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The impact of decision support systems in achieving organizational Ambidexterity An exploratory study in a sample of banks registered in the Iraq Stock Exchange

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Abstract
This study basically investigates the extent to which operating departments in the Iraqi private bank (IPB) adapt to decision support systems (DSS) affect the achievement of organizational ingenuity (OI). The researcher gathered the data from 130 participants working in IPB at different administrative and department levels. They answered a questionnaire on DSS and OI. Results showed that adopting DSS significantly correlates with in achieving organizational ingenuity in IPB. Results also reported that adopting DSS has a significant impact on the achievement of organizational ingenuity. The study recommends the adoption of digital mechanisms to cooperate with associations and companies responsible for providing jobs and encouraging civil society organizations of developing mechanisms and programs for exploring and investing environmental opportunities in accordance with the rapid changes.

Keywords: Decision support systems (DSS), Iraqi private bank (IPB) organizational ingenuity (OI).

Introduction

Decision support systems (DSS) are viewed in different models and forms as integrative steam of ideas, programs and processes, that basically aim to bring outputs in the form of decisions. Such decisions are responsible for achieving the needs and interest of the target segments, ensuring that temporal limits, reducing financial costs and efforts; they should meet the standards of quality.

DSS are developed over different time scales; DSS contains all segments of tasks in the organizations, which deal with processes of decision-making and interestingly element in pushing the success of the organizations departments. It represents the research independent variable.

On a related level and in view of the pressures exerted on organizations to reach the competitive advantage in increasingly competitive and turbulent market. Organizational ingenuity has gained great importance in recent years, and the success of contemporary organizations lies in their possession of organizational ingenuity and the provision of

innovations of value to the organization and society. Hence, ingenuity is the basis for developing the organizations and progressing the contemporary societies.

Organizations should to be ingenious in order to have the willingness and inclination to invest in the available opportunities in the work environment and at the same time explore new ones. This is done in the presence of a distinct structure that helps the organization to do so. This distinction structure represents the approved variable for the research.

The research problem emerged in the decline of banks performance. They reduce their practices and the weaken their participation of their development role, as well as their distance from international performance standards.

This research recommends some suggestions that can lead to achieving a systematic adoption of DSS which contributes in providing services of quality attributes and specifications. Such recommendations encourage global performance standards which stabilize and succeed in the banking sector at different administrative levels.

Research Problem

The research gap can be expressed through two axes: The first is cognitive, which constitutes work formulas of expertise in the cognitive framework of administrative literature. It pursues a continuous and cognitive check-up aimed at clarifying the multiple and diverse variables relationship which witnessed many changes due to the continuous movement of cognitive renewal. This gap leads to the existing of intellectual debate about what the collective and individual variables are and the level of cognitive depth. Accordingly, the cognitive gap in this study is summarized the philosophical and intellectual controversy related to the variables under study, i.e., decision support systems and organizational ingenuity.

The second axis, represented by the practical axis. It is clearly known that Iraq in the banking sector was a pioneer not only in the Arab world but also in Middle East region too. This supremacy of banking activity dates back to the year 1867 during the Ottoman empire and the work continued at an escalating pace for subsequent periods of time.

This reality is contained in the literature that documents the history of the Iraqi facilities operating in banking declines resulted by wars this country faced and ended in international sanctions. These conditions naturally declines greatly in banking performance as indicated by economic and financial indicators. The deteriorating in banks performance impacts both public and private banks, alike. Their activities witnessed limited practices and did not contributed to their developmental role, as well as being away from pertaining international performance standards.

Moreover, these banks are away from advanced global performance standards. In case of the Iraqi organizations, particularly private banks, want to regain their leading position and distinguished role, they must adopt modern mechanisms and programs, foremost of which are DSS. They are the crucial way to achieve banking performance in which the outputs (decisions) include the conditions and specifications of international quality. Such outputs put the image and form of that organization within what we can call the expression of ingenuity banks that are able to integrate the exploratory and investment performance of environmental opportunities through a modern and developed structural differentiation.

Research Questions

The research problem can be embodied in its two axes referred to above via the following questions:

Main Question

To what extent does adoption of the operating departments in the IPB to decision support systems affect the achievement of organizational ingenuity? The following sub-questions emerge:

1. What are cognitive, philosophical, and intellectual debate dealt in previous literature?
2. What is managements awareness level that operating in the Iraqi private banking sector to decision support systems?
3. To which level of development the organization can be described as organizationally ingenuity?

