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Exploring the Critical Success Factors (CSF) and Limitations of Enterprise Resource Planning (ERP) Systems: The Case of Egyptian Hotels

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In recent times, service establishments have invested considerable resources in the implementation of Enterprise Resource. Enterprise resource planning (ERP) systems are highly complex information systems. Many ERP implementations have been classified as failures because they did not believe in the importance of the key success factors of achieving a competitive advantage. This paper has the objective of getting insight into the major Critical Success Factors (CSFs) and limitations of the ERP systems, particularly in the sector of hospitality industry, through the five-star hotels located in Egypt. A self- administered questionnaire was distributed to the directors of information technology in 140 five- star hotels. The survey instrument incorporated three sections; the first depicted demographics of the respondents, the second investigating the most critical success factors; and the third included open questions to explore the ERP limitations. The findings revealed that "Clear understanding of strategic goals" was the lowest perceived factor. While, others such as "Appropriate ERP consultants, avoidance of software changes, confirmation of finalized solutions, extensive employees' training/ education and involvement of project team members" were the highly perceived critical success factors of implementing ERP system in Egyptian hotels. There is no ERP that could cover all the hotel processes. This paper fulfils an identified need to study the most CSFs of implementing ERP system in Egyptian Hotel enterprises for managing the introduction and implementation of an ERP system with acceptable probability of success. Egyptian hotel managers can benefit from a deeper understanding of the issues related to those major CSFs. This study is considered a primary stride in understanding the ERP systems in Egyptian hotels.

Key words: Enterprise resource planning, ERP systems, critical success factors (CSFs), hotels, Egypt.

INTRODUCTION

The rapid development of information technology and the emergence of the internet have created a demanding market competition (Chang et al., 2008). This issue has forced companies to gradually force information technology in order to cut down the business process, increase the productivity with lower costs and prompt delivery to

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meet the customers' needs and satisfaction (Liu, 2011). In order to achieve the previous targets, and maintain competitive advantage, companies have been introducing Enterprise Resource Planning systems (ERP) (Al-Mashari, 2003; Umble et al., 2003). The implementation of these systems is a difficult and high cost scheme that brings great demands on business time and resources (Ibid).

ERP integrates core corporate activities and diverse functions of the enterprise by incorporating best practices in order to facilitate rapid decision-making, cost reduction, and greater managerial control (Wu and Wang, 2007). ERP systems emerged as a tool to automate and add efficiency to repetitive business processes, providing managers with a global vision and timely responses to the ongoing business operations, and at the same time solving information fragmentation and disintegration problems. Therefore, implementing an ERP system may imply deep modifications in structure, business processes and even the culture of an organization (Azevedo et al., 2012).

Surprisingly, many companies have proceeded to implement ERP without making any return on investment (ROI) calculations. But, most companies seem to have had good reasons for doing so—some wanted to integrate diverse business units, others wanted to consolidate redundant proprietary information systems, and many implemented ERP systems to solve their problems. But the price of securing the benefits of ERP may be high (Umble et al., 2003).

In addition, ERP systems do encompass the ''enterprise'' and focus on ''resources''; they also facilitate tasks beyond ''planning''. Therefore, service organizations have begun to invest considerable resources in the implementation of Enterprise Resource Planning (ERP) systems, even using solutions initially targeted for manufacturing companies (Botta-Genoulza and Millet, 2006). Changes are possible by technology originated different ways to operate business in the hospitality industry. The huge amount of data and the speed on which it must be processed is crucial to succeed. Therefore IS/IT (Information systems based on information technology) used in this industry must provide flexibility and efficiency, allowing to meet customers´ needs (Beldona et al., 2001).

In this industry, ERP systems should be able to work out the problem of information fragmentation, integrating all data in a unique database serving the whole organization and connecting all processes in real time. Any change or action on a given process should have immediate impact on all related information, allowing a holistic view of the organization at a given moment (Alshawi et al., 2004).

Although an ERP system has been widely studied in the IT (information technology) literature, empirical understanding about ERP implementation in Egypt markets is relatively limited.

Notably, previous studies have suggested certain critical success factors for ERP implementation since the early 2000s (Chen, 2012). Moreover, understanding context factors for ERP implementation is imperative because these factors might be unique to organizational culture or business processes that would significantly influence how ERP projects are carried out (Dezdar and Ainin, 2011; Kouki et al., 2010). Recent empirical literature has thus witnessed increasing attention typically paid to Western countries.

Furthermore, no empirical study has been found in Egypt context; consequently, it is worthwhile to build a case for exploring the most important success factors that may influence the introduction or implementation process of an Enterprise Resource Planning (ERP) system in the Egyptian hotels through this paper.

This assures that this research aims to contribute a better understanding of the present situation of ERP systems in Egyptian hotels and all CSFs may be encountering in implementing those systems. As a result, the research considered the following objectives:

1) Generate the first step to open a research line about implementation and use of ERP systems in Egypt.
2) Determine the major Critical Success Factors (CSFs) the Egyptian hotels are encountering while implementing ERP systems.
3) To what extent the Egyptian hospitality industry, particularly Five-star hotels, could overcome some of those CSFs.
4) Indicating the difference between managers' perceptions in Cairo and Alexandria cities concerning the most critical success factors of an ERP implementation.
5) Exploring the imitations of the ERP systems particularly in Egyptian five-star hotel enterprises.
6) Illuminating the key suppliers for the hospitality solutions in Egypt, furthermore the most updated solutions of the information systems integration currently offered by those suppliers.

