

The Impact of ERP's Critical Success Factors on Service Quality Dimensions: An empirical study on the Egyptian Telecommunications Sector

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Abstract:

The goal of this research is to understand the impact of the ERP implementation critical success factors on service quality dimensions in the Egyptian telecommunications organizations. The results of the study clarify that there is significant impact of the organizational, technological and human critical success factors of ERP system on the three dimensions of the service quality model that include responsiveness, empathy, and results of service quality.

Keywords

Enterprise Resources Planning, Service Quality, Critical Success Factors, Responsiveness, Empathy, Results of service quality

ملخص البحث :

تهدف هذه الدراسة الى فهم أثر عوامل النجاح الحرجة لتطبيق نظام تخطيط موارد المشروع على أبعاد جودة الخدمة في شركات الاتصالات المصرية. وتوصلت الدراسة الى وجود علاقة ذات دلالة احصائية بين العوامل البشرية والتنظيمية والتكنولوجية لتطبيق نظام تخطيط موارد المشروع وابعاد جودة الخدمة المتمثلة في الاستجابة والتعاطف ونتائج جودة الخدمة.

مفتاح الكلمات :

نظام تخطيط موارد المشروع – جودة الخدمة -عوامل النجاح الحرجة – الاستجابة-
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Introduction

The Egyptian telecommunications organizations facing a lot of criticisms regarding to the quality of service they provide to their customers. One of the main criticism is represented in the increase of customers complains due to the gap that exists in expectations between the customer and the service provider toward the quality standard of the delivered service and the absence of the effective management of the relationship between the service provider and customers.

Due to the fierce competition in the telecom sector, there's is a need for quick response to the customer's requirements and fast service delivery along with effective solutions to the complains incurred by millions of customers. Therefore, the telecom operators in Egypt are extensively implementing more advanced systems in an attempt to close the gap in service quality expectations. One of these systems that combines both the technology and the effective management is the enterprise resources planning system. In the telecom literatures, there is a lack of studies that have exposed to the implementation of ERP in the Egyptian telecom sector. Therefore, this study is an attempt to address the relationship between the implementation of the ERP system in the Egyptian telecommunications sector and its impact on the service quality provided in that sector.

The Theoretical Framework of Research

In this part of research, the inductive approach will be implemented by presenting the main terminologies and concepts of the study and reviewing the literature and the related previous studies.

Terminologies and basic concepts:

This part presents the main concepts that are used in the research as follows:

The ERP system

Ifinedo (2006, p.25) has defined ERP as a system that is based on one database that provides real-time information to the organizational member and enable information sharing and practices in a real-time environment through a general organizational view by integrating business process and functions that enhanced by a complex IT package system.

The critical success factors

According to Ram, Corkindale, and LuWu (2013, p.152), CSFs principle is achieving organization's performance goals when management provides more attention to define the key areas in the organization using a systematic way.

The Quality of Service

Lewis and Booms (1983, p.199) were among the first to define service quality as "the compatibility between the customer expectation & how well the service level is delivered"

Service Quality Dimensions:

Lehtinen and Lehtinen (1982) have divided service quality into ten dimensions that are used by the customers to evaluate the service quality. These dimensions are: tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding/knowing the customer, and access. Then the ten items were revised into specific dimensions such as:

Responsiveness (providing instant service & the willingness to assist customers).

Empathy (providing concern & personal attentiveness to customers).

Results of service quality (an improvement in delivered service, a reduction in the service cost, an increase in the number of delivered services, an increase in the methods of providing the

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service, a reduction in the service processing, an increase in the level of customer satisfaction, an increase in number of customers, retaining existing customers, delivering service through multiple sources, and an increase in the labor hours of service delivery).

