ambidexterity allows the organization to embrace the reality of daily activities that are often dominated by the managers' decisions, pulling it in contradictory directions. On the other hand, investing in the exploratory aspects might help the organization to make the relevant decisions or reconsider its approaches during her quest for the appropriate solutions to the existing problems (Smith, 2017, p. 2). In a nutshell, a brilliant organization can achieve competitive advantages by making radical and developmental changes that enable it to explore the best opportunities, as well as to adapt, harmonize, and develop new products and services. At the individual level, research has indicated that the importance of ingenuity is evident in innovation and creativity while performing daily tasks (Wu & Wu, 2388, p. 2016). According to Zeng et al. (2017, p. 9), in light of the environmental shifts, sustainable creativity can create dual sustainable strategic innovation units and strengthen the organizational sustainability ties. By doing so, organizations will be able to participate in enacting and sharing creativity values, and creating effective mechanisms for managing diverse concepts of creativity. Therefore, organizations become increasingly interested in organizational ambidexterity through their ability to achieve sustainable competitive advantages, by improving their performance in the business context (Kuncoro et al., 2017, p. 513).

### **2.2.3. Types of organizational ambidexterity**

Many researchers consider that organizational ambidexterity could be achieved through three types of methods or approaches: the structural ambidexterity, the contextual ambidexterity, and the sequential ambidexterity (Coleman, 2016, p. 24; Reynaert, 2018,

p. 17; Selig & Baltes, 2020, p. 2, O'Reilly & Tushman, 2013, p. 8-13). These methods can be detailed as follows:

- a- The structural ambidexterity:** It is also entitled the architectural ingenuity, as it helps to find solutions to deal with dual and strategic organizational structures, in order to harmonize investment and exploration. Through it, the organization can design separate structures that focus on separate activities. It is described as the simultaneous pursuit of investment and exploration. Moreover, it can be achieved through many mechanisms, including dual structures and subsystems, and its tasks are independent and specific to investment and exploration (Miller, 2015, p. 56). Accordingly, structural ambidexterity is described as the set and framework of public relations that operate within the scope of strategic alliances and joint projects. It is an optimal method for achieving organizational ambidexterity (Park et al, 2020, p. 3).
- b. The contextual ambidexterity:** The contextual view of organizational ambidexterity is widely used within the management literature (Fu et al., 2015, p. 4). It is also called the combinatorial ambidexterity, as it is similar to the organizational activities that complement investment and exploration. It focuses primarily on the integration and alignment between investment and exploration within the business units of the organization. It also allows differentiated efforts to combine different activities (Wang & Rafiq, 2014, p.60). The contextual view of ambidexterity emphasizes that the success of organizations depends on the usage of investment and exploration simultaneously within the units or the organization.
- c. The sequential ambidexterity:** Many organizations are currently witnessing fast-paced shifts within the business environment. Those shifts impose on them the obligation to make rapid changes and transformations on their products, services and operations. That is why, investment and exploration should be addressed simultaneously by ambidexterity, within the separate business units and business models, and with a certain focus on alignment between their different aspects. It also requires diverse incentives, processes, and cultures (Miller, 2015, p. 14-15). Through the sequential ambidexterity, firms focus on one activity or initiative; then they work to complement it with the following one in a sequential manner. This category of ambidexterity differs slightly from the other methods of ambidexterity, i.e. the contextual and the structural one (O'Reilly & Tushman, 2013, p. 11).

#### **2.2.4. Dimensions of organizational ambidexterity**

Organizational ambidexterity comprises two main dimensions: exploration and exploitation of opportunities.

##### **a- Exploitation of existing opportunities**

Organizations' investment in opportunities' exploitation involves all the organizational learning activities, such as courtesy, efficiency, implementation and achievement. Such investment is therefore based on a process of knowledge management, that serves for those organizations' continuous improvement, modification, refinement and gradual

change of their current processes, products and services (Abuzaid, 2016, p. 33). The term 'investment' refers to the effectiveness of the current management regarding the environmental requirements. In other words, each organization works on avoiding risks and focuses on the effectiveness and efficiency of its production (Katou et al, 2020, p.1). The orientation of the organization towards such an investment assumes that it has a complete information about the external opportunities and the internal capabilities. It should expect that its investment works within an established problem-solving framework, that might clearly define the current problems and develop the appropriate solutions for them. To do so, the organization focuses its attention on its current ways of doing business, as well as on using its available information and existing capabilities to achieve its short-term goals and market positions. Accordingly, investment in exploitation opportunities is convenient for low-levels of uncertainty, for well-managed organizations that seek to achieve confirmed profits and success in the short term (Chen, 2017, p. 386).

### **b-Exploration of new and prospective opportunities**

Exploring novel opportunities is one of the organizational activities that encompasses research, diversity, risk, experimentation, and creativity. Exploration relies on the knowledge that is leveraged to search for innovation, experimentation, and creativity, for making ultimate radical changes. It aims at designing new and innovative products and processes, through the exploration of organizational transcends and technological boundaries. By doing so, it might also contribute to the development of new resources and capabilities for the organization (Abuzaid, 2016, p. 331). For McCarthy & Gordon, (2011, p.241), exploration might also involve the set of activities and outputs that focus on new, emerging, and pioneering technologies, enabling the organization to adapt to its context over long time horizons. It is considered as a strategy adopted by organizations for the purpose of developing new ideas, operations, experiments, as well as launching new products and services (Gurlek, 2020, p.6). The main activities undertaken for exploring opportunities might boost a variety of experiences associated with expanding the current knowledge base, conduct a revision of the current beliefs and decisions, searching for convenient rules and procedures, shaping new organizational structures, prospecting new markets, and developing new distribution channels that could serve the long-term goals (Bang, 2017, p. 45).