Research Importance

The importance of the this investigation stems from the contributions that emerge at the level of the researched organizations and society more broadly. It achieves the following importance:

Theoretical Importance

It emerges by reviewing realistic perspectives that simulate management thought, such as information systems, banking management and organizational behavior. This importance starts from the approach of adopting DSS and ends with consolidating the awareness of OI of what these distinct concepts constitute.

The theoretical importance appears in reviewing the theoretical bases that governs the general structures of the variables in questions and the most researchers prominent contributions in these fields. The researched organizations will be provided with valuable theoretical aspect and their general impact on organizational performance.

Field Importance

It appears in selecting one of the most fundamental operating sectors in the Iraqi economics and a basic cornerstone in the ultimate financial policy adoptions. This achieves, if developed in an optimal way, an economic a realistic development along with accumulating many economic profits which participate to the providing of job opportunities. They also solve several structural imbalances that affect the Iraqi economy.

This research is evidently presents a practical framework for an integrated model that dealt with its variables comprehensively and integratively as reflected in the results. The research importance is touched in producing reliable global standards and applying them on evaluating the organization performance. Then such concepts are generalized to achieve effectiveness and perform the tasks entrusted to its departments.

The field importance considers banks as an organization that measures the development level of any country. Therefore, this study importance exceeded the economic and financial aspect to greater dimensions and horizons and higher levels.

Research Objectives

The research objectives can be listed as:

1. Theoretical building a framework that clearly tracking the researcher's efforts in determining the cognitive and concepts of DSS and OI variables and to recognize the overlapping nature between them.
2. Accessing the analysis, and interpretation of measurement for the DSS and OI in which the suitable one will be chosen.
3. Examining the impact and correlation relationships between DSS and OI variables.
4. Proposing suggestion for future research in the field of management.
5. Recommending set of solutions that achieve a systematic adoption of DSS to ensure the provision of quality services to simulate international performance standards and stabilizing the success of banking sector.

The hypothetical scheme

The hypothetical research scheme was built to show the correlation and influence between DSS and OI, as described in Figure 1. It includes:

1. The independent variable (i.e., decision support systems) which contains following dimensions: data management system, software system, and user interface system.
2. The adopted variable (i.e., organizational ingenuity) includes: exploration, investment and differentiated structure dimensions.

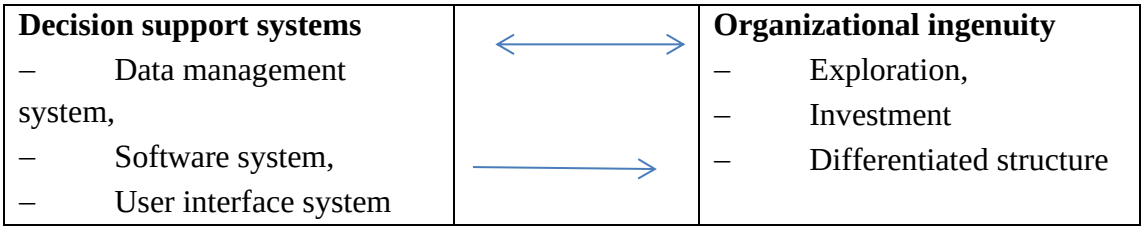

Figure 1. The study hypothetical scheme

Research hypotheses

They are a guess that the researchers reach and stick to temporarily. They are more like a principled opinion in solving the problem and answering the research questions. Hypotheses are not random conclusions, but are based on information expressing the causes and dimensions that formed the research problem, and accordingly the main and sub hypotheses are formulated as:

MH1: Adopting decision support systems has a significant correlation with the achievement of organizational ingenuity in IPB. MHI includes three sub-hypotheses, as follows:

1. Adopting data management system correlates significantly with achieving organizational ingenuity in IPB.
2. Adopting software system correlates significantly with achieving organizational ingenuity in IPB.
3. Adopting user interface system correlates significantly with achieving organizational ingenuity in IPB.

MH2: Adopting decision support systems significantly impact achieving organizational ingenuity in IPB. It is subdivided into:

1. Adopting data management system significantly impacts in achieving organizational ingenuity in IPB.
2. Adopting software system significantly impacts in achieving organizational ingenuity in IPB.
3. Adopting user interface system significantly impacts in achieving organizational ingenuity in IPB.

