Implementation of enterprise resource planning systems in the Cypriot brewing industry

Vassilis Tsamantanis
SAP Hellas SA, Athens, Greece, and
Harry Kogetsidis
School of Business, Intercollege (University College), Nicosia, Cyprus

Abstract

Purpose – The purpose of this article is to examine how Keo and Carlsberg (Cyprus), the two main companies operating in the Cypriot brewing industry, have recently introduced enterprise resource planning (ERP) systems in their effort to obtain competitive advantage and to increase their market share.

Design/methodology/approach – The paper was based on primary data collected through personal interviews with senior managers of the two companies.

Findings – Both companies have been among the first organisations in Cyprus to implement ERP systems, which have provided the two companies with a single interface for managing all their operations – from entering sales orders to coordinating shipping and after-sales customer service. The new system has offered considerable benefits to the two companies, both in their production and in other operational functions.

Practical implications – A number of suggestions are made for other Cypriot companies considering the implementation of ERP systems, so that they can achieve maximum benefit from the adoption of such systems.

Originality/value – This paper has examined, for the first time, how the two main Cypriot breweries have implemented ERP systems, the similarities and differences between the two implementations, and the benefits that such systems have brought to the two companies.

Keywords Manufacturing resource planning, Automation, Brewing, Business analysis, Cyprus

Paper type Research paper

Introduction

Brands have been adding an emotional aspect to our purchasing choices over and above the physical attributes of products for at least 100 years, with beer having led the way (Brown, 2003). The Cypriot brewing industry can be seen as a typical example of fierce competition between two leading brands: the popular local company Keo and the world-known brewing giant Carlsberg, operating in Cyprus under licence by Carlsberg Brewery. Both companies aim to increase their market share by taking advantage of specific factors, such as the ideal weather conditions throughout the year, the island's reputation as a favourite destination for tourists, especially from Western Europe, and the increasing trend in beer consumption by local people. In this environment of increasing competition, both brands are looking for ways to establish a competitive advantage that would allow them to increase their market share and to lead the Cypriot brewing market.

British Food Journal
Vol. 108 No. 2, 2012
pp. 118-126

0007-070X
DOI 10.1108/00070700610644933

Enterprise resource planning (ERP) systems provide a new class of comprehensive packaged application software designed to integrate the core corporate activities of the organisation. They are the software tools used to manage all the data of the organisation and to provide information to those who need it when they need it (Ragowsky and Somers, 2002). With the help of an ERP system a company can automate its entire business process, from the initial point where a customer order is placed up to the point of invoicing and revenue receipt. By managing customer relationships, streamlining the supply chain and making manufacturing processes leaner, ERP systems make a significant contribution in helping an organisation gain competitive advantage. On the other hand, due to their complexity, ERP systems are difficult to implement, as well as to keep running and maintain. Their implementation can be very expensive and extremely time consuming and there is no guarantee of their success. For example, out of 100 firms investigated, Davenport (2000) found that only ten got any real value from implementing an ERP system.

Despite the spectacular rise in the use of ERP systems experienced around the world during the last 20 years or so, Cypriot companies started adopting them only in the last few years – mainly as a result of the significant cost of these systems, which until recently floated at inhibiting numbers for the Cypriot market. The size of local companies and their respective operating market(s) have also played a significant role in this. However, the advancement in technology, which has lowered the cost of such systems, together with the accession of Cyprus in the European Union in 2004, resulting in a much higher level of competition, have made the adoption of ERP systems by Cypriot companies both feasible and necessary. Examples of organisations in Cyprus that have recently replaced their legacy systems with ERP systems include Mercedes (Cyprus), AC Nielsen (Cyprus), the Electricity Authority of Cyprus, the Cyprus Telecommunications Authority, etc.

This paper examines how Keo and Carlsberg (Cyprus), the two main players operating in the Cypriot brewing industry, have recently introduced an ERP system in order to integrate all their departments and functions onto a single computer system, in their effort to obtain competitive advantage and to increase their market share. This paper is the result of the first author's direct involvement in the ERP projects implemented in the two organisations as a consultant of the company providing the new system. A brief presentation of the two companies is first given in the next section, followed by a brief introduction to the ERP concept and the advantages of using an ERP system. This is then followed by a discussion of the benefits that the new system has brought to the two companies, as well as some suggestions for other Cypriot companies considering the adoption of such systems.

