



The Impact of the Failure-based Learning Behavior on Organizational Agility from the Workers' Point of View in the Jordanian Industrial Companies in King Abdullah II Industrial City - Sahab

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ABSTRACT

This study aims to investigate the impact of failure-based learning behavior on organizational agility dimensions including customer agility, operation agility, as well as supply and distribution agility from the respondents' point of view in 358 Jordanian industrial companies at King Abdullah II Industrial City in Sahab. A random sample of 80 companies was chosen, and the sampling unit covered individuals working at the companies. The studied community consisted of 700 administrators according to the statistics and records of these companies. And 350 questionnaires were distributed. The researcher retrieved 290 questionnaires, which are accounted for 83% of the questionnaires distributed and excluded 35 questionnaires since it was not filled completely. Thus, the sample of this study consisted of 255 units. Data was analyzed using the Statistical Package for the Social Sciences (SPSS 20), descriptive statistics measurement and simple regression. The results showed a statistically significant effect of the failure-based learning behavior on organizational agility including its different dimension. In light of the results obtained, the study suggests the institutionalize failure-based learning behavior, in order to use in organizational learning and support the agility.

Keywords: Organizational Agility, Failure-based Learning Behavior, Organizational Learning, Industrial Companies

JEL Classifications: D23, L15, L2

1. INTRODUCTION

Nowadays, business organizations include Jordanian companies that are dealing with rapidly changing environments, and increased competitiveness, which imposed on these organizations a series of challenges to keep their survival, thus emphasize the urgent adoption of organizational agility; through customer agility, operations agility as well as supply and distribution activities agility.

The concept of agility in general indicate the ability of company to rapidly deal with the emergency and unexpected changes in the work environment, whether these changes related to the customers of company, through a high awareness and response to their demands, wants and preferences, and focus on learning from their feedback, or were emergency changes in operating activities

that require the speed to make products better than competitors. Organizational agility also requires the agility of supply activities to meet the bargaining power of suppliers, and the ability to switch to other suppliers to take advantage of the lowest prices and high raw materials quality, or the requirement of distributive agility to counter the bargaining power of buyers and the ability to enter new markets and expansion of products.

As organizations sometimes face failure in work activities; therefore, they must diagnose these problems, and identify causes and results to provide immediate solutions to deal them, and keep them in their organizational memories to prevent their occurrence in the future, and support the employment of learning and expertise curve. The consequences of the previous failures and problems became organizational strengths rather than weakness. And will be a fundamental source to enhance organizational agility in response

to dramatic and unexpected environmental variables (Burgelman and Valikangas, 2005).

Both Popper (1959) and Sitkin (1992) stated that the organization's members have the ability to learn from failures more than success cases and situations, and these failures are considered as a significant driver of knowledge creation (McGrath, 1999). However, the chance to take advantage of these experiences may not occur without active dealing and treatment of the facts and outcomes revealed by the failed experiments.

Despite the existence of many researches and studies in the subject of organizational agility, and after reviewing the literature, a research gap has been founded; studying the impact of the failure-based learning behavior on organizational agility was not given enough interests and empirical studies. Thus, the current study is trying to determine the impact of failure-based learning behavior on organizational agility and its dimensions (customer agility, operation agility, as well as supply and distribution agility) from the respondents' point of view in Jordanian industrial companies in King Abdullah II Industrial City in Sahab area.

The rest of the paper is organized as follows, literatures about Failure-based learning behavior, and organizational agility. Next highlight of the methodology used in this research, results and discussions of the findings, lastly conclusions and recommendations based on the research results.

2. LITRETURE REVIEW

In searching the roots of the concept of organizational agility, different literatures indicated that the concept was found initially in the management of production in 1991 when the US Congress required a group of researchers to study the strategies that can be adopted from US companies in 21th century, where they concluded the necessity of finding a new system of production based on organizational agility to cope with global competitiveness (Salmzadeh et al., 2014). Thus, the concept of organizational agility began its emergent in theoretical and applied studies as a fundamental research area, in spite of the lack of agreements among researchers on a common definition and components; due to the diversity of researchers background. As an examples, Prince and Kay (2003) defined organizational agility from the viewpoint of marketing dealing with a rapid response to market demands, wants and desires of customers. Others (Joroff et al., 2003) viewed the concept as the company's ability to constantly adapt with cases of uncertainty and volatile components of the environment, Nafei (2016) defined the concept as achievement of objectives by effecting the development of organization and increasing knowledge of human resources and lightening its movement in a rapidly changing environment. Where many companies now consider organizational agility as essential subject to guarantee survival and competitiveness; as it facilitates companies to develop their unique capabilities, and seize new opportunities and strategic windows.

