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The role of strategic flexibility in reducing cognitive rigidity to achieve sustainability: An analytical survey study of the opinions of a sample of employees at the University of Mosul Presidenc.

1st Dr. Majeed Hameed Majeed Al-Ali [1], 2nd Safaa Suleiman Ibrahim Salu [2]
1. Department of Business Administration Technologies, Mosul Technical Administrative College, Northern Technical University, Iraq.

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Corresponding author:

Name: Dr. Majeed Hameed Majeed Al-Ali

Affiliation : Department of Business Administration Technologies , Mosul Technical Administrative College

Email: dr.majeed@ntu.edu.iq

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A B S T R A C T

This study aimed to identify the correlation and impact relationships between strategic flexibility (represented by production flexibility, competitive flexibility, human capital flexibility, market flexibility, and information flexibility) and cognitive rigidity reduction. The research problem stemmed from the central question: *Does strategic flexibility contribute to reducing cognitive rigidity in the University of Mosul, located in Nineveh Governorate?*

The study adopted a hypothetical framework reflecting the nature of its hypotheses, which examined the availability of the two variables and their correlation and impact relationships. Data were collected using a questionnaire distributed to a random sample of 300 employees at the University of Mosul. Statistical analysis tools in SPSS v24 and AMOS v24 were employed to test the hypotheses,The results revealed a statistically significant positive correlation between strategic flexibility and cognitive rigidity reduction, highlighting the critical role of strategic flexibility in mitigating cognitive rigidity. Key recommendations for the university include adopting modern technologies to enhance services and developing programs to foster creativity among teams.

Introduction:

Contemporary organizations face complex challenges, foremost among them cognitive rigidity—a dimension of organizational rigidity that hinders adaptability to dynamic environmental changes. Amid accelerating economic, social, political, and technological shifts, organizations must adopt flexible strategies to respond effectively while maintaining strategic stability.

Strategic flexibility emerges as a pivotal factor in overcoming cognitive rigidity, which manifests in outdated knowledge systems, resistance to innovation, and reactive decision-making in uncertain environments. By enhancing an organization's capacity to absorb new knowledge, reconfigure resources, and adopt innovative solutions, strategic flexibility reduces cognitive rigidity and strengthens competitiveness.

This study explores the mechanisms through which strategic flexibility reduces cognitive rigidity, focusing on its role in renewing organizational knowledge, dismantling traditional intellectual frameworks, and enabling organizations to transition toward dynamic, responsive models.

Chapter One: Study Methodology

Study Problem.

Organizations increasingly grapple with cognitive rigidity—defined as adherence to traditional thinking patterns and an inability to adapt to environmental changes. This rigidity slows adaptation, weakens innovation, and undermines organizational effectiveness. The study addresses the following question:

Main Research Question: * Does strategic flexibility contribute to reduction cognitive rigidity in the field understudy?

Significance of the Study:

The importance of this study lies in several aspects:

Theoretically: It contributes to deepening the scientific understanding of the rela tionship between strategic flexibility and cognitive rigidity.

Practically: It provides applicable recommendations to enhance strategic flexibility in the University of Mosul Presidency, and increased ability to adapt to future challenges.

Societally: It highlights the importance of sustainability in educational institutions, which is a fundamental pillar of societal development in general.

Objectives of the Study

1. Analyzing the basic concepts related to strategic flexibility, reduction Cognitive Rigidity.
   Determine the extent to which strategic flexibility affects reduction Cognitive Rigidity among staff.
   Provide practical recommendations for enhancing strategic flexibility in the University of Mosul Presidency.

Study Hypothesis:

H1 There is a significant correlation between strategic flexibility, as measured by its dimensions, and reducing cognitive rigidity.

H2 There is a significant effect of strategic flexibility, as measured by its dimensions, on reducing cognitive rigidity.

Study Limitations

The spatial boundaries of the study were limited to the presidency of the University of Mosul in Nineveh Governorate, while the temporal scope spanned from January 1, 2025, to February 10, 2025.

Study Population and Sample:

The study population represents the staff at the University of Mosul Presidency, numbering (1,300), while (320) employees were randomly selected to represent the study sample. (320) questionnaires were distributed to the research sample, of which (307) were retrieved, and (300) were valid for analysis. This means that the percentage of valid questionnaires for analysis was (93%) of the total distributed questionnaires, and the sample's representation of the population was (23.08%).