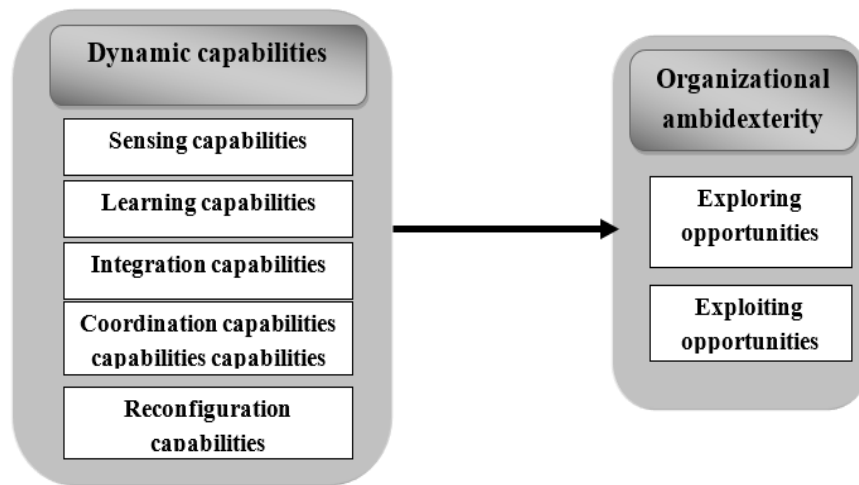
## **3. RESEARCH METHOD**

The research model of the current research is developed on the basis of the above theoretical observations and the prior correlated empirical studies.

### **3.1. Proposed research model and hypotheses**

The hypothetical model presented hereafter in Figure 1, is embodied in the light of the research problem, questions, and objectives, which were produced on the basis of the precedent literature and previous proposed frameworks.





**Figure 1: Theoretical Research model**

Source: Authors’ own elaboration

To clarify the hypothetical relationship between the research latent variables, the current investigation seeks to test the main following research hypothesis:

The research stems from two main hypotheses

- **The main hypothesis H1:** there is a positive and significant influence of the dynamic capabilities of human resources on the organizational ambidexterity of the Iraqi ministry of higher education and scientific research.

### 3.2. Research population and sample

The Ministry of Higher Education and Scientific Research was chosen to implement the practical aspect of the study. To test the research hypotheses of the present investigation and achieve its objectives, a random sample of 384 Individuals was selected from a large population of 2000 employees. It included senior, middle, and executive managers of two main departments, including ‘Research and Development’, and ‘Construction and projects’. According to D.Morgan, for a population of 2000 individuals, the global model should be tested on a sample size of 322 individuals. For the best accuracy and robustness of our results, the chosen sample included ultimately 330 individuals, as drawn and shown in table 1 below.

**Table 1: Details of the distributed and returned forms**

Questionnaires	Number	Percentage
Number of distributed questionnaires	384	%100
Number of unreturned questionnaires	32	%8
Number of returned questionnaires	352	92%
Number of questionnaires unsuitable for analysis	22	%6
Number of questionnaires suitable for analysis	330	94%

Source: Authors’ own elaboration

### 3.3. Measurement scales, and research instruments

**3.3.1. The theoretical aspect:** To enrich the theoretical aspect of the research, the researchers attempted to extract the primary sources of information from the libraries available in Iraq and Tunisia, in addition to using Internet websites and specific scientific. Foreign and Arab books, research letters, and theses related to the research variables were also purposely examined.

**3.3.2. The practical aspect:** Several instruments were employed to test our research model. First of all, personal interviews were carried out by the researchers to collect information about the population and the research sample. Second, a questionnaire, representing the main and appropriate tool for collecting data and information related to the applied aspect of this research, was developed and pretested, before being administrated to the target sample. It was designed on the basis of several measurement scales previously proposed in the prior studies, as recommended by Omrane (2015) as well as Omrane&Gumer (2023). As shown in Table 2 below, dynamic capabilities of human resources were assessed by reference to the measurement scale suggested by Pavlou & El Sawy (2011). It comprised 17 indicators. Meanwhile, the 13 items that were used to operationalize organizational ambidexterity were adapted from Jansen (2005)'s measurement scale. It should be also noticed hereby that a five-point Likert scale was adopted to determine the participants' answers, ranging from '1' for "strongly disagree" to '5' for "strongly agree".

**Table 2: Measurement scales adopted for the development of the questionnaire**

Main variables	Subvariables	Number of indicators	Sources
Dynamic capabilities of human resources	Sensing capacity	3	Pavlou & El Sawy (2011)
	Learning ability	4	
	Integration capacity	4	
	Coordination ability	3	
	Reconfiguration ability	3	
Organizational ambidexterity	Opportunities' exploitation (Investment)	6	Jansen (2005)
	Opportunities' exploration	7	

Source: Researchers' own elaboration

## 4. RESULTS' ANALYSIS AND DISCUSSION

### 4.1. Descriptive analysis

The statistical procedures that were adopted for the descriptive analysis of the latent variables of the current research, and their corresponding dimensions, are detailed in the Table 3 below. More precisely, the level of variables' availability within the studied environment, as well as their weighted average were determined in order to adequately interpretate the results for Dynamic capabilities of human resources, organizational ambidexterity and their corresponding sub-dimensions.

**Table 3: Weighted average and response level**

Availability level	Weighted average
Very weak	1.80-1
Weak	2.60-1.81
Middle	3.40-2.61
Good	4.20-3.41
Very good	5-4.21

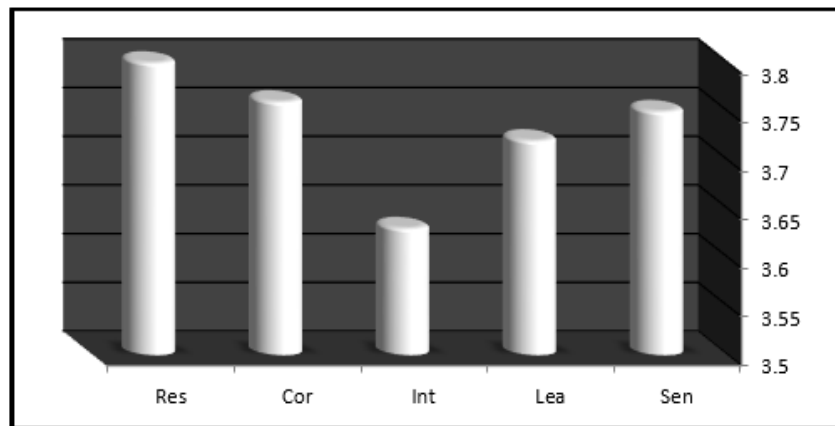
#### 4.1.1. Descriptive analysis performed on the dynamic capabilities of human resources