The study defines organizational agility as is the ability of organization intentionally to adapt, interact and work effectively

in complexity, confusion and uncertainty situations, and exploit the opportunities offered by these changes. And it could be studied according to three dimensions:

1. Customer agility: Includes the speed of organizations reactions and responsiveness to inquiries, activities of customers, and the ability to deal with them intelligently (Lovelock, 1996).
2. Operational agility: Operating activities are activities responsible for transforming inputs into outputs. Operational agility is the ability to fast and immediate responsiveness toward changes in the operational processes include converting inputs into outputs to achieve efficiency and effectiveness.
3. Supply and distribution agility: The suppliers are those who provide the company with its needs of basic raw materials, equipment, and materials required for manufacturing and operational processes.

Supply agility is the speed of responsiveness to sudden changes in supply activity including raise of supplied materials prices without justification, shift suppliers to competitors, low-quality or quantity of supplied materials, or delay in supply, which negatively affects the operational activity of the company. Whereas distributive agility, is the company's ability to quickly and immediate response to changes in the distributional activity including the transformation of customers to competitors, or sudden changes related to distribution prices, technical support of distributors, payments and scheduling conditions.

The literatures indicated that organizational agility requires many different capacities that enable the company response to changing circumstances (Sharifi and Zhang, 1999), and they have been identified as follows:

- Readiness and rapid mobilization of resources available to cope with changes.
- Readiness, awareness and understanding of the current and potential emerging developments in the market.
- Readiness for integration organizational learning. This ability related to knowledge management, and adoption of strategic perspective, based on transfer of knowledge and experiences, and support learning from failure behavior (Amos, 1998; Dove, 2001; Kidd, 1994; Sharifi and Zhang, 1999; Sharifi et al., 2001).

So, successful adaptation of organizational agility emphasizes revisions of organizational structures, operations, technology, human resources, and creates suitable infrastructure.

According to the subject of learning from failure behavior, which is a core subject, since organizations pass failure situations beside successful ones during their lives and activities, which imposed organizations to benefit from these experiences in their organizational learning processes, to modify activities, behaviors, operations, and overcome these obstacles in the future to guarantee effective results. Thus literatures described failure by the concept of the spiritual father of success and a fundamental source of energizing learning processes (McGrath, 1999; Sitkin, 1992), that supports discovery of problems and errors, and searches for innovative methods and solutions frequently (Crossan and

Berdrow, 2003). So, we suggest that learning from failure must occur within a systematic approach concentrates on:

- The scientific and accurate manner in diagnosing problems and errors.
- Identify the symptoms of failure and errors.
- Identify the causes of failures and errors and study them in depth to be classified and documented.
- Develop scenarios and solutions for the problem to start implementation.
- Review solutions and treatments to ensure efficiency through feedback process.
- The documentation of previous stages to become part of the organizational memory and employ in the organizational learning process, to facilitate organizational agility and flexibility in response to a turbulent environments.

Finally, it's important to declare that the success of learning from failure process is basically depends on top management support, and confidence of staff (Carmel et al., 2012).

And when scanning the literatures concerning the subject of organizational agility and learning from failures, the researchers noted the existence of few Arab studies in the field of organizational agility and the absence of organizational learning from failure studies, which motivated researchers to move actively to implement this study. Beside that most of literatures have been conducted in western business environments in the current decade of this century, which indicates to the newest and promising of these areas of research in business field. So we will mention some examples of these studies to institute appropriate scientific background in the interpretation of current study results.

