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The Role of Organizational Immunity in Organizational Agility in Yemeni Investment Institutions in the Water Sector (A Field Study in the Capital, Sana'a, Yemen)

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Abstract:
Organizational resilience and organizational agility are management approaches used by business organizations to protect themselves from internal and external influences and enhance their ability to respond quickly to rapid changes in the surrounding environment. However, they are relatively new to investment institutions in the water sector in the capital, Sana'a, resulting in a lack of employee awareness of the importance of implementing these concepts.The study aimed to explore the role of organizational immunity in organizational agility in the institutions under study, using the descriptive analytical approach. Field data were collected using the questionnaire tool, and the size of the community was (243) participants. The sample was selected using the comprehensive enumeration method. After analyzing the study data and testing its hypotheses, the study concluded with a number of results, the most prominent of which are:The level of availability of organizational immunity in the institutions under study is (somewhat high) in all dimensions, and the level of availability of organizational agility in the institutions under study is (high), and there is an impact of organizational immunity in its dimensions (organizational learning, organizational memory, organizational genes) on organizational agility in the institutions under study.The results of the current study provide valuable insights for investment institutions in the water sector in the capital, Sana'a, that seek to apply modern concepts in the field of business management. It highlights the importance of implementing organizational immunity systems in the institutions under study, enabling them to deal with rapid changes in the internal and external environments. This is achieved by relying on the practice of organizational learning, building organizational memory, and the availability of organizational genetic components. These components contribute to enhancing the capabilities of the institutions under study in responding quickly to these changes through agile organizational structures, employee participation in decision-making related to their work, and simplifying the executive procedures for various administrative processes.
Keywords: *organizational resilience, organizational agility, investment institutions in the water sector.*

INTRODUCTION

The world witnessed rapid transformations in various fields in the late twentieth and early twenty-first centuries. Therefore, business organizations are seeking to adopt modern management approaches that help them deal with any changes in the surrounding environment. Among these approaches are organizational immunity systems with their combined dimensions. Which enhances their ability to resist potential risks and threats. Business organizations are like living organisms, and they need to implement organizational immune systems to enhance their ability to continue competing (Al-Naqira, 2021). They represent a firewall that protects the organization from threats, thus providing it with immunity from any changes in the internal and external environment (Aladdin, 2021, 4). It also expresses the self-regulation system in terms of the ability to identify and remove intruders inside and outside the organization so that the organization enjoys health in a dangerous environment. It is like the immune system in the human body that indicates the efficiency of the physical ability to maintain it (Al-Masry and Al-Agha, 2021, 414). As business organizations seek to achieve sustainability and rapid response to meet market requirements and focus on satisfying customer desires, they need to adopt the concept of organizational agility, which focuses on the flexibility of organizational structures, the participation of various functional levels in decision-making, and the simplification of executive procedures. This concept expresses the flexible administrative system that enhances rapid movement between product models or production lines. In a timely manner, meeting market needs and achieving customer satisfaction (Park, 2011). It also enhances

the ability of business organizations to respond quickly to changes and reshape their organizational and structural resources to adapt to changing market conditions, meet customer needs, maintain market share, expand, transform threats into opportunities, and make appropriate decisions at the right time (Al-Khattabi, 2023).The general framework and previous studies are among the most important elements of the study chapters, as they crystallize the basic components of the researcher's study. Therefore, this article addressed the general framework with all its components as the first axis, then addressed previous studies related to the study variables, in addition to clarifying the similarities and differences between previous studies and the current study as the second axis of this article. - The study (Al-Farjani and Al-Tayra, 2023) To identify the level of organizational learning availability and its dimensions (adaptive learning, generative learning), and the level of organizational agility and its dimensions (sensing, decision-making, practice), and concluded that there is an average level of organizational learning and organizational agility and its dimensions, in addition to the presence of a strong, statistically significant, direct relationship between organizational learning and organizational agility and its dimensions. While the study (Al-Ardi, Hassan, 2021) To clarify and analyze the relationship between strategic agility in strengthening the organizational immunity systems of public and private banks in Iraq, and concluded that agility plays a positive role in strengthening the organizational immunity systems of public and private banks in Iraq. The study (Al-Samman and Al-Dabbagh, 2020) To highlight the role of green lean management in strengthening the organizational immune system, the study found a significant impact of green lean on the organizational immune system at the Iraqi General Cement Company, Northern Cement Cooperative. This was achieved through the use of green lean models that focus on diagnosing the internal and external environment and working to address organizational viruses that confront the company under study. The study also aimed to (Oromia, & Onuoha, 2020). To reveal the existence of a relationship between organizational memory management and competitive advantage in oil and gas companies in Rivoli State, Nigeria, and concluded that the dimensions of organizational memory were significantly positive. The study (Nafei, 2015) The study aimed to focus on the role of organizational DNA in improving organizational performance. It concluded that the dimensions of organizational DNA (organizational structure, decision-making rights, incentives, and information) have a direct impact on organizational performance. As for the study (Cai et al., 2019), It aimed to understand how to leverage IT capabilities to build organizational agility in the context of product innovation. It concluded that knowledge management capabilities partially mediate the relationship between IT capabilities and organizational agility, and that the innovative climate changes the shape of the indirect relationship between IT capabilities and agility in the context of product innovation.