In order to describe, analyze and interpret responses about Dynamic capabilities of human resources in terms of the level of the latent variable in general and its dimensions. At the level of the dynamic capabilities of human resources as a multidimensional variable, the results indicate that the general rate of the variable was achieved at an arithmetic mean of 3.73, which corresponds to a good level in terms of acceptance within the corresponding environment; and at a relative importance estimated at 75%, reflecting a serious percentage of its availability. The amount of dispersion of the answers regarding this variable attained 0.958. As for the dimensional level, the reconfigurable capabilities dimension achieved the first place in terms of interest among respondents, with an arithmetic mean of 3.80, which is within a good answer level with an importance rate estimated at 76%, and a small amount of dispersion of about 0.973%. “Coordination capabilities” were ranked second, before “Sensing capabilities”. “Learning abilities” came at the fourth place, before the “integration capabilities”. Their corresponding arithmetic averages, importance rates, and amount of dispersion are depicted in the table 4 shown below, revealing a good response level, with as slight degree of dispersion within responses.

**Table 4: Descriptive analysis of responses to the dynamic capabilities of human resources variable**

Paragraphs	Coding	Answer direction	Relative importance	Average relative weight	Standard deviation	Arithmetic mean
<b>Sensing capabilities</b>	Sen	good	3	0.75	0.965	3.75
<b>Learning capabilities</b>	Leave	good	4	0.75	0.957	3.72
<b>Integration capabilities</b>	Int	good	5	0.73	0.984	3.63
<b>Coordination capabilities</b>	Cor	good	2	0.75	0.913	3.76
<b>Reconfiguration capabilities</b>	Res	good	1	0.76	0.973	3.80
<b>Studied envirt</b>		good			0.958	3.73
<b>Availability ratio for dynamic capabilities of HR</b>			<b>75 %</b>			
<b>Gap Size</b>			<b>25 %</b>			

Source: Microsoft Excel and SPSS (V.25)



**Figure 2: Arrangement of the dimensions of dynamic capabilities of human resources in terms of importance and weighted arithmetic means**

Source: Electronic calculator

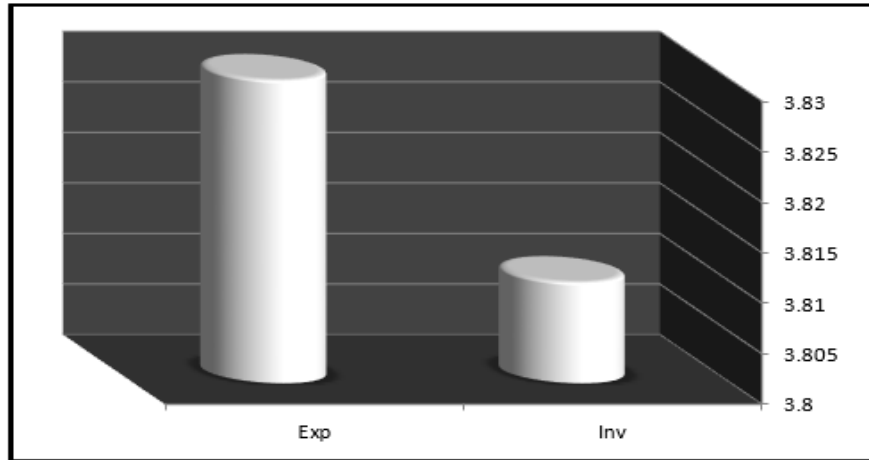
#### 4.1.2. Descriptive analysis for the organizational ambidexterity variable

In order to analyze and interpret responses related to the latent variable “the Organizational ambidexterity” and its dimensions, a descriptive analysis was undertaken on SPSS software. Results reveal that the overall rate of the variable was achieved at 3.82, which is an arithmetic mean that corresponds to a good level in terms of acceptance within the studied environment. The relative importance was estimated at 76%, which is an acceptable percentage of its availability; whereas the the amount of dispersion in answers was of 0.943. As for the dimensional level, the first dimension “exploring opportunities” obtained the first rank in terms of interest among respondents, with an arithmetic average of 3.83, an importance estimated at 77%, and a small degree of dispersion of about 0.981%. The second dimension “ranked second after investing in opportunities, with an arithmetic average of 3.81, which is within a good response level, with an importance rate estimated at 76% and with an amount of slight dispersion of about %.905. As shown in Table 5 below.

**Table 5: A descriptive analysis of responses on organizational ambidexterity**

Paragraphs	Coding	Answer direction	Relative importance	Average relative weight	standard deviation	Arithmetic mean
Investing in opportunities		good	2	0.76	0.905	3. 81
Exploring opportunities		good	1	0.77	0.981	3. 83
General environment		good			<b>0.943</b>	<b>3.82</b>
Availability ratio for Org Amb	76 %					
Gap Size	24 %					

Source: SPSS (V.25)