Previous Studies

<i>No.</i>	<i>Title</i>	<i>Researcher</i>	<i>Year</i>	<i>Aim and Application</i>	<i>Results</i>
1.	Success Factors for ERP Implementation in large Organizations: The Case of Egypt.	Abdelghafar, H.,	2012	This study is applied on 51 Egyptian companies selected from different business fields (manufacturing, services, trading and government). The study aims to investigate how environmental and organizational factors	The study concluded that several factors are detected from the research that have an impact on ERP implementation. These factors are divided into two categories: National/Environmental and Organizational/Internal National/Environmental category, the

				<p>affect the success of ERP implementation in developing countries with focus on the organizations working in Egypt.</p>	<p>framework identified major players affecting the ERP imp. the 'infrastructure, 'economy and Economic growth', 'manufacturing strengths', 'regional environment' and 'gov. regulations' In the Org.int. category, the framework identified five main factors set to affect the ERP implementation: 'IT maturity', 'computer culture', 'business size'. 'management commitment and BPR</p>
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<i>No.</i>	<i>Title</i>	<i>Researcher</i>	<i>Year</i>	<i>Aim and Application</i>	<i>Results</i>
2.	Service Quality Expectations and Perceptions of the Telecom Sector in India	Kushwah, S., and Bhargav, A.	2014	This study is applied on sample of 500 respondents accessing mobile phone service of telecom services with four major mobile phone service providers in New Delhi, India. The study aims to analyze the gap in service quality of telecom sector in terms of customers 'expectations & perceptions regarding mobile phone	The study indicated that service quality constitutes an essential plank of service marketing and that telecom companies should focus on reduction of the gap in customer expectations and perceptions about their service quality if they are to compete globally. There is a statistically significant gap between customers' expectations and perceptions of mobile phone

Table (1): Previous studies

Statement of The Problem

The research problem can be summarized into the following question:

1. What is the impact of ERP system critical success factors on service quality dimensions in the Egyptian telecommunications organizations?

The previous question is divided into the following:

- 1.1 What is the impact of ERP system critical success factors on responsiveness of service quality in the Egyptian telecommunications organizations?
- 1.2 What is the impact of ERP system critical success factors on empathy of service quality in the Egyptian telecommunications organizations?
- 1.3 What is the impact of ERP system critical success factors on results of service quality in the Egyptian telecommunications organizations?

Research Approach:

In this research ,there is an absence of theory that can define the relationship between the ERP implementation and service quality, therefore, the researcher is trying to explore this type of relationship to reach or build a theory and this could be attained through implementing an inductive approach using research questions by moving from the specific to general then using deductive approach to identify the ERP implementational critical success factors in the Egyptian telecommunications sectors and exploring the impact of these factors on some dimensions of SERVQUAL model.

Research Variables

There are a group of dependent and independent variables in this research:

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1. The ERP implementational critical success factors, that are divided into three categories: organizational, human and technological factors which represent the independent variables.
2. The Service Quality Dimensions: empathy, responsiveness and results of service quality which represent the dependent variables.

Research hypotheses

In order to explore if there is a significant relationship between the ERP implementation and the quality of the service in the Egyptian Telecommunications sectors, the following hypotheses have been developed as follows:

H1: There is a significant impact of ERP system critical success factors on service quality dimensions in the Egyptian telecommunications organizations.

H1.1 There is a significant impact of ERP system critical success factors on responsiveness of service quality in the Egyptian telecommunications organizations.

H1.2 There is a significant impact of ERP system critical success factors on empathy of service quality in the Egyptian telecommunications organizations.

H1.3 There is a significant impact of ERP system critical success factors on results of service quality in the Egyptian telecommunications organizations.

Research Population and Sampling

The four Egyptian telecommunications organizations working in the telecommunications industry in Egypt are: Vodafone- Orange (Mobinil) - Etisalat and Telecom Egypt represent the population of the study. The first three organizations belong to the private sector while the last one is a shareholding organization.

The reason behind choosing the telecom sector is the extensive use of information technology, particularly, the ERP systems compared to some other Egyptian manufacturing and service sectors. The adoption of the updated IT and the ICT infrastructure plays a vital role in ERP implementation in large organizations and that relies on ERP systems as their backbone infrastructure for their functionalities (Abdelghaffar and Abdel Azim ,2010) which could be found in the telecom sector. from five-point Likert scale.

