

THE ROLE OF TECHNOLOGY IN ENHANCING THE ORGANIZATION'S EFFECTIVENESS IN LIGHT OF THE CORONA-VIRUS CRISIS IN JORDANIAN INDUSTRIAL COMPANIES

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Abstract: This paper aimed to investigate the role of information technology on the organization's effectiveness in the Jordanian industrial companies. The study also attempted to determine the role of demographic variables (gender, qualifications, experience, and career level) in enhancing the organization's effectiveness. The researchers used quantitative method and collected data using field survey method (E-distributed survey and Zoom interviews). The questionnaire was distributed to 120 respondents comprising of directors, coordinators, and head of department, office manager, team leader, engineer, accountant, administrative officer, treasurer, administrative assistant, technician, and controller. A total of 89 of questionnaires returned were valid for analysis, a response rate of 74.2%. The findings showed that there is a role of information technology on each dimension of the organization's effectiveness. The role for information technology through databases in enhancing production and sales growth while other dimensions (networks, hardware and software, skill and experience) did not show any role in enhancing production, which is one of the dimensions of the organization's effectiveness. There is a role for information technology in promoting quality in all its dimensions except (skill and experience). There was a major role for information technology through the two dimensions of skill and experience as well as networks in promoting adaptation, which is one of the dimensions of the organization's effectiveness.

Keywords: Information Technology (IT), Networks, Hardware and Software, Skill and Experience, Production of Goods and Services, Quality, Adaption, Organization's Effectiveness, Industrial Companies & Jordan.

1. INTRODUCTION

Today, the world is witnessing a more compulsory technological change that is optional in light of changing data on the ground as a result of the Corona-virus, which restricted many economic activities according to the instructions of the World Health Organization (Jameaba, 2020). Doing commercial and industrial business as well as marketing it through technology, enhances social distance, and allows companies to work efficiently and effectively with the least amount of workforce and helps reduce the cost of doing business (Schwab, 2017). Technology also helps business operations by keeping them in touch with suppliers and customers and their sales force. Because of its ability to simplify operating costs, technology provides instant access to supplies and information, so companies are better able to offer reasonable prices for goods and services without sacrificing quality (Cassidy, 2016). It can be said that technology is the means to confront the difficulties of communication, and information transfer in its various forms inside and outside the organization, and for this obtaining new and useful information requires the use of high competencies and skills, in addition to modern technology (Tidd & Bessant, 2018). The restrictions and precautionary measures imposed by the governments of many countries, it prompted both small and large companies to consider the option of remote work and

the use of technology to perform their daily tasks, in addition to searching for any possible alternatives to follow the work progress as usual (Arabic CNN News, 2020). This sudden shift may give rise to anxiety and uncertainty, but it is necessary, as technology is the ideal solution to cope with current conditions (Arabic CNN News, 2020). There are currently many tools and software available that support companies and enable them to maintain the continuity of their business, most notably through video conferences, data-sharing technologies, electronic recruitment tools, competency management systems and virtual events. This shift has been less complex for many companies, especially those working in the technology field, such as digital media, software suppliers, and companies that work in the field of social media and others (Urbinati, Bogers, Chiesa, & Frattini, 2019). While it appeared more complicated for companies whose nature depends on personal presence, such as restaurants, retail stores, government agencies, and others (Etzioni2019 ,). Despite this, companies and organizations across all sectors must start using tools and technologies via the Internet, to overcome the economic and financial challenges that the Corona-virus may cause (Khan, Fahad, Naushad, & Faisal, 2020). In this paper, the researchers studied the role of technology in enhancing organizational effectiveness in light of the Corona-virus crisis, and the study was conducted on a sample of industrial companies in Irbid Governorate, north of the Hashemite Kingdom of Jordan. Moreover, this study attempted to highlight the nature and reality of the close relationship between the main variables of the study. In addition, it seeks to achieve consistency, intellectuality and practicality blended among these main variables. In addition, it tried to explain their effects on each other.

2. PROBLEM STATEMENT

During the year 2020, the Jordanian economy was not isolated from the world turmoil, but it was exposed to several fluctuations that contributed directly and indirectly on its productive sectors, especially the industrial one which is considered a main pillar of the Jordanian economy because of its contributions to the employment rates, exportation activities, and the volume of investment. At the same time, the world is witnessing an unprecedented technological development, which has touched various aspects of life. Also, the opportunities have been offered by automated media technology to achieve administrative effectiveness. Nevertheless, many organizations face a real problem in the limited application of technology and effective use of it. What prompted the researchers to conduct this study is to determine the extent of the technology applied by Jordanian industrial companies in enhancing production effectiveness, quality and adaptability, in light of the Corona-virus crisis that affected economic activities and restricted many commercial practices.

3. OBJECTIVES OF THE STUDY

The objectives of the study are as follows:

1. To determine the extent of technology's contribution in enhancing the organization's effectiveness.
2. To analyse the role of technology in enhancing the production of goods and services.
3. To determine the role of technology in enhancing the quality of services and goods provided by the companies under study.
4. To determine the ability of the companies under study, to adapt to technological systems in light of the Corona-virus crisis.
5. To come up with a set of recommendations based on the results of the study that could help decision-makers in the companies under study, to excel through optimum utilization of technological systems.

