Management Accounting Practices in ERP Environments: A Research Agenda

Constantinos J. Stefanou¹ and Marilena T. Athanasaki²

¹Department of Accounting, Alexander TEI of Thessaloniki, Greece
²Department of Accounting, TEI of Crete, Greece

¹ stefanou@acc.teithe.gr, ² thanasaki.maril@gmail.com

Abstract

Today’s rapidly changing and highly competitive business environment, in conjunction with the technology expansion, put pressure on enterprises to search for new ways to survive and succeed. In order to ensure both their position in the market and a competitive advantage, a large number of companies -perhaps the majority- all around the world, has adopted or are in the process of implementing Enterprise resource planning (ERP hereafter) systems. ERPs have fundamentally re-shaped the operating practices of companies. The significant changes ERPs brought in enterprises have important implications for Management accounting (MA hereafter) and Management accountants as well, who may need to adjust their methods and procedures when working in such an environment. This study is motivated by the mixed results of recent academic works examining the effects of ERP systems on MA and by the desire to shed light on this subject matter. The principal objectives of the paper are firstly, identify major factors affecting the effectiveness of an ERP system based on an extensive search of the literature and secondly, provide a comprehensive framework for researching management accounting change in an ERP environment. Research questions are postulated and an appropriate research model is developed in order to test the hypothesized relationships. A number of radical changes on MA derived from ERPs, are focused on the following dimensions: accounting information quality, reports, innovative practices, methods, and advanced techniques, decision making process and accountants’ role and working tasks. User satisfaction with the ERP system, successful implementation of the ERP system, the extent of Business Process Re-engineering as well as of the Post Implementation Review have been identified as important dimensions of ERP systems’ impact on management accounting practices.

Keywords: management accounting, enterprise resource planning systems, ERP system effectiveness

1. Introduction

Today, much more than in the past, the rapid technological advances, but also the challenges of the highly competitive business environment, prompted the enterprises throughout the world, in the adoption of integrated software packages, such as ERP systems. In a world increasingly driven by the three Cs: Customer,
Competition and Change, enterprises understand that, in order to support effectively their activities and gain a larger market share, they must replace their separate information applications and systems by a single ERP, that will enable the automation of routine tasks and the reduction of operation costs, the production and share of common real-time data and consequently, the improvement of their performance, (Davenport, 1998; Nicolaou, 1999; Kumar and Hillegersberg 2000; Themistocleous et al., 2001; Stefanou, 2002; Nicolaou, 2004; Spathis and Ananiadis, 2005; Kanellou and Spathis, 2011). An ERP system consists of different modules, used to address the needs of several organization functions, such as accounting, finance, logistics, sales, customer service etc, (Sadagopan, 2003). Indeed, ERPs are gaining popularity globally and are increasingly viewed as a means of replacing existing procedures and implementing change in an enterprise. It should be noted however that, despite the wide use and positive impacts of ERP systems on adopters, their implementation often results in failures and has disastrous consequences for an enterprise, (Kakouris and Polichronopoulos, 2005; Rajapakse and Seddon, 2006; Law and Ngai, 2007; Kholeif et al., 2007; Jack and Kholeif, 2008; Wang and al., 2008; Zhu and al., 2009; Metaxiotis, 2011). Therefore, adopting a successful ERP system is a big challenge for many organizations up to today and it depends on a variety of factors, (Saharia et al., 2008; Baptiste, 2009; Grabski et al., 2011; Sangster et al., 2009).