Literature Review

Decision support systems (DSS)

DSS is previewed as systems based on various digital technologies to facilitate interaction between information technology and human, to produce information appropriate to the needs of users (Yassin, 2019). Al-Kurdi and Al-Abd (2020) defined DSS as interactive systems that supplies managers with models, information, and tools or data processing to make semi and unstructured decisions, especially in circumstances where it is foggy to make a decision. Likewise, Reis and Bler (2021) defined DSS as a capable supporting system of data analysis as well as model obtained for specific topics as directed towards long-term strategic planning. DSS can be defined procedurally as the integrated structure of a group of systems that includes computerized digital mechanisms and programs that give the final beneficiary tools for processing data and help in providing some solutions to the encountered problems.

The importance of DSS

DSS has some distinguished benefits that be summarized according to Yassin (2019) as follows:

a) DSS has more advantageous features over other information systems due to research framework which integrating technology operations with decision maker efficiency.

b) The several number of alternatives possibly allows DSS to choose the best alternative from among tested substituents. DSS provide more rapid sensitivity analysis, and faster response. DSS provides series of interconnected and successive supports for decision-making process.

c) Comprehending the business enables decision-makers to define the relationships used to prepare a clear picture of the business.

d) DSS provides fast response to unexpected situations, reviewing models easily and quick vision of changes.

e) The ability to provide a set of various technical means and methods to prepare and perform the analysis for a specific purpose.

f) DSS enhances communication and oversight, improves channels of communication and provides systematic accounting plans and procedures.

g) DSS saves time and costs, shortens office work and reduces extra time and thus saves costs.

DSS components

Classifying the components of DSS provided in literature vary, and in the current research, the researcher adapted Hosack et al. (2012) due to revolving around the banking work, and it can be listed in the followings:

Data management system

It is a group of applications that control and manage the data storage and retrieval process. It also enables many users to access the database and using it, as it receives user requests, then transfers them to the database, and provide suitable applicable programs to these requirements, and then provides results to the users.

Software system

It is based on executing the functions of creating forms and using modules to build new capabilities, modify or update forms and process data. The paradigm can be defined as an intense depiction of reality in order to understand, interpret and study it in order to make the targeted change. Similarly, the nature of the models depends on the nature and degree of complexity of the reality problems under study and the decision.

User interface

This system is the means through which the dialogue takes place between the DSS and the decision maker. It is symbolized by the ways to get queries, extracting and analyzing information using software model. A conversation can occur between user an DSS indirectly or directly. Hence, the direct form of dialogue occurs by entering commands directly into the interface, in a variety of ways, including:

Selection lists as in the Windows, which is the most common/typing commands by keyboard by filling in tables, or specific dialogue boxes; question and answer, where the system asks a series of questions that the end user answers. Input form / output form, where the system displays an input form and provides users with the necessary data, and based on these inputs, the program provides output in a similar form.

The researcher believes that in the Iraqi banking environment, which is still groping for the first steps in the world of adopting digital mechanisms, there is a growing need to adopt DSS in an actual and real way and based on an in-depth understanding of the importance of these systems. An initiative and racing decision based mainly on highly developed systems in line with advanced global performance standards.

Organizational ingenuity (OI)

OI is perceived as the ability of pertaining investment and exploratory strategies (Alshaer, 2020). Yet, regarding this definition, exploration and investment are often debatable activities, because achieving ingenuity requires balancing between these two activities in which the facility is able to invest its resources as well as explore new opportunities in a balanced way. Besides, Lind and Aberg (2020) defined OI as the simultaneous pursuit exploitative activities within the organization. Furthermore, Kammerlander (2020) viewed OI as the ability of the organization to study update activities in existing field, and to explore new activities in new areas of the organization in a way that achieves a relative balance between exploratory and

investment performance, and reconciles the market, the organization's resources, and competition conditions.

The researcher defines OI procedurally as the balance that the organizations can achieve between efficiency in exploring new opportunities and investing existing capabilities and resources through integration between exploration and investment instead of trade-off between them.

Attributes

Many researchers have shown that OI is manifested in the following features (Alshaer, 2020):

a) Individuals initiate looking for opportunities that pass the limits of their jobs, such as taking actions in the interest of the organization.

b) OI sufficiently motivates individuals to act selflessly without obtaining permission or support from their superiors.

c) OI encourages individuals to work that includes adapting to new compatible opportunities with the general strategy of the organization.

d) OI helps individuals demonstrate the ability to adapt strengthen cohesion at the individual level of the organization.While Kammerlander (2020) identified the characteristics of skillful employees:

a) A-Skilled individuals initiates to look out for opportunities that go beyond their own jobs.

b) Skillful individual are cooperative and look for opportunities to unite with others their efforts. They are mediators often trying to build internal links.

c) They are multi-taskers and don't wear more than a hat. Brilliant individuals have passion and discipline.

d) They are challenge leading; business leaders also need to balance existing and new activities, combine short-term and long-term thinking, and formulate emotionally appealing visions while remaining focused on implementation.

e) Skilled managers possess cognitive and behavioral complexity and that they are able to adapt their directive or autonomy tactics dynamically to the requirements of the context.