Theoretical Framework of Strategic Flexibility and reduction Cognitive Rigidity.

The Concept of Strategic Flexibility

There is a historical sequence to the emergence of the concept of strategic flexibility. Initially, the concept of flexibility appeared in a general sense, then transitioned into the administrative field, where organizations interacted with this concept and its dimensions. These organizations sought positive interaction by addressing manufacturing flexibility, preparing the necessary flexibility to manage human resources, and eventually generalizing this concept across all organizational functions, culminating in the adoption of the concept of strategic flexibility.

According to strategic flexibility is a characteristic that allows modern organizations to prepare for (largely unpredictable) changes in their environment [1] . views strategic flexibility as the ability to adapt to a changing environment by implementing continuous changes and systematic measures [2] . suggest that the essence of strategic flexibility lies in the options, mechanisms of change, and freedom of choice[3] . define it as the organization's ability to predict and anticipate trends and events in the business environment to formulate an appropriate response through proactive steps21 emphasizes that it represents the set of capabilities an organization possesses to respond effectively to uncertain changes in the business environment [4] .

In this context, strategic flexibility requires leadership wisdom, which means awareness of the true issues and goals of human activity, which guides leaders to make better decisions based on a better understanding of their values, priorities, and goals, as he pointed out [5]

The Importance of Strategic Flexibility

The importance of strategic flexibility lies in enabling organizations to adapt to environmental complexity, uncertainty, and rapid disruptions, helping them respond quickly to competitive pressures and enhance their dynamic capabilities to maintain continuity and excellence [6] .

1. It enables the organization to identify major shifts in the external environment quickly and effectively.
   It enhances the organization's ability to adopt strategies that support performance improvement by anticipating future changes.
   It is linked to an innovation culture that reduces resistance to change and simplifies the organizational structure, facilitating the exploitation of new opportunities.
   It supports the flexible use and coordination of resources to enhance knowledge management efficiency.
   It increases the positive impact of technological capabilities on exploratory innovation.
   A high level of strategic flexibility enhances technical creativity.

Objectives of Strategic Flexibility

Strategic flexibility enables organizations to achieve a sustainable competitive advantage, even in highly volatile business environments. Additionally, strategic flexibility aims to[7] .

1. Achieve a distinguished competitive position to ensure survival, continuity, and growth.
2. Respond quickly to activities and changing customer demands.
3. Secure market share, thereby improving processes, products, and working conditions, increasing production, and achieving organizational excellence.

Dimensions of Strategic Flexibility

Productive Flexibility

Organizations strive to achieve strategic flexibility through this dimension, as productive flexibility is one of the most important characteristics that leading organizations must possess[8] . defines productive flexibility in service organizations as the organization's ability to deliver its services flexibly through what is known as service flexibility, which refers to the service system's ability to innovate and deliver new services quickly[9] . This flexibility is measured by the diversity of services that can be offered and the speed of the notes that productive flexibility in service organizations reflects the organization's ability to modify its operational processes dynamically, serving as a measure of how quickly it can transition from offering traditional services to developing innovative services that align with customer expectations[10] .

Importance of Productive Flexibility

The importance of productive flexibility in service organizations has increased due to rapid changes in the work environment and rising customer expectations, making it a fundamental factor in enhancing competitiveness. The following points highlight its importance[11]:

1. Improving service quality through continuous adaptation to customer needs, enhancing their satisfaction.
2. Effectively responding to demand changes by offering customized services that align with evolving customer requirements, such as service delivery time, quality, and methods.
3. Reducing operational costs by redesigning service processes flexibly to achieve efficiency and effectiveness.
4. Enhancing market competitiveness by offering innovative and diverse services that attract and retain customers.
5. Improving service supply chain management, fostering better integration between the organization's operations and its partners in service delivery.

In this context indicate that strategic improvisation relies on pre-planning to adapt alternatives flexibly and quickly under complex and uncertain conditions, forming a cornerstone for achieving productive flexibility. This approach enables organizations to modify their production processes efficiently in response to environmental changes, improving production efficiency, reducing waste, and eliminating organizational rigidity by creating operational dynamism that enhances immediate response to challenges [12] .