4. RESEARCH QUESTIONS

The current study seeks to answer the following research questions:

1. Does technology contribute to enhance production in Jordanian industrial companies in light of the Corona-virus?
2. What is the role of technology in enhancing quality in Jordanian industrial companies?
3. What is the role of technology in enhancing the ability of the companies under study to adapt in light of the Corona-virus crisis?

5. RESEARCH METHODOLOGY

DATA COLLECTION METHODS

The current research used both primary and secondary data. The secondary data has been obtained via a review of previous studies related to the subject of interest. The primary data was collected via a questionnaire distributed to directors, coordinators, and head of department, office manager, team leader, engineer, accountant, administrative officer, treasurer, administrative assistant, technician, and controller.

STUDY POPULATION AND SELECTION OF THE STUDY SAMPLE

The study population consisted of 154 companies in Al-Hassan industrial estate, which is located in Irbid governorate north of Amman the capital. (Jordan Industrial Estates Company, 2020).

SELECTION OF THE STUDY SAMPLE

The researchers used a simple random sample to choose a sample of 20 companies, 120 questionnaires were distributed to the study sample, according to six questionnaires per company, 89 questionnaires were retrieved with a percentage of 74.2%.

RESEARCH INSTRUMENT

In this work, the research instrument was a questionnaire which has been designed to collect data on the use of technology and organization's effectiveness in Jordanian industrial companies. The questions were formulated to obtain information on technology and its role to enhance the organization's effectiveness. The respondents have been asked to answer the statements in the questionnaire by using a five-point Likert-scale, which ranged from strongly agree to strongly disagree, where strongly agree = 5, agree = 4, undecided = 3, disagree = 2, and strongly disagree = 1. This scale was used to reflect the level of agreement among respondents about the statements presented in the questionnaire. The study sample and the target group were made familiar with the research's nature and its purpose. They were also informed that all the information collected from them would be handled in strict confidence. The researchers also made it known that the companies under study would receive the results of the research, together with some recommendations that may be of benefit to them, if they wished to do so. As the study aimed to cover 20 companies in Al-Hassan industrial estate, the researchers used the E-questionnaire. In view of the curfews, isolation of areas, and emergency matters that Jordan has approved. The questionnaire was distributed electronically in addition to some video telephone interviews, to better analyse the reality of using technology in enhancing the organization's effectiveness, and discuss some of the results of the study.

The developed questionnaire consisted of four parts. The first part was designed to collect demographic data, specifically gender, qualifications, overall experience, age group, job title, years of experience and management level. The second part covered the dimensions of Technology and included four indicators, which were adopted from Youssra. M (2019), and Cummings, J., & Janicki, T. (2019), namely, networks, databases, hardware and software, and experience and skill. The third part of the questionnaire covered the indicators (production of goods and services, quality, and adaption) that were used to measure the organization's effectiveness and drew on the work of Schleich, J., & Fleiter, T. (2019) and Pee, L. G., & Kankanhalli, A. (2016).

RELIABILITY INSTRUMENT

Table (1) shows the reliability descriptive statistics for the questionnaire items.

Table 1: Summary of Reliability Test.

Reliability Statistics	
Cronbach's Alpha	N of Items
.827	35

6. FINDING AND ANALYSIS

DEMOGRAPHIC PROFILE OF THE RESPONDENTS

Table (2) includes a summary of the demographics of the study respondents.

Table 2: The Demographic Profile of the Respondents.

Type of respondent	Valid	Frequency	Percent	Cumulative percent
Gender	Male	32	36.0	36.0
	Female	57	64.0	100
	Total	89	100	
Age	Less than 25 years old	26	29.2	29.2
	More than 25 years old	63	70.8	100
	Total	89	100	
Education level	Secondary and below	19	21.3	21.3
	Diploma	23	25.8	47.1
	Bachelor's	42	47.3	94.4
	Master's	4	4.5	98.9
	PhD	1	1.1	100
	Total	89	100	
Experience	≤ 5 years	29	32.6	32.6
	> 5 years	60	67.4	100
	Total	89	100	
Management level	Top management	9	10.1	10.1
	Middle management	43	48.3	58.4
	Low management	37	41.6	100
	Total	89	100	
Job Title	Directors	9	10.1	10.1
	HOD	22	24.7	34.8
	Office Manager	21	23.6	58.4
	Technician	18	20.3	78.7
	Others	19	21.3	100
	Total	89	100	

GENDER

Table 3: Gender of the respondents

	Valid	Frequency	Percent	Cumulative percent
Gender	Male	32	36.0	36.0
	Female	57	64.0	100
	Total	89	100	

The table above showed that majority of the participants were female, while their male counterparts accounted for only 36%. This result may be graphically shown as follows.