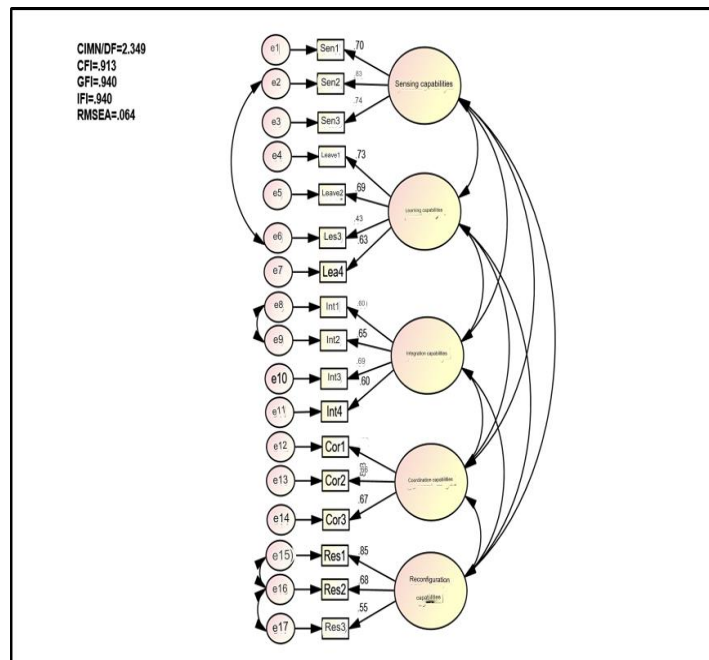


**Figure 3: Arrangement of the dimensions of organizational ambidexterity in terms of importance, and weighted arithmetic means**

Source: Electronic calculator.

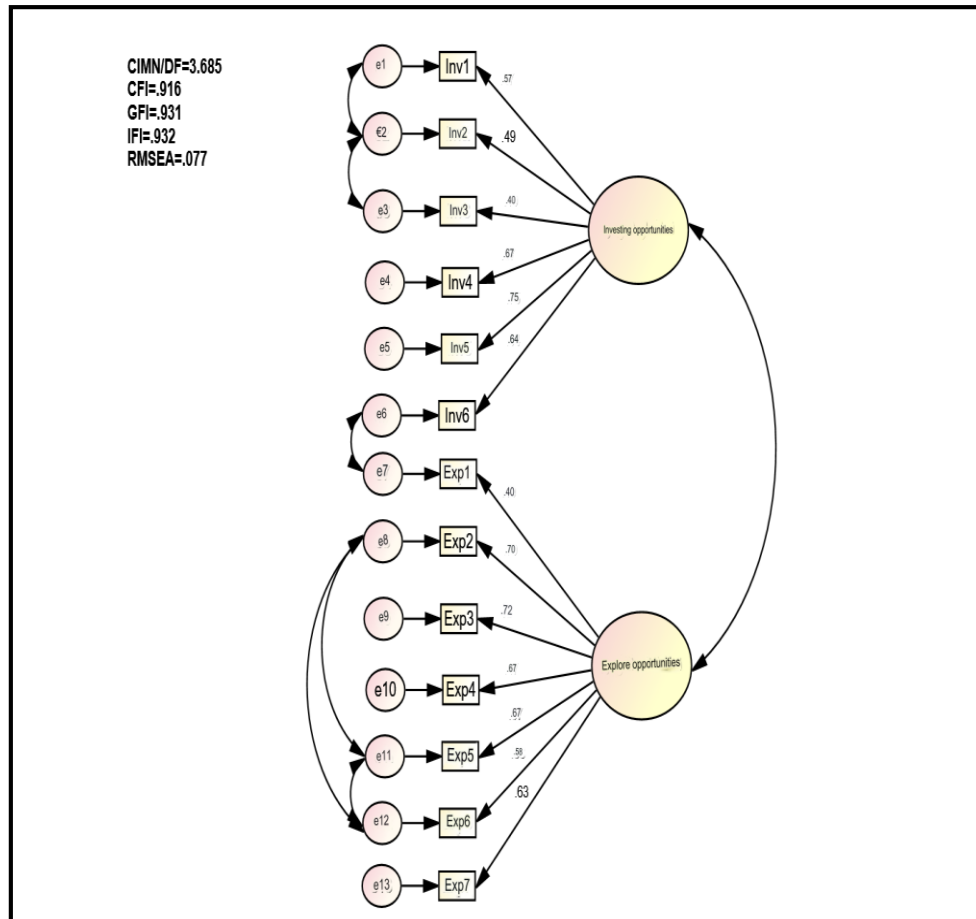
#### 4.2. Construct Validity and reliability results

To test the stability of the measurement scales of our research, a confirmatory factor analysis was conducted for the latent variables and their corresponding dimensions, as shown in the figures 4 and 5 below.



**Figure 4: Confirmatory construct validity of the Human Resources Dynamic Capabilities Scale**

Source: Amos. (V.23) outputs



**Figure 5: Confirmatory factor analysis for construct validity of Organizational ambidexterity**

Source: Amos. (V.23) outputs

To test the reliability of the interviewees' internal consistency, the Cronbach's  $\alpha$  coefficients was calculated. It is commonly known in social sciences that a cronbach's alpha value that is above than the threshold of 0.7 could be accepted (Nam, Kim, and Jin, 2018).

For the two main latent variables of the present study, the Cronbach's  $\alpha$  coefficients were higher than the cut-off value, ensuring that the reliability is to be confirmed, attesting that there is no issue in the confirmatory factor analysis procedures.

On the other hand, to assess the model goodness of fit of the research (measurement) model, the appropriate indicators: RMR (root mean square residual, RMSEA (root mean square error of approximation), CFI (comparative fit index), IFI (incremental fit index) and NFI (normed fit index), were checked respectively.

According to Nam et al (2018, p. 981), the model fit of the total measurement model is considered good if the indicators' values cited hereby are higher that the following

thresholds:  $CMIN/DF < (5)$ ,  $RMR$ ,  $RMSEA \leq (0.10)$ ,  $AGFI \geq (0.80)$ , and  $GFI$ ,  $CFI$ ,  $IFI$ ,  $NFI \geq (0.90)$ .

Additionally, Dancey and Reidy, (2007, p. 473) pointed out that, if those specific criteria for accepting the program results (saturations) related to the items for the quality of conformity of the tested model, and the saturations exceed (40%), they could be considered as statistically acceptable.

