


# ERP Lifecycle: When to Retire Your ERP System?

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**Abstract.** A lot of research has been undertaken focusing on ERP systems lifecycles, but very little paid attention to retirement. ERP retirement means the replacement of an ERP with another. The aim of this research paper is to investigate why and when should organizations retire their ERP systems. A convenience case study of an SME has been selected from Egypt. The case study under investigation has retired their local ERP system and replaced it with SAP ERP. Results of our analysis indicated that reasons of retirement were: wrong selection, users were not involved in the selection process, and lack of an official implementation methodology. This is considered a new finding since main stream literature was mainly focused on retirement after maturity.

**Keywords:** ERP, retirement, lifecycle, case study.

## 1 Introduction

Besides globalization, there are many other forces e.g., competition, rise of the information economy, etc that drive an organization to an ERP adoption decision. Mostly, organizations adopt ERP systems to manage the everyday large volume of operations and information which are created from within the organization. Not only this, more and more organizations are involved in strategic business alliances, and a substantial volume of information needs to be controlled and utilized amongst these partnerships. All of this has led to the punctual need for ERP systems, which is why nowadays small and medium enterprises are adopting ERP systems in order to manage this vast information flow.

Due to the substantial needed efforts, organizational changes, time and resources, an ERP adoption is considered one of the biggest and most critical projects a company could carry out [1]. ERP adoption projects may vary in size, methodology, and structure. The implementation process requires a systematic and careful management monitoring and decision making [2]. There are many variables and factors that can affect an ERP adoption process. Contextual factors (e.g. government policies, culture) [3-5], legacy software reuse, and embracing a specific vendor's ERP implementation methodology are among those factors [6].

ERP adoptions in SMEs differ than those of large enterprises, as organization size serves as an important variable [7, 8]. In general, SMEs have been recognized as vitally different environments compared to large enterprises [9]. The literature calls

for more attention and focus on SMEs, as a little attention has been given to research on ERP in SMEs, in relation to ERP studies which are often based on findings from large enterprises [10-12].

The ERP adoption process happens in phases, those phases are usually referred to as ERP lifecycles. A number of studies have developed ERP life-cycle models and frameworks like [13-19].

In ERP literature, lifecycle phases vary in name, number, and level of details from model to model, however, those models usually include several phases, like adoption, selection, implementation, use and maintenance, and evolution. J. Esteves & J. Pastor [19] have extended the common ERP models' phases to include a retirement phase. Retirement phase is the stage when a certain ERP system is replaced by another ERP system or any other information system [1, 19]. According to ERP literature reviews, there is no current studies on ERP retirement phase in a general context [1], nor in SMEs context [12].

The rest of the paper is organized as follows: first we present the background of the study, followed by methodology, case study, then analysis and conclusion, and finally future research.

## 2 Background

As previously mentioned, there are many ERP systems lifecycle models developed. Indeed, the infamous enterprise systems implementation process lifecycle model developed by Markus and Tanis [18] is one of the most adopted models in ERP literature, however, in this section we are going to present the model developed by Esteves & Pastor [19]. The model is comprehensive and consists of six phases that represent different stages through which an ERP system goes through during its lifecycle in organizations. Although it has been adopted by previous studies [12, 20, 21], however, the main reason behind selecting this model is that it includes the retirement phase which this study addresses. The model's phases are: adoption decision, acquisition, implementation, use and maintenance, evolution, and retirement. Next follows a brief sketch of each phase:

1. ***Adoption decision phase.*** In this phase, in order to satisfy their business and technical needs, companies start to question the need for an ERP system. Current ERP literature has tackled several corners related to the ERP adoption in SMEs context and environment e.g. [7, 8, 22-27].
2. ***Acquisition phase.*** This phase refers to the actual buying of the ERP system and vendor selection. This happens after evaluating the organization's business needs, ERP packages, and vendors. As the selection is critical, the acquisition phase has been a focus of many studies e.g. [10, 28-32].
3. ***Implementation phase.*** This phase deals with the actual ERP system installation. This phase includes many activities, like customizing the system to comply with the business needs, business process re-engineering, data migration, end-user training, etc. As the implementation phase is the most critical, costly, and time consuming phase, it is not surprising that it has the highest attention from ERP researchers [1, 12]. Some examples of research papers tackled the implementation phase are [33-39].