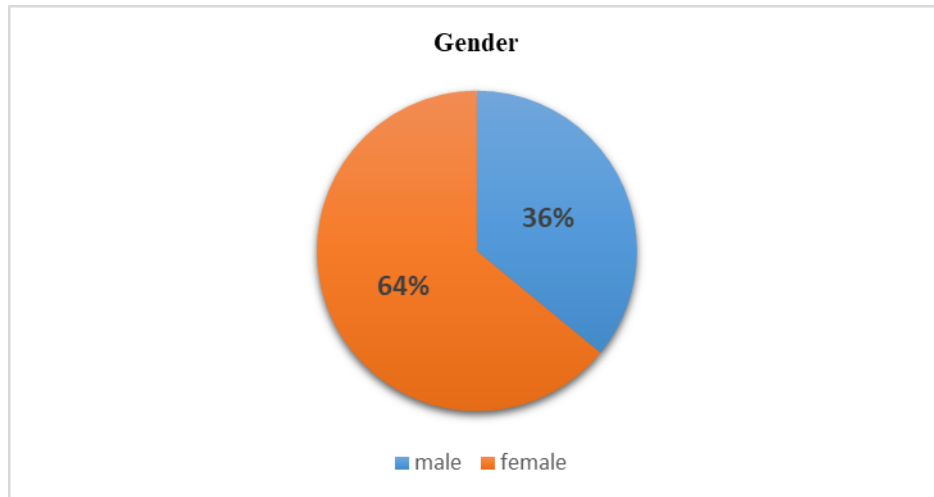


Figure 1: Gender of the respondents

These percentages indicated that female participation in the study was higher and this could be due to the nature of the work in Jordanian industrial companies, as most industries are in the field of textiles and cosmetics, in addition, females need a long period in order to obtain government jobs. Therefore, factory owners consider that female labour is a kind of work stability.

EDUCATION LEVEL

Table 4: Education level of the respondents

	Valid	Frequency	Percent	Cumulative percent
Education level	Secondary and below	19	21.3	21.3
	Diploma	23	25.8	47.1
	Bachelor's	42	47.3	94.4
	Master's	4	4.5	98.9
	PhD	1	1.1	100
	Total	89	100	

As for the distribution of the respondents of the research based on educational level, Table 4 showed that 47% of the study population held a bachelor's degree, about 26% had a diploma and 21% had a secondary school certificate or lower. In addition, the percentage of respondents who had a Master degree is 5% and the ones who were with a PhD degree 1%, indicating that the majority of the respondents had tertiary-level qualifications. These findings were presented graphically as shown below in figure 2.

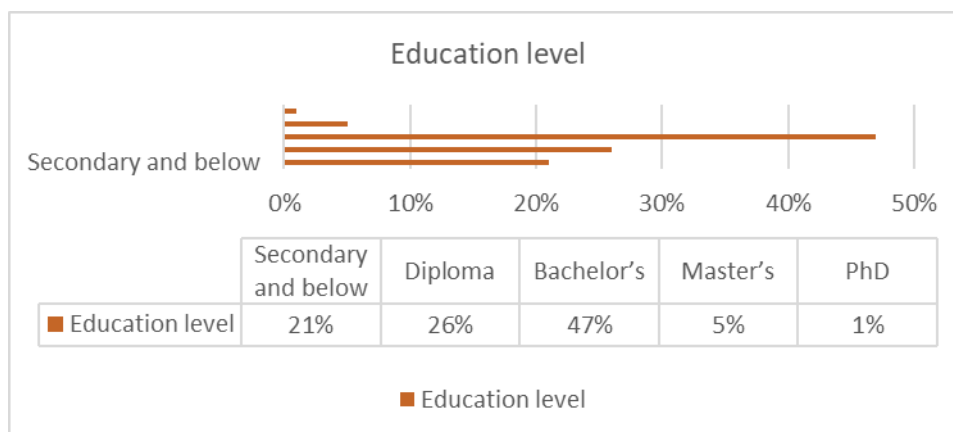


Figure 2: Educational level of the respondents

WORKING EXPERIENCE

Table 5: Working experience of the respondents

	Valid	Frequency	Percent	Cumulative percent
Experience	Less than 5 years	29	32.6	32.6
	More than 5 years	60	67.4	100
	Total	89	100	

Table 5 exhibited the distribution of the respondents of the study according to working experience in their current jobs. It showed that 67% of the respondents had working experience longer than 5 years and about 33% had experienced less than or equal to 5 years. Overall, the respondents had a relatively good length of working experience in their current roles. The graphic below (figure 3) showed the working experience of the respondents.

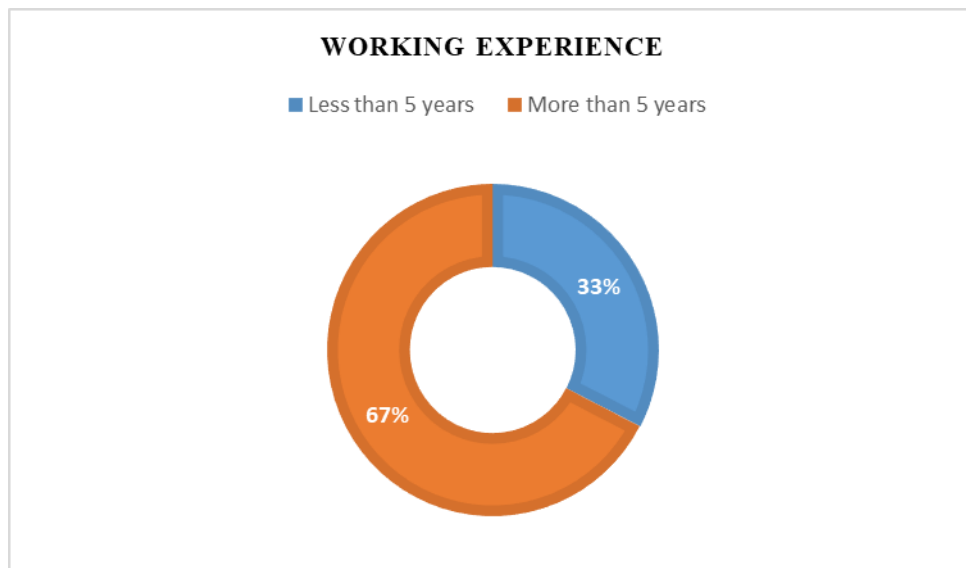


Figure 3: Working experience of the respondents

MANAGEMENT LEVEL

Table 6: Management level of the respondents

	Valid	Frequency	Percent	Cumulative percent
Management level	Top management	9	10.1	10.1
	Middle management	43	48.3	58.4
	Low management	37	41.6	100
	Total	89	100	