LITERATURE REVIEW

ERP systems

Based on the increased competition, expanding markets, the demanding customer, providing better customer service and improving quality, ERP systems have emerged as solutions oriented to manage organization´s resources in an integrated way (Umble et al., 2003).They made information available to users at the right time, supporting more accurately their decision-making needs**.** However, although the implementation of these systems has brought considerable benefits to users, they do not cover all processes from all industries. Therefore, many organizations have recognized this limitation, and consequently felt the need to implement specific solutions

to their industry, sector or line of business (Azevedo et al., 2012).

An ERP system is an integrated software package composed by a set of standard functional modules (Production, Sales, Human Resources, Finance, etc.) developed or integrated by the vendor, which can be adapted to the specific needs of each customer. It attempts to integrate all departments and functions across a company onto a single computer system that can serve all those different departments' particular needs (Botta-Genoulaz and Millet, 2006).

The fact that ERP systems do not computerize all processes of any organization involves the existence of other application software, either inheritance or to be developed, that must be connected to the ERP system (Puschmann and Alt, 2004; Themistocleous and Irani, 2001).

As each type of integration has solutions focused on determined areas, it is difficult to choose the most appropriate solutions and complicates the understanding of existing technology (Matende and Agao, 2013); the literature reported some benefits of implementation as follows: improving productivity, competitive advantage, and customer demands are the top three business drivers for companies with ERP (Scott and Shepherd, 2002).

There are also tangible and intangible benefits such as: information quality, single system/integration, real-time accessibility, inventory reduction, productivity improvement, logistics/order management improvement, cash flow and forecasts improvement (Botta-Genoulaz and Millet, 2006).

Finally, Umble et al. (2003) indicated that ERP provides two major benefits that do not exist in non-integrated departmental systems: a unified enterprise view of the business that encompasses all functions and departments; and an enterprise database where all business transactions are entered, recorded, processed, monitored, and reported.

Despite the above mentioned benefits that can be achieved from a successful ERP implementation, project managers focus on the technical and financial aspects of a project and neglect to take into account the non-technical issues. To solve this problem, there is a crucial need for using the critical success factors approach to the study of ERP implementations (Botta-Genoulaz and Millet, 2006). Moreover, a conceptual model for ERP system implementation proposed by Marnewick and Labuschagne (2005) addresses four features of implementation specifically people, product, process and performance (4P). *People* as the customers that represented the organizational requirements/mindset, *Product* as software modules that are to be implemented across the business, *Process* as representing the project's change management issues and *Performance* that is equivalent to data flows associated with business process. Every 4P component has a direct or indirect effect on the ERP implementation process. This includes the identification of organizational requirements, the customization of selected software, its installation and subsequent operations, and finally the important needs of systems training for personnel.

Based on the previously cited, the basic objective of this paper is to get insight into the major Critical Success Factors (CSFs) and limitations of the Enterprise Resource Planning systems, particularly in the sector of the hospitality industry.

Main limitations of ERP Systems

Even with the great acceptance of ERP Systems in organizations, some condemnations have been directed to these types of systems, whether from a technical or business perspective (Davenport, 2000). The inflexibility of ERP systems is often pointed as being a limiting factor to their use. On the one hand, organizations that adopt these types of systems end up having the processes designed in a standard form (Alshawi et al., 2004; Soh et al., 2000; Themistocleous et al., 2002). However, this only happens when organizations desire less expensive ERP system solution and with a smaller implementation period (Lee et al., 2003). Another major difficulty in the implementation of ERP systems is the long implementation period that such systems require. In large organizations, it may take from 3 to 5 years (Al Shawi et al., 2004; Murphy, 2002; Themistocleous et al., 2002).

Additionally, a criticism of ERP Systems is its hierarchical stiffness and centralizing management; so implementing an ERP system for each business unit could overcome this constraint (Davenport, 2000). A supplementary limitation of ERP systems is the use of outdated technology, although some recent efforts have been made like Business by Design (SAP) and SaaS systems providing Web 2.0 facilities (SAP, Oracle).

ERP systems in hospitality industry

ERP systems appear as a way to computerize repetitive processes and provide managers with a global vision and real-time all operations, solving the problems of disintegration and fragmentation of information (Puschmann and Alt, 2004).

In hospitality industry, ERP systems have a particular relevance for the diversity of applications and specific systems for various functions (Azevedo et al., 2014). Although service organizations were not in the initial target zone of many ERP vendors, which instead developed products for manufacturing companies, ERP systems are increasingly being implemented in the service sector (Botta-Genoulaz and Millet, 2006).

Concurrent the globalization of services and rapid technological progress, afforded by information and

communication technology, has increased the pressures for service firms to compete on new offerings (Menor et al., 2002)

The literature elucidated many ERP vendor solutions that meet the requirements of the service industry such as SAP, PeopleSoft, J.D. Edwards or Oracle provide solutions for financial services (banks, insurance companies), utilities, healthcare, higher education, field or professional services, public sector, wholesale distribution or retail, telecommunications, etc (Botta-Genoulaz and Millet ,2006; Azevedo et al., 2014).

SAP is a market leader, in particular for larger hotels with regard to the specific processes of the hotel units, primarily front office, for example, reservations, stock and supply, F&B (Food and Beverage), or point of sale management (POS – Point of Sales), specific solutions are adopted, often from suppliers who do not offer integration with the back office and the implemented ERP System (Heart et al., 2001).

The main reasons for ERP implementations in service companies, cited in the literature, are: reduce administrative workload; replace dispersed legacy systems; replace unreliable finance and materials management systems; improve visibility across the entire system; investment security— an important consideration, in particular, among public sector services limited by financial constraints; real-time data processing (Botta-Genoulaz and Millet, 2006).

Critical Success Factors (CSFs) for introduction and implementation of ERP in the Hospitality industry

It is worth mentioning to put on view one of the typical descriptions of a successful implementation of an ERP system which is finishing an ERP on time and within budget. Many enterprises have struggled with their ERP implementation budget and schedule. In addition, the view, degree, and perception of a successful implementation may vary among stakeholders within the same enterprise (Elragal and Haddara, 2012).