Two samples were drawn from the previous four service providers. The first has been drawn from the employees who use the ERP system in the four organizations. The second represents the customers who use the telecom services such as mobile calls and the internet. The number of the ERP users and customers in the four telecom operators was determined according to:

- The Annual Report of Egyptian telecom and IT sector indicators in 2014 that was issued by (MCIT).
- The Annual Bulletin of the Egyptian telecommunications sector (CAPMAS)
- The Mobile QoS Monthly Report in 2016 issued by (NTRA)

The official websites of the four telecom operators in 2017:

Company Name	No. of Employees	No. of customers (in million)
Vodafone	9000	39.54
Etisalat	3000	22
Orange (Mobinil)	2000	33.7
Telecom Egypt	10000	11
Total	24000	106.24

Table (2): The telecom operator's employees and customers

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According to Alsayed & Mostafa (2003), the mathematical equations are used to calculate the sample size are as follows:

A- Employees' sample size

$$n = \frac{N}{(N - 1) e^2 + 1}$$

Where: n: sample size N: Population size e: level of accepted error

$$n = \frac{24000}{(24000 - 1) (0.05)^2 + 1}$$

n = 393 number of respondents 707

B- Customers' sample size: (Alsayed & Mostafa 2003)

$$n = \frac{106.24 \text{ million}}{(106.24 \text{ million} - 1) (0.05)^2 + 1}$$

n= 400

number of respondents = 2880

Research Limitations

This study is implemented under a group of limitations as follows:

- 1.The study has a time limitation by which the data are collected at specific point of time as the data is collect through cross-section research design.
- 2.The study is geographically limited to specific areas including: Cairo, Giza, 6th of October City (smart village), Mansoura, Behera, El Mahalla El Kubra, Alexandria, Minya, Sohag and Damietta.
- 3.The study has application limitations including:

- This study is limited to the application of the ERP system in the service sector and particularly in the telecommunications industry in Egypt.
- The service quality evaluations in this study is limited to some of the dimensions of SEVQUAL model.

Literature Review

Historical Evolution of ERP system

The Material Requirement Planning (MRP) and the Manufacturing Resource Planning MRP II systems of the 1970s and 1980s respectively were the origin of ERP (Nazemi, E., Tarokh, M., & Djavanshir, G., 2012). A simple inventory control system was the starting point of the MRP system in the 70's with a limited function related to materials and planning, and was known as a system designed to generate a real time -phase net requirements resulted from translating a master production schedule through a group of decision rules, records and logically related procedures (Mohamed & Fadlalla, 2005). The MRP is used only to manage the relationship between specific departments then the system was updated to a second version named manufacturing resource planning (MRPII). The basic functions of the enterprise such as finance, marketing, sales and production was implemented and integrated by the capabilities of MRPII through different operating systems for each organizational unit by linking together these separate units which was considered an important step but It was a difficult process (Ifinedo 2006).

The Gartner Group of Stamford, California developed a new system called "enterprise resource planning" (ERP) in order to cope with the problem associated with the MRPII (Ifinedo 2006, p.27). In 1990, the group coined the system in order to describe the second generation of MRPII, (Nazemi, E., Tarokh, M., & Djavanshir, G., 2012, p.1000). ERP system is an extension of MRPII with more extensive capabilities with may features compared to the previous two

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versions such as the wide integration concept between dispersed organizational business units. (Gore,2008) summarize the evolution of ERP system as follows:

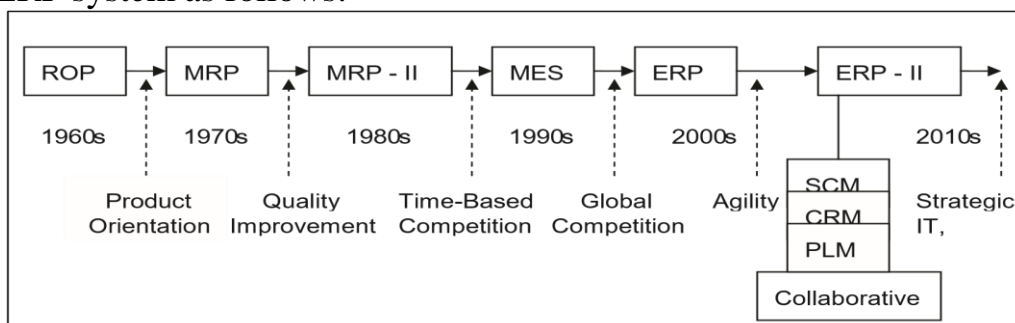


Figure (1): The evolution of ERP system, source: Gore, A., (2008), "Exploring the Competitive Advantage through ERP systems" dissertation, the University of Oulu, Linnanmaa, p.14

Implementation of the ERP system

Yeh, Yang and Lin (2007, p.848) conclude that there are many ERP modules such as a customer relationship management module, supply chain management module; an applied technology module; an enterprise strategy module; a financial accounting module; a financial control module; a project management module; a quality management module; a production planning/control module; a personnel/human resources module; a materials management module; a sales management module.

The number of ERP modules in some ERP system vendors such as Odoo could be reached to 300 modules. But there are basic ERP modules that are essentially implemented by the large ERP providers, these modules are: HR, accounting, finance, inventory, marketing, sales & operations

Erasmus & Daneva (2015,p.129) used the QFD (quality function deployment) approach for ERP design and implementation

by establishing the architecture of the ERP system on the relationship between the QR (Quality Requirements) (Kazman et al,1998,p,127) and FR (Functional Requirements) & raking the quality requirements (prioritized qualities) that the end user & customer require in a four stage process that include: customer requirements, scope formulation, estimation and validation, then adopt and customize the ERP architecture in such a way that meets the technical needs and the prioritized qualities.

There are many sources of internal & external customer requirements, for internal customer: the sources are the feedback of the users of the system, the vendors interview with the system users, the complains and suggestions made by the system users. For external customers, the sources include: surveys, complains, observing customer behavior in the service location, the demand on specific services & the customer satisfaction reports.

ERP Critical Success Factors of Implementation

In ERP literature, a group of critical success factors exist and this research will follow the framework proposed by Salaheldin, (1998) in classifying the success factors of MRP into: human, technological and organizational factors as follows:

A. Human critical success factors

1. Support from Top Management

Upadhyay, P., Basu, R., Adhikary, R., and Dan, P., (2010), Ibrahim M., Sharp M. and Syntetos A. ,2008, p.4)

2. User's Knowledge.

(Gorla, N., and Lin, S.C.,2010, p.1410), (Upadhyay, P., Basu, R., Adhikary, R., and Dan, P., 2010),

3. Employee Moral

(Thomas, W., Vucetic, J., Babb, D., Li, L., and Linberg, K., 2007, p.82), (Ganesh, Mehta and Arpita, 2010, p.76),

4. Training, Education and Job redesign

(Tavana and Madjid, 2012, p.90), (Zhang, L., Lee, M., Zhang, Z., Banerjee, P., 2002, p.4),

5. User's Involvement.

(Zhang, L., Lee, M., Zhang, Z., Banerjee, P., 2002, p.4), (Hairul, M., Nasir, N., & Sahibuddin, S., 2011, p.7),

6. Employee's Attitude and Project Team

(Abdinnour-Helm, S., Lengnick-Hall, M.L. and Lengnick-Hall, C.A., 2003, p.137), (Gupta, H., Aye, K. T., Balakrishnan, R., Rajagopal, S., and Nguwi Y.-Y, 2014, p.388)

7. Communication Plan.

(Nah, F.F-H., Lau, J.L-S. and Kuang, J., 2001, p.137), (Garg, P., 2010, p.2).