The Cypriot brewing industry

Cyprus is situated in the north-eastern Mediterranean and it is its third largest island, with an area of 3,572 square miles. The island has ideal weather conditions and has been established as a favourite holiday destination for Western European tourists. Its mild Mediterranean climate produces rich wheat and allows it to brew light beer mainly of lager type. Other types of beer, such as bitter, are not so popular on the island – something that also appears to be the case in countries with a longer tradition in beer production (for instance, survey research in the British beer industry (Vignali

and Vrontis, 2000) found that lager has replaced bitter as the most popular type of beer in Britain).

The two main breweries operating in Cyprus are Keo and Carlsberg (Cyprus), which together provide the great majority of beer made on the island. Keo is produced by Keo Ltd, the largest company in Cyprus based in Limassol – an important tourist resort which also includes the island's main port and houses the main activities of international business companies. Carlsberg is produced by Carlsberg Brewery in Nicosia – the capital of the island and its banking and financial centre. Table I shows the share that each brand had in the Cypriot market between 2000 and 2004 and is followed by some further information on the two breweries.

Keo

Keo Ltd was founded in 1927 and is today the largest industrial employer on the island, with over 600 employees. Apart from beer the company also produces a large range of table wines, liqueurs, fruit juices, spirits, bottled water and other products. Keo Ltd is listed on the Cyprus Stock Exchange and has an annual turnover of £48 million. Its main beer product, Keo, is a typical lager (4.5 per cent alcohol by volume) that enjoys huge popularity among both tourists and local people. In 1987 Keo won the brewing industry world bottled lager competition Gold Metal. The company has recently introduced two more types of beer – Five (a pilsner type) and Thrylos (a lager type).

Carlsberg (Cyprus)

Carlsberg is produced under licence in Cyprus by Carlsberg Brewery which is a member company of the Photos Photiades Group. Interestingly enough, Cyprus was the first country outside of its home in Denmark to be granted a Carlsberg brewing licence in 1967, something that has helped to raise the profile of the island internationally. When it was founded in 1968 Carlsberg Brewery ended Keo's longstanding monopoly and gave the consumer an international premium quality beer that was brewed on the island. Initially the annual production capacity of the brewery was 2 million litres and today it exceeds 30 million litres. The company has a working force of 150 people. Carlsberg is a typical lager (4.6 per cent alcohol by volume) and is today the best selling beer on the island. In 2003 the company introduced another beer, Leon (a pilsner type), a beer that was first produced on the island in 1937 but was then stopped in 1965.

	2000	2001	2002	2003	2004[a]
Keo	44.40	44.90	44.20	43.20	41.70
Carlsberg	49.10	46.90	48.60	48.30	48.50
Other	6.50	8.20	7.20	8.60	9.80

Table I.
Percentage market share 2000-2004

Note: [a] Until May 2004
Source: RAI Retail Audit Report (National Volumes); cited in *O Φιλελεύθερος* (2004)

ERP systems

Historically, organisations used to manage many of their supply chain activities with paper transactions. This was a very inefficient task resulting in high costs and many operational mistakes. Therefore, since the time when computers first began to be used for business, companies started to look into ways to automate their supply chain activities. In a short time it became clear that interdependencies exist among some of these activities. One early realisation was that production scheduling is related to inventory management and purchasing plans. As early as the 1960s, the material requirements planning (MRP) model was devised in order to integrate production, purchasing and inventory management of interrelated products. While commercial MRP software packages proved to be useful in many cases, they failed in as many (or even more) cases. One of the main reasons for the failure was the realisation that schedule-inventory-purchasing operations are closely related to both financial and human resources. This realisation resulted in an enhanced MRP methodology, known as manufacturing resource planning (MRP II), which adds financial planning and human resource (HR) requirements to MRP. This evolution eventually lead to the ERP concept, which integrates the transaction processing activities of all functional areas in the entire enterprise (Turban *et al.*, 2002).