Organizational ingenuity dimensions

Researchers presented many models with a variety of scientific backgrounds, which framed the diagnosis of the dimensions of OI, but the most prominent and most famous of them is the Jansen et al's, (2009) model, which identified the dimensions of OI in the following points:

Exploration

It represents the ability of the organization to quickly move towards new opportunities, prepare to adapt to unsteady markets which helps in emergence of new markets and customers, and the creating of new channels of distribution.

Investment

It is the facility capability to develop valuable activities in the short term. Investment is set to suit the desires of current customers in current markets and aims to expand existing skills and knowledge as well as expanding products.

Differentiated structure

The differentiated structure is referred to as the separation of exploratory and investment activities into distinct organizational units. This separation enables skilled organizations to maintain many skills that address contradictory demands, and then it ensures that skilled units enjoy the flexibility and freedom required to develop new skills in order to adapt to conflicting mission environments.

The researcher believes that OI in the work environment of financial and economic organizations in general, and banking ones in particular, is no longer an option in front of the departments, as much as it is an imperative that requires the administration to consolidate its understanding within the organizational culture of the working teams. OI requires the exploratory activity for the environment which other perceived as not sufficiently discovered and must be synchronized with actual investment work in the sectors of society through a distinguished banking service with an emphasis on the need for the two matters to move banking organizations from the form of traditional structures to the adoption of more modern structures that have differentiation in organizational units. Such shifting enables these departments to conduct the two exploration activities investment in a consistent, balanced and harmonious manner.

Methods

Research design

The research methodology refers to the plan that explains and defines the procedures pertained for collecting and analyzing data used for the research designed. The researcher obtained the descriptive analytical approach in surveying the participants' perceptions in the IPB. Such design is the most suitable for the phenomena undertaken by this study variables. The study explored the perception of participants represented in the headquarters working private banks registered in the ISB. The participants included a 130 participants at various administrative levels to measure aspects of variables. The study took place in December 2022.

Instruments

Questionnaire

The questionnaire was adopted as a basic tool in collecting data on the field side by surveying the research samples' opinions. The questionnaire included three sections, the first identifies demographic information about the research sample including (job position, academic qualification, years of service). The second section consists of items related to decision support systems and the third section was devoted to the variable organizational ingenuity. The five-point Likert scale was adopted, ranging from (1-5) degrees, as degrees (1.2) indicates disagreement, while score (4.5) refers to the level of agreement, while the neutral answer is represented by (3). The questionnaire was divided on the basis of the variables researched and as in the Table 1.

Bank records

The research got data from the banks under study in order to obtain administrative data related to the nature of work and a number of administrative, technical and detailed information that serve the research.

Field visits

In order to complete the field aspect and identify the nature of the work of the banks in question, collect data and monitor the various performance process, the researcher paid serval continuous visits to the banks' headquarters.

Interviews

In order to reach the best understanding of the subject under study and to diagnose the problems, many interviews were conducted on an ongoing basis with the private managers and officials of the units in the banks in question.

Table 1 The scales used in the questionnaire

المتغيرات	Dimensions	Number of items	Source
Decision support systems	Data management system	**5**	**Hosack et al., (2012).**
	Software system	**5**	
	User interface system	**5**	
Organizational ingenuity	Exploration	**5**	**Jansen et al., (2009).**
	Investment	**5**	
	Differentiated structure	**5**	

Validity

A - Test of face and content validity

The face and content validity are among the most important types of tests that have gained great importance in behavioral measures. Face validity is fundamental test to validity the measure. It represents a single structure for a variable, and is a comprehensive answer as a quick assessment of what the test measures.

Content validity on the other hand refers to the ability of the questionnaire to express the purpose for which it was collected. It also means examining the content of the measure a careful and regular examination for the purpose of determining whether it includes a sample representative of the field of the subject that it measures (Barton et al., 2011). Obtaining the validity of the questionnaire was performed by presenting it to a number of experts in various fields including (information systems, organizational behavior, management of banking organizations) and their observations that contributed to determining the extent of representation the sub-dimensions of the main variables, the extent to which the measurement items represent the dimensions, the clarity of each item, and the observations were taken and the wording of some items that the juries considered necessary to be reformulated or amended.