B. Technological critical success Factors

1. Organization Fit with ERP Package

(Chen, H., Chen, S., and Tsai, L., 2009, Hong, K., and Kim, Y., 2002), (Moller, C., and Chaudhry S., 2012, pp.48)

2. ERP System Configuration

(Leyh C., 2014, p.1186, Shatat, A., 2015)

3. IT Infrastructure

(Doom ,C., Milis ,K., Poelmans, S., and Bloemen, E., 2010, p.382), (Xia, Y., Lok, P., and Yang, S., 2009, p.222)

4. Compatibility

(Zhang, L., Lee, M., Zhang, Z., Banerjee, P., 2002, p.6), (Goni, F., Chofreh, A., and Sahran, S.,2011, p.201).

5. Legacy Systems

(Saravanan, R., 2014, p.11), (Nah, F., and Lau, J., 2001, p.138),

6. Data Accuracy

(Shanks, G., Parr, A., Hu, B., Corbitt, B., Thanasankit, T., and Seddon, p. 2000, p.137),

7. IT maturity and Computer culture.

(Anjum, M., Bhutto, S., and Rehman, I., 2010, p.24), (Ibrahim M., Sharp M. and Syntetos A. ,2008, p.4),

8. ERP Complexity

(Frimpon, M., 2012, p.233)

9. The Selection of the Appropriate ERP Package

(Zouine and Fenies ,2014, p.1408), (Saravanan, R.,2014, p.114)

10.Minimal Customization

(Loh., T.C. & Koh, 2004, p.769), (Brehm, L., Heinzl, A. and Markus, M. L. 2001, p.450).

C. Organizational critical success factors

1. Vision, Goals, Objectives and Business Plan

(Upadhyay, P., Basu, R., Adhikary, R., and Dan, P., 2010) ,(Finney, Sherry, Corbett, and Martin, 2007, p.335).

2. Change Management

(Fang, L., and Patrecia, S., 2005, p.25), (Smeds, M., 2010),

3. Coordination, Cooperation and Cross-functional Cooperation

(Mishra, A., and Mishra, D., 2010, p.116), (Swaminathan, S., 2011, p.51)

4. Time, Cost of Implementation and Project Justification Based on Cost and Economic Scale

(Wu, J., 2007, p.741), (Al-Mashari, Majed., Al-Mudimigh, Abdullah, Zairi and Mohamed 2003, p.5).

5. Culture, Communication, Support and Empowerment.

(Fang, L., and Patrecia, S., 2005, p.29), (Jafari, Osman, Yusuff and Tang, 2006)

6. Project Management.

(Bancroft, N., Seip, H. and Sprengel, A. 1998), (Holland C.P. and Light B., 1999),

7. Stakeholder's Management and Communication

(Maguire, S., Ojiako, U., and Al Said, 2010), (Sudevan, S., Bhasi, M.,2014)

8. Improved Work Efficiency

(Arabi, M., Saman, M., Wong, K., Beheshti, H., Za-kuan, N., 2011, p.156)

9. Implementation Strategy and Time Frame

(Ganesh, Mehta and Arpita, 2010, p.70), (Finney, Sherry, Corbett, and Martin, 2007, p.2961),

10. Business Process Re-engineering

(Zhang, L., Lee, M., Zhang, Z., Banerjee, 2002, P.4), (Grover, V., Jeong, S., Kettinger, W., and Teng, J. ,1995, p.27).