4. ***Use and maintenance phase.*** After the ERP system implementation and the *go-live* take place, users start using the system on daily basis. Many topics were subject for research in this phase, like system use and user acceptance [7, 38, 40-44], benefits management and realization [7, 35, 44-52], ERP impact on organization [53-57], and maintenance processes [58-60].
5. ***Evolution phase.*** This phase involves the extension and integration of the ERP system with other systems such as customer relationship managements, supply chain management, or advanced planning and scheduling systems. The ERP system evolution is a non trivial process, and requires a stable and mature ERP system. This phase has not been a center of attention in ERP literature [1, 12], and requires more focus from researchers in correspondence with its criticality. Examples of studies that covered the evolution phase are [13, 31, 61-63].
6. ***Retirement phase.*** Retirement phase corresponds to the stage when an ERP system is abandoned and substituted by another information system or ERP system. While there are cases in practice, our literature review reached the same conclusion as Haddara & Zach [12], Tariq [15], Uppatumwichian [64], and Moon [1], that ERP literature lacks research that covers this phase. As a matter of fact, this has been the motivation for us to conduct our case study research.

### 3 Research Methodology and Case

According to our literature survey, we believe that there is a research gap in ERP retirement. This is supported by the fact that we have not come across any case study research investigating why companies retire their ERP systems. Needless to say that this is not only a motivation for research, but also a call for more and more research efforts to unfold the retirement decision and process. Accordingly, lifecycle models should focus more on retirement as a phase.

Single case studies are useful to represent unique cases when exploring a new phenomena and when there is a lack of theory [65]. Although single case studies' generalizability is limited, however, it can provide important insights and direction for future research. We have therefore chosen an exploratory case study methodology. This would allow us to collect rich descriptive data on an ERP retirement phase in a manufacturing SME in its natural setting. The purpose of this study is thus to increase our knowledge of the factors which leads for an ERP retirement decision.

This research was carried out as single in-depth case study [66]. The authors conducted more than forty qualitative face-to-face and semi-structured interviews in Egypt. The interviews were conducted in one Egyptian SME and all interviews were focused on the reasons behind the ERP system's retirement. The interviews ranged from 30 to 90 minutes, and notes were taken during the interviews. The participants included a mixture of stakeholders who have been involved in the ERP system selection and implementation. The interviewees positions included the CEO, GM, IT Manager, IT Staff, business function managers, mid-level, and front-line employees. The interviewees variety engendered different perspectives which enriched the data collected through data triangulation [67], and the findings consequently. Beside interviews, observation and document analysis were also used as data collection means, as we attended board meetings, IT staff meetings, and had access to project related documents.

### 3.1 Case Study: Food Co - An Egyptian SME

The case study under investigation by this research was chosen based on convenience. The company works in the food manufacturing and distribution in Egypt, to preserve identity we will refer to it as “Food Co”, a disguised name. Food Co is considered an SME.

According to reports prepared by the Egyptian government [68-70], the SMEs classification and definition in Egypt is not yet standardized nor clear, especially across industry types and sectors [69], as the current classification through employees number and fixed assets is not adequate [70]. Hence, the interviewees were asked to classify their organization’s size according to its annual turnover, number of employees, number of ERP users, and their perceived size in their market in comparison to competitors in same industry. The interviewees classified their company as a medium size enterprise.

#### 3.1.1 Company Brief

Food Co is an Egyptian company that operates in different fields of business. Their name has become synonymous with a range of quality fresh and frozen products in domestic as well as international markets. The company started business in 1932 as a family-owned and run business. The group is active in the production and marketing of a range of products e.g., natural pure ghee, natural butter, processes cheese, cheddar cheese, long life juices and long life milk and flavored milk. The Food Co consists of four legal entities:

1. Investment: This is a food importer and was established in 1985. It has the following products: frozen fish, frozen chicken, frozen liver, and butter;
2. Industries: it was established in 1998 and it has the following products: juice, table butter, milk, and ghee;
3. Products: it has been established in 2004 as a major producer of cheese;
4. In 2011, Food Co. has successfully established a fourth company for distribution of its products.

#### 3.1.2 ERP at Food Co

In year 2006, Food Co has decided to implement a local Egyptian ERP called Al MOTAKAMEL by OFIS Soft. OFIS is a well-known ERP in the Egyptian market. Since 1986, OFIS started to help businesses to improve their IT operations and implementing ERP systems. OFIS is providing its information technology services to the Middle East, and to Egypt’s most important sectors such as commercial, industrial, retail, and construction. Further, OFIS is also providing large-scale WAN-based solutions, in addition to bespoke applications.

### 3.2 Data Collection

Semi-Structured interviews were used as the main data collection method, in addition to observation and documents review. The reason for the choice goes back to the nature of the company and the lack of: documentation, decision making channels, and organization structure. During a period of nearly two months, interviews were made with various Food Co officials and stakeholders. The main purpose of the data collection is to find out:

1. How did you select the current ERP i.e., Al MOTAKAMEL?
2. Why did you decide to retire it?
3. How did you choose the new ERP i.e., SAP ERP?

