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Technological Challenges of Information Systems and their Role in the Interaction of Virtual Teams

Jwan Fadel Mahdi
Al-Furat Al-Awsat Technical University, Iraq
jwan.mahdi@atu.edu.iq

Abstract: The current study highlights the technological challenges of information systems as an independent variable in its dimensions represented by, "technological challenges of the information system", in its dimensions (technical challenges: behavioral and human challenges: digital communication challenges: organizational and administrative challenges), and also focuses, The study is based on the dependent variable "virtual team interaction", in its dimensions (team participation and interaction: cross - border value management: retrieval). Hence, the success of contemporary organizations today at their various administrative levels is focused on the extent of their interest in the information system, as providing data is an inevitable necessity To meet the strategic requirements of the organization and formulate a clear future vision that keeps pace with the accelerating environmental changes, the study population included a simple random sample consisting of (125), employees in some Iraqi government banks. The questionnaire was adopted as the main tool for collecting data and was analyzed Statistically using the (SPSS), program, the study concluded that there is compatibility and availability of dimensions to the technological challenges and virtual teams in the researched organization, and the study ended with a set of recommendations, the most prominent of which is enhancing and encouraging the state of practical competition between banks and consolidating the approach Democracy between senior management and employees and the need for management to seek to encourage work as one team dominated by a spirit of initiative and cooperation.

Keywords: Technological challenges of the information system, interaction of virtual teams.

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Introduction

The study methodology included the following:

1- Research problem: Technological challenges within the business environment have acquired essential characteristics that directly affect the definition and direction of the performance of individuals in organizations. Technology has become a fundamental pillar that shapes the features of organizational activities in various fields, especially "virtual teams," where the impact depends on the nature of The strength of the technology followed by the organization and its level of efficiency, From this perspective, technology emerges as a vital challenge facing modern management, given its effective role in reshaping human resources' behavior, habits, and expectations, which reflects negatively or positively on all organizational activities Based on the importance of technology in guiding and shaping human behavior, this study seeks to discover the nature of technological challenges and analyze their role in the interaction of virtual teams in terms of relationship and influence among workers in the Iraqi banking sector. The features of the research problem are embodied in explaining and answering the following questions:
- What are the levels of technological challenges facing workers in Iraqi banks / Babylon.

- What is the level of use and accreditation of virtual teams by employees of these banks.

- What is the impact of the dimensions of technological challenges in enhancing the interaction of virtual teams among employees of Iraqi banks / Babylon.

2- The importance of the research: This study is derived from the vital role played by Iraqi banks as a fundamental and essential economic pillar in society. This importance has increased in the recent period in conjunction with the rapid leaps witnessed by the service sector, and the developments that have accompanied it Concrete technology has encouraged banks to reformulate the methods of providing their various services, and in light of the competitive environment, the human element emerges as the most important strategic advantage to enable organizations to excel and be creative, and from this standpoint, the current study seeks to provide a knowledge base to reduce The technological challenges facing modern organizations. At the general level, solid cognitive and scientific data is available that defines the prevailing technological reality in the banking sector, which contributes to improving and developing individuals' performance and increasing their efficiency, which has a positive impact on the service sector

3- Research objectives: These are embodied in achieving the following objectives:

- Assessing the nature and level of technology and its challenges facing Iraqi banks / Babylon.

- Analyze the extent to which technological variables and their dimensions affect the interaction of virtual work teams in the target banking environment.
- Providing some applicable procedural recommendations and proposals, with the aim of enabling bank administrations to benefit from the results of the study and use them to improve the work environment.

4- Research variables: The structure of the study consists of two main variables and their dimensions are as follows:

The first: technological challenges: which includes four fundamental dimensions: (technical challenges: behavioral and human challenges: digital communication challenges: organizational and administrative challenges).

Second: Virtual teams: It is measured through three main dimensions: (team participation and interaction: cross – border value management : retrieval).

5- Research hypotheses: In order to answer the study questions, two main hypotheses were formulated for the statistical test:

- The first main hypothesis: There is a positive correlation with significant statistical

significance between the dimensions of technological challenges and the interaction of virtual teams of Iraqi banks / Babylon.

