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# EVALUATING ENTERPRISE RESOURCE PLANNING (ERP) POST-IMPLEMENTATION PROBLEMS IN EGYPT.

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## **Abstract:**

*The aim of the research is to identify and evaluate the main problems experienced in the ERP post-implementation stage of multinational, privately-owned Egyptian and governmental organizations in Egypt. Data gathering was achieved by means of a set of interviews and online questionnaire conducted to 50 companies implementing ERP in Egypt. The paper presents a descriptive analysis of the difficulties and problems encountered by organizations in Egypt following ERP implementation and how these have contributed to unsuccessful implementation overall.*

**Keywords:** ERP post-implementation problems, ERP in Egypt

## **1. INTRODUCTION**

Enterprise Resource Planning (ERP) has been described as a business system supported by software that enables an organization to manage the efficient and the effective use of the enterprise's materials and resources by providing a total integrated system for the organization's needs [1,2,3,4]. The purpose of ERP is to enhance the organization's competitiveness by improving its ability to create accurate and timely information for managerial decision making. It provides management with cost and operational information necessary to make strategic decisions concerning their competitive position [2]. According to Pawel and Barry [5], the main reasons why companies use ERP systems are due to:

- Inaccuracy of data.
- Difficulty in reporting and sharing information.
- Problems in providing seamless customer services between offices.
- Heavy reliance on computing center staff.
- A Disorganized database structure.

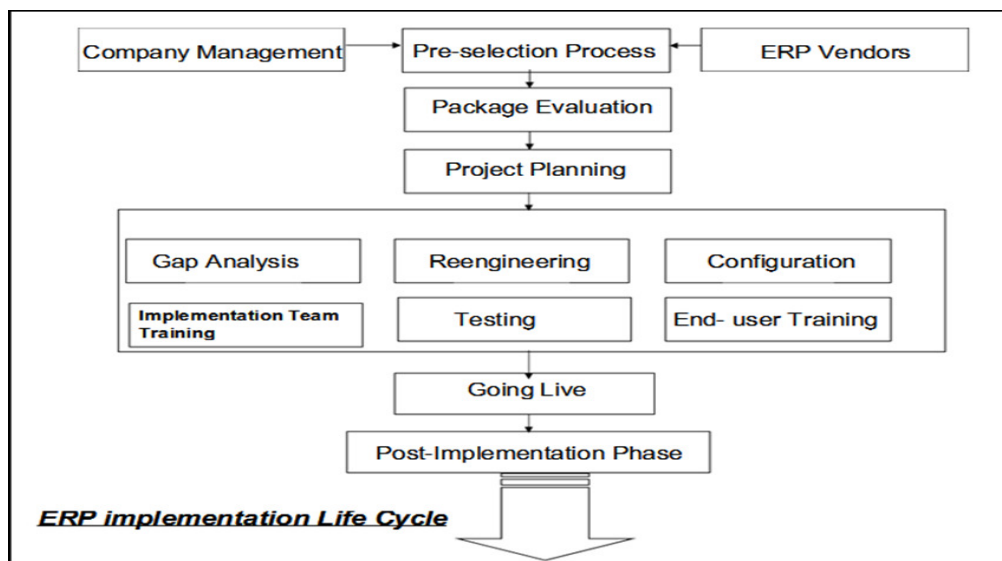
Despite the significant benefits that ERP systems provide, fewer than 30% of ERP projects are successfully implemented, i.e., projects completed on time and on budget with all features and functions specified [6, 7, 8]. Reasons underlying implementation failure include: dealing with ERP as software and not as a system; the inability to adopt a new organizational policy to implement ERP or to cope with the changes created by ERP; projects going over budget; projects being terminated before the implementation begins; and failure to achieve the planned objectives [9,10,11].