As for the distribution of the respondents of the research based on their management level, Table 6 indicated that 10% of them were in the top management level in positions such as a general manager or administrative and financial manager and other similar roles. The largest proportion of the respondents (48%) were in the middle management level with jobs such as head of department, office manager, engineer, operations manager and so on. However, the substantial proportion of respondents (42%) were in the low management level, working as supervisors in sales, promotions, marketing, quality, and follow-up, and as an administrative assistant, technician, and controller among others. These results are presented graphically as follows.

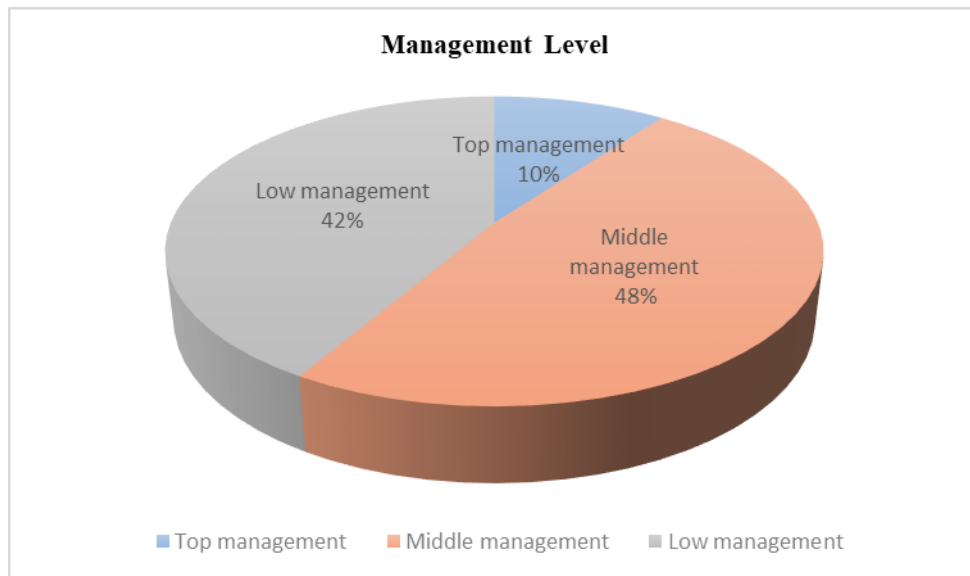


Figure 4: Management level of the respondents

JOB TITLE

Table 7: Job Title of the respondents

Job Title	Valid	Frequency	Percent	Cumulative percent
Directors	Directors	9	10.1	10.1
HOD	HOD	22	24.7	34.8
Office Manager	Office Manager	21	23.6	58.4
Technician	Technician	18	20.3	78.7
Others	Others	19	21.3	100
Total	Total	89	100	

As for the distribution of the respondents of the research based on the job title, Table 7 showed that about 25% of the study population were head of departments, 24% were office managers and 20% were technicians. On the other hand, 10% were directors and 21% were in the others category. This can also be shown graphically as displayed below.