Reliability

Determining the stability and validity coefficients of the behavioral measures (the questionnaire) is fundamental procedures that validate the scale and their usefulness in measuring any traits and phenomena. It measures what was built to measure (Tavakol & Dennick, 2011). Cronbach Alpha is one of the most important and most famous measures used to measure the stability of the questionnaire.

If the Alpha value of the test is less than 60%, this is a weak indication of stability. Acceptable reliability should exceed 70%. The stability rate is good if it reaches 80% or more (Barton et al, 2011). Table 2 shows that the value of the stability coefficient for the total DSS items amounted 0.862, which indicates the existence of high stability in the items of DSS variable, as it exceeded 0.70. The OI stability scored 0.894 This value achieves the value of the required stability. Furthermore, the value of the stability coefficient of the entirety items reaches 0.923, proving that the pillars of the questionnaire are successfully passed.

Table 2 Reliability test for DSS and OI items.

Variables		Alpha Cronbach	Reliability level	Notes
X	Decision support systems	0.862	High	DSS items receives a high reliability level
Y	Organizational ingenuity	0.894	High	OI items receives a high reliability level
Total items		0.923	High	All the items receives a high reliability level

Research community and sample

Perhaps amongst the problems that researchers in the field of administrative science face is the selection of the participants, ways of selecting them and representativeness to the society. This study included private banks enrolled in the Iraq stock exchange (ISB). In order to choose the appropriate sample, the reality of the organizational structures of the elected banks was seen and individuals who belonged to the higher, middle and executive administrations were chosen as the most capable of understanding the researched variables. The researcher distributed 150 copies of the questionnaire in 6 banks. A total of 25 copies in each bank. The researcher got back 130 copies which were subject to statistical analysis, and as shown in the Table 3 below.

Table 3 Names of Iraqi banks under the study

Bank	Number of distributed questionnaires	Number of received questionnaires
Daara-Salaam Bank	25	20

Credit Bank of Iraq	25	22
National Bank of Iraq	25	20
Bank of Baghdad	25	23
Mansour bank	25	23
Bank of regional cooperation for development and investment	25	22
Total	150	130

The characteristics of the participants will be explained as:

A- occupation

Table 4 demonstrates the occupation of the participants, it was found that the highest percentage of participants were heads of departments, 57.6%. Table 4 indicates that the percentage of the general managers and their assistants amounted 12.5% of the community, while the members of the board of directors constituted 23% of the community. Table 4 also shows that percentage of the managing director reached 6.9%. The high number of head of department amongst the It confirms the closeness of the research work to the field reality, considering that the heads of departments, who are the largest percentage, are the most close to the reality of work in the field of the banking environment, and they are the ones who reflect the foundations of the work in its realistic way.

Academic qualification

Table 4 shows that bachelor degree holders form the largest percentage among the participants at a rate of 54.4%, followed by the diploma holders at a rate of 21.7. Table 4 also indicates that the master's degree major came in the third rank with a rate of 13.8%, and in the fourth rank came holders of a higher diploma with a percentage of 6.6%, and the category of PhD holders came in the fifth rank with a rate of 5%. These findings show that university degrees holders contribute to the performance of job tasks; they also enjoy qualifications that are in line with the variables.

Years of service

Table 4 clarifies that in the first place came the (11-15) years with a rate of 47.6%, after that, the category (16-20) occupied the second place, with a rate of (25.3%). Furthermore, the category of years of service 21 years or more, it ranked third with a rate of 15.7%, while the service category (5-10) years ranked fourth with a rate of 11.4%. These percentages indicate the extents of diverse experiences amongst participants. Results also confirmed that about half of the participants have more than 10 years of experience, which qualifies them to provide accurate and realistic data in the Iraqi environment.

Table 4 Demographic features of the participants

Attributes	Features	Frequencies	Percentage
Occupation	General managers and their assistants	16	%12.5

	Board directors	30	%23
	Delegated managers	9	%6.9
	Heads of Departments	75	%57.6
	Total	130	%100
Academic qualification	Diploma	28	%21.7
	Bachelor	71	%54.4
	Higher diploma	8	%6.6
	Masters	18	%13.8
	PhD	5	%3.5
	Total	130	%100
Years of service	5-10	15	%11.4
	11 -15	62	%47.6
	16-20	33	%25.3
	21 years and	20	%15.7
	Total	130	%100

Data analysis

The statistical methods are a set of tools adopted in processing data, showing results that carry indications, and translating general indicators of the answers obtained to serve the goals that any researcher wants to achieve. In the current research (Al- Nuaimi, 2008). A number of tests (SPSS V25) shown below:

Arithmetic Mean

- Percentages
- Standard Deviation
- Coefficient of Variation
- Simple Correlation Coefficient Pearson to identify the type of correlation
- Z-TEST to show the significant of the effect
- F-TEST to calculate the effect of the liner correlation between PS and UR. IF the calculated F is higher than tabulated F, this shows the effect of PS on UR. Thus, the hypothesis is rejected.
- Multiple regression coefficient is used to show the liner correlation between some independent variable with one dependent.