In the early 1990s, Egyptian business witnessed major changes as Globalization, Trade liberalization and privatization. Egypt entered the information and communication technology solutions era; these technological solutions helped the Egyptian business to run effectively and efficiently [12]. Egyptian organizations paid attention to such solutions to gain advantage in the competitive market. Recently, the Multinational companies in Egypt have adopted ERP systems which are one of the technological solutions and which are considered as one of the highly complex information systems to the Egyptian business community [14]. Many ERP projects in Egypt have not been effective and unable to achieve the desired results. In Egypt, ERP implementation problems were mainly due to the challenging Egyptian culture which is different from the cultures where these systems have been developed, the overrun budget, cancellation or the delay of the projects due to the Egyptian revolution. In Egypt, the success rate of ERP projects is low compared to the Middle East region as a whole and to developed countries in general [12]. Literature related to ERP implementation in Egypt is limited, focusing only on the preparation and the implementation phases

with no studies relating to the post-implementation phase [12, 13, 14]. Depending on the ERP literature review in Egypt, most of the companies implementing ERP systems are the private large and multinational companies [12, 13] and this was proven in the study by referring to the companies' types of the questionnaire. As 57% of the sample were private companies, 36% are multinational and only 7% are governmental companies. Regarding the number of the respondents companies 60% of the respondents are multinational and private companies while in the governmental companies only 40% of the companies responded to the questionnaire due to the Egyptian governmental culture.

## 2. ERP LIFE CYCLE

The ERP lifecycle highlights the ERP implementation stages and is outlined in figure 1.



**Figure 1 – ERP Implementation Life Cycle**

**Source:** [15]

The ERP life cycle can be divided simply into three main stages; the Pre-Implementation; During Implementation; and after Go-Live phase or Post- implementation phase. The post-implementation stage in a system's life cycle constitutes a number of processes that are critical for a system's success. Following the implementation of the system, an organization would engage in a number of activities, such as post-implementation review, support and maintenance [16]. Post- implementation is very critical phase as the most of the vendors are not supporting the projects anymore. Only the employees, who have acquired knowledge and training, are now responsible to enhance the system in the future.

## 3. ERP LITERATURE REVIEW

Prior to the concept of ERP systems; it was common for each department within an organization to have its own customized computer system. For example, the human resources (HR) department, the payroll department, and the financial department might all have their own computer systems. Typical difficulties involved integration of data from potentially different computer manufacturers and systems [17]. For example, the HR computer system would typically manage employee information while the payroll department would calculate and store paycheck information for each employee, and the financial department would store financial transactions for the organization. Following implementation, ERP software combined the data of formerly separate applications. The maintenance of synchronous data across the enterprise; simplified the computer infrastructure within a large organization; and standardized and reduced the number of software specialties [17].

Many authors have identified that ERP implementation is accompanied with difficulties and problems. The majority of studies focus only on the pre- and during implementation phases, implying that reaching the go-live stage means that the project is successfully implemented. However, many problems may occur after the implementation and may cause the breakdown of the whole system and alter the success to a failure

[3,13,18]. As pointed out by Willis and Willis Brown [19], even if the ERP system is successfully implemented, the go-live stage of the system is not the end of the journey. Peng and Nunes [20] confirmed that the majority of the companies will face a wide range of risks when using, maintaining and enhancing ERP systems at the post-implementation stage.

### **3.1 ERP Post-Implementation Problems**

Most ERP literature is about the problems in the pre-implementation stage and during the process itself and suggesting solutions to these problems [13,19, 31,36]. In 2001, the American Production and Inventory Control Society (APICS) Conference Board report stated that 40% of participants failed to achieve their business case at least 12 months after ERP implementation for [21], and in 2003, a survey conducted by Deloitte Consulting LLC, stated that 25% of 500 companies had suffered a drop in performance in the ERP going-live stage after believing that they had successfully installed the system [22].

Post-implementation improvements by companies implementing ERP projects have received little attention in the literature [23]. Staehr [24] analyzed the role of top-management at four Australian companies in ensuring that benefits do results from implementation. It is important to conduct an ERP post-implementation audit to unravel the root of problems in ERP processes and provide effective solutions [25]. ERP post-implementation problems are related to the experiences of users at all levels of seniority who fear appearing incompetent with the new ERP system, and often deal with the new system by continuing to do things as they always have and using features of the system that require minimum effort [25]. Another problem mentioned by Musaji [25], is that some users, after the implementation, use the system only as a way to receive e-mails and look at calendars. Often sophisticated automatic processes are deliberately overridden as it takes users six to twelve months to become comfortable with the system. According to Babbar [26], ERP post- implementation problems are related to the transformation problems resulting from ERP and the employees' resistance and slow reaction to change. ERP implementation often exceeds the time and the money promised by the ERP vendors and this action leads companies to lose trust in the ERP system and feel that it is not a reliable system [26]. According to Babbar [26] and Hakkinen and Hilmola [27], most companies do not have a backup plan in case of emergency, and this hinders the capacity of the system to deal with unexpected problems.