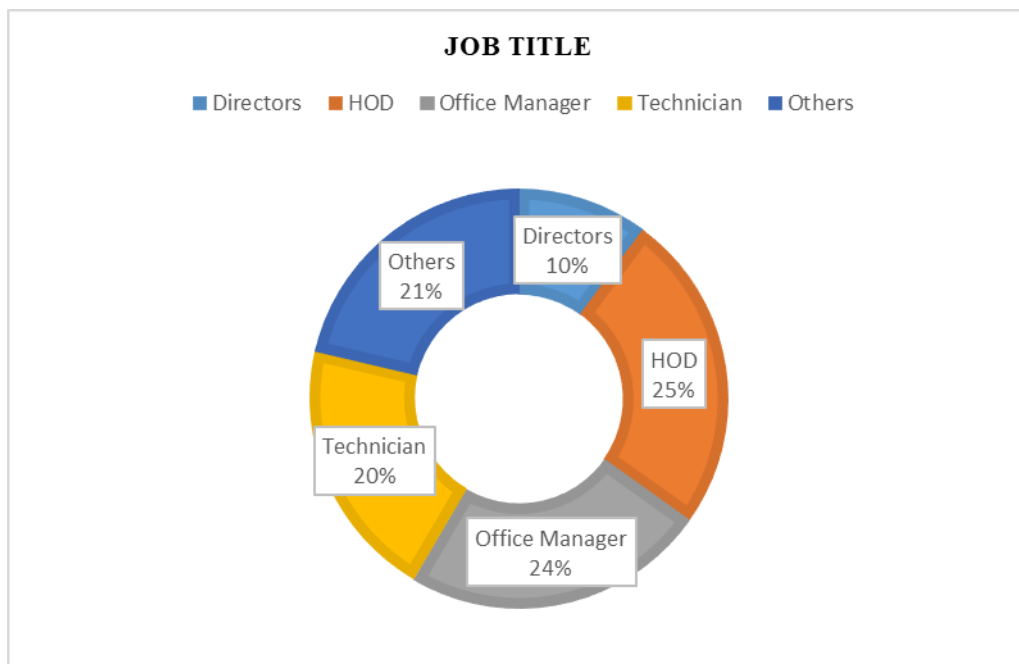


Figure 5: Job title of the respondents

DESCRIPTIVE STATISTICS

Descriptive statistics have been utilized to assess whether the respondents agreed or disagreed with the statements in the study questionnaire and whether there was a relationship between demographic and non-demographic influences with impacts of employees' trends brought by the success of the role of technology in enhancing the organization's effectiveness. The mean, median, and standard deviation scores for each question in the study tool are presented in the following and thereby revealed the key determinants of employees' trends among industrial companies in Jordan.

INFORMATION TECHNOLOGY VARIABLES

Table 8 listed mean and standard deviation for the four dimensions of information technology as an independent variable based on the respondents' responses to the statements in the questionnaire.

Table 8: The Dimensions of Information Technology

Statement	Mean	Std. Deviation
Networks	3.76	.55
Databases	3.47	.37
Hardware and software	3.46	.74
Experience and skill	3.31	.59
IT	3.50	.42

The means and standard deviations for the statements about the elements of IT were calculated in SPSS. From Table 8, IT received a high degree of approval at a mean of 3.50 with a standard deviation of 0.42. This indicated the importance of using IT in companies under study. The values of the standard deviations in Table 8 indicated that there is not much variation in the responses across the sample.

NETWORKS

Table 9 look at networks, which are part of the IT dimensions. Table 9 includes the means and standard deviations of the statements about networks, which is one of the dimensions of IT.

Table 9: The Mean and Standard Deviation of Networks.

Statement	Mean	Std. Deviation
1 The company has enough devices and technologies.	3.10	1.37
2 The Internet contributes to quick and easy access to resources.	3.65	.64
3 The departments and business units of the company are communicate via the internet.	4.46	.89
4 The company website provides services to customers.	3.46	.89
5 The use of modern means of communication contributes to the speed of business achievement.	4.13	1.07

Table 9 illustrated that networks received a high degree of approval at a mean of 3.76 with a standard deviation of 0.55. This indicated the importance of this dimension as a part of IT in the companies under study because, through the data related to this dimension, it showed the extent of the Internet's contribution to quick and easy access to resources, as well as the speedy completion of tasks. Statements (3) and (5) received the highest average mean scores of 4.46 and 4.13 with standard deviations 0.89 and 1.07, respectively, which indicated the role of networks in enhancing coherence and mutual coordination between different business units. Especially the performance of the departments within the companies under study. Besides, networks, especially the use of modern means of communication, have done more with a shorter time.

DATABASES

Table 10 lists the means and standard deviations of the statements about databases, which is another dimension of IT.

Table10: The Mean and Standard Deviation of Databases.

Statement	Mean	Std. Deviation
6 The devices in the company provide fast and accurate processing of the required data.	4.31	.76
7 Data and information retrieval is accurate.	3.70	.91
8 The databases are constantly updated.	3.19	.60
9 The software used is flexible, as it is easy to make adjustments to it.	3.13	.80
10 Databases are referred to when making the decision.	3.03	.92

Table 10 illustrated that databases received a high degree of approval at a mean of 3.47 with a standard deviation of 0.37. This indicated the importance of this dimension as a part of IT in the companies under study. Databases are the most important file in each company, through which the company can draw productive, marketing and competitive policies as well. The resulted in Table 10 showed that databases play an important role in the industrial companies in Jordan through the continuous updating of databases that contributed to rapid processing and accurate retrieval of data and information. Statement (1) received the highest average mean score of 4.31 with a standard deviation of 0.76, which indicates that techniques used to reach and manipulate databases quickly and accurately, which directly and indirectly influenced decision-making. This indicated flexible to use, and therefore speed, achievement and accuracy. Based on the answers given by the sample and the average mean scores shown in previous tables databases can be used for achieving a company's aims of production, marketing, planning, and improving quality.

HARDWARE AND SOFTWARE

Table 11 looked at the Hardware and Software, which are one of the IT dimensions.

Table11: The Mean and Standard Deviation of Hardware and Software.

Statement	Mean	Std. Deviation
11 The computers are available in the company in sufficient number.	3.44	.64
12 The company has the financial capabilities to purchase the latest technical devices.	3.64	.88
13 The company uses high-tech devices to take advantage of the information and work in the most accurate ways.	3.55	.88
14 The company seeks to carry out its business through computerized information technologies.	3.55	1.08
15 The company has devices and equipment that enable it to be a leader in its work.	3.11	1.0

Hardware and software received a medium degree of approval at a mean of 3.46 with a standard deviation of 0.74. This result agreed with that of (Hofacker, De Ruyter, Lurie, Manchanda, & Donaldson, 2016), who found that the company must possess devices and equipment that enable it to be a leader in its work, in order to achieve a competitive advantage. No company through its own business units in our time, and in light of the crisis that afflicted the world (Corona-virus Crisis) can meet the needs and wants of customers, external and internal marketing and knowing the outcome in the business environment except through information technology, which is one of its dimensions- Major appliances and equipment. As statement (12) received the maximum average mean score of 3.64 with standard deviations of 0.88, this indicated that the industrial companies in Jordan Companies have the financial ability to purchase the latest technical devices. This finding is consistent with (Mejova, 2020).