- The second main hypothesis: There is a statistically significant moral impact between the dimensions of technological challenges and the interaction of virtual teams of Iraqi banks / Babylon.

6- Research community and sample

The current study population focuses on a group of operating Iraqi banks / Babylon, as a vital artery that provides various sectors and organizations with diverse financial services, making it a suitable regulatory environment to achieve the research objectives, and for the purpose of collecting preliminary data , A random sample of (135), employees working in these banks was selected for the purpose of analyzing the study data, as well as using descriptive indicators and statistical methods (SPSS).

Theoretical Framework for Study Variables

The concept of technological challenges: [1], Successive technological developments have led to the emergence of a new organizational model known as "the information society," where the process of processing and verifying information has come to occupy the largest space in human and organizational activities. This transformation has been reflected Positively, the emergence and growth of management information systems as a strategic tool that is responsible for providing the various administrative levels with accurate, appropriate and timely information for the decision). In the same context, [2] believes that these challenges and transformations depend mainly on Technological changes that organizations apply to develop their businesses in a way that ensures maximizing their market value, while [3] describes them as capabilities and technologies to raise the efficiency of operational processes and bring about radical changes that support the spread of digital technologies in the internal environment of the organization Based on the above, a procedural concept of technological challenges can be formulated as a strategic guide that helps improve and invest available resources and adopt a culture of continuous change and development for the purpose of reducing losses and risks facing contemporary organizations.

Dimensions of technological challenges

1- Technical challenges: These challenges include the weak spread of information and communications technology and the difficulty of utilizing the technical capabilities and capacities available at the organizational level, in addition to the absence of integrated infrastructure at the organizational level, and the variation in the nature of devices and systems Used as a major obstacle that makes it difficult for the process of linking and communication between different administrative formations, a shortage of specialized technical cadres and expertise, the continuous acceleration and development of computer technologies, and a decline in the levels of readiness of organizations in the fields of information security and data protection [4]. With regard to the nature of communication and its mechanisms, the individual interacts with his external environment through means of communication and communication forces that translate the dimensions of social interaction between individuals, as communication is the basic social tool for achieving mutual understanding, and creating and creating movement, Group dynamism and ensuring continuous interaction between individuals and groups. From an organizational perspective, communication represents an essential means of achieving the organization's goals in general, ensuring the facilitation of the transfer of data, information, ideas and opinions between individuals, ensuring reaching the targeted performance levels [5].

2- Behavioral and human challenges: **[6]** sees it as the process of motivation to find an integrated, reciprocal formula that links the organizational needs of the organization with the personal desires of individuals, and it comes This vision reflects the traditional concept based on forcing the individual to adapt to the requirements of the organization,

based on a different understanding that varies according to the human motivations of individuals and their change depending on times and circumstances. From another perspective [7], motivation is viewed as a method Strategically, it contributes to generating sound professional behaviors, and represents a basic and proactive pillar of administrative leadership, as it derives its guiding strength from an environment of continuous competition, effective participation, and control, With the size of the increasing expenses, as well as flexible communication channels, and the adoption of incentives as an idea aimed at bringing about transformation and self-development and not just compulsory payment to workers.

3- Challenges of digital communication: [8] It is the ability to direct and rationalize human resources efforts to achieve specific strategic goals and objectives, as the guidance function is one of the essential tasks practiced by leadership to bring about structural change that has a fundamental role in enabling, The organization achieves its goals. [9]. believes that the guidance process is closely linked to the human element, and includes formulating administrative instructions and decisions and transferring them from superiors to subordinates to ensure their implementation with self - motivation and professional conviction, which ensures the focus of efforts towards, The specific objectives also seek to establish the principle of cooperation, motivate individuals to adopt functional behaviors and raise their morale. These are practices that are integrated through leadership skills, human motivation and effective communication. Guidance represents an organizational function that is not easy to implement.

4- Organizational and administrative challenges: [10] by providing organizational means and mechanisms that ensure the synergy of all the efforts of working individuals and their integration with high efficiency to achieve common goals, as the manager's success is based through the work assigned to him and defining lines of responsibility and powers, And administrative tasks, and [11] believes that the management information system has an essential role in supporting decision makers and supporting employees in carrying out their duties and defining the main and sub – tasks, And assigning them to specialized administrative units, taking into account coordination between them vertically and horizontally. The organizational function seeks to direct individuals and distribute tasks to implement them accurately and effectively.