CSFs are a small number of major factors that senior managers believe to be the key to the success of their companies. These key factors can assure the success of performances and the achievement of organizational goals (O'Brien, 2002). Moreover, CSFs are "the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization" (García-Sánchez and Pérez-Bernal, 2007). A large number of studies have explored the CSFs for ERP introduction and implementation .Most of these studies have compiled a similar list of factors, but with different CSFs rankings .Usually the rankings differs according to the industry sector, organization size, culture, complexity and the context (Elragal and Haddara, 2012).

Research and practice have identified several critical success factors (CSF) that would considerably affect the implementation process. The following section will briefly shed the light on some of these CSFs.

Based on the study of Finney and Corbett (2007), the comprehensive list of 11 CSFs included: top management commitment, change management, education and training, project management, implementation strategy, communication plan, IT infrastructure, managing culture change, ERP selection, vanilla ERP and project team.

Additionally, the literature review reported other 14 CSFs which are: top management support, business process reengineering, project management, project champion, end user involvement, education and training, having consultants, change management plan, ERP system selection ,vision statement, IT infrastructure, communication, teamwork for ERP project and problem solutions (García-Sánchez and Pérez-Bernal, 2007). There are other specified CSFs: support and participation of senior managers; formulation of introduction timetables; total involvement of organizational members; the possession of relevantly strong IT capabilities and establishment of a good project team (Willcocks, 2000).

According to Umble et al. (2003), the most prominent CSFs are: clear understanding of strategic goals; commitment by top management; excellent project management; organizational change management; a great implementation team; data accuracy; extensive education and training; focused performance measures and the multi-site issues. ERP system success needs clearly defined purposes, work planning and resource planning (Ehie and Modsen, 2005). It is worth mentioning that the participation of users has been considered an important issue throughout the information system development process (Matende and Ogao, 2013; Motwani et al., 2005). Finally, Liu (2011) generalized the CSFs for ERP introduction as: support from senior managers and corporate visions; reengineering and project management; appropriate consultants and software suppliers; suitable employees and training/education.

User participation in ERP implementation

The user participation and involvement are part of the CSFs for ERP systems. End users are the people who have direct contact with the ERP systems (Esteves et al., 2005). User participation refers to involvement in the system development and implementation process by representatives of the target user groups. There are two main areas of user participation when an organization decides to implement an ERP system (Esteves et al., 2005). The first area is when a user participates in the stage of definition of the company's ERP system needs and the second area is user participates in the implementation of the ERP. One of the difficulties related to ERP implementation is the inappropriateness of process features with organization information needs (Siriluck, 2010). To address this problem, users need to be allowed to participate in the implementation of the

ERP system since they are familiar with the business processes and the knowledge domain in their functional units. When users are involved or participate in these stages they are bound to react positively to the potential of ERP system (Matende and Ogao, 2013).

METHODOLOGY

Participants and procedures

Participants for this study were recruited from 151 five-star hotels distributed around 18 areas in Egypt (Egyptian Hotel Association, 2014/2015). The total population of 151 hotels was used to capture the variability for interpreting the results and providing more external validity to the results (Table 1).

The respondents were selected from the departmental managers of Information Technology with total of 151 IT managers. In addition, the study was conducted in 5 months period (8/20014-12/2004).

The choice of five-star hotels was included in the study for some reasons: these hotels follow the latest and update managerial concepts and their competitive edge is dependent on information quality, these hotels realize the importance of implementing the latest technologies in reducing administrative workload , replacing dispersed legacy systems and putting back unreliable finance and materials management systems; these hotels could afford such expensive ERP systems , these hotels consider the vital role of the highly skilled employees in achieving service excellence, lastly, these hotels realize the importance of providing better guest satisfaction.

A possible justification for selecting the IT managers is that these people have the professional experience in the ERP system implementation; they have leading roles or responsibilities in their departments; they are directly and highly involved in the ERP implementation process; and they have active participation in the decisions and implementation of any information systems in their hotels.

A total participation of 151 respondents joined the survey. Of the 151 participants, 11 participants' responses were disqualified because of the uncompleted survey. As a result, 140 responses remained for the main analysis (92% response rate).

The researcher explained to the IT managers of the urban hotels that the purpose of this study was to explore the major CSFs that may be encountered while introducing or implementing any ERP system; furthermore, to capture the drawbacks of the ERP systems in the hospitality industry.

Data collection instrument

With the purpose of determining the major critical success factors and limitations of implementing ERP systems in Egyptian five star hotel enterprises, this paper conducted a questionnaire survey to gather data and performed statistical analysis. The questionnaire was built based on the CSFs reviewed from the literature.

The current study developed a survey instrument which included three major parts. The first part of the survey queries the demographic data of the participants which comprise the gender, age, educational level, the formal education, the major of last formal education, average number of years working in the position, and the average number of years involved in the implementation process of an enterprise.

The second part investigated the major (19) Critical Success Factors (CSFs) which depicted from the literature review and mainly based on the 14 and 11 CSFs of the previous studies of García-Sánchez and Pérez-Bernal (2007) and Elragal and Haddara, (2012) consequently.

Table 1. The 5-star hotels population.

Area	Population
Sharm El sheikh	41
Cairo	33
Hurghada	24
Luxor	7
Taba	8
Alexandria	8
Aswan	5
Ain Sokhna	3
Alamien	2
Arish	1
Dahab	2
El Gouna	3
Fayoum	1
Marsa Matrouh	3
Marsa Alam	3
Port said	1
Safaga	6
Qusier	2
Total	151

A 5-point Likert scale was used to determine the critical and importance level of each success factor. The scale goes from "Extremely critical and important "to "Neither critical nor important for the success of the implementation". This part also gave the participants the chance to specify any other CSFs over the listed 19 ones.

