

# GLOBAL ACADEMIC RESEARCH INSTITUTE

COLOMBO, SRI LANKA



## GARI International Journal of Multidisciplinary Research

ISSN 2659-2193

**Volume: 08 | Issue: 03**

On 30<sup>th</sup> September 2022

<http://www.research.lk>

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GARI Publisher | Finance | Volume: 08 | Issue: 03

Article ID: IN/GARI/ICBML/2022/103 | Pages: 43-54 (12)

ISSN 2659-2193 | Edit: GARI Editorial Team

Received: 23.06.2022 | Publish: 30.09.2022

**IMPACT OF THE INTERNET OF THINGS ON NON-FINANCIAL  
ORGANIZATIONAL PERFORMANCE DURING THE COVID 19 PANDEMIC  
FROM THE PERSPECTIVE OF JORDANIAN INDUSTRIAL SECTOR  
MANAGERS**

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**ABSTRACT**

The present study aimed to determine the impact of Internet of Things on the non-financial performance of organizations during the period of the COVID 19 pandemic and the closures that accompanied it. By adopting the non-financial performance variables (quality, productivity, flexibility, innovation and creativity, and customer satisfaction), quantitative approach was applied with the help of a survey questionnaire and it was distributed to a sample of (134) managers within industrial Jordanian organizations. Results of the study indicated that relying on Internet of things contributed greatly to maintaining the good non-financial performance of organizations by focusing on the variables of customer satisfaction, innovation and creativity, which achieved the strongest positive relationship compared to the rest of the variables, which achieved a moderate positive relationship. The study recommended studying the Internet of things and its role in managing human capital during the pandemic period and how the Internet of things affected human resource management practices. It also recommended that training courses and workshops should be held in order to increase employees' awareness of the importance of the Internet of things and its role in minimizing Risk and increased resilience of the organization

Keywords: Internet of things, non-financial performance, COVID-19,

quality, productivity, flexibility, innovation and creativity, and customer satisfaction

**INTRODUCTION**

To improve our daily lives, a new paradigm is emerging called the Internet of Things (IoT), which allows electrical devices and sensors to communicate through the Internet. The Internet of Things is a network of interconnected computing equipment that is used to solve problems in commercial, governmental, and public/private sectors (Umer et al, 2019). Everywhere we look, the effects of the Internet of Things are becoming increasingly noticeable. As a whole, the Internet of Things is a revolutionary concept because it brings together numerous intelligent systems, frameworks, smart devices, and sensors; moreover, it makes use of quantum technology and nanotechnology to achieve previously unthinkable levels of storage, sensing, and processing speed (Ben-Daya et al., 2017; Son et al., 2018).

The performance of a company is a significant factor for stakeholders. If the firm is functioning effectively, it will improve stakeholder trust and provide value to the management. In accordance with the trust of stakeholders, managers must enhance the performance of their firms and make decisions to ensure the company's existence. In today's dynamic

market, financial performance measurements no longer provide organizations with useful information. This is due to the assertion that this traditional method relying largely on finance-based measurements does not adjust to technology and competitive environment advances, resulting in frequently erroneous and misleading internal financial information.

As a response to the deficiencies that are inherent in the method that has traditionally been taken, newly creative performance measurements have been developed that are founded on metrics that are not pecuniary in nature. The inherent inadequacies of traditional performance metrics can be reconciled with the help of currently available technologies, which give information that is more relevant, accurate, and relevant over an appropriate length of time. In light of the previous information, the purpose of this study was to determine the impact of Internet of Things on the non-financial performance of organizations during the period of the COVID 19 pandemic.

### **Study importance**

The Internet of Things (IoT) is a new paradigm that has transformed traditional lifestyles into high-tech lifestyles, resulting in smart cities, smart homes, anti-pollution measures, energy savings, smart transportation, and smart industries. In addition, several significant studies and research have been undertaken in order to promote technology via the Internet of Things. However, there are other obstacles and concerns that must be solved before the full promise of IoT can be realized. These difficulties and issues must be examined from a variety of perspectives, including applications, challenges, enabling technologies, social and environmental implications, and so on. As a result, the current study sought to ascertain the impact of the Internet of Things on the non-financial performance

of industrial organizations in Jordan during the COVID-19 pandemic period, as well as how the Internet of Things affected the continuity of the organization's internal operations such as quality, flexibility, and productivity, among other things.