EXPERIENCE AND SKILL

Table 12 looked at the experience and skill, which are one of the IT dimensions.

Table12: The Mean and Standard Deviation of Experience and skill.

	Statement	Mean	Std. Deviation
16	The company has qualified IT personnel.	3.0	1.13
17	The company keeps abreast of everything new in the field of IT, which is reflected in the skills of employees.	3.26	.86
18	The company works to involve most workers in training courses for the use of computers in their field of work.	3.52	1.08
19	The use of modern technologies in the company contributed to achieving a competitive advantage.	3.26	.75
20	Company employees possess good training capabilities to use the software for their work.	3.52	.78

Experience and skill received a medium degree of approval at a mean of 3.31 with a standard deviation of 0.59. This result agreed with that of (Rindasu, 2017), that companies, need more qualified individuals to use technology platforms to increase productivity and reduce costs, and keeping pace with everything new in the field of information technology is reflected in the skills of employees. As statements (18) and (20) received the maximum average mean scores of 3.52 for each, with standard deviations of 1.08 and 0.78, respectively, this indicated that the industrial companies in Jordan are working to include most workers in training courses to use computers in their field of work. In addition, employees have good training capabilities to use the program for their work, this is an indication of the interest in the information technology. This finding is consistent with (Barnes, Green, & de Hoyos, 2015)

ORGANIZATION'S EFFECTIVENESS VARIABLES

Table 13 listed mean and standard deviation for the three dimensions of organization's effectiveness as a dependent variable based on the respondents' responses to the statements in the questionnaire.

Table 13: The Dimensions of Organization's Effectiveness

Statement	Mean	Std. Deviation
Production of goods and services	3.46	.67
Quality	2.95	.66
Adaption	3.39	.57

The means and standard deviations for the statements about the elements of an organization's effectiveness were calculated in SPSS. From Table 13, organization's effectiveness received a medium degree of approval at a mean of 3.27 with a standard deviation of 0.40. The values of the standard deviations in Table 13 indicate that there is not much variation in the responses across the sample.

PRODUCTION OF GOODS AND SERVICES

Table 14 looked at the Production of goods and services, which are one of the Organization's Effectiveness dimensions.

Table14: The Mean and Standard Deviation of Production of goods and services.

	Statement	Mean	Std. Deviation
21	Improve the organization's competitive in the market and raise profitability rates, by introducing new products that achieve efficiency and reduce cost.	3.25	.74
22	Increasing customer satisfaction by listening to complaints and knowing the requirements, and learning about the development of their expectations and desires.	3.42	1.3
23	The company continuously improves the quality of the manufactured product or service.	3.52	1.16
24	The company has the ability to adapt and respond to changes in the external environment.	3.48	1.07
25	The company is keen to consolidate its relations with the external environment and society in general.	3.62	1.5

Table 14 showed that the production of goods and services received a high degree of approval at a mean of 3.46 with a standard deviation of 0.67. This indicated the significance of the responses of the members of the research sample and their interest in this indicator, and its endeavour to develop its products using the technology used, and this reflects positively on the organization effectiveness. As statements (25) and (23) received the highest average mean scores of 3.62 and 3.52 with standard deviations of 1.50 and 1.16, respectively, this indicated that the industrial companies in Jordan It is constantly improving the quality of the product or service offered. Moreover, it is keen to consolidate its relations with the external environment and society in general, this enhances the organization effectiveness. Also, the companies under study are keen to know the market priorities and to determine the wants and needs of the customer. This finding is consistent with (Buli, 2017)

QUALITY

Table 15 looked at the Quality, which is one of the Organization's Effectiveness dimensions.

Table15: The Mean and Standard Deviation of Quality.

	Statement	Mean	Std. Deviation
26	The company seeks to provide a wide variety of products to achieve growth in sales.	3.43	.78
27	The company is keen on leadership in production to increase profits and growth in sales.	2.73	.45
28	The company is concerned with the quality of its products to achieve an increase in its sales.	2.71	1.2
29	The company adopts pre-production marketing plans.	2.91	.79
30	The company seeks to maintain or increase the market share.	2.98	.94

Table 15 illustrated that quality received a medium degree of approval at a mean of 2.95 with a standard deviation of 0.66. By adopting a quality system, companies seek to reduce the level of defects in the product and the number of complaints from consumers. In addition, to the possibility of achieving the desires and requirements of the consumer. Statements (26) and (30) received the highest average mean scores of 3.43 and 2.98 with standard deviations 0.78 and 0.94, respectively, which indicated that the companies under study were facing some restrictions in continuing manufacturing and checking the quality of the product and matching its specifications at the end of the manufacturing process, by doing physical, chemical, and microbiological analyzes, in light of the Corona-virus crisis. From the above results, industrial companies in Jordan seek to provide a wide range of products to achieve sales growth, and they are keen to lead in production to increase profits and sales growth. More importantly, the researchers showed the goal of Jordanian industrial companies to maintain or increase their market share, in light of the conditions in the business environment.

ADAPTION

Table 16 looked at the Adaption, which is one of the Organization's Effectiveness dimensions.

Table16: The Mean and Standard Deviation of Adaption.