This part is processed for the reason of achieving the first four objectives of the study which were: generating the first step to open a research line about implementation and use of ERP systems in Egypt; determining the major Critical Success Factors (CSFs) of implementing ERP systems within Egyptian hotel enterprises; to what extent the Egyptian hospitality industry, particularly Five-star hotels, could overcome some of those CSFs and indicating the difference between managers' perceptions in Cairo and Alexandria cities concerning the most critical success factors of an ERP implementation.

Based on factors identified in the two studies of Azevedo et al. (2014) and Chen (2012), a list of 19 CSFs was selected as reference for this study. The 19 CSFs are considered to represent the largest, clearest factors analyzed through the literature. The nineteen CSFs that incorporated in the questionnaire are as follows:

1) Top management commitment and support
2) Appropriate ERP consultants
3) Extensive employees' training/education.
4) Total user participation
5) The possession of strong IT capabilities
6) Effectiveness of project management
7) Successful installation of hardware and software
8) Teamwork for the ERP project
9) Communication
10) Testing of solutions
11) Organizational change management
12) Focused performance measures
13) Constant updating of documents
14) Tests of all operations
15) Confirmation of finalized solutions

16) Conviction of employees
17) Maintenance of quality staff
18) Clear understanding of strategic goals
19) Avoidance of software changes

The above list of 19 CSFs was selected as reference for this study .The 19 CSFs are considered to correspond to the largest, clearest, and most significant subset of all factors analyzed through the literature review.

The third part incorporated four open questions to clearly attain the rest two objectives of this study. The first three open questions were derived from the study of Azevedo et al. (2012) as follows:

Question 1- Can enterprise resource planning solutions cover all process of the organization within the hospitality industry? Please justify your answer.

This question is created in order to determine the extent to which an ERP system is capable of supporting the whole range of activities coherently structured by an organization. Therefore, this question could attain the fifth objective of the study which was: exploring the limitations of ERP system in the Egyptian hotel enterprises.

Question 2- What hospitality processes/areas are not covered by Enterprise resource planning solutions?

This question aimed also at discovering the limitations of the ERP systems in the Egyptian hospitality industry.

Question 3- What are the main solutions for the integration of information systems currently offered by software suppliers?

The third question purpose was to know the integration solutions regarding the non-total coverage of the processes of the ERP Systems. This question is designed for achieving the sixth objective of the current study.

Question 4- What are the main software suppliers for hospitality solutions in Egypt?

The fourth question objective is to assemble a record for the ERP system suppliers for the Egyptian hotels. Therefore, achieving the sixth objective of illuminating the key suppliers for the hospitality solutions in Egypt, furthermore the most updated solutions of the information systems integration currently offered.

For purposes of clarification of the questionnaires, the pilot test was conducted from 30 July to 1 August, 2014). The questionnaire was pre-tested by giving it to a panel of experts, who were ten IT managers and hospitality marketing managers of software suppliers. From the pilot test, the questionnaire was made to correspond with the study and the necessary changes were made. Indeed, managers pointed out that the scale should include critical and important not only important; other managers suggested to add another room for specifying any other CSFs over the listed ones.

According to the findings of the pretest, a modified version of the questionnaire was developed and the complicated words were replaced and the remaining parts of the questionnaire showed no problems with wording and understanding according to the respondents' points of view.

After revision, the final data were collected via self- administered questionnaire. The subjects were selected from the departmental directors of Information Technology in 5-star hotels in Egypt (151), Egyptian Hotel Association (2014/2015) with a total of 151 IT managers.

A total participation of 151 respondents joined in the survey. Of the 151 participants, 11 participants' responses were disqualified because of the uncompleted survey. As a result, 140 responses remained for the main analysis (92% response rate).

Statistical analysis

The results were analyzed using SPSS (statistical package for social science) version 20, by calculating the arithmetic mean ($\overline{X}$), the standard deviation (S.D.) and the (t) test to rank the importance of the critical success factors to achieve the first objective of the study which was determining the major Critical Success Factors (CSFs) of implementing an ERP system.

Moreover, the step-wise regression analysis was performed for more accuracy and to rank the importance of each success factor. Also, the collected data were analyzed using a variety of other test statistics such as Mann-Whitney test, one of the non-parametric tests, which was used to evaluate the distinguishable gaps between Cairo and Alexandria respondents' opinion regarding the importance level of the critical success factors of an ERP implementation.

RESULTS AND DISCUSSION

The questionnaire analysis offers the following findings according to the respondents' views and opinions.

Demographic profile of respondents

As shown in Table 2, out of the 140 respondents, (96.4%) were males and (3.6%) were females. With regard to the respondents' age groups, 21.4% were between 45 and 54, 42.1% were between 35 and 44, 10.1% were between 55 and older, 26.4% out of 140 respondents were between the ages of 25-34., and there were no respondents in the age group of less than 25. For the level of education, 73.5% had a university degree and 26.5% had a master's degree. When asked about their major of the last formal education, 97.8% of the respondents were not in the hospitality and tourism field but were majored in Engineering and computer science. In fact only five IT managers were majored in the hospitality area, with a percentage of 2.2. When respondents were asked to identify their years of work experience in the hospitality industry, it was found that 70 % were above 7 years, and 30% were between 5 and 7 years. When asked about their years involved with the implementation process of an enterprise, it was found that 3.7% of respondents experienced above 7 years, 10.7% have spent from 5 to7 years, 21.4% experienced from 3 to 5 years, and 64.2% have experienced from 1 to 3 years.