Results

Decision support systems

Table 5 documents that the value of the mean of independent variable DSS is higher than the hypothetical mean (M=4.11). The score 3 represents the boundary between agree and disagree. Findings confirm that the intensity of the sample's answers regarding DSS tended to agree, indicating that the response level on most of the items of DSS was at a high level, with a standard deviation amounting to (Std=0.559). The Std shows the homogeneity of the research sample's answers regarding the variable items. Table 5 also shows that the relative importance

recorded 82.2 %. Furthermore, the coefficient of difference was (0.13), which shows the agreement of most of the research sample on the items of DSS.

As for the sub-dimensions, the Software system occupied in the first rank, with an arithmetic mean (M=4.13) and a coefficient of difference (CD=0.12). This indicates that departments working in banking organizations have usual and fixed attitudes, preferences, or strategies that determine forms of perception of the nature of work and services provided. In particular, if we mention that this component includes programs and mechanisms to manage the dialogue with the final beneficiary or the consumer of the banking service. Therefore it is obvious that this result indicates the interest of banking departments in the consumer as the most important element.

User interface system came in the third rank with a standard deviation of (Std=0.58) and a relative importance of (RI=81%) and a coefficient of difference (CD=0.14). This finding indicates a weakness in the understanding of banking departments of the reality of the hierarchy of operations and mechanisms of decision support systems, given that this system is the only means in which the dialogue takes place between the DSS and the decision maker.

This axis is represented by how to obtain inquiries, extract information, and analyze information using the database of models, which is what banking departments must shed light on this element and deepen its understanding by all administrative levels.

Table 5 Statistical results of DSS variable

Variable	Mean score	Standard deviation	Relative importance	Coefficient of difference	Response level	Dimension rank
Data management system	4.15	0.55	83	0.13	High	Second
Software system	4.13	0.53	82.6	0.12	High	First
User interface system	4.05	0.58	81	0.14	High	Third
DSS	4.11	0.55	82.2	0.13	High	

Organizational ingenuity

Table 6 shows that the dependent variable (organizational ingenuity) has achieved an arithmetic mean of (M=4.01), higher than the hypothetical mean, with a coefficient of difference (CD=0.15) and a standard deviation of (Std=0.61) and with relative importance (RI=80%). Thus, the homogeneity of the sample answers is confirms In addition, this is an indication of the research sample members' significant interest of the OI variable in general.

As for the sub-dimensions, Table 6 shows that investment ranked in the first order, with an arithmetic mean of (M=4.14), a standard deviation of (Std=0.56), and a relative importance of (RI=82.8%). These results confirm the great crowding in the banking business and the impact of the economic, security and health conditions that Iraq and the world are going through in recent years. Such conditions therefore imposed a state of stagnation on the level of general and banking performance in particular, which resulted in greater interest on the part of banks

to meet the needs of current customers in the current markets and target the expansion of current skills and knowledge as well as the expansion of products.

Besides, the exploration dimension occupied the third order with a mean score (M=3.80) and a relative importance (RI76%) and a coefficient of difference (CD=0.17). These results confirm that banking departments are far away in a remarkable way from adapting programs against changeable markets, in a way that secures new markets, and the formation of new distribution channels in light of the high uncertainty that characterizes the Iraqi environment.

Table 6 Statistical results of OI variable

Variable	Mean score	Standard deviation	Relative importance	Coefficient of difference	Response level	Dimension rank
Exploration	3.80	0.68	76	0.17	High	Third
Investment	4.14	0.56	82.8	0.13	High	First
Differentiated structure	4.10	0.60	82.1	0.14	High	Second
Organizational ingenuity	4.01	0.61	80	0.15	High	

Testing the hypotheses

The researcher resorted to employing the Z-TEST test to test the hypotheses of the correlation between DSS in its three dimensions (data management system, software system, user interface system) and organizational ingenuity in its three dimensions (exploration, investment , and differentiated structure). The correlation hypothesis will be accepted in the event that the probability value (P-value) corresponding to the calculated Z value is less than or equal to the significant level used in the research which is (0.05).