In the current investigation, the dimensions attained a standard saturation higher than the standard of (0.40), providing evidence that the dimensions are statistically acceptable (Costello & Osborne, 2005)

Moreover, as for dynamic capabilities, the fitness index was analyzed and the following values were retrieved:  $CMIN/DF < (2.349)$ ,  $RMSEA (0.064)$ ,  $GFI (0.940)$ ,  $CFI (0.913)$ , and  $IFI (0.940)$ . Accordingly, the fit could be interpreted as conforming to the acceptance criteria.

Concerning organizational ambidexterity, the specified fit criteria were found as follows:  $CMIN/DF < (3.685)$ ,  $RMSEA (0.077)$ ,  $GFI (0.931)$ ,  $CFI (0.916)$ , and  $IFI (0.932)$ . Therefore, the fit could be similarly interpreted as conforming to the acceptance criteria.

#### **4.3. Correlation matrix' checking (among latent variables)**

To determine the extent of acceptance of the first hypothesis, as well as to test the nature and level of correlation between the two main latent variables: the dynamic capabilities of human resources and the organizational ambidexterity, the Pearson correlation coefficient was calculated.

As depicted in Table 6 below, a matrix related to the correlation between the dependant and in dependent latent variables and their dimensions was drawn. From this matrix, it appears that there is a strong correlation and relationship (amounting to  $0.768^{**}$ ) between the dynamic capabilities of human resources with its dimensions and the organizational ambidexterity. Such a Pearson correlation coefficient value represents a statistically significant one, within a significant level of 1 %, reaching 0.000, with a level of confidence in the result of 99 %.

This result indicates the acceptance of the first hypothesis, and demonstrates that there is a significant and direct relationship between dynamic capabilities and the organizational ambidexterity, correlation value is significant according to the Sig index, which was within a significant level. 1 %, as it reached 0.000, meaning a level of confidence in the result of 99 %.

This result explains that the availability of the level of dynamic capabilities of human resources in the Ministry of Higher Education and Scientific Research will inevitably lead to a good level of organizational prowess. Such a finding is also consistent with the previous statements advanced by Monteiro et al., (2019, p.7), who underlined the important role of dynamic capabilities in fostering the ambidexterity of organizations.

**Table 6: Matrix of correlation coefficients between the dynamic capabilities of human resources and their dimensions and organizational ambidexterity**

		Correlations						
		Sensing capabilities	Learning capabilities	Integration capabilities	Coordination capabilities	Reconfiguration capabilities	Dynamic capabilities of human resources	Organizational acuity
Sensing capabilities	Pearson Correlation	1	.565 **	.546 **	.554 **	.428 **	.776 **	.681 **
	Sig. 2-tailed		.000	.000	.000	.000	.000	.000
	N	330	330	330	330	330	330	330
Learning capabilities	Pearson Correlation	.565 **	1	.706 **	.634 **	.473 **	.827 **	.682 **
	Sig. 2-tailed	.000		.000	.000	.000	.000	.000
	N	330	330	330	330	330	330	330
Integration capabilities	Pearson Correlation	.546 **	.706 **	1	.700 **	.532 **	.854 **	.652 **
	Sig. 2-tailed	.000	.000		.000	.000	.000	.000
	N	330	330	330	330	330	330	330
Coordination capabilities	Pearson Correlation	.554 **	.634 **	.700 **	1	.623 **	.844 **	.659 **
	Sig. 2-tailed	.000	.000	.000		.000	.000	.000
	N	330	330	330	330	330	330	330
Reconfiguration capabilities	Pearson Correlation	.428 **	.473 **	.532 **	.623 **	1	.760 **	.453 **
	Sig. 2-tailed	.000	.000	.000	.000		.000	.000
	N	330	330	330	330	330	330	330
Dynamic capabilities of human resources	Pearson Correlation	.776 **	.827 **	.854 **	.844 **	.760 **	1	.768 **
	Sig. 2-tailed	.000	.000	.000	.000	.000		.000
	N	330	330	330	330	330	330	330
Organizational acuity	Pearson Correlation	.681 **	.682 **	.652 **	.659 **	.453 **	.768 **	1
	Sig. 2-tailed	.000	.000	.000	.000	.000	.000	
	N	330	330	330	330	330	330	330

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

Source: SPSS (v.25) outputs

#### 4.4. Path analysis and hypothesis testing regarding the effects of dynamic capabilities of human resources on organizational ambidexterity

The path analysis associated to hypotheses' testing of the direct effect of the dynamic capabilities of human resources on organizational ambidexterity, was conducted using SEM. Table 7 and figure 6 present their related results. Based on path coefficients' values, hypotheses were accepted.

The value of the coefficient of determination R<sup>2</sup>, which reflects the amount of explanation that the dynamic capabilities of human resources can explain from the changes in organizational ambidexterity, was 0.59.

