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Role of Enterprise Resource Planning Systems in Achieving Competitive Priorities: The case of Company "Epico" in Dakahlia governorate in Egypt

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Abstract:

This study investigates the effect of Enterprise Resource Planning Systems on achieving the Competitive Priorities. It also aims to determine the relationship between the Effectiveness of Enterprise Resource Planning Systems and achieving the Competitive Priorities. The researcher adopted the descriptive analytical approach and used a questionnaire as a primary tool for data collection. The study population consisted of (130) workers at the Egyptian International Pharmaceutical Industries Company "Epico" in Dakahlia governorate.

This study revealed a significant effect for the Effectiveness of Enterprise Resource Planning Systems on achieving the Competitive Priorities (56%). There is a strong positive correlation relationship between Effectiveness of Enterprise Resource Planning Systems and achieving the Competitive Priorities (0.746). The study draws a set of recommendations the most important of which, first: Management's attention to improving the capabilities of users of enterprise resource planning systems. Second: To increase the awareness of the importance of the cost element. Third: To take care of customers' needs and expectations.

Keywords: Enterprise Resource Planning Systems, Competitive Priorities.

I. INTRODUCTION

Given the importance of information and its great role in the continuity and survival of organizations in the changing environment and the complex competitive environment, it is imperative that the organizations take effective and distinctive measures to achieve their objectives, as we also live in the age of information technology that provides us with advanced systems that are compatible with the requirements of organizations at all administrative levels, which contributes to achieving the objectives effectively (Tutzauer & Sanders (1999).

Many large organizations and companies have implemented new information systems in the name of Enterprise Resource Planning (ERP) systems, as ERP systems are business software systems that are linked with each other and able to share and access information in a timely manner (Tsai, & Hsu (2010).

Enterprise Resource Planning Systems (ERP)

Kennerley and Neely (2001) defined it as a customizable standard application software package, at the same time that includes integrated solutions for the main functions of the organization, starting from the supply chain, inventory control, customer relationship management, accounting, finance and human resources management, and this system was designed with the aim of enhancing and improving the organization's competitiveness by generating information with high characteristics such as accuracy, providing timely information and other advantages. Al-Obaidi and Ibrahim (2017) presented its definition as a system that consists of a set of interconnected systems that work as an integrated system with a single (shared) database, and communicates with them as an integrated unit

in all departments and administrations of the organization, to be able to use and manage its informatics resources as well as physical and human resources effectively and efficiently.

The effectiveness dimensions of the ERP system: - In the light of previous scientific studies, the effectiveness of the ERP system includes a set of basic dimensions agreed upon by most previous studies (Ram et al. (2013) & Badr and Rayan (2015) & Al-Faouri (2012)), which is as follows:

- Information Quality.
- System Quality.
- User satisfaction.

Then, the researchers will rely on these basic types in that study.

Competitive Priorities

Shalaby and al. (2018) define them as the organization's achievement of the elements of exclusivity and excellence in providing its services and products in a manner that preserves its survival in the face of similar organizations. Ahmed et al. (2017) defines it as the ability of the organization to provide better value to customers and respond to rapid changes in the desires and tastes of consumers and seize opportunities in the market before competitors, so that it can obtain a greater market share constantly, through: price reduction, high quality and provision of excellent services.

Dimensions of competitive advantage

In light of previous scientific studies, the competitive advantage includes a set of basic dimensions, where most of the previous studies agreed on the most common dimensions (Shalaby et al.2018; Alghamdi, 2016; Marinagi 2014; Falih 2018; Awwad et al.2016) as follows:

- First dimension: Cost
- Second dimension: Quality
- Third dimension: Flexibility
- Fourth dimension: Time
- Fifth Dimension: Innovation

Then the researcher will rely on these five dimensions.

II. LITERATURE REVIEW

Through the review of previous studies by researchers and authors on the subject of the ERP system, the following set of studies and their findings can be referred to as follows: Spathis and Constantinides (2004) study measured the impact of the use of ERP software on enhancing the competitiveness of a number of Greek businesses. This study concluded that the ERP software adoption changed many business processes (especially accounting ones), which provided a real opportunity for many companies in the research sample to re-engineer their activities towards reforming their information systems on the one hand and their business applications on the other hand. According to that study, ERP software has become an essential tool for maintaining the competitive position of business organizations.