The Critical Successful Factors (CSFs) of Implementing the Enterprise Resource Planning (ERP) Systems as Perceived by IT Managers

The mean gap scores were used to indicate the critical important level of the CSFs of implementing the Enterprise resource planning (ERP) systems as perceived by IT managers (Figure 1 and Table 3).

Table 2. Demographic profile of respondents.

Profile	F "n=140"	%
Gender		
Male	135	96.4
Female	5	3.6%
Age less than 25	0	0.0%
25-34	37	26.4%
35-44	59	42.1%
45-54	30	21.4%
55 or older	14	10.1%
Education level		
Masters/doctorate	37	26.5%
University/ college	103	73.5%
The major of last formal education		
Hospitality and Tourism major	5	2.2 %
Non-Hospitality and Tourism major	137	97.8%
Average number of years working in your position		
5-7	42	30 %
Above 7 years	98	70 %
Average number of years involved with the implementation process of an Enterprise		
1-3	90	64.2%
3-5	30	21.4%
5-7	15	10.7%
Above 7 years	5	3.7%

On a scale from 5 (Extremely critical and important), 3 (Moderately critical and important) to 1 (Neither critical nor important), there were means above (4.0) such as appropriate ERP consultants, avoidance of software changes, confirmation of finalized solutions, extensive employees' training/education and teamwork for the ERP project as the total mean of each item was 4.63, 4.63, 4.38, 4.35 and 4.35, respectively.

The "appropriate ERP consultants" was perceived as the first critical factor in implementing an ERP system with a mean score of 4.63. This indicates that, in Egypt, the process of selecting the suitable ERP consultants is very difficult to find. This factor is critical for determining how the project is carried out, therefore, it could be remarked that it is a potential shortage for Egyptian hotel Enterprises to find those experienced consultants for that kind of projects.

The Egyptian managers perceived "avoidance of software of changes" as a second critical factor with a mean score of 4.63. Employees may fear that the new system will make their jobs more difficult, reduce their importance, or even cost them their jobs. Therefore, managers need to be aware of the psychological effects that might cause users' resistance to change. As such, they have to initiate several workshops in different implementation stages in order to provide support to users.

In addition, "Extensive employees' training/education" was ranked as fourth and "teamwork for the ERP project" was ranked as fifth despite having the same mean scores of 4.35. These findings are supported by the study of Chen (2012).

As the Egyptian managers reported that "training and educating employees" is a critical success factor for an ERP implementation, those managers may need to provide formal forums such as meetings and training sessions, raising the employees' knowledge level through the ERP newsletters to familiarize employees with the updated ERP systems.

Based on the importance of the above mentioned finding, training should start early and before the implementation begins and the top management must be fully committed to spend adequate money on education and end user training and incorporate it as part of the ERP budget.

Additionally, ERP requires gathering knowledge to allow employees solve problems within the framework of the system; if those employees do not understand how a system works, they will create their own processes using those parts of the system they are able to operate.

Furthermore, this result may foster the hospitality higher education institutions to train the undergraduates on the latest hospitality ERP systems that could give a hand in becoming a system user through getting an educational version from the hospitality software suppliers in Egypt.

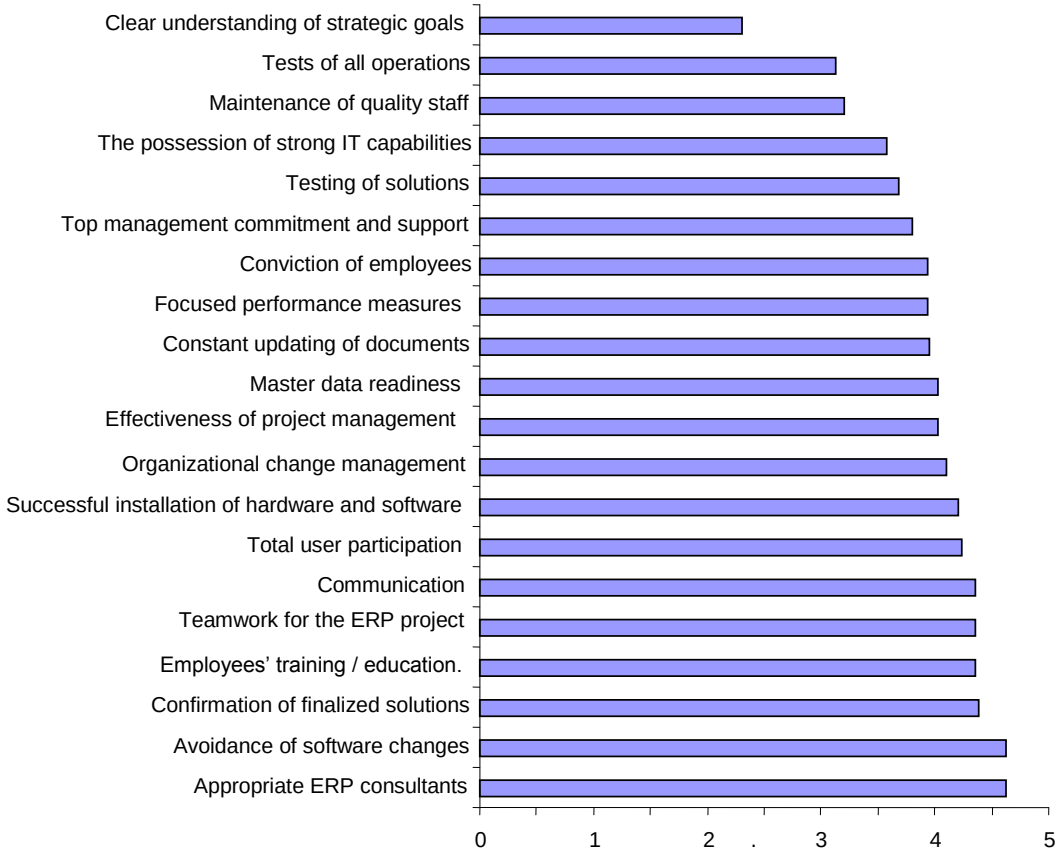

Figure 1. The CFSs as perceived by IT managers.