At the same time the calculated Z value is greater than its tabular counterparts which is (1.96) and thus accepting the correlation hypothesis with a confidence rate (95 %). On the contrary, the result of the test will lead to the invalidity of the hypothesis. To find out the strength and direction of the correlation between decision support systems with its three dimensions and IO, the researcher calculated the correlation coefficient between the variables. At this stage of the analysis, the following hypotheses will be tested:

MH1: Adopting decision support systems has a significant correlation with the achievement of organizational ingenuity in IPB. Three sub-hypotheses emerge from it, as follows:

4. Adopting data management system correlates significantly with achieving organizational ingenuity in IPB.
5. Adopting software system correlates significantly with achieving organizational ingenuity in IPB.

6. Adopting user interface system correlates significantly with achieving organizational ingenuity in IPB.

Table 7 shows that calculated Z value reached (Z=4.490), which is significant, due to the fact that the P-value corresponding to the calculated Z value amounted to (0), which is less than the significant level used in the research, which is (0.05). This confirms that the calculated Z value was greater than the tabular Z value of (1.96). Similarly, the correlation value coefficient between DSS and OI was (r=0.719) to directly correlate between the two variables.
Table 7 indicates to the acceptance of all emerging sub hypotheses under the first main hypothesis. Table 7 also shows that dimension of data management system)= achieved the highest correlation value with the dependent variable with (0.662**), while the user interface system ranked the lowest correlation value with the dependent variable which reached (0.414**).

Table 7 Matrix of correlation between decision support systems and organizational ingenuity

OI / DSS	Scale	Dependent variable			Organizational ingenuity	Significant correlation		Interpretation
		Exploration	Investment	Differentiated structure				
Data management system	r	0.560**	0.536**	0.631**	0.662**	4	%100	Accepting the hypothesis
	Z-test	3.497	3.347	3.940	4.134			
	P value	0.000	0.000	0.000	0.000			
Software system	r	0.527**	0.542**	0.575**	0.629**	4	%100	Accepting the hypothesis
	Z-test	3.291	3.384	3.590	3.928			
	P value	0.000	0.000	0.000	0.000			
User interface system	r	0.224	0.392**	0.469**	0.414**	3	%75	Accepting the hypothesis
	Z-test	1.389	2.448	2.928	2.854			
	P value	0.164	0.000	0.000	0.000			
DSS	r	0.526**	0.583**	0.662**	0.719**	4	%100	Accepting the hypothesis
	Z-test	3.284	3.640	4.134	4.490			
	P value	0.000	0.000	0.000	0.000			
Significant correlation	Acceptable hypotheses	3	4	4	4	15		
	Acceptable hypotheses percentage	%75	%100	%100	%100	%93.75		
The correlation r between the two variables						Correlation value at .05		

Testing the second hypotheses

To test the effect of DSS variable with its three dimensions on OI, the researcher relies on the (F-test). The hypothesis will be accepted if the probability value corresponding to the

calculated F value is smaller than a significant level (0.05). Moreover, the calculated F value will be greater than its tabular counterparts amounting to (4,0847), i.e. accepting the hypothesis by (95%). As for the statement of the percentage of interpretation (the effect of DSS on OI, the researcher relied on the coefficient of determination R^2:

Adopting decision support systems significantly impact achieving organizational ingenuity in IPB. It is subdivided into:

1. Adopting data management system significantly impacts in achieving organizational ingenuity in IPB. Table 8 presents the acceptance of the sub hypothesis with a confidence rate of 95%), as the calculated F value reached (29,664), which is significant, due to its being greater than the tabular F value of (4.0847) at a significant level (0.05), especially that the probability value corresponding to the calculated F value was (0), which is smaller than the level (0.05), and the coefficient value of determination was (CD=43.84), interpreting that data of management dimension of the change in indicators of OI.
2. Adopting software system significantly impacts in achieving organizational ingenuity in IPB. Table 8 indicates proving the second sub hypothesis with a confidence level of (95%). The computed F scored greater than the tabular F value of (4.0847) at a significant level (0.05), especially that the probability value corresponding to the calculated F value was (0), which is smaller than the (0.05) level. The coefficient of determination R^2 was (39.56, indicating the ratio of interpretation the dimension of the software system for the change that occurs in IO.
3. Adopting user interface system significantly impacts in achieving organizational ingenuity in IPB. Table 8 indicates that the calculated F value was (7,875) scored higher than the tabular F value of (4.0847) at a significant level (0.05), with probability value corresponding to the calculated F value was (0). Furthermore, the value of the coefficient of determination (R^2) was (17, 20. It is therefore possible with a confidence rate to accept the third sub hypothesis at (95%). This finding indicates the ratio of interpretation of the user interface system dimension to the change that occurs in indicators of organizational prowess.