The concept of virtual teams: [12] indicates that they are a group of individuals who employ digital communication channels via the Internet such as (conversation rooms, virtual discussion groups, or creating dialogue between them), and establishing common bonds of belonging that are established through sharing values Unified interests and goals, on the other hand [13] believes that these teams represent a group of geographically distant knowledge makers and workers who rely on electronic media in their communication to achieve common goals, and [14], focuses that modern technologies are The cornerstone of the process of effective communication, knowledge sharing, and organization management, despite their different locations and time frames, and they work in an interconnected and continuous system towards achieving their desired vision. Based on the previous proposal, the virtual community can be defined as a self-organizing system Collectively, it arises from the combined voluntary communication efforts between spatially and socially distant participants. Rapid technological development has led to man creating a virtual world that shares features and structures similar to the pillars of a real, material society.

Dimensions of virtual teams

1- Team participation: It is represented by the dynamic channel through which the dissemination and distribution of new knowledge flows, as members develop a collective awareness and the presence of other members who share that knowledge and integrate joint learning mechanisms between teams while taking into account structural variables and surrounding dimensions Through them, individuals interact positively and contribute to discussing common issues and interests via the digital network, which gives them a

fundamental opportunity to achieve effective and fruitful participation [15].

2- Cross - border value management: (Popov ,2020:34), means structures that allow trainees in teams to join the learning and training environment in the actual work environment, or to join between multiple work teams, whether inside or outside the organization, and is considered [16] and is considered a comprehensive framework It explains how to manage valuable study plans and programs and the mechanism for preparing and following up on them. It represents a basic pillar for holding workshops to implement administrative systems in their various sectors, whether in an administrative system, maintenance and operation system, or accounting system.

3- Retrieval: It is monitoring reactions, whether (negative or positive), related to the outputs of the administrative system. Its importance lies in evaluating the quality of those outputs and verifying their efficiency by comparing them with pre-determined performance indicators and standards, which contributes to evaluating the efficiency of the system and refeeding it with results to ensure continuous development [17].

Results of field analysis

This research reviews the analysis of the data extracted from the questionnaire forms, which are based on the opinions and responses of the sample members, amounting to (135), employees, in a number of Iraqi banks in Babylon. The study was presented based on the scale (Likert , The quintet is a main measurement tool with the aim of testing the correlation and impact relationship between the independent variable (technological challenges), and the dependent variable (interaction of virtual teams), using appropriate statistical methods to achieve the objectives of the study as follows: First: Statistical description of the sample members' responses to the dimensions of technological challenges

Table 1. Descriptive statistics for the technological challenges variable and its dimensions N = 135.

Dimensions	**weighted average**	**standard deviation**	**Coefficient of variation %**	**Answer intensity%**
technical challenges	3.95	1.80	20.27	79.02
Behavioral and human challenges	3.74	1.86	23.07	74.90
Challenges of digital communication	3.63	1.89	24.71	72.75
Organizational and administrative challenges	3.70	1.94	25.36	74.12
technological challenges	3.76	1.88	23.35	75.20

Results computer

The variable "Technological Challenges", records a weighted average of (3.76), which exceeds the approved hypothetical average of (3), and this result was coupled with the level of intensity of the answer (75.20%), and deviation, My standard was (1.88), while the coefficient of variation reached (23.35%). These indicators reflect the extent of tangible attention that Iraqi banks pay to technical variables, and their awareness of their positive role in achieving strategic goals. When observing the results, the following becomes clear;

1- Technical challenges: This dimension shows that a weighted arithmetic mean has been achieved, with a value of (3.95), exceeding the default mean, and this was accompanied by an answer intensity of (79.02%), with a standard deviation of (1.80), and the coefficient of variation (20.27%), these data prove the high and tangible availability of this dimension in the organization under study and requires greater attention.