Service Quality

Service Quality Models

In service quality literature, there are many models that can be used to measure the service quality. Generally, some of these models work as a commencement for other models. There are many factors that influence the selection of the appropriate model to measure the service quality such as the cost of implementation. The following are an examples of service quality models: SERVQUAL Model, The Gaps Model of Service Quality, SERVBERF Model, Swan and Combs (1976) Model, Lehitnen & Lehitnen 1982 Model, Grönroos (1984) Model and Multilevel Model

SERVQUAL Model

SERVQUAL model has been developed by A. Parasuraman, Valarie Zeithaml & Leonard Berry in 1985 (Parasuraman, Zeithaml, and Berry, 1988) when they have performed an extensive qualitative study along with the handful work of some researchers such as (Sasser, Olsen, Wyckoff 1978; Gronroos 1982; Lehtinen and Lehtinen 1982) and concluded ten dimensions (tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding/knowing the customer, and access) that are used by the customers in order to evaluate the service quality, those ten items were revised into specific five dimensions as follows :

- Tangibles: the physical elements of the service such as the uniform of personnel, instruments and physical facilities.
- Reliability: the ability to perform the committed service dependably and accurately.
- Responsiveness: providing instant service and the willingness to assist customers.

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- Assurance: the ability to inspire confidence, awareness, understanding and friendliness of employees.
- Empathy: the firm provides concern and personal attentiveness to its customers.

Hypotheses Testing

In order to test the research hypothesis, a group of sub-hypotheses are emerged from the main hypothesis will be tested as follows:

H1.1 There is a significant impact of ERP system critical success factors on responsiveness of service quality in the Egyptian telecommunications organizations.

In order to test the previous hypothesis, the Multiple Regression Analysis is used as shown in the following table:

Independent Variables	Unstandardized Coefficients B	Standardized Coefficients Beta	T- Test	
			t	Sig
Technological Factors	0.547	0.542	13.405	0.000
Organizational Factors	0.276	0.249	4.835	0.000
Human Factors	0.116	0.101	2.490	0.013
F	645.203			
Sig	0.000			
R ²	0.734			
R	0.856			

Table (3): regression weights for H1.1

From the previous table, it is concluded that:

The explanatory power of the model

The value of coefficient of determination (R^2) is (0.734) clarifying that the independent variable ERP critical success factors (human, organizational & technological factors) explain 73% of the variance in the dependent variable (responsiveness of service quality)

Significance of Regression Model

The value of correlation coefficient (R) is (0.856), indicating a strong correlation exists between combined independent variables and the dependent variable.

The result of the F-test refers to the significance of the multiple regression model as the significance level is below (0.05), & accordingly, at least one of independent variables has a significant impact on the dependent variable.

Significance of the independent variables

The unstandardized coefficients B values of independent variables indicate that:

- The B value of the independent variable (technological factors) is (0.547), demonstrating a positive relationship exists between this variable and the dependent variable (responsiveness of service quality). The result of T- test indicates a significant relationship and a significant impact of the independent variable as the level of significance is below (0.05), and Accordingly, the

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alternative hypothesis is accepted which provides that: "There is a significant impact of ERP critical success factors on responsiveness of service quality in the Egyptian telecommunications sector".

- The B value of the independent variable (organizational factors) is (0.276), indicating a positive relationship exists between this variable and the dependent variable (responsiveness of service quality). The result of the T- test indicates a significant relationship and a significant impact of the independent variable since the significance level is below (0.05), Accordingly, the alternative hypothesis is accepted which provides: "There is a significant impact of ERP critical success factors on responsiveness of service quality in the Egyptian telecommunications sector".

- The B value of the independent variable (human factors) is (0.116), indicating a positive relationship exists between this variable and the dependent variable (responsiveness of service quality). The result of the T- test indicates a significant relationship and a significant impact of the independent variable as the level of significance is below (0.05) and Accordingly, the alternative hypothesis is accepted which provides: "There is a significant impact of ERP critical success factors on responsiveness of service quality in the Egyptian telecommunications sector".

- According to the values of Beta Coefficients, the independent variables can be sorted based on the relative importance as follows:

- Technological Factors (B= 0.542)
- Organizational Factors (B=0.249)
- Human Factors (B=0.101).

H1.2 There is a significant impact of ERP system critical success factors on empathy of service quality in the Egyptian telecommunications organizations.