The changes of firms’ business processes related to successful ERP implementations, have significant implications for all areas of the Accounting sector and in particular for MA. In the past, the main responsibilities of Management accountants were restricted, but in the current business environment, they are involved in all managerial levels, by providing managers with appropriate information for decision making and therefore, their role has been expanded, (Chatzoglou et al., 2011). According to Granlund (2010), it is a fact that Information technology plays an important role in the way MA professionals conduct their work. Although recently scholars from the Accounting field, have showed that there is a growing interest on the extent of change in MA and in Management accountants’ role resulting from ERP systems, because of their practical and theoretical importance, no clear conclusion on this issue can be drawn as the findings continue to be mixed, (Aernoudts et al., 2005; Sutton, 2006; Rom and Rohde, 2007; Granlund, 2011; Valkafiotis et al., 2011;). More specifically, past research studies have showed that the impact of ERP on management accounting is limited, (Fahy and Lynch, 1999; Booth et al., 2000; Granlund and Malmi, 2002; Scapens and Jazayeri, 2003). On the other hand, in recent published works, authors note that MA changes significantly in an ERP environment, (Brazel and Dang, 2008; Colmeranes, 2009; Granlund, 2010; Kanellou and Spathis, 2011). In addition, there has been limited contribution regarding MA changes derived from ERP success as well as how these changes are measured by different groups such as Management accountants, Chief Information Officers, IT personnel, etc. This is because most research has tended to focus on describing changes resulting from ERP applications in general and has failed to take into account specific characteristics of the systems’ success that could be considered as explanatory variables of the extent of these impacts on MA. As a consequence, a sufficient explanation of why the success of ERP systems can influence Management accounting is still under question, causing confusions to both researchers and adopting enterprises, (Efendi et al., 2006; Stefanou, 2006; Sutton, 2006; Dechow et al., 2007; Granlund, 2007; Rom and Rohde, 2007; Alves, 2010; Granlund, 2010). For instance, despite the fact that Information systems have the ability to support a range
of accounting activities in an enterprise (Granlund, 2010), a lot of them have not fully integrated MA functions on their ERP packages up to now (Kallunki et al., 2011), mainly because their knowledge concerning MA expected changes is rather scarce and they are afraid of potential negative effects these systems will bring to accounting practices.

Given the above, a succession of academics and practitioners, calls for more research on the impact of successful ERP applications in terms of MA profession, (Arnold, 2006; Rom and Rohde, 2007; Granlund, 2010; Valkafiotis et al., 2011). The present study is motivated by the mixed results of previous academics works examining the extent to which MA is affected by integrated information systems, such as ERP and by the desire to shed light on this subject matter. This paper is also motivated by the fact that MA profession faces important changes and becomes a subject of evaluation in the new business environment that must be studied in order practical and theoretical advantages to be gained. More specifically, it is necessary that adopting enterprises deeply understand not only how ERP systems can meet their expectations, but also to what extent these systems can influence their functions such as MA. Moreover, as far as ERPs drive changes in MA profession, professionals need to know the new required qualifications they should hold in order to respond to their complex working tasks.

In more detail, the study attempts to identify potential changes in MA practices, such as introduction of new, more advanced techniques and methods (Activity Based Costing, Balanced scorecard, Lifecycle costing, target costing, financial and non financial key performance indicators etc), quality improvement of reports and accounting information, improvement in decision making process and if such changes are of assistance to Management accountants. In addition, Management accountants’ responsibilities within organization are examined to ascertain if they are gaining a new role and whether their work content has changed.

Based on an extensive search of the literature, we identify significant factors affecting the success of an ERP system as well as specific characteristics of MA and other influential variables, in order to develop a research model incorporating all these factors.

The rest of this paper is divided into five sections. Section 2 reviews the prior literature considering the impact of ERP on Management accounting and presents the research questions and the model formulation. This is followed by a discussion on the methodology employed in Section 3, while Section 4 contains the results of the data analysis. The fifth and final section provides a discussion of the empirical findings, a review of potential limitations to the study and some concluding perspectives on the avenues for future research.

2. Review of Literature, Research Questions and Model Development

Since the early 2000s, the relationship between ERP systems and MA, is an area of research that has been receiving a particular attention in the academic literature. Investigating how MA profession changes in an ERP environment from different perspectives, academics and practitioners carry out surveys and conduct case studies globally, although their results have been-and continue to be-mixed. Based on the evidence found in the literature, as presented in this Section, we formulate the hypotheses and we develop the proposed model for the present study.
2.1 ERP and MA reports