Competitive Flexibility

defines competitive flexibility as the organization's ability to respond to changes in beneficiary needs resulting from surrounding changes[13]. view competitive flexibility as the ability of organizations to resist competitors and their favorable behavior, reorganize essential resources, allocate them effectively, and respond to customer demands. It is characterized by the diversity of strategic options available to compete effectively and meet the unique needs of consumers[14] . defines competitive flexibility as the organization's ability to respond to changing customer needs, diagnose economic environmental changes, and adapt to them, thereby enabling the organization to compete in highly competitive markets, exploit opportunities, and counter competitor threats. It is measured through indicators such as competitive activities in global markets, analysis of external environmental changes, and pricing strategies that reflect competitiveness and reduce production costs[15] .

Competitive Strategy for Organizations:

argues that effective market competition requires adopting advanced competitive strategies, which consist of three main components[16] :

1. Method of Competition: Includes product strategy (quality, innovation, excellence), distribution strategy (networks, channels, expansion), location strategy (geographic presence, localization), and manufacturing strategy (efficiency, technology, quality).

Arena of Competition: Involves selecting the competitive field (target market, sector), identifying target markets (demographics, consumer behavior), and analyzing competitors (strengths, weaknesses, strategies).

Basis of Competition: Represents assets (tangible, intangible, human), skills (technological, managerial, marketing), and sustainable competitive advantage (innovation, quality, service).organization's response to customer needs within a short period.

Human Capital Flexibility

define human capital flexibility as the organization's ability to operate through non-hierarchical structures and adopt a flexible organizational culture by promoting knowledge sharing, comprehensive functional training, and unconventional work procedures [17] .

Importance of Human Capital:

The importance of human capital is evident in several key aspects, as highlighted below[18] .

1. The importance of human capital lies not in its inputs but in its outputs. For example, the outputs of higher education are available to all competing organizations, but the key lies in those organizations that achieve unique advantages in results when utilizing them.

Quantitative measures such as the number of employees and years of service are not decisive in achieving organizational excellence compared to competitors. Instead, the focus should be on identifying talented individuals.

Preparing qualified and experienced human capital is the key to economic and social development.

Human capital is the foundation of scientific research, its techniques, and the application of its results.

Human capital is the basis of creativity and innovation, which are essential for competitiveness.

In this context, job satisfaction is a key factor that reflects the extent to which individuals adapt to the work environment and respond to organizational changes. It is defined as a pleasurable or positive emotional state resulting from the employee's evaluation of the job or work experience, which enhances the flexibility of human capital by motivating individuals to develop their skills and adapt to the changing challenges of the work environment[19] .

Market Flexibility

Market flexibility is one of the important characteristics that grant organizations the ability to discover new markets and products quickly and effectively. It aims to expand market reach and target new markets by efficiently and effectively meeting customer requirements while optimally utilizing organizational resources. view this capability as reflecting the organization's efficiency in producing and distributing its products in key markets quickly and at competitive costs. It also represents the organization's ability to discover new markets and enter them instead of maintaining and expanding its existing market share[20] . define market flexibility as the organization's ability to reassess its marketing efforts in domestic and international markets within a short period, responding to and adapting to internal and external environmental changes to ensure development and continued competition[21] .

In this context, emphasize that strategic thinking represents the ability to analyze the external environment and foresee the future, enabling effective decision-making that enhances organizational competitiveness. This concept is clearly evident in market flexibility, where strategic thinking enables organizations to adapt to market variables and explore new opportunities, enhancing their ability to respond to customer needs quickly and efficiently, breaking organizational rigidity, and achieving sustainability in dynamic markets[22] .

Informational Flexibility

Informational flexibility is a valuable strategic resource for organizations that should be managed and invested in using advanced technological tools to ensure its flow at maximum speed and minimum cost, thereby adding value through alignment with flexible scientific decision-making methods[23] .

views informational flexibility as the organization's ability to retrieve and analyze historical data from its archives to assist in decision-making and provide support. It also represents the adaptability of information, meaning that information must be flexibly available to be effectively used in decision-making processes across different managerial levels. For this reason, informational flexibility is determined by leveraging information collected from organizations and circulated across managerial layers to support decision-making[24] .

Importance of Informational Flexibility:

Informational flexibility holds significant importance, as highlighted below[25] .