In order to test the previous hypotheses, the multiple regression analysis is used as shown in the following table:

Independent Variables	Unstandardized Coefficients B	Standardized Coefficients Beta	T- Test	
			t	Sig
Technological Factors	0.498	0.492	10.191	0.000
Human Factors	0.288	0.251	5.176	0.000
Organizational Factors	0.097	0.087	1.420	0.156
F	383.844			
Sig	0.000			
R ²	0.621			
R	0.788			

Table (4) regression weights for H1.2

From the previous table, it is concluded that:

The explanatory Power of the Model

The value of coefficient of determination (R^2) is (0.621), clarifying that the independent variable of the ERP critical success factor (human, organizational & technological Factors) explains 62% of the variance in the dependent variable (empathy of service quality).

Significance of Regression Model

The value of correlation coefficient (R) is (0.788) indicating a strong correlation exists between the combined independent variables and the dependent variable.

The result of the F-Test refers to the significance of the multiple regression model as the level of significance is below (0.05), accordingly, at least one of the independent variables has a significant impact on the dependent variable.

The Significance of the Independent Variables

The Unstandardized Coefficients B values of the independent variables indicating that:

- The B value of the independent variable (technological factors) is (0.498), indicating a positive relationship exists between this variable and the dependent variable (empathy of the service quality). The result of the T- Test indicates a significant relationship and a significant impact of the independent variable as the significance level is below (0.05), accordingly, the alternative hypothesis is accepted which provides: "There is a significant impact ERP critical success factors on empathy of service quality"
- The B value of the independent variable (human Factors) is (0.288), indicating a positive relationship exists between this variable and the dependent variable (empathy of the service quality). The result of the T- Test indicates a significant relationship and a significant impact of the independent variable as the level of significance is below (0.05), accordingly, the

alternative hypothesis is accepted which provides: “There is a significant impact ERP critical success factors on empathy of service quality”

• The B value of the independent variable (organizational factors) is (0.097), indicating a positive relationship exists between this variable and the dependent variable (empathy of service quality). The result of the T- Test indicates a significant relationship and a significant impact of independent variable as the level of significance is below (0.05). and accordingly, the alternative hypothesis is accepted which provides: “There is a significant impact ERP critical success factors on empathy of service quality”.

According to the values of Beta Coefficients, the independent variables can be sorted based on the relative importance as follows:

- Technological Factors (B= 0.492)
- Human Factors (B=0.087)
- Organizational Factors (B=0.080)

H1.3 There is a significant impact of ERP system critical success factors on results of service quality in the Egyptian telecommunications organizations.

In order to test the previous hypothesis, the multiple regression analysis is used as shown in the following table:

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Independent Variables	Unstandardized Coefficients B	Standardized Coefficients Beta	T- Test	
			t	Sig
Human Factors	0.340	0.313	6.592	0.000
Technological Factors	0.285	0.271	4.504	0.000
Organizational Factors	0.249	0.259	5.483	0.000
F				411.326
Sig				0.000
R ²				0.637
R				0.798

Table (5) regression weights for H1.3

From the previous table, it is concluded that:

The explanatory Power of the Model

The value of coefficient of determination (R^2) is 0.637 clarifying that the independent variables (human, organizational & technological factors) are explaining 63% of the variance in the dependent variable (results of service quality).

Significance of Regression Model

The value of correlation coefficient (R) is (0.798), indicating a strong correlation exists between the combined independent variables & the dependent variable.

The result of the F-Test refers to the significance of the multiple regression model as the level of significance is below (0.05) and accordingly, at least one of the independent variables has a significant impact on the dependent variable.

The Significance of the Independent Variables

The Unstandardized Coefficients B values of the independent variables indicating that:

- The B value of the independent variable (human factors) is (0.340), indicating a positive relationship exists between this variable and the dependent variable (results of service quality). The result of the T- Test indicates a significant relationship and a significant impact of the independent variable as the level of significance is below (0.05), accordingly, the alternative hypothesis is accepted which provides that: "There is a significant impact of ERP critical success factors on results of service quality".
- The B value of the independent variable (technological factors) is (0.285), indicating a positive relationship exists between this variable and the dependent variable (results of service quality). The result of the T- Test indicates a significant relationship & a significant impact of the independent variable as the level of significance is below (0.05), accordingly, the alternative hypothesis

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is accepted which provides: "There is a significant impact of ERP critical success factors on results of service quality".