Significance of the Study:

The study of the role of organizational resilience in organizational agility in investment institutions in the water sector in the capital, Sana'a, is of great importance to both academics and practitioners in the field of business administration. Therefore, the importance of the study is highlighted in the following:

A. Addressing shortcomings in the implementation of organizational agility, thereby enhancing organizational resilience in the institutions under study.

B. It is expected that this research will serve as an incentive for researchers to conduct further research and studies in this field.

C. The study results provide practical implications that enable decision-makers in the institutions under study to create a supportive environment for more effectively adopting the concepts of organizational resilience and organizational agility, which in turn contributes to enhancing their ability to compete and respond quickly to emerging changes.

Study objectives:

The study seeks to achieve the primary objective of measuring the role of organizational resilience in organizational agility among investment institutions in the water sector in the capital, Sana'a. The following sub-objectives branch out from this objective:

A. To examine the level of organizational resilience among Yemeni investment institutions in the water sector in the capital, Sana'a.

B. To verify the level of organizational agility among Yemeni investment institutions in the water sector in the capital, Sana'a.

C. Explaining the role of implementing organizational immunity in light of the presence of organizational agility in investment institutions in the water sector in the capital, Sana'a.

LITERATURE REVIEW

First: Organizational Resilience:

The concept of organizational resilience refers to an organization's ability to effectively deal with changes in the internal and external environment by adopting a management approach that forms a defensive wall that prevents the organization from incurring harm through organizational knowledge resulting from organizational learning and the use of its organizational memory. To choose the appropriate strategy to deal with any changes efficiently and effectively (Abdul Majeed, 2016, 13). It also represents a set of controls, procedures, and policies that rely on individuals and processes to create a strong barrier that protects the organization from deviating from the desired path to achieving its goals, whether this deviation is due to internal or external causes (Al-Naqira, 2021, 236). Acquiring accumulated experiences and expertise, documenting them, and disseminating them within the organization with the aim of learning and exchanging knowledge to develop skills among employees enables employees to predict external risks and threats and develop solutions before they occur (Sarsoor, 2021, 23). While this knowledge is retrieved to benefit from it in choosing the methods and strategies that the organization uses to deal with urgent changes (Alaa El-Din, 2021, 10), by taking advantage of the knowledge stored in the memory of individuals, documents, and databases (24, 2012, Ben Hamadi), While organizational genes represent a specific advantage that distinguishes an organization from other competing organizations, they help design a model to understand behaviors within the organization and the ability to develop its services and products in a timely manner (Sarsour, 2021, 28), as the availability of historical information about the organization expresses the values, culture, and personality of the organization (Moulay and Kafi, 2017, 57).

Second: Organizational Agility:

A number of studies indicate that organizational agility is the organization's ability to respond quickly to emerging events and changes, enabling it to remain competitive and fulfill customer desires (Al-Mafiz and colleagues, 2021, 274). Numerous studies have confirmed this. One of the most important features that distinguishes an organization's performance is the agility of its organizational structures, which is reflected in the flexibility of organizational work and the provision of services with minimal time, effort, and cost (Al-Abadi and Al-Amidi, 2020, 296). The organizational structure expresses the internal arrangement of the organization, defining the relationships between administrative units, the nature of communications, and the extent of the responsibilities and powers granted necessary to achieve objectives (Maliki, 2020).

While the importance of agile decision-making is embodied in the organization's ability to collect and evaluate information relevant to a problem from various sources in order to interpret its consequences without delay, identify opportunities and threats to diagnose the situation, work on developing plans and making appropriate decisions on how to reconfigure and use resources, And implementing new competitive procedures (Al-Abadi, 2020). Furthermore, implementation agility reflects an organization's ability to radically reconfigure its resources, make adjustments to its operations, and work to deliver new services, products, and distinctive models to the market in a timely manner (Al-Mafiz and colleagues, 2020). Application agility concerns the processes that are carried out to respond to the occurring and unexpected changes, as these processes must be characterized by the speed and flexibility necessary to respond to changes and exploit them at the appropriate time (Al-Wahaibi and Ibn Shuail, 2020).