1. Enhancing Organizational Performance and Productivity: The advantages of informational flexibility are evident in the periodic design of products using modern methods to reduce costs, striving to offer products that ensure customer satisfaction and fulfill their desires, and exploring new opportunities in global markets by introducing new products to secure a competitive advantage in the same sector.

Increasing Decision-Making Effectiveness: Informational flexibility simplifies tasks assigned to top management and facilitates organizational decision-making by providing accurate data and information in a timely manner.

Boosting Activities: Informational flexibility increases discipline and order within management and departments, enhancing employees' awareness of ongoing developments through continuous information provision

reduction Cognitive Rigidity.

The reduction process requires starting from the entity of cognitive rigidity, which is represented by the direct results of the accumulated biases that individuals inherit due to genetic factors or moments of immediate learning. Such biases require attention to the limits of cognitive influence and knowledge of their level. pointed out that cognitive rigidity from a cognitive perspective is a state of intellectual restriction resulting from biases that the individual acquires through genetics or learning up to the present moment. These biases are determined by three main limits. The first deals with the limits of cognitive influence: these are the restrictions resulting from emotional biases such as beliefs, values, and emotional experiences, which affect the way information is processed and decisions are made. The second includes the limits of the cognitive level: these include the restrictions associated with the individual's inherent capabilities (the potential level) and the knowledge acquired over time (the apparent level). The first is determined genetically, while the second reflects accumulated experiences and skills. The third focuses on the limits of cognitive style: these are the individual's preferred methods for dealing with challenges, which are formed by Based on their preferences and past experiences, these boundaries together form a framework for understanding how biases affect an individual's ability to adapt and think flexibly[26].

The above represents a saving grace for researchers to demonstrate how to reduce cognitive inertia, which can be summarized as follows:

1. Updating knowledge sources: Strive to update knowledge sources to ensure they keep pace with developments, especially in light of digital transformations and the cognitive additions they offer.

Rejecting traditional methods: Abandoning old methods in all their details and relying on modern and contemporary methods that are compatible with the reality of organizations, which requires organizing supportive programs.

Opening supportive outlets: Providing opportunities for employees to engage with the knowledge spiral, enhancing their ability to adapt to cognitive challenges.

Presentation and Analysis of Field Study Results

Description and Diagnosis of Respondents' Answers Regarding the Strategic Flexibility Variable

This section describes and diagnoses the strategic flexibility variable based on its dimensions, as reflected in the respondents' answers to the items representing each dimension, as follows:

Productive Flexibility

The data in Table (1) indicate a consensus among the respondents regarding the items of the productive flexibility dimension (X1-X5). The overall agreement rate (strongly agree, agree) among respondents was (70.33%), indicating a positive trend in their responses based on the five-point Likert scale. The overall disagreement rate (disagree, strongly disagree) was (10.87%), while neutral responses accounted for (18.80%). The mean score was (3.83), and the standard deviation was (0.99). The relative importance of the productive flexibility dimension was (76.60%), which is a good level, reflecting clear agreement among respondents on these items based on their personal perspectives.

At the partial level, item (X2), which represents the university administration's deliberate use of modern technology to improve the quality of services provided to ben
eficiaries, achieved the highest relative importance of (77.27%), with a mean score of (3.86) and a standard deviation of (0.93). In contrast, item (X5), which represents the university administration's deliberate promotion of creativity to improve service quality, achieved the lowest relative importance of (71.20%), with a mean score of (3.56) and a standard deviation of (1.05).

Table 1. Frequency Distributions, Means, Standard Deviations, and Relative Importance of the Productive Flexibility Dimension.

Items	Response Scale										Mean	Standard Deviation	Relative Importance
	strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)				
	Number	%	Number	%	Number	%	Number	%	Number	%			
X1	84	28.00	134	44.67	55	18.33	21	7.00	6	2.00	3.70	0.92	74.07
X2	57	19.00	143	47.67	74	24.67	20	6.67	6	2.00	3.86	0.93	77.27
X3	97	32.33	120	40.00	52	17.33	26	8.67	5	1.67	3.63	0.93	72.53
X4	81	27.00	138	46.00	50	16.67	23	7.67	8	2.67	3.66	0.93	73.27
X5	73	24.33	128	42.67	51	17.00	34	11.33	14	4.67	3.56	1.05	71.20
Overall Average		26.13		44.20		18.80		8.27		2.60	3.83	0.99	76.60
Total	70.33				18.80		10.87						