As for Al-Faouri study (2012), it aimed to reveal the impact of the organization's resource planning systems on achieving distinctive institutional performance in the Greater Amman Municipality. The study sample included the Financial Department of the Greater Amman Municipality from users of the ERP system. The most important results of this study indicated that there is a relationship with the statistical evidence between the effectiveness of the organization's resource planning systems and their unified impact on the performance excellence of the Greater Amman Municipality. A questionnaire was prepared and distributed to the members participating in this study. Garg, P., & Garg, A (2013) study sought to demonstrate that information systems improve the productivity and efficiency of the organization in information technology organizations and that it must be available in companies, and among the most important of these systems are enterprise resource planning systems such as: management support, organizational structure of the company, sharing information, organizational culture, improving procedures, and achieving user satisfaction. The results

concluded that the proper implementation of the ERP systems increases the productivity of the organizations and provides a positive advantage for the employees and the organization due to the high performance and enhancing cooperation between the internal departments and work groups.

Sultan (2014) study seeks to define the relationship (correlation and impact) between information technology and competitive priorities (cost, speed, flexibility, quality, creativity) in the carpet laboratory/Kadhimiya. The study found that there is a significant correlation relationship between information technology and the dimensions of competitive priorities in the company under study, as well as a significant effect between information technology and the dimensions of competitive priorities in the company under study. Agyei-Owusu, B., Asamoah, D., & Agbenyo, L. (2018) study is developing a research model to explore the impact of external information technology trends on five dimensions (cost, flexibility, innovation, quality, and time) on the competitive position of firms. The results of the study revealed that the use of three dimensions (flexibility, innovation and time) created all three types of competitive advantage (cost leadership advantages, differential advantages, and focus advantages).

Statement of the problem

Many companies and institutions face a number of challenges, including increasing domestic and foreign competition, increasing consumer expectations, product-related restrictions, and the growing number of institutions that are concerned with overseeing the provision of products within international standards. Therefore, the provision of high-quality products has become not only a basis for achieving a competitive advantage in global markets, but has also extended to include the provision of products at the appropriate time, place and cost (Vanichchinchai & Igel (2011). The study problem focuses on researching the effectiveness of implementing ERP systems in achieving competitive priorities in Egyptian International Pharmaceutical Industries Company "Epico".

Study framework

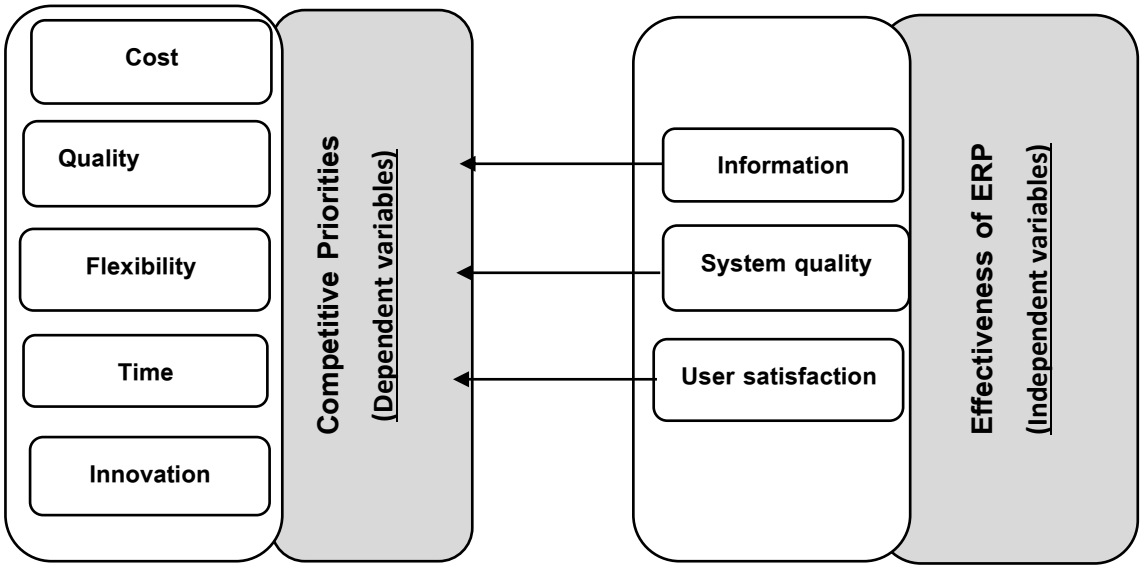

Figure No.(1) Study Model
***Source: Prepared by the researchers**

The study is based on two basic hypotheses, as follows:

First hypothesis: There is a significant correlation between the ERP systems and the competitive priorities of the enterprise under study.

Second hypothesis: The effectiveness of the application of ERP systems significantly affects the competitive priorities of the enterprise under study.