The capabilities of ERP systems have changed considerably over the last few years. Typically, ERP systems support operational integration of departments and processes in a company, such as finance/accounting, manufacturing planning/scheduling, distribution management, inventory management and production control. ERP systems promise that the various departments can more easily share information and communicate with one another through a single integrated software program that runs off a single database through client-server architecture, as shown in Figure 1. Many solutions that were formerly considered added extras for companies, such as product data management (PDM), warehouse management systems (WMS) and manufacturing execution systems (MES) can also be included as default modules in ERP systems.

Koch (1999) offers five major reasons why companies implement ERP systems:

(1) *ERP systems integrate financial information*. As senior management try to understand the company's overall performance, they may come across to many different versions of the truth. Finance may have its own set of revenue numbers and the different business units may each have their own version of how much they contributed to revenues. ERP creates a single version of the truth that cannot be questioned because everyone is using the same system.

(2) *ERP systems integrate customer order information*. By having this information in one software system, rather than scattered among many different systems that cannot communicate with one another, companies can keep track of orders more easily and coordinate manufacturing, inventory and shipping among many different locations at the same time.

(3) *ERP systems standardise and speed up manufacturing processes*. These systems come with standard methods for automating some of the steps of manufacturing processes. Standardising those processes and using a single, integrated computer system can save time, increase productivity and reduce head count.

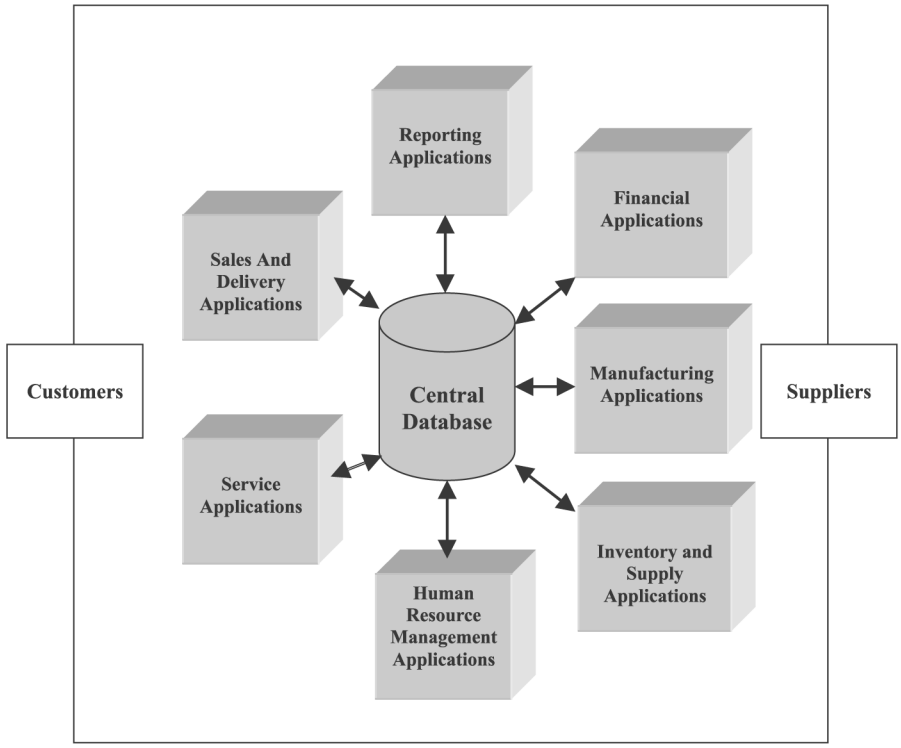

Figure 1.
ERP system architecture

Source: Davenport (1998)

(4) *ERP systems reduce inventory*. They help the manufacturing process flow more smoothly and improve visibility of the order fulfilment process inside the company. This can lead to reduced inventories and can help users better plan deliveries to customers, reducing the finished good inventory at the warehouses and shipping docks.

(5) *ERP systems standardise HR information*. They can fix the problem of HR not having a unified, simple method for tracking employees' time and communicating with them about benefits and services, something that normally happens in companies with multiple business units.