2- Behavioral and human challenges: The statistical results of this dimension showed a weighted

arithmetic mean of (3.74), superior to the default mean, and the intensity of the answer reached (74.90%), with a standard deviation The coefficient of variation was (1.86), while the coefficient of variation was (23.07%), which are indicators that confirm the fulfillment and availability of this dimension in the studied sample. 3- Challenges of digital communication: This dimension was achieved with a weighted arithmetic mean of (3.63), which is higher than the comparative hypothetical value, and the value of the intensity of the answer reached (72.75%), accompanied by a standard deviation Its value reached (1.89), and a coefficient of variation (24.71%), and this statistical result indicates the actual availability of the dimension in the researched organization. 4- Organizational and administrative challenges: This dimension shows the achievement of a weighted arithmetic mean of (3.70), exceeding the hypothetical mean, and with a response intensity level of (74.12%), As for the standard deviation, it reached (1.94), with a coefficient of variation (25.36%), which are indicators that confirm the availability of this dimension in the researched organization, and it needs greater attention.

Statistical description of the responses of sample members regarding the dimensions of the virtual teams' interaction variable:

Table 2. Descriptive statistics for the variable of virtual difference interaction and its dimensions N=135.

Dimensions	**weighted average**	**standard deviation**	**Coefficient of variation %**	**Answer intensity %**
team's participation	4.02	0.78	19.59	80.59
Cross – border value management	4.04	0.69	17.16	77.65
Return	3.88	0.83	21.19	79.74
Virtual team interaction	3.98	0.77	19.31	79.33

Results computer

The statistical results showed that the "default difference" variable achieved a weighted arithmetic mean of (3.98), which is the average of the specified default mean (3), and this indicator was strongly supported by the answer (79.33%), and a standard deviation of (0.77), with a coefficient of variation recorded (19.31%). These results indicate the extent of Iraqi banks' focus on modern technical variables and their awareness of their positive repercussions in achieving global goals. When observing the results mentioned in the table, the following becomes clear:

1- Team participation: This dimension achieves a weighted average of (4.02), exceeding the hypothetical mean, and this was accompanied by a response intensity level of (80.59%), and a standard deviation that stabilized at (0.78), while the dispersion rate of the coefficient of variation was at (19.59%), and these indicators confirm the availability of the dimension in the researched organization.

2- Cross – border value management: The dimension recorded a weighted arithmetic mean whose value reached (4.04), which exceeds the hypothetical mean, and the intensity of the answer was coupled with (77.65%), accompanied by a standard deviation of (0.69), and a coefficient of variation (17.16%), and these indicators clearly demonstrate the realization and availability of this dimension in the organization researched.

3- Retrieval: He was able to achieve this dimension with a weighted arithmetic mean of (3.83), exceeding the hypothetical mean, and the intensity of the answer reached (79.74%), a standard deviation of (0.83), and a coefficient of variation (21.19%). These results reveal the availability of the dimension in the researched organization, but it requires greater attention.

Third: Measuring and testing the correlation relationships between the study variables:

This paragraph is concerned with measuring the correlation relationship between the independent and dependent variables adopted in the current study, which is concerned with: the first main hypothesis, which states: the existence of a significant correlation relationship Statistically significant between technological challenges and their role in the interaction of virtual teams, and to verify the validity of this hypothesis, as shown in the table below:

Table 3. Results of correlation analysis between the independent variable (technological challenges) and the dependent variable (interaction of virtual teams).

independent variable / Dependent Variable	Virtual team interaction					
	Calculated value (R)	Calculated (T) value	tabular value)T(5%	1%	Degree of confidence	
			5%			
Technical challenges	0.88	20.71	2.353	4.541	99% %95	%1 %5
Behavioral and human challenges	0.92	23.08				
Challenges of digital communication	0.89	24.03				
Organizational and administrative challenges	0.91	20.81				
technological challenges	0.90	22.16				
Decision (result)	The correlation between variables is positive, strong and significant					

Results compute

The statistical data from the table above show the correlation matrix that tested the first main hypothesis of the existence of a strong and positive correlation between the two variables and of significant significance at the level of (5%), as the values of the simple correlation coefficient (R) ranged between (0.88), as the lowest value for the represented in the dimension of behavioral and human challenges, and the results confirm the existence of a significant relationship for the value of (calculated T), for all dimensions (22.16), which is much greater than (the tabular value of T), which is (1.96), and based on the results, accepting the statistical decision with the existence of a positive correlation And morally, which proves the validity of the first hypothesis (the existence of a significant correlation between technological challenges and the interaction of virtual teams).