The following section details the data analysis of the previous three questions.

### **3.3 Data Analysis**

In this section, we are going to answer the research questions based on the data collected from Food Co.

#### **3.3.1 ERP Selection 1st Phase**

During the data collection interviews, all interviewees confirmed that their opinion has never been considered when Food Co decided to implement Al MOTAKAMEL ERP. When asked about whether the decision was financial or managerial, they all explained that they have never been aware of the decision nor its motives.

Further investigation explained that the decision to acquire and implement Al MOTAKAMEL ERP was mainly the former IT manager decision. Here it is worth mention that, the decision solely was made by technical people, with just approval from CEO.

Food Co started Al MOTAKAMEL ERP implementation in 2006. A further astonishing finding is that the implementation was made by the internal IT team; at that time only two people were involved in the implementation: the IT manager and the DBA. Of course this has resulted in a slow-down implementation and a lot of frustration in all branches and functions.

In 2008, the situation becomes very dangerous as the master mind of the implementation i.e., the IT Manager has resigned leaving the company and the project in the middle of nowhere! Food Co then recruited another IT manager with Al MOTAKAMEL knowledge and experience. Afterwards, Food Co also hired an external ERP Consultant to help in the situation.

#### **3.3.2 ERP Retirement**

By 2008, it was clear to all stakeholders that the current ERP, Al MOTAKAMEL, is no longer beneficial to them and it needs to retire, and the seek for a new system must begin. According to the interviews, officials explained that the system needs to retire because: 1. they explained that they did not choose the system to defend its existence; 2. the system does not have an HR module and this is something they needed; 3. they have never been trained on the system; 4. interface did not enable them to augment all business units together; 5. it is not web based; and 6. reporting is so complicated where each year is stored in a separate DB.

According to the interviews, the system did not provide them with any tangible benefits to retain it. And that is why, it must retire.

#### **3.3.3 ERP Selection 2nd Phase**

In the second time, Food Co prepared a requirements list and invited 4 vendors; SAP, Oracle, Focus RT (an Indian product), and for the sake of objectivity,

AI MOTAKAMEL ERP vendor was again invited. After product demos and offers, SAP All-in-One ERP which is usually used in SMEs was selected. It was a mixed approach of financial as well as managerial criteria.

## 4 Results

Traditionally, ERP systems retire after a period of maturity and value-adding to the business. However, in our case study the retirement of AI MOTAKAMEL ERP at Food Co preceded even its full go-live date! That is, a decision was made to retire the system before waiting for any maturity or gains. We do believe this is a new finding. When the following happened, expect early retirement:

- Functional managers are not engaged in the decision making process
- No implementation contract i.e., Food Co only bought a license rather than any service
- Functionality of the system does not meet minimum business requirements
- Inability to augment all information of business units
- Complex reporting techniques
- Lack of web-based interfaces, and
- ERP decision was mainly made by IT people.

Unfortunately all of those reasons were found to be true at Food Co and therefore they have retired the system.

## 5 Conclusion: Esteves and Pastor Model Revisited

Results of our case study analysis have helped to deduce the following:

- Choice of the ERP system should be taken by both business and IT staff
- Criteria of choice should include current as well as future demands e.g., web-interface, business intelligence, HR, user-friendly interface, etc
- It is very important to have key users and functions owners supporting the system as acting as a bridge between implementation consultants and functional users
- Buying an ERP license and putting the implementation in the hands of the internal IT department only has proven failures
- Ignoring the official selection methods is risky and would lead to failures and inability to evaluate the situation.

Esteves & Pastor [19], described the retirement phase, p.5 as “this phase corresponds to the stage when with the appearance of new technologies or the inadequacy of the ERP system or approach to the business needs, managers decide if they will substitute the ERP software with other information system approach more adequate to the organizational needs of the moment”. However, based on the analysis of the case study under investigation, the retirement came as a result of wrong choice and other user engagement options, instead of merely new technology. So, we believe that the risk of wrong selection and insufficient user involvement could solely lead to

retirement, same as seeking new technology or new unmet business requirements. Of course the risk of retirement before maturity, or even go-live, is magnified since it reflects loss of investment.

## 6 Future Research

The area of ERP retirement needs further investigation and deeper analysis. Future research is needed and encouraged to explore the reason(s) why companies retire their systems, how and when. Cross-industry surveys and longitudinal research efforts are highly recommended.

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