Properly selected and implemented ERP systems can reduce inventory costs by an average of 25-30 per cent and raw material costs by an average of about 15 per cent. On the other hand, due to their complexity, ERP systems are difficult to implement, as well as to keep running and maintain. Their implementation can be extremely time-consuming (up to several years) and, as a result, such systems can be very expensive (up to tens of millions of dollars). Software, incremental hardware, training and implementation support may cost $200,000 for smaller companies with approximately $10 million annual sales; $600,000 to $800,000 for medium-sized companies with approximately $40 million to $70 million annual sales; and up to

several million dollars for larger companies (Ragowsky and Somers, 2002). Table II shows the average percentage breakdown for major implementation cost components based on a survey conducted on 15 different ERP project implementations from six different vendors.

Implementation of ERP systems at Keo and Carlsberg (Cyprus)

The two companies have chosen to use ERP systems in order to integrate all their departments and functions onto a single computer system that crosses functional departments and serves all their needs. The implementation of ERP systems that took place in the two companies in the end of 1990s enabled them to develop their strategy in the crucial areas of production and promotion of their products in a highly competitive market.

The structure of the ERP systems modules implemented at the two companies was as follows:

- Financial accounting including assets management;
- Controlling (managerial accounting);
- Sales and distribution;
- Materials management (inventory accounting);
- Production and production planning; and
- Quality Management.

(Quality management was implemented at Keo only.)

None of the two companies implemented the HR module, as this was not compatible with the local regulations regarding taxation, social security, etc. at the time of implementation.

With the help of the new system the two companies have made considerable investments in updating their brewing equipment, aiming to improve their production processes while at the same time maintaining the recognised quality of their products in the Cypriot market. For the first time, the two companies have started to plan their production volumes accurately, in order to respond to the predicted demand in the local market. Both companies have achieved to improve their capacity planning and activity production control with regard to machinery and labour at all stages of production. In

Cost category	Average cost (%)	Range (%)
Consulting	30	20-60
Hardware/infrastructure	25	0-50
Implementation team	15	5-20
Training	15	10-20
Software	15	10-20

Source: Vincent *et al.* (2001)

Table II.
ERP implementation cost breakdown

this way, the two companies have managed to achieve a good match of their human resources to the equipment required in the production process.

ERP has allowed the two companies to control their needs in raw materials in their natural environment – the warehouse – by assigning a unique code to each material. This has enabled their production departments to have online information regarding their requirements in raw materials. The warehouses are in good coordination with the other departments, something that can ensure the early delivery of the required materials.

The produced goods are assigned a code number during the stage of production and are then either delivered to their retail agents or returned to the finished products warehouse. Their delivery to the market takes place in a very organised way and on the basis of their production date, which actually reduces the number of out-of-date products. In this way warehouses have a much more important role to play in production. The good level of control of the production process has also allowed the two companies to improve their shipping operations and the way in which their lorries distribute the products to different parts of the island.

ERP has enabled Keo and Carlsberg (Cyprus) to plan their pricing policies more effectively, as the improvements made to their operations have allowed them to make better use of all the information collected with regard to consumer behaviour. This has helped management to keep a close watch of the changing market conditions and of the actions of the competitors and to react fast whenever certain changes to the company's pricing policies need to be made. Both companies examine the commercial and financial transactions with their customers carefully and offer lower prices to their best customers. These prices are determined based on their customers' general profile and their own policies. Their ERP systems have helped the two companies to have better control of sales people, as these systems are customer-centred and offer a great deal of data to be processed by the departments of sales and marketing.

The finance departments of the two companies also have a plethora of information, which allows the finance directors to plan and control their income and expenditure budgets efficiently. Cost controls are carried out on a monthly basis, in order for the internal auditors of the companies to know how profitable their products have been. This can be done for the various product lines, as well as for the various product groups and individual products through the company's ERP profitability sub-systems.

The implementation of their ERP system started in Keo and Carlsberg (Cyprus) at the same time, particularly as the two companies operate in a highly competitive environment and an improvement in their operational activities would offer them a significant competitive advantage. Both companies were therefore extremely cautious so that no information about their ERP system design would be passed on to their competitors.