Fourth: Testing the hypotheses of the effect between the study variables:

This paragraph is concerned with measuring the effect between the independent and dependent variables adopted in the current study, which is concerned with: the second main hypothesis, which states: the existence of a statistically significant moral impact of technological challenges and their role in the interaction of virtual teams:

Table 4. Results of estimating the simple linear regression model between technological challenges and the interaction of virtual teams.

independent Variable / Dependent Variable	Virtual team interaction			
	Coefficient interpretation (R2)	Calculated value (F)	Tabular value(F)	Degree of confidence 5 %
Technical challenges	80.50 %	10.32		99 %
Behavioral and human challenges	81.06 %	13.29	10.1	
Challenges of digital communication	87.31 %	20.57		
Organizational and administrative challenges	85.13 %	15.73		
Technological challenges	83.50 %	14.97		
Decision (result)	The effect between variables is positive, strong and moral			

Results computer

The final statistical results show, by confirming the significance of the fully estimated regression model, given that the calculated values of (F), for all dimensions and for the total variable of technological challenges amounted to (14.97), and its tabular value (F), amounting to (10.1), exceeded the significance level of (0.05), which means that there is an effect Moral and strong between technological challenges and virtual team interaction with a degree of confidence (95%), Statistical readings show that the different dimensions of technological challenges have a very high explanatory power to explain the changes occurring in the "interaction of virtual teams", as the values of the identification factor ranged (R2), between (80.50%), as a minimum for the dimension of technical challenges and (87.31%), as the highest explanatory value for the dimension of digital communication challenges, while the total explanatory capacity reached (83.50%), due to the presence of a strong positive impact, it is clear that technological challenges are capable of explaining what Its percentage (83.50%), is one of the variables that affect the interaction of virtual teams, while the percentage (16.50%), is attributed to the contribution of the influence of some other variables not included in the current research Accordingly, the second main hypothesis was accepted (the existence of a significant impact between technological challenges and their role in the interaction of virtual teams).

Conclusions and Recommendations

Conclusions

1- The statistical results revealed that the simple correlation coefficient (R), achieved a value of (0.90), between the independent variable represented by (technological challenges), and the dependent variable (virtual team interaction), which proves the existence of a significant and statistically significant correlation at a significant level of (0.05).

2- A clear statistically significant effect of the independent variable was proven in the dependent variable at a confidence level of (95%), and this result is confirmed by the

superiority of the (calculated F), value which is (14.97), over its standard (tabular F), counterpart, which is (10.1), at a significance level of (0.05).

3- Based on the survey results, all dimensions of the technological challenges variable achieved arithmetic averages that exceeded the hypothetical arithmetic average, which indicates the great and continuing interest in employing these dimensions effectively to enhance levels of interaction in virtual teams.

4- The study found a positive and statistically strong correlation that contributes to raising the levels of interaction between virtual teams and developing their work mechanisms.

5- The results of the regression analysis showed a significant and significant impact, which explains why technological challenges are effectively and significantly affected by changes occurring in the virtual team interaction environment.

Recommendations

1- The study recommends the need to build and establish a solid intellectual and knowledge base within the organization, and to continuously strive and work towards its development and growth by investing in technological infrastructure and adopting advanced technical software and mechanisms that ensure improvement of the current operational reality and the achievement of specific strategic objectives.

2- Preparing, training, and implementing training programs to qualify job cadres through the use of advanced modern technologies, focusing on improving and developing their competencies and capabilities, and assigning them new, difficult tasks.

3- Providing human resources with the opportunity to express their views and suggestions on developing well thought out strategies that meet the organization's requirements, in a manner that enables flexible adaptation to rapid environmental transformations and ensures improved overall performance.

Encouraging and stimulating dialogue and interactive and direct communication between administrative leadership and employees to develop innovative visions and organize periodic meetings that allow them to put forward and exchange creative ideas, which contributes to reducing obstacles, difficulties and challenges and raising the efficiency of organizational performance.

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