	Statement	Mean	Std. Deviation
31	The company seeks to provide high quality product and service with low cost to achieve a competitive advantage.	3.70	1.05
32	The company adopts quality engineering by increasing the rate of response speed to the changes.	2.82	.72
33	The company enjoy a good level of adaptation to crises in the business environment.	3.73	.45
34	The company has the financial and human capabilities required to effectively achieve its goals.	3.56	.78
35	The company's activities are directed towards long-term goals.	3.12	.91

Table 16 showed that adaption received a high degree of approval at a mean of 3.39 with a standard deviation of 0.57. This indicated that Jordanian industrial companies are seeking to achieve a competitive advantage by increasing the rate of response to changes. This indicated that the companies under study have the financial ability to adapt to the conditions

in the business environment. Statements (33) and (31) received the highest average mean scores of 3.73 and 3.70 with standard deviations 0.45 and 1.05, respectively, which indicated that the companies under study enjoy a good level of adaptation to crisis and adaptation to the physical work environment. These results are consistent with the (Thieken, Cammerer, Dobler, Lammel, & Schoberl, 2016) on the importance of improving the readiness of organizations and individuals to change in the environment and building a culture of change in all of the organization's facilities and adapting to them.

MULTIPLE REGRESSION ANALYSIS

Table 17 represented the regression model summary, Table 18 showed the ANOVA test, and Table 19 shows all dependent variables were statistically significant ($\alpha = 0.01$). In the current study, multiple regression analyses have been conducted for examining the role of IT in enhancing the organization's effectiveness.

Table 17: Regression Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
	.821 ^a	.673	.662	.390	.098	25.437	1	85	.000

b. Dependent Variable: Organization Effectiveness

a. Predictors: (Constant), Experience and skill, Networks, Hardware and software

Table 18: ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	26.798	3	8.933	58.430	.000 ^b
	Residual	12.994	85	.153		
	Total	39.792	88			

a. Dependent Variable: Organization Effectiveness

b. Predictors: (Constant), Experience and skill, Networks, Hardware and software

Table 19: The multiple regression model

Co-efficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.983	.319		3.082	.003		
	Experience and skill	.712	.095	.627	7.502	.000	1.000	1.000
2	(Constant)	3.279	.463		7.086	.000		
	Experience and skill	.619	.081	.545	7.617	.000	.965	1.037
	Networks	-.528	.087	-.435	-6.089	.000	.965	1.037
3	(Constant)	5.177	.555		9.323	.000		
	Experience and skill	-.310	.198	-.273	-1.568	.121	.127	7.873
	Networks	-.957	.114	-.789	-8.365	.000	.432	2.316
	Hardware and software	.806	.160	.884	5.044	.000	.125	8.002
4	(Constant)	4.461	.319		13.990	.000		
	Networks	-.825	.078	-.680	-10.596	.000	.949	1.054
	Hardware and software	.573	.059	.628	9.790	.000	.949	1.054

a. Dependent Variable: Organization Effectiveness

As it is evident from Table 17, each dimension of the IT is positively and significantly affect the organization's effectiveness variables. The R-value of 0.821 indicated that there's a very strong positive relationship between IT (as the independent variable), Organization's effectiveness (as the dependent variable) in industrial companies in Jordan. This

means that there is a role of IT in enhancing organizational effectiveness. The multiple regression model with all of the 4 predictors produced $R^2 = .673$, $F = 25.437$, $p < .001$.

As it is evident that, IT and organization effectiveness have significant positive regression weights, which indicated that these results have a positive role in enhancing organization effectiveness, after controlling for the rest of the variables in the model. Networks and experience and skill have a negative weight (opposite in sign from its relationship with the criterion), which indicated that there is no relationship between these dimensions and the organization's effectiveness. The remaining dimensions have a strong positive effect on the dependent variable. The results of the analysis showed in measuring the role of information technology on each dimension of the organization's effectiveness. That there is a role for information technology through databases in enhancing production and sales growth while other dimensions (networks, hardware and software, skill and experience) did not show any role in enhancing production, which is one of the dimensions of the organization's effectiveness. There is a role for information technology in promoting quality in all its dimensions except (skill and experience). There was a major role for information technology through the two dimensions of skill and experience as well as networks in promoting adaptation, which is one of the dimensions of the organization's effectiveness.

7. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

Research Question 1: Does technology contribute to enhance production in Jordanian industrial companies in light of the Corona-virus?

Information technology is the ideal solution to face the current circumstances that have afflicted the world (Basheer, Siam, Awn, & Hassan, 2019). Jordan is an inalienable part of this world, and Jordanian industrial companies faced great challenges in manufacturing and marketing. However, what supports companies in various sectors provides and adopts many tools and software that enable them to maintain the continuity of their business (Buttle & Maklan, 2019). It became clear to the researchers through this study that most companies are training their employees to gain skill and experience, but still face some challenges, such as the geographical location of employees and their distance from the work site in light of government decisions to close markets and stop working in government and private institutions. Therefore, companies were intentionally holding online courses for some employees and holding conferences and meetings as well, which enriched the employee with how to maintain and continue the work. Companies continue to keep abreast of what is new in IT, which is reflected in production. Some companies have been able to employ databases, technologies and devices to enhance production and influence decision-making. This embodies the role of technology in enhancing production

Research Question 2: What is the role of technology in enhancing quality in Jordanian industrial companies?