Source: Prepared by the researcher based on outputs from (SPSS V.26), n=300

Competitive Flexibility

The data in Table (2) indicate a consensus among the respondents regarding the items of the competitive flexibility dimension (X6-X10). The overall agreement rate (strongly agree, agree) was (69.47%), indicating a positive trend in their responses based on the five-point Likert scale. The overall disagreement rate (disagree, strongly disagree) was (15.60%), while neutral responses accounted for (14.93%). The mean score was (3.81), and the standard deviation was (1.09). The relative importance of the competitive flexibility dimension was (76.24%), which is a good level, reflecting clear agreement among respondents on these items based on their personal perspectives.

At the partial level, item (X7), which represents the university administration's focus on responding quickly to competitive pressures by enhancing its capabilities, achieved the highest relative importance of (77.93%), with a mean score of (3.90) and a standard deviation of (1.07). In contrast, item (X10), which represents the university administration's focus on developing innovative marketing methods to effectively address competition, achieved the lowest relative importance of (75.20%), with a mean score of (3.76) and a standard deviation of (1.24).

Table 2. Frequency Distributions, Means, Standard Deviations, and Relative Importance of the Competitive Flexibility Dimension.

Items	Response Scale										Mean	Standard Deviation	Relative Importance
	strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)				
	Number	%	Number	%	Number	%	Number	%	Number	%			
X6	80	26.67	128	42.67	44	14.67	36	12.00	12	4.00	3.76	1.10	75.20
X7	102	34.00	117	39.00	31	10.33	48	16.00	2	0.67	3.90	1.07	77.93
X8	82	27.33	127	42.33	64	21.33	22	7.33	5	1.67	3.86	0.96	77.27
X9	85	28.33	124	41.33	40	13.33	42	14.00	9	3.00	3.78	1.10	75.60
X10	107	35.67	90	30.00	45	15.00	40	13.33	18	6.00	3.76	1.24	75.20
Overall Average		30.40		39.07		14.93		12.53		3.07	3.81	1.09	76.24
Total	69.47				14.93		15.60						

Source: Prepared by the researcher based on outputs from (SPSS V.26), n=300

Human Capital Flexibility

The data in Table (3) indicate a consensus among the respondents regarding the items of the human capital flexibility dimension (X11-X15). The overall agreement rate (strongly agree, agree) was (66.34%), indicating a positive trend in their responses based on the five-point Likert scale. The overall disagreement rate (disagree, strongly disagree) was (14.13%), while neutral responses accounted for (19.53%). The mean score was (3.75), and the standard deviation was (1.06). The relative importance of the human capital flexibility dimension was (74.92%), which is a good level, reflecting clear agreement among respondents on these items based on their personal perspectives.

At the partial level, item (X13), which represents the university administration's focus on motivating its human resources to ensure effective task execution, achieved the highest relative importance of (77.87%), with a mean score of (3.89) and a standard deviation of (1.05). In contrast, item (X15), which represents the university aministration's focus on providing an advanced educational environment to develop the skills of its affiliates, achieved the lowest relative importance of (73.20%), with a mean score of (3.66) and a standard deviation of (1.14).

Table 3. Frequency Distributions, Means, Standard Deviations, and Relative Importance of the Human Capital Flexibility Dime

Items	Response Scale										Mean	Standard Deviation	Relative Importance
	strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)				
	Number	%	Number	%	Number	%	Number	%	Number	%			
X11	69	23.00	130	43.33	71	23.67	25	8.33	5	1.67	3.78	0.95	75.53
X12	70	23.33	135	45.00	50	16.67	31	10.33	14	4.67	3.72	1.08	74.40
X13	99	33.00	113	37.67	53	17.67	27	9.00	8	2.67	3.89	1.05	77.87
X14	77	25.67	112	37.33	62	20.67	36	12.00	13	4.33	3.68	1.11	73.60
X15	76	25.33	114	38.00	57	19.00	38	12.67	15	5.00	3.66	1.14	73.20
Overall Average		26.07		40.27		19.53		10.46		3.67	3.75	1.06	74.92
Total	66.34				19.53		14.13						

Source: Prepared by the researcher based on outputs from (SPSS V.26), n=300

Market Flexibility

The data in Table (4) indicate a consensus among the respondents regarding the items of the market flexibility dimension (X16-X20). The overall agreement rate (strongly agree, agree) was (71.94%), indicating a positive trend in their responses based on the five-point Likert scale. The overall disagreement rate (disagree, strongly disagree) was (15.46%), while neutral responses accounted for (12.60%). The mean score was (3.85), and the standard deviation was (1.11). The relative importance of the market flexibility dimension was (77.08%), which is a good level, reflecting clear agreement among respondents on these items based on their personal perspectives.