- Nafei (2016) study addressed positive relation between organizational agility type (sensing agility, decision-making agility, and acting agility) and job engagement (cognitive, emotional, and physical engagement) in industrial companies in Egypt.
- Gelard and Ghafari (2016) study aimed to figure the relationship between IT capability and organizational agility in educational testing organization.
- Al-Barghouthi (2014) study revealed that strategic orientation components (customer orientation, competitor orientation, cost orientation, and the innovation orientation) have a significant influence on the organizational agility through assimilating E-business systems.
- Al-Sani (2013) study showed a significant effect of strategic agility dimensions (planning, organizing, people, and technology) on organizational effectiveness (achievement of goals, environmental adaptation, and the quality of output) in the manufacturing company Lafarge Cement Jordan.
- Alabedi (2012) study put a focal concentration on the role of organizational agility (sensing agility, decision-making agility, and acting agility) in promoting job engagement (cognitive, emotional, and physical engagement) in sample of industrial sector companies in Iraq and found that organizational agility affects positively job engagement process.
- Ofoegbu and Akanbi (2012) study investigated the impact of strategic agility (strategic sensitivity, collective commitment or leadership unity and resource fluidity) on the perceived

performance of some selected manufacturing firms in Nigeria. The results showed that strategic agility have a significant impact on the performance of manufacturing firms.

- Samaneh (2012) study highlighted a significant relationship between entrepreneurship and 6 dimensions of organizational agility namely (competence, team building, change, partnership, market and welfare).
- Mahboubbeh (2012) study evaluated the effect of IT on organizational agility including competency, quickness, responsiveness and flexibility. The results showed significant effect of IT Application on Organizational Agility.
- Yaghoobi and Azadikhah (2011) study showed that modern technologies and modern communication increase organizational agility flexibility and responsiveness.
- Kettunen (2010) study indicated that long term of strategic agility affects positively product development process, that encourages the adoption and coping of change.
- Almahamid et al. (2010) study found that organizational agility capabilities and knowledge sharing practices affect positively organizational competitive advantage in manufacturing companies in Jordan.

Regarding the studies of learning from failure behaviors, limited ones were found - within the researchers knowledge, and they summarized the following studies:

- Hirak et al. (2012) study found positive relationship between leaders positive behavior and learning from failure process in hospitals.
- Carmeli et al. (2012) study suggested that CEOs adoption of relational context of trust and facilitating learning from failures behavior improve the quality of strategic decisions of top management teams. The researchers based on this study in developing their study tool with some modifications to fit the Jordanian environment.
- Al-Majalie (2009) study examined the impact of organizational learning on the innovative behavior, and found significant effect of organizational learning dimensions (strategic, organizational, and cultural dimension) on the innovative behavior.

3. METHODOLOGY

3.1. The Study Population and Sample

The community of this study includes industrial companies in the King Abdullah II Industrial City in Sahab area has 358 companies. A random sample of 80 companies was chosen, and the sampling unit covered individuals working at the companies. The studied community consisted of 700 administrators according to the statistics and records of these companies. Whereas, 350 questionnaires were distributed with considering the number of distributed questionnaires to the proportion of workers in the surveyed companies.

The researchers retrieved 290 questionnaires, which are accounted for 83% of the questionnaires distributed and excluded 35 questionnaire since it was not filled completely. Thus, the sample of this study consisted of 255 units.

3.2. The Measuring Instrument

A questionnaire was developed depending on Carmeli's et al. (2012) model for measuring failure-based learning behavior and Tallon's and Pinsonneault's (2011) model for measuring organizational agility dimensions while making some modifications on the two models to fit the Jordanian studied environment. The reliability of the instrument was tested with Cronbach's alpha, the values for the items were more than 0.60, and 0.977 for the questionnaire. Thus, the results indicated that the research instrument was reliable.

4. RESULTS AND DISCUSSIONS

4.1. Descriptive Analysis

Table 1 demonstrates that the largest percentage of respondents was males 71.8%, whereas 28.2% were females, this results indicate the nature of workforce distribution in Jordanian industrial companies; and that may be due to working conditions in industrial companies in terms of the length of working hours, in addition to some considerations related to the culture of the local community that favorites the work of women in government jobs particularly the education sector.

53% of respondents were Bachelor's degree holder. The results showed vast majority of respondents 48.6% whose experiences are in the category (11-15 years). The largest percentage age represents 47.5% was between 31 and 36 years. 73.3% of respondents were executive manager.

4.2. Research Questions and Perceptions of Respondents

- What is the level of organizational agility variable in the Jordanian industrial companies in King Abdullah II Industrial City - Sahab.

In answering this question, descriptive statistics measurement like means, standard deviation, and the importance level, for organizational agility dimensions and paragraphs are calculated, and the importance level of the means will be as follows:

The range of low importance level is 1-2.33, medium importance level range between 2.34 and 3.67, and the range of high importance level is 3.68-5.