### **Aim of the study**

Given the problem of the study presented previously, and based on the previous studies and the research importance of the study, this study aims at the following:

1. Recognizing the impact of the Internet of Things on the non-financial performance measures of the Jordanian industrial sector during the COVID-19 pandemic
2. Identifying the impact of the Internet of Things on the quality of the Jordanian industrial sector during the Covid-19 pandemic.
3. Identifying the impact of the Internet of Things on the productivity of the Jordanian industrial sector during the Covid-19 pandemic.
4. Recognizing the impact of the Internet of Things on the Flexibility of the Jordanian industrial sector during the Covid-19 pandemic.
5. Recognizing the impact of the Internet of Things on innovation and creativity for the Jordanian industrial sector during the Covid-19 pandemic.
6. Recognizing the impact of the Internet of Things on customer satisfaction for the Jordanian industrial sector during the COVID-19 pandemic.

### **Problem of the study**

The outbreak of the novel coronavirus (COVID-19) has caused severe damage to health care, economy, transportation and other fields in various industries and regions, as the population's mobility decreased sharply as a result of the quarantine policy resulting in weak

purchasing power and stagnation of the economy. On the macro level, the COVID-19 outbreak caused the worst global recession since 1930, the GDP of many countries declined in the first quarter compared to the same period last year, and many countries suffered severe corporate bankruptcies and job losses (Fu & Shen, 2020). At the level of organizations, the outbreak of COVID-19 has affected financial markets and the performance of organizations in many sectors, which has weakened the performance of large and small organizations, which together constitute the main component of the national economy (Zubair et al, 2020). In general, it is typical for decision-makers to postpone expenditures and initiatives, as well as operate the organization at a lesser capacity than usual, when the uncertainty is significant (Choo et al, 2021).

And the current situation in the world of a large spread of Covid 19, in addition to the closures that accompanied this spread, the decision makers have been working to increase the proportion of cash flow and maintain it for emergencies, while reducing the level of productivity, which would reduce the organization's level of performance. Abu Bakar et al. (2019), on the other hand, pointed out that in a crisis situation, such as the one that exists today due to the widespread spread of the virus, customers' attention was directed to health and safety issues more than they were concerned with many other issues - according to Maslow's hierarchy - and this matter would reduce demand for products, resulting in a decrease in the organization's revenues and revenues in the end, a significant impact on its performance and its decline. The answer to the following primary issue is at the heart of the challenge that we are trying to solve: what effect does the Internet of Things have on the non-financial performance measures of the Jordanian industrial sector during the COVID-19 pandemic?

## Research Hypotheses

The researcher was able to construct the following model by considering the significance of the ongoing study as well as the challenges that it presented, which served as the basis for deducing the research hypotheses:

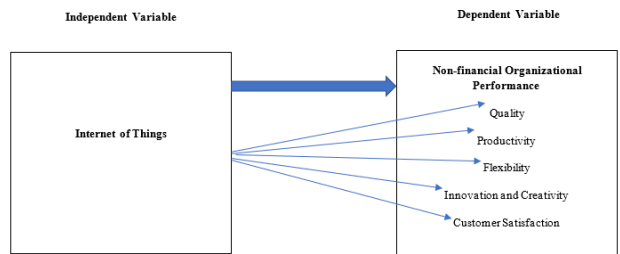


Figure (1): The study Model - Source:( Ahmad & Zabri, 2016; Tang et al. ,2018)

Looking at the above figure, the relationships between the adopted variables are represented in the following hypotheses:

H: The Internet of Things positively affects the non-financial performance of the Jordanian industrial sector during the COVID-19 pandemic

H1: During the COVID-19 pandemic, the Internet of Things has an impact on quality as a dimension of the Jordanian manufacturing sector's non-financial performance.

H2: During the COVID-19 pandemic, the Internet of Things has an impact on productivity as a dimension of the Jordanian manufacturing sector's non-financial performance

H3: During the COVID-19 pandemic, the Internet of Things has an impact on Flexibility as a dimension of the Jordanian manufacturing sector's non-financial performance

H4: During the COVID-19 pandemic, the Internet of Things has an impact on innovation and creativity as a dimension

of the Jordanian manufacturing sector's non-financial performance

H5: During the COVID-19 pandemic, the Internet of Things has an impact on customer satisfaction as a dimension of the Jordanian manufacturing sector's non-financial performance.