Table 8 Test the hypotheses of the impact of DSS and its dimensions on IO

OI / DSS	Scale	Dependent variable: Exploration	Investment	Differentiated structure	Organizational ingenuity	Significant correlation		Interpretation
Data management system	r	%31.36	%28.73	%39.82	%43.84	4	100%	Accepting the hypothesis
	Z-test	17.361	15.318	25.14	29.664			
	P value	0.000	0.000	0.000	0.000			
Software system	r	%27.77	%29.38	%33.06	%39.56	4	100%	Accepting the hypothesis
	Z-test	14.612	15.806	18.769	24.822			
	P value	0.000	0.000	0.000	0.000			
User interface system	r	%5.02	%15.37	%22	%17.20	3	75%	Accepting the hypothesis
	Z-test	2.007	6.899	10.716	7.875			
	P value	0.000	0.000	0.000	0.000			
2	3	3	3	3	3	11		
%66.67	%100	%100	%100	%100	%100	%91.67		
Coefficient of determination R^2						F. Tabulate value at a moral level 0.05 = 4.0847		

Table 9 according to the results of the Amos statistical analysis document the acceptance of the second main hypothesis, which states "adopting decision support systems significantly correlates with in achieving organizational ingenuity in IPB", which confirms its acceptance with a confidence rate of (95%). This is done by applying the method of multiple linear

regression analysis to show the impact of the dimensions of DSS and their dimensions on OI. The calculated F value reached (12,818), which is significant, because it is greater than the tabular F value of (2,838) at a significant level (0.05), because the probability value corresponding to the calculated F value was (zero). Likewise, the value of the determination coefficient was (43.84), indicating a percentage effect, the dimension of the achieved OI. Hence, the formula of the multiple liner dimension which expresses the liner correlation on the dimension of DSS (i.e, data management system, software system and user interface system). They were symbolized by X3,X2,X1 respectively and the superior performance denoted by (Y) is as follows:

$Y = 0.794 + 0.45\ x1 + 0.37\ x2 + 0.04\ x3$

Table 9 Multiple linear regression analysis of the effect of DSS on OI

Hypothesis	Variables			Analysis type	Level of significant	Regression coefficient	Coefficient of determinat	F-test		Notes
	independent		dependent					computed	Probability value of significant	
MH2	Development support systems	Data management system	Organizational ingenuity	Multiple liner regression	**0.794**	**0.45**	**%52**	**12.818**	Zero	Accepting the hypothesis with 95%
		Software system				**0.37**				
		User interface system				**0.45**				

Conclusions, recommendations and suggestions for research

Conclusions

1. It was found that the dimension of software system (within DSS) received the greatest attention, which means that the departments operating in the banking organizations have usual and fixed attitudes, preferences, or strategies that determine the forms of perception of the nature of work and the services provided in particular if we mentioned that this component includes programs and mechanisms to manage the dialogue with the final beneficiary or consumer of the banking service.
2. In light of the state of great crowding in the banking business and the impact of the economic, security and health conditions that Iraq and the world are going through in recent years, therefore a state of stagnation was imposed on the level of general and banking performance in particular. It was found that the Iraqi private bank showed greater interest in achieving the current consumers' needs at the current markets. Still these banks seek to expand their current skills and knowledge rather than expanding their production.
3. The study showed that the banking departments are far away, in a remarkable way, from the readiness programs to adapt to the volatile markets, in a way that secures the emergence of new distribution channels for new customers, and the formation of new markets in light of the Iraqi environment.

4. The results accepts of the influence and correlation hypotheses between the DSS and OI.

Recommendations

1. the banking departments need to adopt scientific mechanisms and methods to enhance the banking work and consolidate the DSS and adopting them to scientifically.
2. Adopting digital procedures to cooperate with associations and companies responsible for providing jobs and encouraging civil society organizations of developing mechanisms and programs for exploring and investing environmental opportunities in accordance with the rapid changes.
3. Measuring OI indicators using approved mechanisms and international standards, applied in the banking sector.
4. Interacting with regional and international banks to reach highly performance standards that are described as OI. Such procedures bring joyfulness to workers and inspire work mechanisms that can be appropriately pertained in local environment.

Future Research

1. The impact of information systems in achieving the strategic goals of banks.
2. The effect of managing the immediate processing of data in enhancing the valuable image among customers of the bank.
3. Studying the electronic human resources impact on managing strategic success.

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