III. OBJECTIVES OF THE STUDY

The study aims to:

1. Demonstrate the effectiveness of using the ERP system in the enterprise under study.
2. Knowing the level of achieving competitive priorities in the enterprise under study.
3. Clarify the relationship of using ERP systems to achieve competitive priorities in the enterprise being studied.
4. Knowing the effect of using ERP systems in achieving competitive priorities in the enterprise being studied.

IV. METHODOLOGY OF THE STUDY

Study population: The study relied on the census method of the study population for the sectors of the Egyptian International Pharmaceutical Industries (Epico) in Dakahlia Governorate and included all delegates, supervisors and managers of drug promotion and sales representatives, supervisors and managers as well as the leaders of the Company in Dakahlia, and the number of employees in this Company is (130) respondents distributed over various jobs and specializations, and the questionnaires were distributed to these workers to fill out their data, and by reviewing these lists and excluding the lists that are not valid for analysis, (100) sound questionnaires were used in the statistical analysis of the study, which represents a response rate of (76.9%),

Validity and reliability of the questionnaire: We depended on the Pearson Correlation Coefficient between expressions from each dimension of the questionnaire and between that dimension, as well as with the variable as a whole, to reveal the degree of internal consistency of the questionnaire while considering this measure acceptable if the values of those coefficients (0, 3) or more (Hair et. al.2010), and the results of the internal consistency test for the independent variable statements (Effectiveness of the ERP system) and the dependent variable (Competitive priorities) in the questionnaire, show that the values of correlation coefficients between each phrase and its own dimension as well as between the representative variable as a whole, all of them are values with an acceptable level, where all exceed a value of (0,3) and this confirms the validity of the questionnaire used in the field study.

The reliability test was conducted to ensure the possibility of depending on the questionnaire in obtaining reliable data from the researched field, based on Coronbach's Alpha, with the scale considered acceptable as its value of Alpha Coefficient is (0.6) and more (Hair et. al.2010).

V. RESULTS

To answer the first question of the study's questions, the descriptive statistics of field study data were relied on, where the general trend of the 5 point Likert Scale was determined through the arithmetic mean range so that the range (1 - 2.33) reflects a weak level, and the range (2.34 - 3.67) reflects a moderate level and the range (3.68-5) reflects a strong level (Sekaran, 2006). Table 1 below shows the results for the independent variable:

Table No. (1): Descriptive statistics of the independent variable data (ERP systems)

Independent variable	N	Mean	Standard Deviation	Level	Rank
Information quality	100	3.258	0.585	Moderate	(3)
System quality	100	3.392	0.387	Moderate	(2)
User satisfaction	100	3.416	0.666	Moderate	(1)
ERP as a whole	**100**	**3.345**	**0.329**	**Moderate**	
N=130					

Source: Prepared by the researcher in light of the results of the statistical analysis.

In light of these results, it is clear that the variable of ERP systems achieves a moderate level in the Egyptian International Pharmaceutical Industries (Eipco) with an arithmetic mean of (3.345), and each dimension of this variable has also achieved a moderate level, and in order of the relative importance of the level of availability of those

dimensions, it becomes clear that the user satisfaction dimension occupies the first rank in the relative importance with a mean of (3.416), followed by the second rank of the system quality dimension with a mean of (3.392), and the quality of information dimension comes in the last rank with a mean of (3.258).

To answer the second question from the study's questions, the following table (2) shows the results of the dependent variable:

Table No. (2): Descriptive statistics of the dependent variable data (Competitive priorities)

Independent variable	N	Mean	Standard Deviation	Level	Ranking
Cost	100	3.356	0.511	Moderate	(5)
Quality	100	3.444	0.429	Moderate	(2)
Time	100	3.394	0.522	Moderate	(3)
Flexibility	100	3.710	0.610	Strong	(1)
Innovation	100	3.366	0.263	Moderate	(4)
Competitive priorities as a whole	**100**	**3.345**	**0.329**	**Moderate**	
N=130					

Source: Prepared by the researcher in light of the results of the statistical analysis.

In light of these results, it is clear that the competitive priorities variable achieves a moderate level in the Egyptian International Pharmaceutical Industries (Epico) with an arithmetic mean of (3.454), and each dimension of this variable has also achieved a moderate level except for the flexibility dimension that achieved a high level, and by ranking the relative importance of the level of availability of these five dimensions, it is clear that the flexibility dimension occupies the first place in the relative importance with a mean of (3.710), followed by the second rank of the quality dimension with a mean of (3.444), the third rank of the time dimension with a mean of (3,394), and the fourth rank of the innovation dimension with a mean (3.366), and the cost dimension comes in the last rank with a mean of (3.356).