## ***LITERATURE REVIEW***

### **The Internet of Things**

IoT is defined by Qu et al. (2017) as an ecosystem of physical objects that can be accessible over the Internet, where every existing "physical object" can have a unique IP address and can automatically collect and send data across the network without human intervention. Wielki (2017) describes IoT as the utilization of intelligently linked devices and systems to take advantage of data gathered by embedded sensors and actuators in machines and other physical things. According to Kumar et al. (2019), the breakthrough in IoT was the ability to share information and data by networking machines, sensors, and control systems together. Furthermore, IoT aided in the automation of process controls and service information systems, and this capacity gave rise to the Industrial Internet of Things (IIoT).

According to Grimaldi and Fernandez (2019), IIoT can be used in the smart city field or to accomplish commercial goals that are both environmentally and socially conscious. This opens up a wide range of opportunities for the creation of IIoT projects that offer individuals a service platform for improved living conditions. More than 5,000 parking sensors, for instance, have been installed in Nice (France) to improve urban transport; the benefits of an IIoT project were determined by extracting data from Nice and comparing it with two other similar cities (Marseille and Toulon); and through the

Internet of Things and by exchanging information, French cities are now able to prepare for unprecedented human and social development.

According to Shafik et al. (2020), the Internet of Things (IIoT) is currently a blueprint for networked computing devices that are assigned unique IDs and have the potential to exchange data across the network independently of human intervention. Examples of IIoT that are familiar to humans include the Nest Smart Home and Kisi Smart Lock as well as canary security systems, mirrors, bags, watches, gloves, and tracking devices. Because of the growing importance of IIoT in a variety of fields, including security, traffic, and energy efficiency, it has begun to make its way into the realm of computers. In a variety of industries, including manufacturing, retail, agriculture, and more, the Internet of Things (IIoT) may provide solutions that enhance decision-making and output, as noted by Grimaldi and Fernandez (2019). Machine-to-machine (M2M) IIoT solutions are one such example; M2M refers to a subset of the Internet of Things that allows machines to communicate with one another and receive instructions for their tasks and operations with minimal human interaction.

The concept behind IIoT is that any physical object may be turned into a computer with Internet access for the purposes of control, monitoring, or operation. However, in reality, non-digital objects may include miniature computers that give them intelligence and allow them to connect to the Internet (Tang et al, 2018; Hashem,2021). To put it another way, the Internet of Things is one approach to giving our everyday objects more intelligence. For Jha et al. (2019), the presence of a symbol or sign that can be read through the Internet and its details can be identified, such as if there is a visual code like a bar code or equipped with a temperature or time indicator, is what

makes an object smart even though it is not equipped with a device. This includes commercial commodities like a box of ice cream, a specific medicine, or even a piece of cloth. Although the concept of the Internet of Things is not new, it has recently come into greater prominence as a result of the transformation of the world into an industrial cell connected to the practical world of things, which will affect the cost and consumption of energy, as well as the dimensions of devices that are closely related to each other, thanks to the manufacture of computer devices that are Very small and low cost (Ai et al, 2018; Hashem, 2021).

### **Non-Financial Performance**

In any company, a performance measurement system is a collection of procedures established by the organization to evaluate the performance of business operations. Business companies have attempted to establish an adequate performance assessment system in order to offer managers and staff with the essential information, which encompasses all elements of main operational and organizational operations (Hall, 2008). Kaplan and Norton (2005) give two viewpoints on performance measurement: a financial perspective and a non-financial one. The non-financial perspective consists of three components: customer happiness, internal company processes, and learning and growth. Non-financial performance measurements, such as customer satisfaction, product quality, or staff turnover, are especially important when market-based performance measures that illustrate the company's entire worth are unavailable.

This is true when a corporation splits or when the firm is not publicly traded. The company's manager or owner may then evaluate performance and recompense management using simply accounting and non-financial data. Workforce

development, product quality, customer happiness, on-time delivery, innovation metrics, attainment of strategic objectives, market share, efficiency, productivity, leadership, and employee satisfaction are examples of non-financial performance measurements (Ibrahim & Lloyd, 2011). For the purposes of this study, the following measures of non-financial performance were relied upon: quality, productivity, flexibility, innovation and creativity, and customer satisfaction.