Study Methodology and Procedures:

The study relied on a descriptive analytical approach to determine the role of organizational resilience as an independent variable and organizational agility as a dependent variable. The aim was to verify that the results of this role support theoretical expectations of increasing interaction between the study variables and better understanding the impact of these variables. The extent of analysis, linkage, and interpretation between these findings is essential, in order to arrive at conclusions that can be built upon with recommendations and proposals by the study community in investment institutions in the water sector.

Study Community and Sample:

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The study community consists of administrative leaders in Yemeni investment institutions in the water sector, as shown in the following table:

Table (1) Shows the Study Population

NO.	The Company	Date of Incorporation	The study population									
			master	Vice President of the Foundation	dealer	Sector Head	Consultant	DG: Director General	Deputy General Manager	Department	DEPUTY DEPART MANAGER	Total
1	(Water Resources Authority)	1995	1	1	2	2	3	12	10	29	17	77
2	Water and Sanitation Establishment	1997	1	1	0	0	3	10	6	25	13	59
3	Rural Water Projects Authority	2002	1	1	3	0	4	17	17	35	29	107
Total			3	3	5	2	10	39	33	89	59	243

Source: Prepared by the researcher based on the reports of investment institutions in the water sector for the year (2022).

Due to the small size of the community, the method of the comprehensive survey was used for all the vocabulary of the study population, where the study sample became (243) participants, the questionnaire was distributed to all participants, and (235) valid questionnaires were retrieved for analysis.

Study Results and Discussion

First: Descriptive Analysis Results:

This section presents the results of the study variables (organizational resilience, organizational agility), using arithmetic means, standard deviation, and response level. If each dimension of the study variables has an arithmetic mean less than (3) or a relative importance less than (0.6), it is rejected.

To answer the first question: What is the level of organizational immunity in Yemeni investment institutions in the water sector, from the perspective of administrative leaders? Arithmetic means, standard deviations, and response levels were used for each dimension of the independent variable, organizational immunity, as follows:

Table (2) Responses of the Study Sample to Organizational Immunity

No.	Dimensions	Ranking	Arithmetic	Standard Deviation (Maths.)	Application Level	Verbal Connotation
1	Organizational Learning	3	4.98	0.84	%71	Somewhat High
2	Organizational Memory Dimension	2	5.28	0.76	75%	Somewhat High
3	Organizational Gene Dimension	1	5.36	0.71	%77	High
Organizational Immunity			5.20	0.76	74%	Somewhat High

Source: Preparation of the researcher based on the outputs of the program (SPSS) 2024.

Table (2) shows that the organizational immunity variable obtained an arithmetic mean (5.20) with a fairly high verbal significance, a standard deviation (0.76), and a level of importance (74%). That Dimension: (Organizational learning) obtained the rank (third) with an arithmetic mean (4.98) with a

fairly high verbal significance, a standard deviation (0.84), and a level of importance (71%). That Dimension: (Organizational memory) obtained the rank (second) with an arithmetic mean (5.28) with a fairly high verbal significance, a standard deviation (0.76), and a level of importance (75%). To be considered: (Organizational genes) obtained the (first) rank with an arithmetic mean (5.36) in high verbal terms, a standard deviation (0.71), and a level of importance (77%).

To answer the second question: **What is the reality of organizational agility in Yemeni investment institutions in the water sector?** Arithmetic averages, standard deviation, and answer level were used, for each dimension of the independent variable organizational agility, which were as follows:

Table (3) Responses of the Study Sample to Organizational Agility

NO.	Dimensions	Ranking	Arithmetic	Standard Deviation	Application Level	Verbal Connotation
1	Organizational Structure	2	5.33	0.80	76%	High
2	Decision Agility Dimension	3	5.26	0.72	75%	Somewhat high
3	Practice Agility Dimension	1	5.34	0.85	76%	High
Organizational Agility			5.30	0.79	76%	High

Source: Preparation of the researcher based on the outputs of the program (SPSS) 2024.

Table (3) shows that the variable: (Organizational agility) obtained an arithmetic mean (5.30) in high verbal terms and a standard deviation (0.79) and a level of importance (76%), and that the (Organizational structure) obtained a ranking(second) with a mean of (5.33) in high verbal terms and a standard deviation(0.80) and a level of importance (76%), and that the dimension: (Decision-making agility) obtained a ranking(third) with a mean of (5.26) in fairly high verbal terms and a standard deviation (0.72) and a level of importance (75%), and that the (Practice agility) obtained a ranking (first) with a mean of (5.34) in high verbal terms and a standard deviation(0.85) and a level of importance (76%).