Table 3. Critical success factors in Egyptian five-star hotels.

Success factors	M.	S.D.	R.
1. Top management commitment and support	3.80	0.82	15
2. Appropriate ERP consultants	4.63	0.67	1
3. Extensive employees' training/education.	4.35	0.83	4
4. Total user participation and involvement	4.23	0.92	7
5. The possession of relevantly strong IT capabilities	3.58	0.75	17
6. Successful installation of hardware and software	4.20	0.52	8
7. Teamwork for the ERP project	4.35	0.48	5
8. Communication	4.35	0.70	6
9. Testing of solutions	3.68	0.89	16
10. Organizational change management	4.10	0.59	9
11. Focused performance measures	3.93	0.47	13
12. Constant updating of documents	3.95	0.64	12
13. Tests of all operations	3.13	1.30	19
14 Confirmation of finalized solutions	4.38	0.49	3
15. Effectiveness of project team	4.03	0.89	10
16. Conviction of employees	3.93	0.53	14
17. Maintenance of quality staff	3.20	0.61	18
18.Clear understanding of strategic goals	2.30	1.14	20
19.Avoidance of software changes	4.63	0.77	2
20. Master data readiness	4.03	0.62	11

The “Teamwork for the ERP project” was ranked as fifth in the current study, which is consistent with the past literature of Azevedo et al. (2014) and Chen (2012) who reported the importance of that factor. This result could discover the difficulties in developing collaboration among the Egyptian hotel employees and also indicated that the cooperation and mutual support among personnel is infrequent. This recommends the need for the Egyptian hotels to create an atmosphere that encourages collaborative interaction among all employees which in turn can help smooth out the successful implementation phase for an ERP project.

A noteworthy finding is that “Effectiveness of project team” was ranked as tenth, which illustrates that, in Egypt, the process of administrating this kind of project is not efficient and because of that, it does not reach the required effectiveness level. This is not supported with the study of Azevedo et al. (2014) and Chen (2012) which logged this factor the third position in terms of important level.

For that reason, Egyptian managers need to form a team of top-notch employees who are selected for their skills, precedent achievements, reputation and flexibility as this team is responsible for creating the detailed plan and the overall schedules for the complete project, assigning tasks for diverse activities and determining due dates.

By examining all the CSFs in respect to their perceived critical important level, “Clear understanding of strategic goals” was perceived as the lowest important factor with a mean score of 2.30. This result is not consistent with the literature as ERP implementations require that key people throughout the organization should create a clear, compelling vision of how the company should operate in order to satisfy customers (Chen, 2012; Umble et al., 2003). This finding indicates that Egyptian managers need to evidently understand their organization’s strategic goals to better guide the directions of ERP implementation. Therefore, this finding is of a concern for Egyptian five-star hotel enterprises as they might acquire a very expensive ERP, which could have very important capabilities but those capabilities might exceed the enterprise’s requirements according to its strategic plan. It could be concluded that when the strategic goals are not clearly understood and defined, the organization has not thought through the goals, expectations, and deliverable.

Based on the above, some items had the same mean scores; therefore, the step-wise regression analysis was carried out on the mean scores for obtaining high accuracy and to determine the rank order of importance for each item. This analysis was performed to rank the importance of each critical success factor. It was apparent that “avoidance of software changes” and “appropriate ERP consultants”, obtained the same mean score of (4.63) but the step-wise regression analysis ranked them differently.

Apparently, the Egyptian hospitality managers were unbiased about two factors such as “testing of all operations “and “maintenance of quality staff” which had mean scores of 3.1 and 3.2. This issue urgencies the need for reconsidering the maintenance of quality staff and testing of all operations to ensure the efficiency of any ERP system implementation.

A notable finding is that “top management commitment and support” had a rational mean score of 3.8 and had the fifteenth position. This factor is arguably the most widely cited success factor for not just ERP implementation but also other information system projects (Chen, 2012).

However, this result was not strongly in line with the literature that reported the significance of assuring a strong top management support for a successful ERP system implementation (García-Sánchez and Pérez-Bernal, 2007; Chen, 2012). It could be reported that when top management lacks commitment to the system and computer information knowledge will not see the profound changes it engenders and does not actively participate in the implementation. Therefore, it is extremely important when deciding on the ERP implementation is to make sure the time and circumstances in the hotel enterprise are highly adequate to assure a strong top management support for the project.

The hospitality managers perceived the importance of “total user participation and involvement” with a mean score of 4.2. The literature also supported this finding (Haddara and Elragal, 2011; Matende and Ogao, 2013). This is because the implementation of an ERP system requires customization of the various modules which in turn affect how the users’ interact with the system. Therefore, user participation increases user satisfaction and acceptance; moreover, it helps overcoming resistance and getting better understanding between users and system providers; the issue that enables users to have their input in the changes to their work environment.

A surprising finding is that, the study revealed one CSF over the listed 19 ones named “master data readiness” was perceived as a critical factor and directly contributes to the successful implementation of ERP system with a mean score of 4.0. This success factor is critical in ensuring the readiness of the key data for feeding the ERP systems in a correct and complete form at minimum cost, time and human resources.

It could be concluded that master data readiness is absolutely required for an ERP system to function properly. Therefore, educating the Egyptian users on the importance of data readiness and correct data entry procedures should be a top priority in an ERP implementation. Moreover, incomplete master data could cause ERP lose credibility, causing people to ignore the new system and contribute to run the company under the old system, further, failure of ERP system.