Table 2 shows that the importance level for organizational agility is high with total mean 4.6367 out of 5. The highest means reached 4.6510 for the dimension of "operation agility" which occupied the highest rank in the importance level, in the second rank came the dimension of "customer agility" with 4.6499 mean and high importance level, in the third rank the dimension of "supply and distributive agility" with 4.6092 mean, and high importance level.

The results of the dimensions of organizational agility will be discussed in details as follows:

4.3. Customer Agility Results

Table 3 shows that the importance level of customer agility dimension is high with total mean 4.6499 out of 5. The paragraph "the company interacts with customers inquiries." Came in the first

Table 1: Demographic characteristics for respondents

Variable	Variable categories	Number (%)
Gender	Female	72 (28.2)
	Male	183 (71.8)
Education	PhD	7 (3)
	Master	16 (6)
	Bachelor	135 (53)
	Diploma	40 (16)
	Secondary education	50 (20)
Current job experience years	Less secondary education	7 (3)
	<5	15 (5.9)
Age (years)	5-10	15 (5.9)
	11-15	124 (48.6)
	>15	101 (39.6)
	≤30	21 (8.2)
	31-36	121 (47.5)
Managerial level	37-41	62 (24.3)
	42-45	42 (16.5)
	>45	9 (3.5)
	Top manager	10 (3.9)
	Middle manager	58 (22.7)
Executive manager	187 (73.3)	

Table 2: Means and standard deviation for organizational agility and its dimensions (n=255)

Variable	Mean±standard deviation	Importance level	Rank
Customer agility	4.6499±0.76139	High	2
Operation agility	4.6510±0.91672	High	1
Supply and distributive agility	4.6092±0.80378	High	3
Organizational agility	4.6367±0.76678	High	

rank, followed by the paragraph "the company is committed to the dates of delivery of goods or provide the service." The paragraph "my organization can easily and quickly customize a product or service to suit an individual customer" came in the last rank. All customer agility paragraphs came in high importance degree.

4.4. Operation Agility Results

Table 4 shows that the importance level for operation agility dimension is high with total mean 4.6510 out of 5. The paragraph "The company produces new goods and services better than competitors" became in the first rank, followed by the two paragraphs "the company adopts a new technological methods in their operations" and "the company distributes goods and services better than competitors" that occupied the second rank jointly. Whereas the lowest means was 4.5686 for the paragraph "the company encourages internal network of organizational creativity" that achieved the last rank. As seen, all paragraphs attained high importance level.

4.5. Supply and Distributive Agility Results

Table 5 shows that the importance level for supply and distributive agility dimension is high with total mean 4.6092 out of 5. The paragraph "the company can easily and quickly switch suppliers to take advantage of better quality materials" occupied the first rank by high importance level, then "the company can easily and

Table 3: Means and standard deviation for customer agility dimension (n=255)

The variable	Paragraph	Mean±standard deviation	Importance level	Rank
Customer agility	My organization can easily and quickly respond to consumer demands, complaints	4.6471±0.90978	High	6
	My organization can easily and quickly customize a product or service to suit an individual customer	4.4980±1.089	High	7
	The company offers after-sales services to its customers	4.6667±0.83870	High	3
	The company interacts with customers inquiries	4.7333±0.74206	High	1
	The company is committed to the dates of delivery goods or provide the service	4.6824±0.76145	High	2
	My organization can easily and quickly react to new products or services launched by competitors	4.6627±0.79614	High	4
	The company maintains a safe stock to ensure the speed of response to the increasing customer demands	4.6588±0.80186	High	5
	Customer agility	4.6499±0.76139	High	

Table 4: Means and standard deviation for operation agility dimension (n=255)

The variable	Paragraph	Mean±standard deviation	Importance level	Rank
Operation agility	The company produces new goods and services better than competitors	4.7882±1.60569	High	1
	My organization can easily and quickly introduce new pricing schedules in response to changes in competitors' prices	4.5804±0.95592	High	3
	The company adopts a new technological methods in their operations	4.6588±0.79198	High	2
	The company distributes goods and services better than competitors	4.6588±0.77184	High	2
	The company encourages internal network of organizational creativity	4.5686±0.95684	High	4
	Operation agility	4.6510±0.91672	High	