Although the implementation of ERP systems in the two companies was very similar, there have also been a number of important differences:

- The operational activities of Carlsberg (Cyprus) are focused on one product only – beer. Keo, on the other hand, also produces a variety of other products (e.g. bottled water, wine and spirits) and this made the implementation of the ERP system more difficult, particularly in the area of logistics.
- The implementation of the ERP system at Keo has in general been a more difficult task, as the company had no previous experience at all in implementing

such a system. However, the situation was not much different in Carlsberg (Cyprus), as the company implemented its ERP system without any transfer of know-how from its mother company in Denmark. Keo, in particular, had to carry out a thorough analysis of all its operational activities and to obtain experience during the implementation process. This required a greater amount of effort and resulted in longer implementation timetables and higher costs. The time required for fine-tuning of the new system was also longer in Keo than it was in Carlsberg (Cyprus).

- Keo faced greater difficulties with regard to the amount of training and the level of adaptation that the users of the new system required in different parts of the supply chain.

Future implementation of ERP systems

It is hoped that the experience of Keo and Carlsberg (Cyprus) with implementing an ERP system will help other Cypriot companies considering the adoption of such systems. Implementing an ERP system is not a trivial pursuit and considerable attention should be given at the initial phase of planning. The identification of user requirements in such a system and the specific functionality at implementation should be clear to everyone involved in the project, as the success or failure of the system relies a lot on the joint effort of both consultants and managers. Ensuring employees' commitment to the project is very important for the system's upgrading and further development.

The lack of previous experience of the two companies with ERP systems played a role during the system design. "We lost the opportunity to change faulty business procedures that we were doing at that time. Consequently a lot of customisation took place that later proved unneeded", as the project manager at Carlsberg (Cyprus) stated. It is therefore suggested that a company should carefully review the way it conducts its business processes before embarking on an ERP project, as careful evaluation of business processes prior to the initial design of the system would result in significant savings in time and money.

An ERP system should not be an "install and forget" solution. On the contrary, it needs maintenance and modifications in order to cope with the changing environment of the company. Creating an ERP department or staffing the IT department with appropriate personnel seems to be mandatory. This will reduce the company's dependence on external consultants, keep costs down and improve the response time in dealing with any problems that might arise.

In order to function properly an ERP system has increased demand for information input. Since it integrates different functions of the company and uses data from several departments, delays in updating the system by one department have a direct impact on the operations of the others. Because of this, discipline should be imposed with regard to the various operations of the company, something that, with the transparency the system provides, would make the whole operation of the company much more efficient.

Conclusion

Keo and Carlsberg (Cyprus) operate in a highly competitive market, but, at the same time, this is a market with huge potential. Both companies have been among the first organisations in Cyprus to implement ERP systems, which have provided the two

companies with a single interface for managing all their operations – from entering sales orders to coordinating shipping and after-sales customer service. The improvements that these companies have made to their production and other operational functions would help them to increase their efficiency and productivity, and to improve their quality. Keeping customers happy at all times is a main priority for both companies, as increased customer satisfaction would lead to greater financial gains.

It is also suggested that other Cypriot companies consider the advantages that investing on an ERP system would bring them. This is particularly important in today's business environment, in which competition is fierce and the need for exploiting the advantages that information technology can offer has become a priority for any organisation.

References

Brown, P. (2003), *Man Walks into a Pub: A Sociable History of Beer*, Macmillan, Basingstoke.

Davenport, T.H. (1998), "Putting the enterprise into the enterprise system", *Harvard Business Review*, July-August, pp. 121-31.

Davenport, T.H. (2000), *Mission Critical: Realizing the Promise of Enterprise Systems*, Harvard Business School Press, Boston, MA, February.

Koch, C. (1999), "The ABCs of ERP", *CIO Magazine*, 22 December.

O Φιλελε?θερος (2004), 1 August.

Ragowsky, A. and Somers, T.M. (2002), "Special section: enterprise resource planning", *Journal of Management Information Systems*, Vol. 19 No. 1, pp. 11-16.

Turban, E., McLean, E., Wetherbe, J., Bolloju, N. and Davison, R. (2002), *Information Technology for Management – Transforming Business in the Digital Economy*, 3rd ed., John Wiley & Sons, New York, NY.

Vignali, C. and Vrontis, D. (2000), "Survey research in the UK beer industry", *British Food Journal*, Vol. 102 Nos 5/6, pp. 371-8.

Vincent, A.M., Ashok, S. and Venkataramanan, M.A. (2001), "Enterprise resource planning: common myths versus evolving reality", *Business Horizons*, May-June, pp. 71-8.