Hypotheses Testing:

To answer the third question, which states: **What is the role of applying organizational immunity in Yemeni investment institutions in the water sector in light of the existence of organizational agility?** Multiple linear regression analysis and simple linear regression were used.

Main Hypotheses: There is no statistically significant role for organizational immunity in its dimensions (organizational memory, organizational learning, organizational genes DNA) combined in organizational agility in its dimensions combined, in investment institutions in the water sector, **to test the main hypothesis Multiple linear regression analysis was used**:

Table (4) Results of Multiple Linear Regression Analysis of the Dimensions of the Organizational Immunity Variable Combined in Organizational Agility

Dependent Variable	Form Summary		Analysis of Variance		Regression Coefficients			
	R^2	R	F	Sig	Independent Variable	β	T	Sig
Organizational Agility	0.988	0.994	5706.762	0.00	Organizational Learning	-0.173	-7.766	0.00
					Organizational Memory	0.636	16.855	0.00
					Organizational Genes	0.604	14.396	0.00

Source: Preparation of the researcher based on the outputs of the program (SPSS) 2024.

The results of Table (4) indicate that: Correlation coefficient R (0.994), which indicates a positive correlation between the dimensions (organizational learning, organizational memory, organizational

genes) and the dependent variable (organizational agility), as there is a statistically significant effect of the dimensions of the organizational immunity variable on the dependent variable. The calculated value of (F) reached (5706.762) with a significance level of (0.00), which is less than (0.05), in addition to the fact that the value of the coefficient of determination ((R^2=0.988), which confirms the significance of the regression, and it is clear from the table that the dimension axis explains (98.8%) of the variance in the dependent variable.

It is also clear from the regression coefficients that there is a statistically significant effect of the dimensions: (organizational learning, organizational memory, organizational genes), where the results showed that the value of (β) reached respectively (0.604,0.636, -0.173), and that the value of (T) at it is (14.396,16.855, -7.766) and at a level of significance (0.00,0.00,0,00). This indicates that the effect of the dimensions (organizational learning, organizational memory, organizational genes) is statistically significant.

Presenting the detailed results of the role of organizational immunity dimensions in organizational agility:

The First Sub-Hypothesis (H0:1): There is no statistically significant role for organizational learning_ as one of the dimensions of organizational immunity in organizational agility with its combined dimensions, in investment institutions in the water sector. **To test the sub-hypothesis, simple linear regression was used to measure** the **impact of the organizational learning dimension on organizational agility in investment institutions in the water sector, as follows:**

Table (5) Results of the Test of the Impact of the Organizational Learning Dimension on Organizational Agility

Dependent Variable	Form Summary		Analysis of Variance		Regression Coefficients			
	R^2	R	F	Sig	Independent Variable	β	T	Sig
Organizational Agility	0.862	0.928	1351.941	0.00	Organizational Learning	0.819	36.769	0.00

Source: Preparation of the researcher based on the outputs of the program (SPSS) 2024.

The results of Table (5) indicate that there is a statistically significant relationship between the dimension of organizational learning on organizational agility, as the calculated value of (F) was (1351.941) with a level of significance of (0.00), which is less than (0.05), while the correlation coefficient R was (0.92), which means that there is a positive direct relationship between the dimension of organizational learning and organizational agility, in addition to that the value of the coefficient of determination was (R^2=0.861), which indicates the significance of regression, and it was also found that the variation in the dimension of organizational learning explains (86.1%) of the variation in organizational agility, provided that the other variables are constant.

The results of the regression analysis also showed that the value of the coefficient of determination (β) amounted to 0.819), and that the value of T at it is (36.769), and at a level of significance (0.00), which confirms that the impact of this dimension is statistically significant, and therefore we reject the sub-hypothesis, which states that there is no statistically significant role for organizational education_ as one of the dimensions of organizational immunity in organizational agility with its combined dimensions, in investment institutions in the water sector.

Second Sub-Hypothesis (H0:2): There is no statistically significant role for organizational memory as one of the dimensions of organizational immunity in organizational agility with its combined dimensions, in investment institutions in the water sector. **To test the sub-hypothesis, simple linear regression was used, from the effect of the organizational memory dimension on organizational agility as follows:**

Table (6) Results of the Test of the Impact of the Organizational Memory Dimension on Organizational Agility

Dependent Variable	Form Summary	Analysis of Variance	Regression Coefficients

	R^2	R	F	Sig	Independent Variable	β	T	Sig
Organizational Agility	0.969	0.984	7102.020	0.00	Organizational Memory	1.013	84.273	0.00

Source: Preparation of the researcher based on the outputs of the program (SPSS) 2024.