At the partial level, item (X18), which represents the university administration's efforts to ensure a quick response to the evolving needs of beneficiaries, achieved the highest relative importance of (78.60%), with a mean score of (3.93) and a standard deviation of (1.12). In contrast, item (X16), which represents the university administration's efforts to build proactive strategies to address changes in the labor market, achieved the lowest relative importance of (75.53%), with a mean score of (3.78) and a standard deviation of (1.13).

Table .4 Frequency Distributions, Means, Standard Deviations, and Relative Importance of the Market Flexibility Dimension.

Items	Response Scale										Mean	Standard Deviation	Relative Importance
	strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)				
	Number	%	Number	%	Number	%	Number	%	Number	%			
X16	86	28.67	127	42.33	35	11.67	38	12.67	14	4.67	3.78	1.13	75.53
X17	107	35.67	115	38.33	28	9.33	39	13.00	11	3.67	3.89	1.14	77.87
X18	118	39.33	96	32.00	39	13.00	41	13.67	6	2.00	3.93	1.12	78.60
X19	70	23.33	154	51.33	43	14.33	23	7.67	10	3.33	3.84	0.98	76.73
X20	109	36.33	97	32.33	44	14.67	35	11.67	15	5.00	3.83	1.18	76.67
Overall Average		32.67		39.27		12.60		11.73		3.73	3.85	1.11	77.08
Total	71.94				12.60		15.46						

Source: Prepared by the researcher based on outputs from (SPSS V.26), n=3

Informational Flexibility

The data in Table (5) indicate a consensus among the respondents regarding the items of the informational flexibility dimension (X21-X25). The overall agreement rate (strongly agree, agree) was (69.33%), indicating a positive trend in their responses based on the five-point Likert scale. The overall disagreement rate (disagree, strongly disagree) was (15.67%), while neutral responses accounted for (15.00%). The mean score was (3.77), and the standard deviation was (1.10). The relative importance of the informational flexibility dimension was (75.43%), which is a good level, reflecting clear agreement among respondents on these items based on their personal perspectives.

At the partial level, item (X23), which represents the university administration's provision of accurate information to support its strategic decisions, achieved the highest relative importance of (77.33%), with a mean score of (3.87) and a standard deviation of (1.14). In contrast, item (X24), which represents the university administration's continuous updating of information systems to meet changing needs, achieved the lowest relative importance of (73.20%), with a mean score of (3.66) and a standard.

Table 5. Frequency Distributions, Means, Standard Deviations, and Relative Importance of Informational Flexibility Dimension.

Items	Response Scale										Mean	Standard Deviation	Relative Importance
	strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)				
	Number	%	Number	%	Number	%	Number	%	Number	%			
X21	78	26.00	138	46.00	43	14.33	35	11.67	6	2.00	3.82	1.01	76.47
X22	81	27.00	126	42.00	47	15.67	33	11.00	13	4.33	3.76	1.10	75.27
X23	105	35.00	108	36.00	44	14.67	28	9.33	15	5.00	3.87	1.14	77.33
X24	61	20.33	147	49.00	37	12.33	39	13.00	16	5.33	3.66	1.10	73.20
X25	91	30.33	105	35.00	54	18.00	36	12.00	14	4.67	3.74	1.15	74.87
Overall Average		27.73		41.60		15.00		11.40		4.27	3.77	1.10	75.43
Total	69.33				15.00		15.67						

Source: Prepared by the researcher based on outputs from (SPSS V.26), n=300.