Pan, et al[28] identified 37 post-implementation risks and categorized these into; operational risks, organizational risks and analytical risks. Such risks arise from: the lack of emergency planning for the post-implementation phase; the insufficient budget assigned to this phase; the absence of a post-implementation audit team; inadequate training and unqualified ERP experts;; insufficient vendors' support; and finally, a weak reporting system for post-implementation problems.

### **3.2 ERP Post-Implementation in Egypt**

The small number of studies undertaken on ERP implementation in Egypt has focused solely on the pre-implementation and implementation phases. El Sayed [29] analyzed the role of the accountant, whereas Rasmy et al. [12] tested the relationship between organizational culture and a series of critical success factors for successful implementation. El Sawah et al [13] developed a quantitative model to predict the success of ERP implementation in Egypt using ERP implementation success as the dependent variable and organizational culture elements as the independent variables. They recommended the need for new research into the problems experienced during the post-implementation stage [13]. Abdelghafar and Azim [14] examined which factors have a significant effect on successful ERP implementation for large companies in Egypt, whilst El Regal and El Sarafi [30] identified the important contributory factors towards the relationship between ERP and business performance.

The literature review has identified that ERP implementation is accompanied with difficulties and problems, and that the majority of research has focused only on the pre- and during implementation phases. There is little research on ERP post-implementation, especially in Egypt [14, 20, 24, 31, 32], and this research paper attempts to fill this gap.

## **4. RESEARCH METHODOLOGY**

The aim of the research is to identify and evaluate the main problems in the ERP post-implementation stage in companies implementing ERP in Egypt. In order to achieve this aim, both a qualitative and quantitative approach was considered. The first step was to identify those organizations which have implemented ERP

and are in the post-implementation phase. Semi-structured interviews were performed with project managers and ERP users in five organizations ranging from governmental, private Egyptian and multinational companies. The interviews assisted the development of a structured online questionnaire distributed to the fifty organizations identified as having implemented ERP in Egypt and only thirty-one responses were received and were valid. The response rate represents 62% of the whole sample, which indicates the reliability of the responses to the whole sample. Those organizations responding were categorized by size according to their annual revenues, as defined by the European Commission [33] as indicated in Table 1.

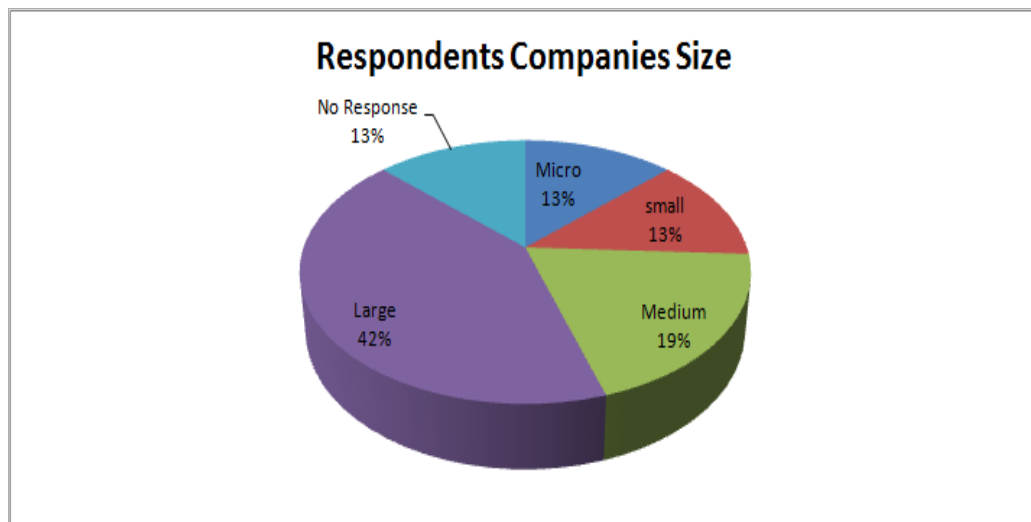
**Table 1: The EC Enterprise Categories**

Enterprise Category	Headcount (Annual Work Unit)	Annual Sales	Total Assets
Micro	<10	≤ \$ 3 million	≤ \$ 3 million
Small	<50	≤ \$ 13 million	≤ \$ 13 million
Medium sized	<250	≤ \$67 million	≤ \$56 million

Source: [33].