A great number of scholars have attempted to assess whether enterprises with ERP systems experience improvements concerning their MA reports. Early studies on this subject topic, date back to 2000, when Booth et al., based on data gathered from 55 firms, found that MA reports’ quality has not changed, even though it could be improved due to great amounts of data available from ERP systems. Spathis and Constantinides (2004), Dechow and Mouritsen (2005), Spathis and Ananiadis (2005) and Rom and Rohde (2006) also support this argument by stating that ERPs are not effective with regard to reporting. One of the main reasons for the missing quality improvement of MA reports, as pointed out by Granlund and Malmi (2002), is the fact that the old way of reporting meet Managers' needs and as a result, they are not willing to replace it. In Granlund (2007) study, respondents observed that the complexity of the architecture of ERP systems may cause serious problems in MA reporting. Furthermore, in a later piece of work, Sangster et al. (2009) mention that ERP systems are not significantly associated with improvements in reporting. In conjunction, a study of 2009 conducted by Jean-Baptiste assumed that Management accountants working in a complex ERP environment are sometimes forced to use other methods, for example spreadsheets, in order to present more accurate reports, which concur with the findings of Newman and Westrup (2005).

Contrary to these researches, numerous scholars noted better than expected results concerning the quality improvement of MA reports. For instance, Spraakman (2005) in a survey administrated to Canadian companies, resulted that the improvement of information quality led to more flexible and accurate MA reports. In addition, Spathis (2006), drawing on the responses of 73 Greek enterprises, found significant positive relationship between ERP and reporting, (Stefanou, 2002; Spathis and Constantinides, 2004; Colmeranes, 2009). Brazel and Dang (2008) provided evidence that ERP reduces reporting lags. Further, other studies have reported mixed results, as a survey on 45 Greek enterprises, conducted by Spathis and Constantinides (2003). The authors noted that ERP systems improved the quality of reports but not the time required for issuing them. According to Granlund (2010), there are some important pieces of previous research works investigating the relationship between ERP technology and MA reports, but they can be considered “to have only opened the discussion”.

The above mixed discussion, leads us to question whether ERP systems influence the quality of MA reports and furthermore, the extent to which the success of these integrated information systems impacts the reporting procedure in an enterprise. This is reflected in the first research question:

**RQ 1:** Effective ERP systems will improve management accounting reports’ quality

2.2 ERP and Modern MA techniques

It is also questionable whether ERP systems can promote and support the development and introduction of sophisticated MA techniques and methods. Prior literature indicates that there is a negative correlation between ERP and modern MA techniques, (Lilly, 1997). In particular, a study of 1998 by Chenhall and Langfield-Smith assumed that, although modern MA techniques such as activity based costing and balanced scorecard exist, companies do not adopt them. The authors, based on
the outcome of their research, believed that one of the main barriers of their adoption was the advance of Information systems. In this light, Booth et al. (2000) clearly state that a successful ERP system is weak to support sophisticated MA techniques. In addition, focusing on the relationship between ERP and MA, Granlund and Malmi, (2002) were among the first to examine, a decade ago, to which extent the implementation of an ERP system can lead to the adoption and utilization of new accounting practices by an enterprise. The authors offered evidence showing that ERPs do not effectively support the utilization of sophisticated MA techniques in an enterprise, mainly because of the complexity of their architecture. The authors moved on to say that enterprises prefer to adopt and operate sophisticated techniques in separate or specialized systems which are considered more user-friendly and not as complex as ERPs. This was further confirmed by Hyvonen (2003), Dechow and Mouritsen (2005) and Quattrone and Hoper (2005), who mentioned that ERP systems have a small influence on the introduction of new, modern techniques and cannot be characterized as their drivers due to their complexity. Likewise, in Spraakman (2005) study, the findings show that not only ERP systems do not enable the use of modern MA techniques, but they support the existing traditional ones. Similar results with those of Granlund and Malmi, (2002), Dechow and Mouritsen (2005) and Quattrone and Hoper (2005), were obtained by the study of Granlund (2007). In more detail, the author conducted several interviews with specialists and according to his results, ERP do not support modern MA techniques and methods, because its architecture is very complex. Rom and Rohde (2007) in their review concluded that ERP systems are not able to drive significant changes in Management accounting, such as the introduction of sophisticated techniques, but they can facilitate them to some extent.