The results of Table (6) indicate that there is a statistically significant relationship between the dimension of organizational memory on organizational agility, as the calculated value of (F) was (7102.020) with a level of significance of (0.00) which is less than (0.05), while the correlation coefficient R was (0.984), which means that there is a positive direct relationship between the dimension of organizational memory on organizational agility, in addition to that the value of the coefficient of determination was (R^2=0.969), which indicates the significance of regression, and it was also found that the variation in the dimension of organizational memory explains (96.9%) of the variation in organizational agility provided that the other variables are constant.

The results of the regression analysis also showed that the value of the coefficient of determination (β) was (1.013) and that the value of T at it is (84.273), with a level of significance (0.00), which confirms that the impact of this dimension is statistically significant. **Accordingly, we reject** the **sub-hypothesis, which states** that there is no statistically significant role for organizational memory as one of the dimensions of organizational immunity in organizational agility with its combined dimensions, in investment institutions in the water sector.

The Third Sub-Hypothesis (H0:3): There is no statistically significant role for DNA organizational genes as one of the dimensions of organizational immunity in organizational agility with its combined dimensions, in investment institutions in the water sector. **To test the sub-hypothesis, simple linear regression was used, from the impact of the** organizational **gene dimension on organizational agility, as follows:**

Table (7) Results of Testing the Impact of the Organizational **Gene Dimension on** Organizational **Agility**

Dependent Variable	Form Summary		Analysis of Variance		Regression Coefficients			
	R^2	R	F	Sig	Independent Variable	β	T	Sig
Organizational Agility	0.986	0.986	7910.714	0.00	Organizational Genes	1.075	88.942	0.00

Source: Preparation of the researcher based on the outputs of the program (SPSS) 2024.

The results of Table (7) indicate that there is a statistically significant relationship between the dimension of organizational genes on organizational agility. The calculated value of (F) was (7910.714) with a significance level of (0.00), which is less than (0.05), while the correlation coefficient R was (0.986). This means that there is a positive direct relationship between the dimension of organizational genes on organizational agility. In addition, the value of the coefficient of determination was (R^2=0.972), which indicates the significance of regression. It was also found that the variation in the dimension of organizational genes explains (97.2%) of the variation in organizational agility, provided that the other variables are constant.

The results of the regression analysis also showed that the value of the coefficient of determination (β) was (1.075) and that the value of T at it is (88.942), with a level of significance (0.00), which confirms that the impact of this dimension is statistically significant. **Accordingly, we reject** the **sub-hypothesis, which states that** there is no statistically significant role for DNA organizational genes as one of the dimensions of organizational immunity in organizational agility in its combined dimensions, in investment institutions in the water sector, **and we accept the following hypothesis:** There is a statistically significant role for DNA organizational genes as one of the dimensions of organizational immunity in organizational agility in its combined dimensions, in investment institutions in the water sector.

CONCLUSIONS

The study reached a set of conclusions, as follows:

By studying the role of organizational immunity and organizational agility in the investment institutions in the water sector from the point of view of the administrative leaders in the investment institutions in the water sector in the Secretariat of the Capital Sana'a, and reaching the results of the study, achieving its objectives, and testing its hypotheses, the study reached some conclusions, the most important of which are the following:The study revealed that the level of organizational immunity practice, in general, is (somewhat high), as the concept of organizational immunity is newly emerging in investment institutions in the water sector, while the number of organizational genes came at a (high) level and ranked first in the dimensions of organizational immunity with relative weight (77%). This means that there is a direction for senior management to develop organizational structures, and digital transformation to provide services, in addition to adopting a draft internal regulation to motivate employees.The results of the study showed that workers have low knowledge of concepts related to organizational agility, which resulted in their lack of awareness of the importance of applying organizational agility in its combined dimensions to achieve a rapid response to changes in the surrounding environment. The study confirmed the existence of a positive role of organizational immunity with its combined dimensions in organizational agility with its combined dimensions in investment institutions in the water sector

B- Recommendations:

Through the results of the study, the researcher recommends the following:

1. Strengthening the practice of organizational immunity in all its dimensions more broadly, and focusing on aspects that contribute to the analysis of the surrounding environment, by supporting the concept of organizational learning, documenting historical data, providing information systems, and adopting internal regulations related to motivating workers.
2. Disseminate concepts related to organizational agility and the importance of applying them to achieve rapid response to environmental variables, through holding expanded meetings and workshops.
3. Encourage employees to have more organizational learning to acquire knowledge and skills, enabling them to participate actively in making decisions related to their work.

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