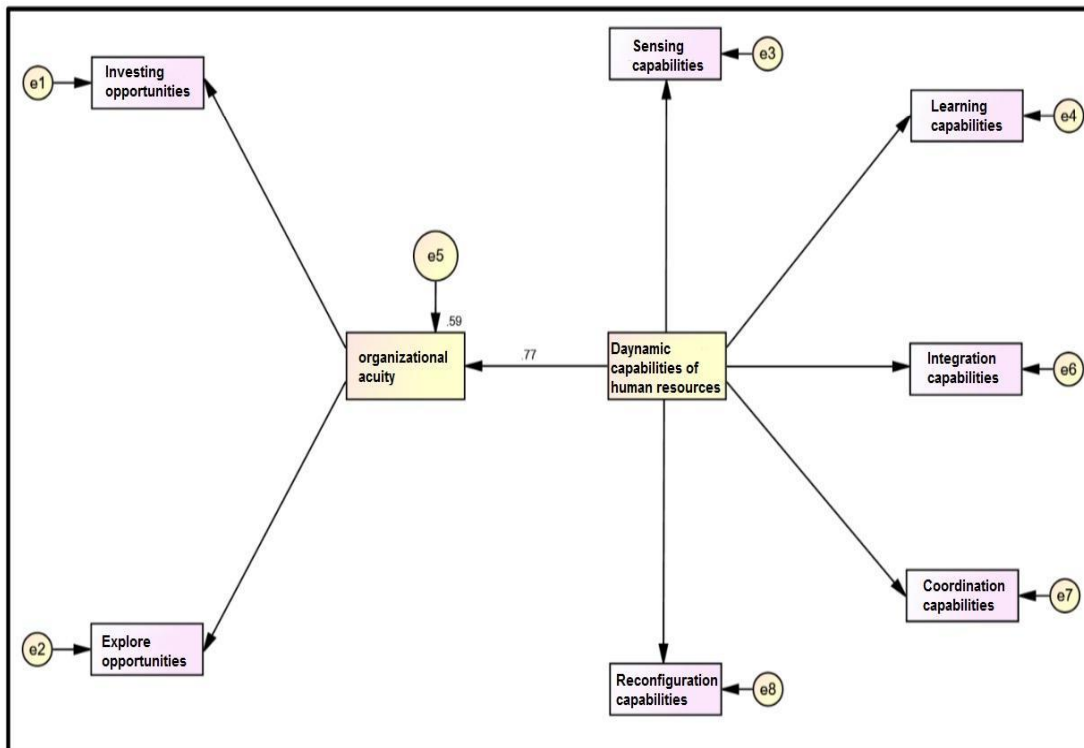
It means that the dynamic capabilities of human resources explain 59% of the changes that occur at the level of the organizational ambidexterity; while the remaining percentage of 41 %, is due to the influence of other variables that were not taken into account in the research model of the present study.



The tested effect value was Beta Standardized  $\beta = 0.77$ ,  $P < 0.01$ , indicating the existence of a positive direct effect of dynamic capabilities of human resources on the organizational ambidexterity. Such a finding provides the evidence that whenever the level of availability of the dynamic capabilities of human resources increases by one unit, the greater will be the level of organizational ambidexterity, which might increase by 77%.

Such a value is considered significant at  $P < 0.001$ , as its critical CR shown in Table 7, amounted to 21,771. The corresponding hypothesis H1 is therefore accepted, and the existence of a significant influence of the dynamic capabilities of human resources on organizational ambidexterity was proved.









Such a result is consistent with the findings of Ochie et al. (2022, 493) who reveal that dynamic capabilities of employees work to enhance both the exploration and exploitation of opportunities.



**Figure 6: Testing the direct effect of dynamic capabilities on organizational ambidexterity**

Source: Amos. (V.23) outputs

**Table 7: Regression weights for testing the direct effect of dynamic capabilities on organizational ambidexterity**

Variables and dimensions	Track	Variables and dimensions	SRW	Estimate	SE	CR	P. Value
Dynamic capabilities of human resources		Organizational ambidexterity	0.768	0.810	0.037	21.771	***
Dynamic capabilities of human resources		Sensing capabilities	0.776	1.084	0.049	22.306	***
Dynamic capabilities of human resources		Learning capabilities	0.827	0.992	0.037	26.647	***
Dynamic capabilities of human resources		Integration capabilities	0.854	1.087	0.036	29.833	***
Dynamic capabilities of human resources		Coordination capabilities	0.844	0.797	0.028	28.558	***
Dynamic capabilities of human resources		Reconfiguration capabilities	0.760	1.041	0.049	21.207	***
Dynamic capabilities of human resources		Opportunities' exploitation	0.929	0.948	0.021	45.661	***
Dynamic capabilities of human resources		Opportunities' exploration	0.941	1.052	0.021	50.632	***

Source: Amos V.23

## 5. CONCLUSION

The current investigation sought to highlight the importance of nurturing dynamic (i. e. sensing, learning, coordination, integration, and reconfiguration) capabilities of employees inside organizations, especially those working in the ministry of higher education and scientific research of developing countries.

More precisely, the present research aimed at underlining the significant and positive influence of such strategic capabilities on the organizational ambidexterity of the Iraqi ministry whose personnel is conveyed, not only to exploit the existing opportunities, but also to innovate and explore new ones. Indeed, the current VUCA environment and dynamic context where they are working might encourage them to nurture and strengthen their dynamic skills, especially those called the 'sensing capabilities', enabling the organization to monitor the environmental changes and threats via appropriate tools and technological devices.

In other words, the ministry staff is conveyed to find out and create a balance between the activities of investing in realistic opportunities, seizing new ones, and adapting to external variables and surrounding environment. By doing so, the various costs of functional and educational operations through the various departments of the ministry might be reduced.

Findings stressed also the importance of developing workers' learning capabilities, which could be widely improved via training, teambuilding, brainstorming activities, etc. Owning research centers could contribute to promote such sessions and activities. Integration and coordination capabilities are also keen to ensure that the goals and activities of individuals contribute to the goals of their ministry.

Besides, achieving harmony and compatibility between the tasks, activities and resources is essential for individuals according to their capabilities and assigned roles inside their departments and units within the ministry in a way that makes their workflow smooth.

The restructuring capabilities, in addition to the presence of a work environment that encourages individuals to make partial or complete changes that are commensurate with the needs of the field of work.

### **5.1. Main Recommendations**

- 1) It is recommended to focus a good attention on human resources inside the ministry. Its personnel is called upon to analyze the environmental changes and develop the qualifications that enable him to face those changes and adapt to them, diagnose the strengths and weaknesses of these resources and provide all the requirements for the organizational success.
- 2) It is important to invest in the capabilities of human resources to sense environmental variables, follow them continuously, know the extent of their impact on the ministry, review them, collect and analyze information, study it accurately, and benefit from feedback to know the fluctuations that occur and may occur in the future.
- 3) The Iraqi ministry is conveyed to take serious and effective decisions to support the learning process for its employees, including providing material and moral support and involving them in specialized training courses in their field of work to provide them with knowledge bases that enable them to develop their work methods and develop their technical and administrative skills, which will reflect positively on the services provided by the ministry.
- 4) The emphasis should be placed on the integration capabilities of human resources by helping employees share their work tasks and responsibilities in a way that achieves the ministry's objectives and making the organizational structure more flexible to facilitate the process of responding to environmental changes.
- 5) The necessity of developing a good coordination between employees while performing the duties and tasks required of them through paying attention to information and knowledge sharing, transforming tacit knowledge into explicit knowledge, and making the necessary resources available to achieve this, which generates harmony and interaction between human resources.
- 6) It is recommended to empower human resources to organize their internal and external resources, arrange their activities, and provide the best selection of resources by giving them the freedom to use restructuring capabilities and providing

the appropriate climate for that and the necessary supplies such as the required devices and tools.