Summary of the Strategic Flexibility Variable Description

Based on the above, it can be concluded that all responses for each dimension of the strategic flexibility variable were above the hypothetical mean of (3). Table (6) illustrates the relative importance of the strategic flexibility dimensions from the perspective of a sample of functional staff at the presidency of the University of Mosul, using mean scores, standard deviations, and relative importance. The results show that the most important dimension of strategic flexibility is market flexibility, with a mean score of (3.85), a standard deviation of (1.11), and a relative importance of (77.08%). This is followed by productive flexibility, with a mean score of (3.83), a standard deviation of (0.99), and a relative importance of (76.60%). Competitive flexibility ranks third, with a mean score of (3.81), a standard deviation of (1.09), and a relative importance of (76.24%). Informational flexibility ranks fourth, with a mean score of (3.77), a standard deviation of (1.10), and a relative importance of (75.43%). Finally, human capital flexibility is the least important dimension, with a mean score of (3.75), a standard deviation of (1.06), and a relative importance of (74.92%).

Table 6. Relative Importance of the Strategic Flexibility Variable Dimensions.

Order	Dimensions	Mean	Standard Deviation	Relative Importance %	
1	Productive Flexibility	3.83	0.99	76.60	Second
2	Competitive Flexibility	3.81	1.09	76.24	Third
3	Human Capital Flexibility	3.75	1.06	74.92	Fifth
4	Market Flexibility	3.85	1.11	77.08	First
5	Informational Flexibility	3.77	1.10	75.43	Fourth

Source: Prepared by the researcher based on outputs from (SPSS V.26), n=300

3-2 The practical side of reduction Cognitive Rigidity

The results of Table (7) indicate agreement among the respondents' opinions regarding the cognitive rigidity reduction dimension items for statements (Y1-Y5). The overall agreement rate for the respondents' answers (strongly agree, agree) reached 70.53%. This indicates a degree of agreement among the respondents' answers to the cognitive rigidity reduction dimension items. This means that the respondents' opinions tend toward the positive based on the five-point Likert scale. The overall disagreement rate for the respondents' answers to the cognitive rigidity reduction dimension items reached 17.74%. The percentage of neutral answers was 11.73%. The arithmetic mean was 3.77%, the standard deviation was 1.17%, and the relative importance rate for the cognitive rigidity reduction dimension reached 75.49%, which is a good relative importance, meaning that the respondents clearly agreed on these items according to their personal perspectives. At the sub-level, paragraph (Y4), which represents "Our university administration is working to use advanced analytical tools in its field of work," achieved the highest relative importance of (76.93%), with an arithmetic mean of (3.85) and a standard deviation of (1.16). While paragraph (Y2) achieved the lowest relative importance of (73.00%), which represents "Our university administration is working to replace traditional methods of knowledge management with others that support progress," with an arithmetic mean of (3.65) and a standard deviation of (1.12).

Table 7. Frequency distributions, arithmetc means, standard deviations, and relative importance of the dimension of reducing cognitive rigidity.

Items	Response Scale										Mean	Standard Deviation	Relative Importance
	strongly Agree (5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)				
	Number	%	Number	%	Number	%	Number	%	Number	%			
Y1	104	34.67	106	35.33	41	13.67	35	11.67	14	4.67	3.84	1.16	76.73
Y2	64	21.33	141	47.00	37	12.33	42	14.00	16	5.33	3.65	1.12	73.00
Y3	108	36.00	100	33.33	38	12.67	37	12.33	17	5.67	3.82	1.21	76.33
Y4	99	33.00	121	40.33	31	10.33	33	11.00	16	5.33	3.85	1.16	76.93
Y5	80	26.67	135	45.00	29	9.67	34	11.33	22	7.33	3.72	1.19	74.47
Overall Average		30.33		40.20		11.73		12.07		5.67	3.77	1.17	75.49
Total	70.53				11.73		17.74						

Source: Prepared by the researcher based on outputs from (SPSS V.26), n=300

The relationship of correlation and influence between the study variables.

relationship is the correlation between strategic flexibility and cognitive reduction.

There is a direct correlation between strategic flexibility and reducing cognitive rigidity, as indicated by the correlation coefficient value, which appeared equal to (0.68). This relationship is significant based on the probability value (P-value), which appeared equal to (0.018), which is less than (0.05). Furthermore, the signals of both the lower and upper limits of the 95% confidence interval are similar at a significance level of (0.05).

Table 8. shows the relationship between strategic flexibility and reducing cognitive rigidity.