Table 5: Means and standard deviation for supply and distributive agility dimension (n=255)

The variable	Paragraph	Mean±standard deviation	Importance level	Rank
Supply and distributive agility	The company can easily and quickly switch suppliers to take advantage of lower prices	4.6000±0.92473	High	4
	The company can easily and quickly switch suppliers to take advantage of better quality materials	4.6471±0.83768	High	1
	The company can easily and quickly switch suppliers to take advantage of improved supply and delivery times	4.6078±0.88019	High	3
	The company can easily and quickly expand into new markets	4.6314±0.85424	High	2
	The company can easily and quickly expand the different products and services available for sale	4.5765±0.90113	High	6
	The company can easily and quickly reduce the different products and services available for sale	4.5922±0.91700	High	5
	Supply and distributive agility	4.6092±0.80378	High	

quickly expand into new markets,” the last rank was attained by “the company can easily and quickly expand the different products and services available for sale” by high importance level too.

- What is the level of failure-based learning behaviors variable in the Jordanian industrial companies in King Abdullah II Industrial City – Sahab.

4.6. Failure-based Learning Behaviors Results

Table 6 shows that the importance level for failure-based learning behaviors is high with total mean 4.5752 out of 5. And all paragraphs attained high importance degree. The paragraph “when employees make a mistake, they inform the relevant manager to enable others to learn from it” became in the first rank, followed by “There are manuals and procedures that show the execution of

work to avoid making mistakes,” in the last rank was the paragraph “there are records and documentations of technical errors with their reasons.”

4.7. The Test of Hypothesis

H01: There is no significant effect at ($\alpha = 0.05$) of learning from failure behavior on organizational agility and its dimensions (customer agility, operation agility, and supply and distribution agility).

Table 7 summarizes the results of simple regression, and shows a significant effect of learning from failure behavior on organizational agility dimensions, the value of R is 0.903, determination value R^2 is 0.815. This means that 81.5% in the variations in organizational agility dimensions in the studied

Table 6: Means and standard deviation for failure-based learning behaviors (n=255)

The variable	Paragraph	Mean±standard deviation	Importance level	Rank
Failure-based learning behaviors	When a problem occurs in the work, the causes are investigated to avoid them in the future	4.5686±0.98921	High	4
	When employees make a mistake, they inform the relevant manager to enable others to learn from it	4.6549±0.84563	High	1
	When an error occurs in the work and find out its causes, the situation is generalized to the staff to avoid it in the future	4.5843±0.92203	High	3
	There are manuals and procedures that show the execution of work to avoid making mistakes	4.5882±0.93860	High	2
	In our organization, employees are encouraged to ask questions such as “is there a better way to perform the work, produce the product or provide the service”	4.5294±1.01471	High	5
	There are records and documentations of technical errors with their reasons	4.5255±1.04540	High	6
	Failure-based learning behaviors	4.5752±0.88100	High	

Table 7: Results of simple regression analysis to test the impact of learning from failure behavior on organizational agility and its dimensions (customer agility, operation agility, and supply and distribution agility)

Dependent variable	Calculated T	B	DF	Calculated F	Determination value (R ²)	R	Sig*
Organizational agility	33.338	0.903	254,1	1111.43	0.815	0.903	0.000

Statistically significant at the level of significance ($\alpha \geq 0.05$)

companies results from the variation in learning from failure behavior. And calculated T value was 33.338, which is moral value at the level of significance ($\alpha \leq 0.05$). From the table, $P < 0.05$ therefore, we reject the null hypothesis and accept the alternative one, and so the three sub-hypotheses can be tested.

H01-1: There is no significant effect of learning from failure behavior on customer agility.

Table 8 summarizes the results of simple regression, and confirms a significant effect of learning from failure behavior on customer agility, the value of R is 0.847, determination value R² is 0.718. This means that 71.8% in the variations in customer agility in the studied companies results from a variation in learning from failure behavior.

And calculated t value was 25.385, which is moral value at the level of significance ($\alpha \leq 0.05$). From the table, $P < 0.05$ therefore, we reject the null hypothesis and accept the alternative one.

H01-2: There is no significant effect of learning from failure behavior on operation agility.