### ***METHODOLOGY***

The research uses descriptive analytical methodology in order to test the impact of Internet of Things on the non-financial performance of the Jordanian industrial sector during the COVID-19 pandemic.

#### **Study Tools**

Due to the closure conditions caused by the Corona pandemic and in accordance with the defense orders imposed by the Jordanian government to prevent gatherings, the electronic questionnaire tool was selected as a means of data collection for the study, and the questionnaire was uploaded to the Google Forms link and sent via e-mail to the members of the study sample in order to collect the necessary data. The first section of the questionnaire dealt with basic respondent demographics (gender, education level, work experience), while the second contained paragraphs about the questionnaire variables, which included measures of non-financial performance (quality, productivity, flexibility, innovation and creativity, customer satisfaction as a dependent variable, and the Internet of Things as an independent variable).

The survey's five-point Likert scale was based on user feedback (1 highly

dissatisfied, 2 dissatisfied, 3 neutral, 4 satisfied, 5 highly satisfied).

### The study's population and sample

All finance managers employed in Jordanian industrial sector enterprises comprise the study population. A Convenience sample of (150) financial managers in Jordanian industrial companies was chosen, and following the entire application, the researchers were able to gather an amount of (134) complete and analyzable questionnaires, indicating a response rate of (89.3%).

### Statistical Analysis

- Sample Characteristics

It was discovered that males make up 79.9% of the research sample, with the remaining participants being female. In addition, we find that 65.7% of the people who participated in the study held a Bachelor's degree, 20.1% of the people who participated in the study held a Master's degree, 33.6% of the people who participated in the study had experience ranging from 5 years to less than 10 years, and 30.6% of the people who participated in the study had experience ranging from 10 years to less than 15 years.

- Validity and Reliability

Before distributing it to the final sample, the questionnaire was shown to a number of arbitrators who were teaching at universities in Jordan. This was done so that the questionnaire could take advantage of the arbitrators' suggestions for modifying the questionnaire. This was done in order to guarantee the Face validity of the questionnaire. Cronbach's alpha test was also used to evaluate the consistency of the questionnaire, and the results showed that the alpha value is greater than the acceptable ratio of 0.70 (Sekaran & Bougie, 2010). This is demonstrated in the table that follows:

Variable	Alpha
Quality	0.888
Productivity	0.907
Flexibility	0.908
Innovation and Creativity	0.847
Customer Satisfaction	0.867
Non-financial Organizational Performance	0.958
Internet of Things	0.827

Table 1: Reliability Test

### Hypotheses Testing:

- H: The Internet of Things positively affects the non-financial performance of the Jordanian industrial sector during the COVID-19 pandemic.

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.703 <sup>a</sup>	.495	.491	.51401	

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.122	1	34.122	129.148	.000 <sup>b</sup>
	Residual	34.875	132	.264		
	Total	68.997	133			

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.351	.200		6.744	.000
	IoT	.618	.054	.703	11.364	.000

Table 2: Main Hypothesis Testing

The above hypothesis was put to the test by using the simple regression method, and the results show that both the calculated F value and the calculated T value are statistically significant at the 0.05 level. Additionally, the value of the correlation coefficient r indicates that there is a strong positive relationship between the variables, and the independent variable explains 49.5% of the variance in the variable that is being tested. Consequently, this indicates that the Internet of Things affects the non-financial performance of the Jordanian

industrial sector during the COVID-19 pandemic.

- H1: During the COVID-19 pandemic, the Internet of Things has an impact on quality as a dimension of the Jordanian manufacturing sector's non-financial performance.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.494 <sup>a</sup>	.244	.238	.81274

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.097	1	28.097	42.536	.000 <sup>b</sup>
	Residual	87.192	132	.661		
	Total	115.289	133			

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.512	.317		4.773	.000
	IoT	.561	.086	.494	6.522	.000

Table 3: H1 Testing

The above hypothesis was put to the test by using the simple regression method, and the results show that both the calculated F value and the calculated T value are statistically significant at the 0.05 level. Additionally, the value of the correlation coefficient r indicates that there is a medium positive relationship between the variables, and the independent variable explains 24.4% of the variance in the variable that is being tested. Consequently, this indicates that the During the COVID-19 pandemic, the Internet of Things has an impact on quality as a dimension of the Jordanian manufacturing sector's non-financial performance.