• The B value of the independent variable (organizational factors) is 0.249 indicating a positive relationship exists between this variable and the dependent variable (tangible aspects). The result of the T-Test indicates a significant relationship and a significant impact of the independent variable as the level of significance is below (0.05), accordingly, the alternative hypothesis is accepted which provides: "There is a significant impact of ERP critical success factors on results of service quality".

According to the values of Beta Coefficients, the independent variables can be sorted based on their relative importance as follows:

- Human Factors (B= 0.313)
- Organizational Factors (B=0.271)
- Technological Factors (B=0.259)

Recommended Researches

- The effect of the ERP system in different business aspect such as competitive advantage, productivity and decision making.
- The implementation of the ERP system in the manufacturing sector in Egypt.
- The ERP integration with other IT systems such as CRM and SCM systems.

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The Study questionnaire

Company Name:

Kindly place a checkmark in front of the sentence that expresses your point of view with respect to the following terms:

First: Enterprise Resources Planning

The followings are the success factors of ERP implementation. To what extent these factors are important for such an implementation in the company to which you are belonging:

The success factors of ERP implementation	Very Important	Important	Neutral	Not Important	Not Important at all
A-The Human Factors					
1- User's knowledge and familiarity of the ERP system					
2- User's training & Education & Job redesign					
3- User's participation in ERP application					
4- User's attitude towards ERP					

5- User's Commitments to business Ethics					
6- Top management Support to the ERP					
7- Effective Project Management & teamwork					
B -Organizational Factors					
8- Improving work efficiency					
9- The Implementation Strategy & time frame					
10- Organization's Business Process reengineering					
11- Change Management					
12- Coordination & Cooperation between Cross functional teams					
13- Cost of ERP implementation					
14- Stakeholders management & communication					
15- Culture Change & user's empowerment & support					

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16- Organization's vision and objectives					
C- Technological Factors					
17- The selection of the appropriate ERP software package					
18- The system modification during implementation					
19- The selection of the appropriate ERP consultants					
20- The system integration with other systems in the organization					
21- Organization fit to the ERP package					
22- The IT infrastructure in the organization					
23- The Organization's Culture that supports Technology					
24- ERP complexity					
25- The Legacy Systems					
26- The Accuracy of used data					

Second: Service Quality

The Following are some of the important dimensions of service quality evaluation. To what extent these dimensions are applied in the company to which you are belonging to:

Service Quality Dimensions	Totally Agree	Agree	Neutral	Disagree	Totally Disagree
C-Responsiveness					
9- The company tells exactly when the services will be performed					
10- Customers receive prompt service					
11- Customer Service Agents are always willing to help customers					
12- Customer Service Agents respond quickly to customers					
E- Empathy					
17- The company provides individual care to customer					
18- The customer service agents give personal attention to customers					

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19- The customer service agents understand the specific needs of their customers					
20- The company provides customers best service at hand					
21- The company increase the labor hours convenient to their customers					

Third: The Results of Service Quality

The following are some of the results of implementing ERP system on service quality, to what extent that system has an effect on quality of service delivered in the company to which you are belonging to

The Results of Service Quality	Totally Agree	Agree	Neutral	Disagree	Totally Disagree
1- Generally, the level of service has been improved					
2- A reduction in the service cost					
3- An increase in the number of services delivered					
4- Increasing the methods of providing the service					
5- A reduction in the service					

processing					
6- An increase in the level of customer satisfaction					
7- Increasing number of customers					
8- Retaining existing customers					
9- The service delivered through multiple sources					
10- An increase in the working hours of service delivery					