Table 9 summarizes the results of simple regression, and appears a significant effect of learning from failure behavior on operation agility, the value of R is 0.769, the determination value R² is 0.591, which implies that 59.1% in the variations in operation agility results from a variation in learning from failure behavior. And calculated T value was 19.116, which is moral value at the level of significance ($\alpha \leq 0.05$). As shown from the table, $P < 0.05$ so, we reject the null hypothesis and accept the alternative one.

H01-3: There is no significant effect of learning from failure behavior on supply and distribution agility.

Table 8: Results of simple regression analysis to test the impact of learning from failure behavior on customer agility

The impact of learning from failure behaviour on supply and distribution agility	Calculated T	B	Sig*	R ²	R
The impact of learning from failure behavior on customer agility	25.385	0.847	0.000	0.718	0.847

*Statistically significant at the level of significance ($\alpha \geq 0.05$)

Table 9: Results of simple regression analysis to test the impact of learning from failure behavior on operation agility

The impact of learning from failure behaviour on supply and distribution agility	Calculated T	B	Sig*	R ²	R
The impact of learning from failure behavior on operation agility	19.116	0.769	0.000	0.591	0.769

*Statistically significant at the level of significance ($\alpha \geq 0.05$)

Table 10 shows the results of simple regression, and indicates of a significant effect of learning from failure behavior on supply and distribution agility, the value of R is 0.904, the determination value R² is 0.816, which means that learning from failure behavior explains (81.6%) in the variations in supply and distribution agility

Table 10: Results of simple regression analysis to test the impact of learning from failure behavior on supply and distribution agility

The impact of learning from failure behaviour on supply and distribution agility	Calculated T	B	Sig*	R ²	R
The impact of learning from failure behavior on supply and distribution agility	33.544	0.904	0.000	0.816	0.904

*Statistically significant at the level of significance ($\alpha \geq 0.05$)

in the studied companies. And calculated T value was 33.544, which is moral value at the level of significance ($\alpha \leq 0.05$). and, $P < 0.05$ so, we reject the null hypothesis and accept the alternative one.

4.8. Discussion of Results

The results showed the existence of learning from failure behavior in the surveyed companies from the viewpoint of respondents, which indicated of a positive organizational culture that supports learning from failure, and the lack of fear or shame of failure behaviors. Accordingly, these findings are in conformity with different literatures that emphasize learning from errors to support the various areas of the organization, and is consistent with the study of Carmel et al. (2012), which indicates that trust and cooperation of chief executive with staff would facilitate learning from failure process, which in turn can improve the quality of decisions.

The results indicated that the surveyed companies concerned with organizational agility with its three dimensions (customer agility, operation agility, and supply and distribution agility) - as one of the contemporary administrative concepts, this concern is due to the changing environments that forced these companies to the rapidly adaptation and responsiveness. The dimension of operation agility attained the first rank by high importance degree. This results may be explained due to the great attention of surveyed companies to the speed and differentiation of their production of goods and services, as well as adoption of different technologies compared with other competitors in the market, to achieve competitive advantage. This result is conformity with Ofoegbu and Akanbi (2012) study which concluded the significant role of organizational agility in the improvement of operational performance in companies to meet fast environments.

- The results concluded the significant effect of learning from failure behavior on Organizational agility dimensions.

5. RECOMMENDATIONS

The institutionalize failure-based learning behavior to be apart from organizational memory, in order to use in organizational learning and support the agility by increasing interest in finding records for the different various technical errors that occur in

the work environment and documentation and disseminated of these errors among the personnel (e.g. the companies records and websites, meetings, various workshops, manuals and brochures; etc.).

- The improvement efforts that are related to easily and quickly expanding in various products and services available for sale through cooperation and partnership agreements with other companies, whether local or outside the country.
- The improvement efforts concern with the quickly customization of products or service.
- And also suggests increase the attention of promoting and rewarding creativity and innovation practices in different areas of work.
- Finally, the study offers a general recommendation for the surveyed companies to activate the role of customer relationship management in scanning their environments to predict and satisfy customers demands and wants; and updates database, and to keep in touch with developments in work methods and technologies.
- Regarding the future research prospects, the study proposes conducting future studies including other models and dimensions of learning from failure behavior and organizational agility and conduct studies in the field of government agencies, and other companies in industrial cities (e.g. Al Hassan Industrial City, AL-Aqaba Industrial City) and make comparative studies between them.

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