- 7) The necessity of building an ingenious organization capable of performing innovative, investment and exploratory approaches. This construction could be done by achieving a simultaneous balance between investment and exploratory activities in the Iraqi higher education and scientific research environment in order to obtain the advantages of both approaches.
- 8) The Iraqi ministry must invest the opportunities available to it in a way that contributes to enhancing its organizational prowess in providing services to its customers by continuously making minor modifications to its current services, working to introduce fundamental improvements in the quality of its provided services, and reducing the costs of its internal services.
- 9) Customers whose desires and preferences go beyond the boundaries of the Ministry's current services must be identified as future opportunities and should be explored. Creative and innovative employees should also be encouraged, motivated, supported and trained for the purpose of innovating these services in a way that satisfies customers and meets their future ambitions.

## References

- 1) Abuzaid, Ahmad Nasser, (2016), "**Testing the Impact of Strategic Leadership on Organizational Ambidexterity: A Field Study on the Jordanian Chemical Manufacturing Companies**", Canadian Center of Science and Education, International Journal of Business and Management; 11(5), pp. 328-339.
- 2) Abuzaid, A. N., Al Haraisa, Y. E., & Alateeq, M. M. (2022). "**The Mediating Effect of Dynamic Capabilities on the Relationship between Strategic Foresight and Strategic Renewal: Evidence from Islamic Banks in Jordan**". International Journal of Professional Business Review, 7(2), e0369-e0369.
- 3) Adam, M., Strähle, J., & Freise, M. (2018), "**Dynamic Capabilities of Early-Stage Firms: Exploring The Business of Renting Fashion**", Journal of Small Business Strategy, 28(2), pp. 49-67.
- 4) Amiripour, P, Dossey, J. A, & Shahvarani, A, (2017), "**Impact of Organizational Inertia and Dynamic Capabilities on Educational Performance of the Charitable Societies and Its Impact on Mathematical Performance of Elementary At-Risk Students** ", Journal of New Approaches in Educational Research, Vol. 6. No. 1, pp. 37-49.
- 5) Akwel, Cynthia, A. (2007), **The process of creating dynamic capabilities**. Doctoral thesis submitted in partial fulfilment of the requirements for the award of PhD of Loughborough University.
- 6) Amite & Schomaker. (1993), "**Strategic Assets and Organizational Rent**", Strategic Management Journal, 14(1), pp. 33-46.
- 7) Amjad, Asad & Nor, Khalil Md. (2020), "**Organizational Ambidexterity: The State of Global Research Using Bibliometric Analysis on Scopus Database**", Journal of Xi'an University of Architecture & Technology, Vol 12, N,5, PP.1522-1540.
- 8) Armour, A. F. (2015), "**Achieving contextual ambidexterity through the implementation of high performance work systems**" (HPWS).

- 9) Bang Nguyen. (2017), "**Work-family conflict, organizational ambidexterity and new venture legitimacy in emerging economies**", Technological Forecasting & Social Change, Elsevier Inc,
- 10) Benner, M. J., & Tushman, M. L. (2003), "**Exploitation, exploration, and process management: The productivity dilemma revisited**", Academy of Management Review, 28(2), pp. 238–256.
- 11) Chan, Hing K., and Chan, Felix T.S. (2010), "**A review of coordination studies in the context of supply chain dynamics**", International Journal of Production Research, Vol. 48, No.10, pp. 2793-2819.
- 12) Chen, Y. (2017). "**Dynamic ambidexterity: How innovators manage exploration and exploitation**". Business Horizons, 60(3), 385-394.
- 13) Chukwuemeka, Ofoegbu Wilson, and Onuoha, B. C. (2018), "**Dynamic Capabilities and Competitive Advantage of Fast Foods Restaurants**", International Journal of Management Science and Business Administration Vol. 4, No. 3, pp. 7-14.
- 14) Coleman, N. J. (2016). "**An Exploration of the Role of Leadership Behaviors and Ambidexterity in Online Learning Units**" (Doctoral dissertation, The George Washington University).
- 15) Corbett, Andrew and Neck, Heidi M. (2010), "**Corporate Entrepreneurship and The MicroFoundations of Dynamic Capabilities**", Frontiers of Entrepreneurship Research, Vol. 30: Issue. 17, pp.1-15.
- 16) Duncan, R. (1976), "**The ambidextrous organization: Designing dual structures for innovation**". In: R.H. Killman, L.R. Pondy & D. Steven (eds.), The Management of Organization. New York: North Holland.
- 17) Fang, Shih-Chieh, Wang, Ming-Yeu, Wu, Feng-Shang, and Chen, Wei-Ying (2014), "**Effects of Organisation's Dynamic Capabilities on the Duration of Patent Commercialisation: The Case of Taiwan Biotechnological Industry**", Proceedings of PICMET '14: Infrastructure and Service Integration, pp. 1189-1200.
- 18) Fu, Na., Qin Hai, Ma, Janine Bosak and Patrick Flood, (2015), "**Exploring the relationships between HPWS, organizational ambidexterity and firm performance in Chinese professional service firms**", Emerald Group Publishing Limited, Journal of Chinese Human Resource Management, Vol. 6, No. 1, pp. 52-70.
- 19) Jansen, J. J., Van den Bosch, F. A., & Volberda, H. W. (2005). "**Exploratory innovation**", exploitative innovation, and ambidexterity: The impact of environmental and organizational antecedents. Schmalenbach Business Review, 57(4), pp. 351-363.
- 20) John, R., Schermerhorn & jr, James G. Hunt & Richard N & Osborn Claire de Billy. (2006) . **Comportement Humain et Organisation**, ERPI, 3<sup>rd</sup> edition.
- 21) Katou, Anastasia A. & Budhwar, Pawan S. & Charmi Patel. (2020), "**A trilogy of organizational ambidexterity: Leader's social intelligence, employee work engagement and environmental changes**", Journal of Business Research, pp.1-13.
- 22) Kuncoro, E. A., Tisnawatisule, E., Prabowo, H., and Aziz, Y. (2017), "**Creating Organizational Ambidexterity Influenced by Entrepreneurial Competencies and External Environmental Dynamism and Its Impact toward Business Performance through Sustainable Competitive Advantage**", International Journal of Scientific and Research Publication, 7, (5), pp. 506-515.
- 23) Laaksonen, O., & Peltoniemi, M. (2018), "**The Essence of Dynamic Capabilities and Their Measurement**", International Journal of Management Reviews, 20(2), Pp: 184-205.