Hypothesis Analysis:

To test the first hypothesis, Pearson correlation coefficient was used to determine the strength and direction of the relationship between the dimensions of the study's two variables and the extent of significance of that relationship, as shown in Table No. 3 below:

Table No. (3): Pearson correlation coefficients for the dimensions of the study's two variables

Dependent variable / Independent variable		Information quality	System quality	User satisfaction	ERP systems
Cost	**Correlation coefficient**	*0.570	0.128	*0.445	***0.682**
	P. Value	0.000	0.206	0.005	**0.000**
Quality	**Correlation coefficient**	0.090	*0.192	0.122	**0.076**
	P. Value	0.374	0.05	0.228	**0.450**
Time	**Correlation coefficient**	*0.342	*0.272	*0.258	***0.261**
	P. Value	0.000	0.006	0.010	**0.009**
Flexibility	**Correlation coefficient**	*0.515	0.165	*0.428	***0.649**
	P. Value	0.000	0.102	0.000	**0.000**
Innovation	**Correlation coefficient**	0.018	*0.380	0.060	**0.113**
	P. Value	0.857	0.000	0.551	**0.265**
Competitive priorities	**Correlation coefficient**	*0.558	*0.256	*0.485	***0.746**
	P. Value	0.000	0.000	0.000	**0.000**
N=130					

***The symbol (*) was used to express the statistical significance of the correlation coefficient, at a confidence level of 95% or more.**

It is clear from the previous table (3) the validity of the first hypothesis of the study, where the results of the statistical correlation analysis confirmed the existence of a strong direct correlation relationship between the ERP variable and the competitive priorities variable (correlation coefficient = 0.746), which is a statistically significant relationship at a significance level of (0.05) or less.

As for the dimensions of the independent variable, the first sub-hypothesis has been validated, as the results of the statistical correlation analysis confirmed the existence of a moderate direct correlation relationship between the quality of information and the competitive priorities variable (Correlation coefficient = 0.558), which is a statistically significant relationship at a significance level of (0.05) or less, as well as the validity of the second sub-hypothesis, as the results of the statistical correlation analysis confirmed the existence of a direct but weak correlation between the system quality and the competitive priorities variable (Correlation coefficient = 0.256), which is a statistically significant relationship at a significance level of (0.05) or less, and finally the validity of the third hypothesis is proven, where the results of the statistical correlation analysis confirmed the existence of a direct and moderate correlation relationship between user satisfaction and the competitive priorities variable (Correlation coefficient = 0.485), which is a statistically significant relationship at a significant level (0.05) or less. These results indicate that all dimensions of the ERP variable are significantly related to achieving the competitive priorities of the enterprise under study.

For the second hypothesis test, the multiple linear regression method was used, and the following table (4) shows the results of the multiple linear regression analysis of the relationship between the study's two variables:

Table No. (4): Results of multiple linear regression analysis of the relationship between the study's two variables

ERP systems	Partial regression coefficient	Standard partial regression coefficient	"T" value	P.Value	VIF	Rank
Information quality	0.249	0.553	7.648	0.000	1.152	(1)
System quality	0.257	0.378	5.438	0.000	1.062	(2)
User satisfaction	0.129	0.325	4.616	0.000	1.092	(3)
α: Regression constant	1.331		6.195	0.000		
Coefficient of determination R^2 = 0.564 Adjusted R^2 = 0.550 F-value = 41.334 P-value of the model = 0.000 Confidence level (95%) Error percentage in the model = 43.6% Defendant variable (Y) = Competitive priorities						
N=130						

Source: Prepared by the researcher in light of the results of the statistical analysis.

It is clear from the results shown in Table No. (4):

1. F-value = 41.334 with statistical significance of P. Value = 0,000, which indicates the significance of the multiple regression model. Accordingly, ERP systems significantly affect the achievement of competitive priorities.
2. It is clear that the multiple linear regression model does not suffer from the multicollinearity problem between the independent variables, as indicated by the values of the VIF "Variance Inflation Factor" shown in the previous table, as those values fall below the level (10) which is the starting point referring to the

existence of the multicollinearity problem between independent variables.

3. The values of the regression coefficients for the dimensions of the ERP systems variable (Information quality - System quality - User satisfaction) indicate the relationship between these dimensions and the competitive priorities, as they are all statistically significant as evidenced by the value of P. Value of these transactions, and in light of these results, these dimensions can be arranged according to the degree of their effect and significance contribution to achieving competitive priorities, where the information quality dimension occupies the first place in the effect (Standard partial regression coefficient = 0.553), followed by the system quality dimension (Standard partial regression coefficient = 0.378), while the user satisfaction dimension comes in the last rank concerning its effect (standard partial regression coefficient = 0.325).
4. It becomes clear that the ERP systems variable with its three dimensions collectively explains 56.4% of the competitive priorities of the enterprise under study, as shown by the value of the coefficient of determination R^2, and accordingly the error percentage in the model shows that (43.6%) of the variance resulting from measuring the effect of ERP systems on competitive priorities are due to other factors that are not mentioned in the model.