The decision to purchase depends mostly on the quality of the product in the event it is a good or service, where the quality of the product conforms with the established specifications, and thus its ability to satisfy the buyer's desires, and achieve the desired benefit from it, in addition to achieving satisfaction (Deming, 2018). The technological aspect plays a fundamental role in the development and improvement of the product, and this leads to the provision of a product compatible with the real needs of the consumer. In every company that uses quality as a competitive weapon, the R&D department is concerned with collecting data on consumers, identifying and interpreting their needs, and creating specifications that lead to excellence (Tukker & Tischner, 2017). This is what the researchers found in some companies, as they were seeking to grow sales, increase their market share, and other companies were struggling to keep production continuing only. This requires, in all cases, attention to the quality of the product, especially in light of the large consumption of products, for example, medical products were the most consumed, such as gloves, masks, sterilizers, and others.

Research Question 3: What is the role of technology in enhancing the ability of the companies under study to adapt in light of the Corona-virus crisis?

The crisis of the outbreak of the Corona-virus showed the importance of the role of technology by stopping clusters and stimulating large sectors of people in their homes to stop the spread of the virus, whether by applying work policy from home, distance education, and obtaining their governmental and financial services online (Khan, Fahad, Naushad, & Faisal, 2020) which indicated that technology is not only a luxury but also a major player in crisis management, not only in Jordan but many countries in the world (Harari, 2020). This contributed to the company enjoying a good level of adaptation to the crises in the business environment.

DISCUSSION OF THE RESULTS

There is a role for information technology through databases in enhancing production and sales growth, while other dimensions (networks, hardware and software, skill and experience) did not show any role in enhancing production, which is one of the dimensions of the organization's effectiveness. This result is attributed to the Jordanian industrial companies' enjoyment of seeking production and sales growth considering the conditions in the business environment, by employing databases and updating them continuously. Apart from careful handling, the flexibility to adjust it. These companies were referring to databases in the decision-making process. This is consistent with (Mohammad, 2019).

The reason for the effectiveness of the role of each of the networks, devices and skill in influencing production is that most of the employees working in the various departments of work lack the required skill, and the courses offered to them recently need more application. Some companies were facing challenges in acquiring modern devices and equipment to continue the manufacturing process. Some employees were not able to adopt the production techniques and this requires time to adapt and get involved in the new systems. This is consistent with (Frey & Osborne, 2017).

There is a role for information technology in promoting quality in all its dimensions except (skill and experience). There was a major role for information technology through the two dimensions of skill and experience as well as networks in promoting adaptation, which is one of the dimensions of the effectiveness of the organization. This result is attributed to the recent government decisions that it imposed to limit the spread of the virus, so meetings and conferences are taking place through mobile applications and computers as well. Consumer demand is now available through e-shopping applications, delivery of goods, and this is the ease of use and other things that technology has adopted and enhanced the effectiveness of companies. This is consistent with (Almasri, El Talla, Abu-Naser, & Al Shobaki, 2018).

The results of the analysis also showed mainly the lack of experience and skill, which is an important factor in information technology in enhancing the effectiveness of the organization. While it showed in general that, the databases owned by the companies under study have the largest role in enhancing organizational effectiveness. What the results of the multiple regression analysis showed with regard to skill and experience as a major factor in the independent variable. Attributed to the developments in the Jordanian work environment, from the economic challenges facing companies in light of the Corona-virus crisis. After the Jordanian government increased the burden on consumers and companies by reducing salaries and stopping work in all sectors. This burden has limited some companies' acquisition of modern technical equipment, and some have not been able to qualify less experienced and new employees. Adopting any technological system that requires training and qualification in order to have sufficient skill, which is reflected in the organizational effectiveness in general. This is consistent with (Landers & Armstrong, 2017)

RECOMMENDATIONS

Based on the results, the researchers make four recommendations for the industrial companies in Jordan to consider:

1. Managers in the departments and divisions of industrial companies must recognize the important role that IT plays in enhancing the organization's effectiveness. In addition, take advantage of the crises and developments in the business environment.
2. Training and developing of the skills of the employee, because the employee is the capital of organizational performance. Also, exchanging experiences, and contributing to conferences to enhance organizational effectiveness and raise the competitive position of companies.
3. The need to store knowledge and information in supported databases within modern methods. With information supporting the decision and enrich the ideas of creative people at the companies because of its great impact on the effectiveness of the organization.
4. It is necessary to search for financing sources to increase the financial capabilities of companies and develop capabilities Self-financing to achieve financial sufficiency to achieve the goals and increase the effectiveness of the organization and raise its competitive position

SUGGESTIONS FOR FURTHER STUDY

Through the knowledge, the researchers have gained from a large number of works on and around the topics of IT and organization's effectiveness, and due to the constant modernization of the business environment, it is clear that IT is a broad topic that is developing day by day. Moreover, this study, like any other, has some limitations which must be

addressed. Therefore, the researchers suggest that researchers wishing to undertake further researches in this field consider the following issues:

1. The role of IT on E-marketing. The marketing environment has become more virtual due to the growing ubiquity of social networking sites. The consumer is now influenced by the views of former consumers more than ever before because consumers talk about businesses via such platforms. Word-of-mouth marketing via the Internet channel can affect purchasing decisions and is thus an area of study worthy of further investigation.
2. The impact of databases as an element of IT on purchasing decision making. To fully leverage marketing plans and follow-up requires effective databases based on modern technology.
3. The role of IT skills in influencing employee performance. Organizational effectiveness reflects employee performance.

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