Regarding the large enterprises, the enterprises employing more than 250 employees with more than 67 million dollars are classified as large scale enterprises (LSEs) [37].

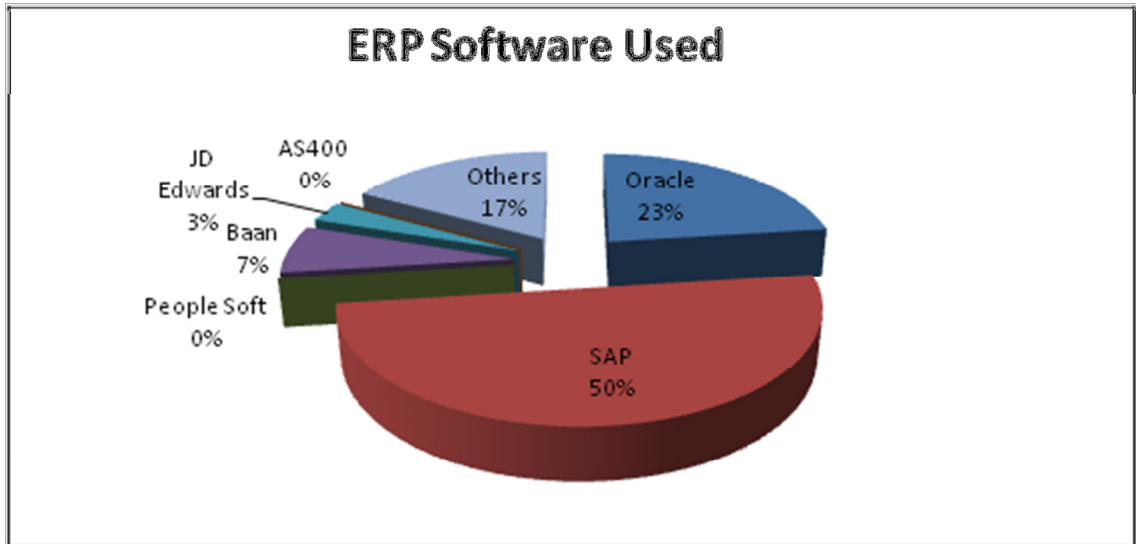
The resultant classification (see Figure 2) indicates that the most prominent group was that of large companies whilst a small number of companies were unable to provide the information requested. The sample comprises 35% SMEs or micro companies which have not previously been included in post-implementation studies, or on studies within Egypt.



**Figure 2:** Respondents Classification According to their Annual Revenues

Regarding the most widely ERP system software used in Egypt according to the respondents' answers, 50% of the respondents agreed that the most common software used is the SAP and this ensure what found in the literature review which showed that SAP came in the first place, while Oracle came next, and this what it is shown in the figure 3. Most of the respondents clarified their reasons behind choosing SAP as

- It is a market leader with primary focus on Enterprise applications,
- It has a long term and clear product vision and strategy,
- It provides best quality solution besides it has alliances with major vendors as IBM, HP, etc...
- Some stated that it is the best worldwide and the most integrated software,
- While others mentioned that SAP is characterized by its stability and use of best practice.



**Figure 3: Percentage of ERP Software used by the respondents companies.**

## 5. QUESTIONNAIRE FORMAT AND PURPOSE

The questionnaire is consisted of eight main sections which are as follow:

**Section One:** The Company's details – this section aims at providing a profile of the company questioned, this section is consisted mainly of 10 questions which aim at providing a detailed profile of the company in terms of its name, its employee's number, its annual revenues, its field industry and its sector. It also provides information about the person responsible on ERP projects and its skills.

**Section Two:** ERP Implementation – this section aims at investigating the current status of ERP implementation in Egypt. It is consisted of 10 questions which are mostly conducted to evaluate the importance of ERP system in Egypt and to assess and determine the desired benefits of the companies from the ERP system implementation in Egypt. This section aims to determine some of the difficulties facing the companies in the pre and during the implementation.