Table 4. Comparison between the managers' perceptions (Alexandria and Cairo).

Critical success factor	IT managers (Alexandria)	IT managers (Cairo)	U-test	p		IT managers (Cairo)
Top management commitment and support	4.000	3.750	.585	.449	.585	3.750
Appropriate ERP consultants	4.375	4.688	1.418	.241	1.418	4.688
Extensive employees' training/education.	3.875	4.469	3.451	.071	3.451	4.469
Total user participation	4.375	4.188	.261	.612	.261	4.188
The possession of strong IT capabilities	3.250	3.656	1.937	.172	1.937	3.656
Effectiveness of project management	4.625	3.875	.207	.652	.207	3.875
Successful installation of hardware and software	4.125	4.219	.963	.333	.963	4.219
Teamwork for the ERP project	4.500	4.313	3.474	.070	3.474	4.313
Communication	4.750	4.250	1.145	.291	1.145	4.250
Testing of solutions	3.375	3.750	1.469	.233	1.469	3.750
Organizational change management	3.875	4.156	.245	.623	.245	4.156
Focused performance measures	4.000	3.906	.981	.328	.981	3.906
Constant updating of documents	3.750	4.000	1.487	.230	1.487	4.000
Tests of all operations	2.625	3.250	2.714	.108	2.714	3.250
Confirmation of finalized solutions	4.125	4.438	4.997	.031	4.997	4.438
Conviction of employees	4.000	3.906	.199	.658	.199	3.906
Maintenance of quality staff	2.875	3.281	3.008	.091	3.008	3.281
Clear understanding of strategic goals	2.625	2.219	.813	.373	.813	2.219
Avoidance of software changes	4.375	4.688	1.044	.313	1.044	4.688
Master data readiness	4.250	3.969	1.330	.256	1.330	3.969

Mean gap of perception regarding the critical success factors as perceived by IT Managers in Cairo and Alexandria Cities

In further examining whether or not a difference exists between the respondents' opinions in Cairo and Alexandria cities regarding the important level of the critical success factors, the Mann-Whitney test was employed to explore such difference (Table 4).

The purpose of picking a comparison concerning the perceived critical success factors by IT managers in Cairo and Alexandria Cites is that those are the most urban cities that have the same socio-economic background, the same guest type and a similar level of employment' skills, and consequently their five-star hotels follow the newest and updated property management systems.

As indicated in Table 4, there were no significant differences between the respondents' perceptions in Cairo and Alexandria cities regarding the critical success factors. This finding indicated that there are no remarkable differences in ERP systems implementation approach in Egyptian five-star hotel enterprises. A possible explanation is that despite Cairo City has been embracing a lot of businesses before Alexandria, but there is no dissimilarity between the perceptions of managers between those two cities; further explanation may be the uniformed implementation approach in those hotels or because of the standard implementation technique of vendor suppliers.

Findings of the survey second section (Open ended questions)

The open ended questions responses were categorized in groups (Table 5). Regarding question 1, 'Can enterprise resource planning solutions cover all processes of the organization within the hospitality industry? Please justify your answer', the majority (70%) of managers referred that an ERP System scarcely covers all the departments of an organization; they justified that in order for an ERP to cover all the hotel processes, it needs a huge database .Therefore, the organizations choose other solutions that seal any gaps of an ERP system. This finding indicated the limitations of ERP in Egyptian hotels which was enhanced by the literature (Heart et al., 2001; Rus, 2009).

Based on the above, the hospitality ERP providers need to find a system that could cover and integrate all the hotel processes.

Table 5 shows several applications in some business units, such as health club, parking services, golf courses, guest feedback and laundry. These are areas running from specific applications, not integrated with the ERP system. The nonexistence of data integration in those areas during guest stay in the hotel affects timely invoicing, with negative impacts on quality guest service as the guest account is not updated automatically; therefore, the guest has to wait for some manual proceedings before the final demand for payment. The guest feedback is a vital issue in this context to be

Table 5. Managers' responses of the open ended questions.

Responses	F	%
Question one		
No	98	70.0
Yes	28	20.0
May be	14	10.0
Question two		
Health Club; Parking Services	35	25.0
Golf Courses; Laundry services	42	30.0
Guest Feedback	49	35.0
None	14	10.0
Question Three		
Micros Fidelio Suite 8 from oracle	7	17.5
Opera PMS from Oracle; Micros POS from Oracle	8	20.0
Sun Systems Financial from Infor	6	15.0
Material Control from Oracle	8	20.0
Ultra from Comsys	7	17.5
Matrix POS from CiHost	4	10.0
Question Four		
Advanced Computer Technology (sole agent of micros in Egypt)	21	52.1
Comsys	11	27.9
CiHost	8	20.0

integrated with the housing reservation system; therefore, it could be concluded that integrating the guest feedback with the ERP systems in real time is of great importance to ensure the quality of guest service.

In relation to question 3, 'What are the main solutions for the integration of information systems currently offered by software suppliers?', the participants indicated that the most popular solutions or modules in Egyptian hotels are Micros Fidelio Suite 8 (front office department), Opera PMS (front office department), Micros POS (food and beverage), Material Control (food and beverage, stores), Sun Systems Financial, Ultra (front office), Matrix POS (food and beverage) (Table 5).

Based on the above result, there are no modules for some hotel areas such as: health club, parking services, golf courses, catering, guest feedback and laundry. This is supported by the literature (Rus, 2009).

It appears in Table 5 that more than half (52.1%) of the respondents agreed that the most well-known, widespread and common hospitality solution supplier in Egypt is Advanced Computer Technology (ACT), which is the sole agent of Micros in Egypt followed by Comsys as a local vendor with 27.9% and CiHost, 20%.