Discussion of the results

- The results of the study confirmed the average relative importance of the effectiveness of the use of ERP systems in the Egyptian International Pharmaceutical Industries (Epico) in Dakahlia, and the user satisfaction dimension came in the first place in terms of relative importance and then the system quality dimension and finally the information quality dimension, and this can be due to the interest of the employees of the Company in Dakahlia branch in obtaining the results that they get from the system, the form of reports, the availability of solutions and the ease of using the system, while after the quality of the system and the quality of the information can be of concern to the decision-maker and system operators at the Company.
- With regard to competitive priorities, the results of the study concluded the moderate importance in general of all dimensions of competitive priorities among employees of the Egyptian International Pharmaceutical Industries (Epico) in Dakahlia, and the flexibility dimension came in the first place and the cost dimension in the last place, in terms of relative importance, and this can be due to the interest of the employees of the Company in Dakahlia branch in the availability of offers and the variety of sales and promotion methods in order to achieve high sales figures for the company's products, while the top management or the central management of the Company are the ones who are responsible for the costs, planning and setting their policies.
- The results of the study confirm that there is a correlation between the effectiveness of the ERP systems in the Egyptian International Pharmaceutical Industries Company (Epico) in Dakahlia and achieving competitive priorities in a steady and strong degree (0.746), and the relationship between the information quality dimension came from the dimensions of the effectiveness of the enterprise resource systems and achieving competitive priorities in the first place in terms of the strength of the relationship (0.558), while the system quality came in the last place (0.256) in terms of the strength of the relationship to achieve competitive priorities, and this can be due to the necessity and importance of information compared to others and the need for it to achieve competitive priorities.
- The results of the study confirmed the existence of a significant impact of the enterprise resource systems at the Egyptian International Pharmaceutical Industries (Epico) in Dakahlia on

achieving its competitive priorities with a percentage of 56.4%, and this is a fairly large percentage and attention should be paid to these systems, and the rank of the dimensions of the ERP systems at the company came according to the degree of its effect and significant contribution: Information quality dimension in the first rank (0.553), then the system quality (0.378) and finally the user satisfaction (0.325), and this effect can go back to the information quality dimension due to the need for information in the decision-making process for all the company's activities, either internally or externally.

VI. CONCLUSION

Depending on the results, the following can be concluded: User satisfaction as one of the dimensions of the effectiveness of ERP systems is the primary concern for systems operators, and through it the system quality can be evaluated as a second dimension, and also through it the accuracy and quality of information extracted from the ERP systems can be emphasized .

Concerning the competitive priorities, flexibility is considered one of the most important dimensions that results in strengthening the competitive position of the enterprise, as a result of the intensification and intensity of competitions between enterprises in the industry market, in addition to obtaining competitive advantages is achieved when the enterprises meet the customers' desires that are characterized by change and instability.

The effective use of ERP systems is linked to and affected by the extent of achieving the competitive priorities of companies and enterprises, so enterprises are interested in using these systems and working to update them and train workers to use and benefit from them.

VII. RECOMMENDATIONS

In the light of what the researcher reached from the field study and the literature review, the researcher recommends the managers and employees of the Egyptian International Pharmaceutical Industries (Epico) in Dakahlia under study, by working on the following:

1. The necessity of taking into consideration the dimensions of the effectiveness of the ERP systems that were covered in this study and taking them into consideration to get the maximum benefit in order to achieve the highest level of competitive priorities.
2. The Company's management shall clarify the importance of the information and the extent of its quality in relation to the decision maker of the company.
3. Increasing the awareness of the Company's employees of the importance of the cost element as it is a priority of the competitive priorities that the Company seeks to maintain its advanced position in the drug market.
4. The Company's management is keen to improve the capabilities of the users of the ERP system through: (Holding training courses, lectures, seminars, and workshops), in order to understand the benefits of the system and thus use it easier and with greater flexibility.
5. Increased concern by the Company's management and employees to achieve the needs and expectations of customers, and the desire to show the company in a distinctive way before its customers.
6. Working to activate the ability and capability of the ERP system to handle complaints and suggestions of workers quickly.

Data Availability:

The data used to support the results of this study has been included in the article.

Conflict of Interest:

The authors declare that they have no conflicts of interest.

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