**Section Three:** ERP Post Implementation – this section has the purpose of evaluating the status of ERP post implementation in Egypt and it is consisted of only four questions.

**Section Four:** ERP Post Implementation Problems – this section has two main purposes; the first is to determine and rank ERP the post implementation common problems and difficulties facing the companies in Egypt. The second purpose is to identify the importance of the post implementation phase and the post implementation audits as a tool to overcome the ERP difficulties.

**Section Five:** Resources and Training – this section focuses on the available resources of the companies' in term of the existence of a clear and unified job description and responsibilities, it stresses also on the training problems as it was discovered from the expert group and from the interviews that it was one of the main difficulties of ERP post implementation in Egypt.

**Section Six:** The Overall Success – this section aims to assess the company's satisfaction on ERP implementation.

**Section Seven:** Other Issues – this section aims at gathering any other data that could not be mentioned into the questionnaire and it aims at providing problems that were not mentioned or providing suggested solutions which help the context of the research through an open question where the respondent finds themselves free to express his opinions.

A number of open ended questions were held in the previous sections to provide the respondents to express their opinion if there were any missing points. The last format of the closed-ended questions in this questionnaire is the rating scale. The Likert scale is the most common approach used in asking respondents how strongly they agree or disagree with a set of statement on a five point scale [38]. Likert scale is used to ask respondents to rate the degree of importance of the provided ERP post implementation problems. The Likert scale is used because it is easy, reliable and increases the types of statistical analyses that can be performed [39, 40].

## 6. QUESTIONNAIRE FINDINGS

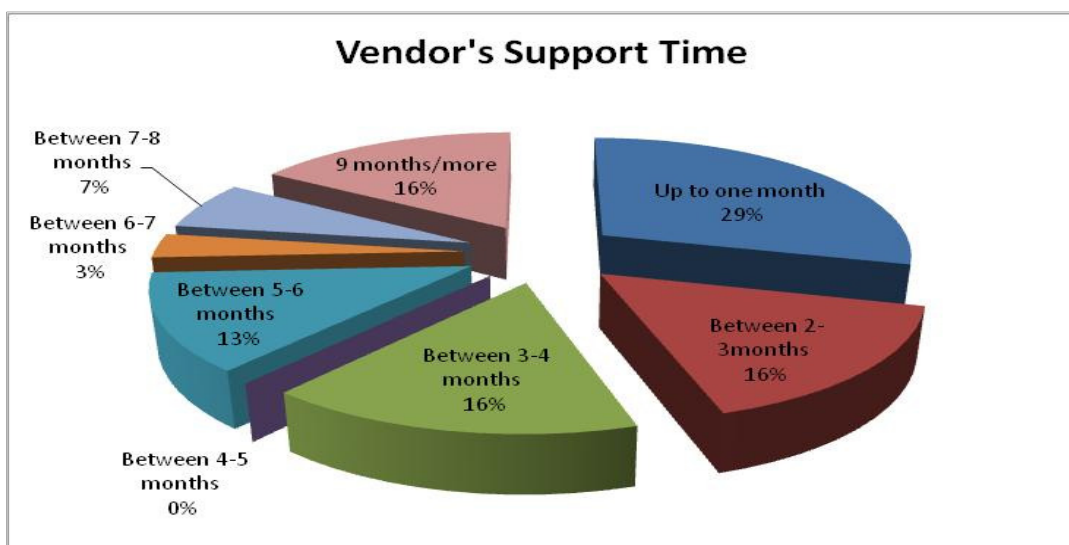
71% of the respondents mentioned that ERP implementation was not achieved according to the defined schedule. The main contributory factors reported include:

- The preparation of the master data took too long;
- The political situation in Egypt - as some companies postponed implementation due to the Egyptian Revolution;
- Planning, training and other resources were inadequate;
- Integration between departments was time-consuming;
- Implementation required new technology which was not available in Egypt;
- People's resistance to change;
- Inefficient project and change management from the vendors' side.

Almost half of the respondents (49%) indicated that ERP implementation exceeded the project's budget due to:

- The political situation in Egypt.
- The vendors spent more than the time scheduled to complete the implementation;
- Insufficient planning and resources were made available to cope with the post-implementation problems;
- The implementation took longer than expected.
- The quality of training provided was too low.