- H2: During the COVID-19 pandemic, the Internet of Things has an impact on productivity as a dimension of the Jordanian manufacturing sector's non-financial performance.

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.509 <sup>a</sup>	.259	.253	.74024		

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.233	1	25.233	46.049	.000 <sup>b</sup>
	Residual	72.329	132	.548		
	Total	97.562	133			

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.534	.289		5.316	.000
	IoT	.532	.078	.509	6.786	.000

Table 4: H2Testing

The above hypothesis was put to the test by using the simple regression method, and the results show that both the calculated F value and the calculated T value are statistically significant at the 0.05 level. Additionally, the value of the correlation coefficient r indicates that there is a medium positive relationship between the variables, and the independent variable explains 25.9% of the variance in the variable that is being tested. Consequently, this indicates that the During the COVID-19 pandemic, the Internet of Things has an impact on productivity as a dimension of the Jordanian manufacturing sector's non-financial performance.

- H3: During the COVID-19 pandemic, the Internet of Things has an impact on Flexibility as a dimension of the Jordanian manufacturing sector's non-financial performance.

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.530 <sup>a</sup>	.280	.275	.69956		

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.183	1	25.183	51.459	.000 <sup>b</sup>
	Residual	64.599	132	.489		
	Total	89.782	133			

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.793	.273		6.574	.000
	IoT	.531	.074	.530	7.174	.000

Table 5: H3Testing



The above hypothesis was put to the test by using the simple regression method, and the results show that both the calculated F value and the calculated T value are statistically significant at the 0.05 level. Additionally, the value of the correlation coefficient r indicates that there is a medium positive relationship between the variables, and the independent variable explains 28% of the variance in the variable that is being tested. Consequently, this indicates that the During the COVID-19 pandemic, the Internet of Things has an impact on Flexibility as a dimension of the Jordanian manufacturing sector's non-financial performance.

H4: During the COVID-19 pandemic, the Internet of Things has an impact on innovation and creativity as a dimension of the Jordanian manufacturing sector's non-financial performance.

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.645 <sup>a</sup>	.416	.412	.60774		
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.743	1	34.743	94.065	.000 <sup>b</sup>
	Residual	48.754	132	.369		
	Total	83.497	133			
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.464	.237		6.179	.000
	IoT	.624	.064	.645	9.699	.000

Table 6: H4Testing

The above hypothesis was put to the test by using the simple regression method, and the results show that both the calculated F value and the calculated T value are statistically significant at the 0.05 level. Additionally, the value of the correlation coefficient r indicates that there is a strong positive relationship between the variables, and the independent variable explains 41.6% of the variance in the variable that is being tested. Consequently, this indicates that

the During the COVID-19 pandemic, the Internet of Things has an impact on innovation and creativity as a dimension of the Jordanian manufacturing sector's non-financial performance.

H5: During the COVID-19 pandemic, the Internet of Things has an impact on customer satisfaction as a dimension of the Jordanian manufacturing sector's non-financial performance.

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.840 <sup>a</sup>	.706	.704	.49962		
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	79.205	1	79.205	317.298	.000 <sup>b</sup>
	Residual	32.950	132	.250		
	Total	112.156	133			
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.084	.195		.431	.667
	إنترنت الأشياء	.942	.053	.840	17.813	.000

Table 7: H5Testing

The above hypothesis was put to the test by using the simple regression method, and the results show that both the calculated F value and the calculated T value are statistically significant at the 0.05 level. Additionally, the value of the correlation coefficient r indicates that there is a strong positive relationship between the variables, and the independent variable explains 70.6% of the variance in the variable that is being tested. Consequently, this indicates that the During the COVID-19 pandemic, the Internet of Things has an impact on customer satisfaction as a dimension of the Jordanian manufacturing sector's non-financial performance.