CONCLUSION AND IMPLICATIONS

This research aimed at firstly to generate the first step to open a research line about implementation and use of ERP systems in Egypt and to determine the emerged CSFs that are important in the Egyptian environment of technological change associated with the implementation of an ERP system in order to guide the five-star hotels to overcome some of those CSFs.

Therefore, the results provide warning points for Egyptian managers who are involved in this kind of projects. This study revealed that "appropriate ERP consultants" was perceived as the first critical factor which indicated that there is a potential shortage for Egyptian hotel enterprises to find those experienced consultants for that kind of projects.

The Egyptian managers perceived "avoidance of software of changes" as a second critical factor. Therefore, managers need to be aware of the psychological effects that might cause users' resistance to change. As such, they have to initiate several workshops in different implementation stages in order to provide support to users.

As the Egyptian managers reported that training and educating employees is a critical success factor for an ERP implementation; therefore, training should start early and before the implementation begins and the top management must be fully committed to spend adequate money on education and end user training and incorporate it as part of the ERP budget. Furthermore, this result may foster the hospitality higher education institutions to train the undergraduates on the latest hospitality ERP systems that could give a hand in becoming a system user through getting an educational version from the hospitality software suppliers in Egypt.

The "Teamwork for the ERP project" was ranked as fifth. This recommends the need for the Egyptian hotels to create an atmosphere that encourages collaborative

interaction among all employees which in turn can help smooth out the successful implementation phase for an ERP project.

A noteworthy finding is that “Effectiveness of project team” is ranked as tenth, which illustrates that, in Egypt, the process of administrating this kind of project is not efficient and because of that, it does not reach the required effectiveness level.

Egyptian managers need to form a team of top-notch employees based on their skills, precedent achievements, reputation and flexibility as this team is responsible for creating the detailed plan and the overall schedules for the complete project, assigning tasks for diverse activities and determining due dates.

By examining all the CSFs in respect to their perceived critical important level; “Clear understanding of strategic goals” was perceived as the lowest important factor. Therefore, this finding is of a great concern for Egyptian five-star hotel enterprises as they might acquire a very expensive ERP, which could have very important capabilities but those capabilities might exceed the enterprise’s requirements according to its strategic plan. It could be concluded that when the strategic goals are not clearly understood and defined, the organization has not thought through the goals, expectations, and deliverable.

A notable finding is that “top management commitment and support” had the fifteenth position. Therefore, it is extremely important when deciding on the ERP implementation is to make sure the time and circumstances in the hotel enterprise are highly adequate to assure a strong top management support for the project.

The hospitality managers perceived the importance of “total user participation and involvement”. Therefore, user participation increases users’ satisfaction and acceptance; moreover it helps to overcome resistance and get better understanding between users and system providers, the issue that enables users to have their input in the changes to their work environment .

A surprising finding is that, the study revealed one CSF over the listed 19 ones named “master data readiness” was perceived as a critical factor and directly contributes to the successful implementation of ERP system. Therefore, educating the Egyptian users on the importance of data readiness and correct data entry procedures should be a top priority in an Egyptian ERP implementation.

Moreover, incomplete master data could cause ERP losing credibility, causing people to ignore the new system and contribute to run the company under the old system, further, failure of ERP system.

Regarding the fourth objective of the study (indicating the difference perceptions between managers’ perceptions in Cairo & Alexandria cities of the most critical success factors of an ERP implementation), it was pointed out that there were no significant differences between the respondents' perceptions in Cairo and Alexandria cities regarding the critical success factors. This finding indicated that there are no remarkable differences in ERP systems implementation approach in Egyptian five-star hotel enterprises. A possible explanation is that despite Cairo city has been embracing a lot of businesses before Alexandria, there is no dissimilarity between the perceptions of managers regarding the experienced CSFs encounter in the Egyptian five –star hotels; further explanation may be the uniformed implementation approach in those hotels or because of the standard implementation technique of vendor suppliers.

The study also highlights the difficulty for an ERP system to cover all business processes in the Egyptian hotels for the reason of enormous data base. This limitation is noticeable in the hospitality industry, where many specific solutions are implemented by vendors with little or no integration to ERP systems. Therefore, integration is made through flat files, such as in health club, golf courses, parking services, guest feedback and laundry service. This finding achieved the fifth study objective of exploring the imitations of the ERP systems in Egyptian five-star hotel enterprises. This non-integration of processes forces manual intrusion, and this has normally the consequence of data discrepancy and accordingly negatively affects the quality of guest service.

Finally, the investigated hotels indicated that the most popular solutions in Egyptian hotels are Micros Fidelio Suite 8 from oracle, Opera PMS from Oracle , Micros POS from Oracle, Sun Systems Financial from Infor, Material Control from Oracle , Ultra from Comsys, Matrix POS from CiHost .The common hospitality solution suppliers in Egypt are Advanced Computer Technology ,Comsys and CiHost .This finding attained the sixth study objective, illuminating the key suppliers for the hospitality solutions in Egypt; furthermore, the most updated solutions of the information systems integration currently offered by those suppliers.

Future research

Building from the results of this research, future research may focus on analyzing problems of strategic planning, project management as well as top management support.

Future research is encouraged to further examine the CSFs in other Egyptian hotel categories (four, three or two). It is also recommended for any future research in this context to assure the support and collaboration of the enterprises and managers for the project.

Future research may provide managers with frameworks for best practices for the process of effective integration of the information technology resource in their enterprises. The importance of CSFs in ERP systems implementation through the hospitality industry must be emphasized, either on what processes should these systems cover, or on what level of integration should be attained.

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