The first variable	relationship direction	The second variable	The correlation value	95% Confidence Interval		P-value
				Lower	Upper	
Strategic flexibility	↔	reduces cognitive rigidity	0.68	0.552	0.768	0.018

Source: Prepared by the researcher based on the results of the statistical analysis using AMOS V24 software n=300

4-2: testing the effect of strategic flexibility in reducing cognitive rigidity.

The results of Table (9) indicate that there is a direct effect of strategic flexibility in reducing cognitive rigidity, as indicated by the value of the regression coefficient Estimate (β), which reached (0.69). This effect is significant, as indicated by the probability value, which reached (0.011), which is less than (0.05). The same result also indicates the critical value (C.R.), which reached (2.45), which is greater than the table value (tTab), which reached (1.96). As for the value of the coefficient of determination, it indicates that (47%) of the changes in reducing cognitive rigidity are due to strategic flexibility, and the remaining percentage, which is (53%), is due to other variables that were not included in the model.

Table 9. Results of the Impact of Strategic Flexibility on reducing cognitive rigidity.Tabular Value (tTab = 1.96).

The independent variable	Direction of impact	Dependent variable	Estimate(β)	Se.(β)	Coefficient of determination. R-square	C.R	P-value
Strategic flexibility	⟶	reducing cognitive rigidity.	0.69	0.689	0.47	2.45	0.011

Source: Prepared by the researcher based on the results of the statistical analysis using AMOS V24 software, n = 300

Conclusions and Recommendations

Conclusions

1. The university administration places great importance on using modern technologies to improve the quality of services provided to beneficiaries, reflecting its commitment to adopting technological tools that enhance institutional performance. Additionally, the university promotes creativity as a strategic tool to achieve sustainable improvements in its services, enhancing the experience of beneficiaries and its distinction in academic and administrative fields.
   The university administration pays significant attention to motivating its human resources to ensure efficient and effective task execution, while providing an advanced educational environment aimed at skill development and institutional excellence. This is evident in the university's investment in its human resources and its provision of opportunities for success and empowerment for employees.
   The university administration is highly committed to motivating its human resources to ensure effective task execution, reflecting its dedication to improving institutional performance through investment in human capital. The university also strives to provide an advanced scientific environment aimed at developing the skills of its affiliates, contributing to the enhancement of their educational and research capabilities.
   The university administration strives to respond quickly to the evolving needs of beneficiaries, reflecting its deep commitment to achieving beneficiary satisfaction and meeting their needs in a dynamic academic environment. The university also works on building proactive strategies to keep pace with changes in the labor market, enhancing its ability to prepare for the future and achieve academic excellence.
   The university administration provides accurate information to support its strategic decisions, reflecting its commitment to applying a scientific approach to decision-making and enhancing institutional efficiency. The university also continuously updates its information systems to keep pace with changing needs, ensuring the effectiveness of its strategies and its ability to adapt to environmental and technological changes.
   The university administration has demonstrated a good level of reducing cognitive inertia, reflecting its awareness of the importance of advanced analysis in supporting decisions.

L Recommendations

1. The university should continue to enhance the use of modern technologies to improve its services, focusing on developing programs that encourage creativity within various teams. This will enhance the ability to provide innovative solutions that align with beneficiary expectations and future changes in the academic field
   The university should continue to develop its educational work environment by offering more training programs and educational opportunities for its employees. It should also regularly evaluate the skills of its human resources and provide continuous growth and development opportunities to ensure increased effectiveness and quality of work in the future.
   The university should continue to strengthen its scientific environment by offering additional training opportunities and innovative educational programs to ensure the continuous development of its employees' skills. It should also work on improving the work environment to keep pace with changes in the academic field and support the growth and development of its affiliates.

The university should continue to enhance its rapid response to beneficiary requirements by periodically analyzing their needs and providing innovative solutions. It should also focus on developing proactive strategies that align with rapid changes in the labor market, enhancing its ability to equip students with skills that meet future market needs.

The university should continue to update its information systems in line with modern technological developments and evolving institutional needs. It should also focus on improving the accuracy of information and providing appropriate data to support decision-making, enhancing its ability for strategic planning .

Promoting the adoption of modern knowledge management methods by launching training programs and stimulating a culture of innovation to ensure a gradual shift toward more advanced practices, which contributes to reduction Cognitive Rigidity.

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