## DISCUSSION

The current study aimed to demonstrate the impact and role of the Internet of Things on the non-financial performance

of the Jordanian industrial sector during the COVID-19 pandemic. And through the quantitative approach, and based on the questionnaire as a research tool, primary data were collected from (134) leaders and managers in a group of industrial organizations operating in the Kingdom. Through statistical analysis, the study reached the following summaries:

- There is a good awareness of the concept of the Internet of Things among the study sample members due to their ability to answer the questionnaire items easily and without the need for clarifications or inquiries

- Through the analysis, the main hypothesis of the study was accepted, which is that the Internet of Things contributed positively to maintaining organizational performance through the positive impact on the organization's non-financial performance measures, which helped to overcome the crisis and avoid its long-term negative effects. By analyzing the questionnaire responses of the sample, it has been shown that the Internet of Things has a positive impact on the performance of the organisation by helping it maintain its performance within the medium field. This is due to the Internet of Things' positive impact on the organization's non-financial performance measures. The findings of the study show that remote work initiatives do not make it possible for individuals to easily complete the work that is required of them, especially in the industrial sector, where the need to be present in the workplace to monitor employees, manage inventory and the supply chain, and coordinate sales, purchasing, and distribution is essential.

Along with giving the inventory readers and scanners that provide adequate information about the inventory in terms of age, quantity, and storage conditions, the study demonstrated that leaders and managers were able to monitor these issues through the technological connection between operating machines

and the Internet. Since the industrial sector relies more on machines than on actual labor, Wielki (2017) stated that digitization and automation of industrial work in all its forms and reliance on the Internet is a good step towards developing this sector. This means that control over machines using the human element can be very effective in the case of using the Internet of things.

The study demonstrated the existence of an impact of the Internet of Things on the non-financial performance of organizations by increasing reliance on innovative technology that would reduce the level of challenges facing the organization and facilitate them through the Internet, and the best evidence of this is the organizations' reliance on the Internet of things during the Corona pandemic period. And, based on the analysis of the study's primary data, we discover that the Internet of things has an impact on all variables of non-financial performance of organizations, including (quality, productivity, flexibility, innovation and creativity, and customer satisfaction), but the most important variable affected by the Internet of things during the pandemic period is customer satisfaction, which recorded an average of (3.7045) and with a strong position. The impact of the Internet of things on customer satisfaction - as the highest influencer - was logical, as the closures that accompanied the spread of the pandemic and the difficulty of controlling them led to the creation of a large gap between the supplier and the customer, this gap had to be addressed by facilitating the means of access to the customer, which was represented in Many practices including virtual customer contact centers, social media, direct contacts on the phone or email in addition to delivery services and listening to complaints and suggestions in order to improve production processes, delivery and

customer service and this is agreed with Tang et al. (2018).

In terms of productivity, which the study proved to be greatly affected by the use and application of the Internet of things in the organization, productivity came with a positive average relationship of 25.9%, and therefore, it can be said that the Internet of things was among the factors that contributed to increasing the level of productivity in view of the field Industrial, as data analysis services and the supply of required information when needed enable organizations to enable production processes in an efficient manner by relying on countless sensitive devices and sensors that supply data and information that enables individuals specialized in control operations to read production processes, mechanism and speed and its efficiency, and therefore, the integration of IoT with productivity had the ability to improve safety, deliver high quality.

## **CONCLUSION AND RECOMMENDATIONS**

It has been demonstrated that the Internet of Things has a significant impact on organizational performance, particularly non-financial performance. The Internet of Things is expected to spread more rapidly in the coming years, launching a new dimension of services that improve consumer quality of life and organizational productivity, as the Internet of Things has the ability to provide solutions that significantly improve energy efficiency, security, health, education, and many other aspects of daily life.

Following recommendations were suggested:

- It is necessary to activate the utilization of the Internet of Things in enhancing the non-financial performance of organizations.

- Digitization and automation are among the basic things that must be present in every organization and based on expert workers in the field, so there must be bases of recruitment and attraction based on the experience of individuals in the field of information technology and its use and employment at work.

- Studying the Internet of Things and its role in managing human capital during the pandemic period and how the Internet of things affected human resource management practices

- Holding training courses and workshops in order to increase employees' awareness of the importance of the Internet of Things and its role in reducing risks and increasing the flexibility of the organization

- Conducting other studies on the subject of the study by application to other economic sectors.

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