In terms of the organizational changes due to ERP implementation, only 37% of the respondents stated that the changes were not significant, while the majority agreed that ERP makes considerable demands in terms of organizational change including the allocation of resources and elimination of task duplication. The main changes experienced were in the companies' financial structures to cope with the new ERP along with the need for integration between departments and data security. In terms of ERP post-implementation status in the organizations, 55% of the respondents agreed that they are facing problems which make the post-implementation stage not go to plan due to: the Egyptian revolution; inadequate training to cope with the sudden errors and bugs after go-live; insufficient testing before the go-live; poor vendor support; lack of top management support; and budget problems. Vendor support time appears to be a critical issue with regards to post-implementation problems. Figure 4 indicates that there was no common vendor support time provided for those companies implementing ERP in Egypt, with some having as little as one month's post-implementation support. The relationship between vendor support time and scale of ERP post-implementation problems will be investigated in a separate paper.



**Figure 4:** Vendor's Support Time during the post-implementation phase.

The questionnaire survey contained a number of questions related to the nature of post-implementation problems identified earlier in the literature and ratified by the in-depth interviews. Companies were asked to rate these problems according to their severity and impact on the overall implementation. These problems included issues related to the employees' work load, employees' motivation, vendors' support, top management support, lack of communication, system complexity, employee's resistance, training, efficient planning and budget. Those problems scoring the highest rating included:

- The implementation went over budget;
- Insufficient preparation time was available;
- The employees were inadequately trained to cope with errors and bugs that arose;
- Strong resistance from the employees to use a new system;
- 58% of the respondents mentioned that data collection was not accurate;
- Lack of motivation amongst employees and poor communication with and between those employees;
- 62% of the respondents agreed that the vendors were poorly chosen,
- High pressure and excessive employee workload during and after the implementation.

In terms of the political situation and the Egyptian revolution, some companies as Vodafone have ceased their implementation. Many of Vodafone foreigners' team members and the vendor who support the project have been evacuated due to the unstable security purposes in Egypt. Some companies were in the planning phase but they cancelled the whole project due to the unstable situation. Others could not afford the rest of the implementation costs due to their stoppage of production for a while and due to the falling of the Egyptian economy. Nowadays, Vodafone resumed its implementation and it is in the go live phase after 10 months of ceasing. British Petroleum (BP) is another example of companies affected by the Egyptian Revolution. BP was forced to close its office in Egypt due to the security purposes and the evacuation of the team for several weeks, and the foreigners' team was working offshore. This action affected negatively on the project plan and the implementation costs.

In terms of top management support, the majority of the respondents agreed that this was lacking and 65% of the respondents did not conduct a post-implementation audit. Those that did conduct an audit were not satisfied with the benefits gained from the audit. In term of the employees' skills, about 60% of the respondents agreed that the employees didn't acquire the appropriate skills to deal with the new system. ERP projects require the existence of a multifunctional team which is highly skilled and replete with knowledge from different areas, including competencies for both implementation and the use of the system [34,35]. Regarding the training, 50% of the respondents were not satisfied with the efficiency and the delivery of the training program due to poor training, poor materials provided, and unqualified trainers.

## **7. CONCLUSION**

Problems associated with the post-implementation phase of ERP projects have received scant attention in the literature, and there has been no work undertaken in this area in Egypt. This study has attempted to address this deficit by analyzing the results of a questionnaire survey administered to the fifty organizations in Egypt which have implemented ERP. An initial descriptive analysis of the results has revealed that the most important problems observed are the poor training received by the employees, the poorly qualified and inexperienced vendors, the lack of the employees' skills to deal with a new system, the employees' resistance, and the insufficient support time from the vendors. Change management is particularly difficult to apply successfully in Egypt due to Egyptian organizational culture and there has been a paucity of post-implementation audits which would also assist in addressing any problems that arise. The impacts of recent political developments and the falling of the Egyptian economy due to the revolution have also hindered the activities of some companies in their post- implementation phase. Future research will include further interrogation of the data to identify critical factors for a successful post-implementation phase of ERP which will be tested through in-depth case studies of a sample of Egyptian organizations.

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