- 24) Majid, Abdul & Yasir, Muhammad & Zahid Yousaf. (2020), "**Network capability and strategic performance in SMEs: the role of strategic flexibility and organizational ambidexterity**". Eurasian Business Review, pp. 1-24.
- 25) Miller, Erlend. (2015), "**The individual innovator as a resource within the organization**", University of Oslo.
- 26) Nyachanchu, Thomas O., Chepkwony, Joel & Bonuke, Ronald, (2017), "**Role of Dynamic Capabilities in the Performance of Manufacturing Firms in Nairobi County**", Kenya, European Scientific Journal November, 13(31), pp. 438-454.
- 27) Ochie, C., Nyuur, R. B., Ludwig, G., & Cunningham, J. A. (2022). "**Dynamic capabilities and organizational ambidexterity**": New strategies from emerging market multinational enterprises in Nigeria. Thunderbird International Business Review.
- 28) Omrane, A. (2015), "**Entrepreneurs' social skills and access to external resources: the role of social capital**", International Journal of Entrepreneurship and Small Business, 24(3), pp.357-382.
- 29) Omrane, A. & Gumer, M.S. (2023), "**The moderating effect of organizational flexibility in the relationship between talent management and job satisfaction: Evidence from an Iraqi oil exploration company**", Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/Journal of Tianjin University Science and Technology ISSN, 56 (12), pp. 238-254; DOI: 10.5281/zenodo.10574637.
- 30) O'Reilly III, Charles A. & Tushman, Michael L. (2013), "**Organizational ambidexterity: Past, present, and future**", Academy of management Perspectives, 27(4), pp. 324-338.
- 31) Park, Youngki., Paul, A. Pavlou & Nilesh Saraf. (2020), "**Configurations for Achieving Organizational Ambidexterity with Digitization**", Information Systems Research, Information Systems Research, Articles in Advance, pp. 1–22.
- 32) Pavlou, P. A., & El Sawy, O. A. (2011), "**Understanding the elusive black box of dynamic capabilities**", Decision Sciences, Vol.42, No.1, p. 239-273.
- 33) Pertusa-Ortega, Eva M. & Molina-Azorín, José F., 2018 " **A joint analysis of determinants and performance consequences of ambidexterity**", REGULAR ARTICLE, Elsevier España, S.L.U., BRQ Business Research Quarterly, 21, pp. 84-98.
- 34) Rehman, Khaliq ur & Saeed, Zafar, (2015). **Impact of Dynamic Capabilities on Firm Performance: Moderating Role of Organizational Competencies**, Sukkur Institute of Business Administration, 2 (2), pp. 18-40.
- 35) Rengkung, Leonardus Ricky. (2018), "**Modelling of Dynamic Capabilities: A system Dynamics Approach**", Academy of Strategic Management Journal, 17 (5), pp. 1-14.
- 36) Reynaert, W. (2018). "**Ambidexterity and management control packages**" (Doctoral dissertation, Ghent University).
- 37) Sarkees M., Hulland, J., & Prescott, J. (2010). "**Ambidextrous organizations and firm performance: The role of marketing function implementation**". Journal of Strategic Marketing, 18(2), pp. 165–184.
- 38) Selig, Christoph J. & Baltes, Guido H. (2020), "**Strengthening Organizational Ambidexterity through Corporate Entrepreneurship Activities.**", IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC). IEEE, pp.1-9.
- 39) Smith, Simon M. (2017), "**Organizational Ambidexterity: welcome to Paradox City**", View point, Emerald Publishing Limited, Human Resource Management International Digest, 25 (1), pp. 1-3.

- 40) Teece, D. J. (2018), "**Business Models and Dynamic Capabilities**", Long Range Planning, 51(1), pp. 40-49.
- 41) Teece, D. J., Pisano, G., A. Shuen. (1997). **Dynamic capabilities and strategic management**. Strategic Management Journal, 18 (7), pp. 509-533.
- 42) Wall Stuart, Zimmermann Carsten, Klingebiel Ronald, Lange Dieter and Edward Elgar. (2010), "**Strategic Reconfigurations Building Dynamic Capabilities in Rapid Innovation-based Industries**", Printed and bound by MPG Books Group, UK.
- 43) Wang, C. L., & Rafiq, M. (2014). "**Ambidextrous organizational culture, Contextual ambidexterity and new product innovation**": a comparative study of UK and Chinese high-tech Firms. British Journal of management, 25(1), 58-76.
- 44) Wu, Y. and Wu, S. (2016). "**Managing ambidexterity in creative industries**": A survey. Journal of Business Research, 69(7), pp. 2388–2396.
- 45) Zeng, Delin, Jingbo Hu and Taohua Ouyang. (2017), "**Managing Innovation Paradox in the Sustainable Innovation Ecosystem: A Case Study of Ambidextrous Capability in a Focal Firm**", Sustainability journal, 9, 2091.