On the other hand, arguments and empirical evidence, supporting a positive correlation between ERP and modern MA techniques, are provided in several research works by Brignall and Balantine (2004), Doran and Walsh (2004), Richardson and Kraemmergaard (2006) and Hyvonen (2009), who state that the implementation of ERP systems support the development and the introduction of innovative MA techniques, such as target costing, benchmarking and activity based costing.

Therefore, although someone would expect that innovative MA techniques could be implemented based on the technology advance, the outcomes of previous research works surprisingly vary. Moreover, it is questionable whether outcomes from prior research works concentrating on modern MA techniques, are currently valid. In a very recent literature review, Valkafiotis et al. (2011) conclude that there is limited evidence concerning the adoption and utilization of techniques such as target costing, balanced scorecard, benchmarking and activity based costing after the ERP adoption. In addition, there are almost no academic studies which examine ERP success particularly in relation to the adoption of sophisticated accounting techniques. Consequently, there is need for a clear answer concerning the extent to which a successful ERP system supports the introduction of modern MA methods and techniques in a current enterprise. This leads to the second research question:

**RQ 2: Management accountants will experience the adoption of new management accounting techniques after the successful ERP implementation**
2.3 ERP and Decision making process

The relationship between decision making process and ERP systems has attracted the attention of many researchers. Spathis and Constantinides (2003, 2004) and Spathis and Ananiadis (2005) did not observe important changes in the decision making process. This view is consistent with Jean-Baptiste (2009) and his acknowledgment that ERP systems do not aid significantly decision makers. In a recent review of the literature, Valkafiotis et al. (2011) concluded that ERPs are not sufficient in providing information and supporting decision makers. However, several studies have shown that ERP adoption brings about changes in the process of decision making. In fact, as it has been pointed out by Granlund and Malmi (2002), ERP systems have reduced the routine tasks of Management accountants and as a result, the decision making was significantly improved. The study of Caglio (2003) highlights the fact that, after the ERP introduction, Management accountants are more focused on decision making, which concur with the findings of Granlund and Malmi (2002). Prior research of Scapens and Jazayeri (2003) and Newman and Westrup (2005) also indicates that information visibility in ERP adopting enterprises is increased, thus appropriate information for decision making is more accurate. In a later piece of work, focusing on the benefits following ERP adoption, Spathis (2006), unlike with earlier studies, stated that one of the most highly rated benefits derived from ERPs is the improvement of decision making, which is now based on more reliable, accurate and timely accounting information. This view was also supported by Spathis and Kanellou (2007). Decision making process is a complex concept that according to Rikhardsson and Kraemmergaard (2006) can be supported by Management accountants, who perform more value added tasks in the new ERP environment. With respect to decision making process, O’Mahony and Doran (2008) recognize significant improvements driven by the ERP systems. Their case study results reveal that Management accountants are now more focused on decision analysis and consequently, on decision making. Similar results with Spathis (2006) were obtained by Colmeranes’ (2009) research. The researcher has shown that the more reliable and timely the accounting information, the more improved and accurate the decisions taken in an organization. Further, Grabski et al. (2009) associate the success of an ERP system to the changes that occur in the adopting enterprise. In more detail, the authors state that the more successful an ERP system, the more important the changes in the decision making process. In 2010 Kelton et al. observed that the improvement of information quality led to better decision making.

A very recent study of Granlund (2010) concludes that despite the fact that there is some evidence that decision making is supported by ERP systems, more in depth investigation is needed. Therefore, there seems to be some skepticism as regards to the ability of ERPs to aid decision makers. In addition, to date, only Grabski et al. (2009) –to our knowledge- has associated the success level of ERP systems to the changes of decision making. Considering that no valid conclusions can be drawn on this subject area, the third research question of our study in relation to the success of ERP system and decision making is as follows:

**RQ 3:** ERP system’s effectiveness will lead to improved decision making processes.

2.4 ERP and Accounting information

It is widely reported across different studies, that the installation of ERP systems significantly improves the quality of MA information, indicating a high level of
agreement among researchers. Numerous scholars have mentioned a great improvement of MA information provided to all managerial levels. In particular, prior research works of Booth et al. (2000), Caglio (2003) and Spathis and Constantinides (2003) noted that significant improvements were experienced by adopting firms, such as for example increased flexibility of information. The findings of Booth et al. (2000) and Spathis and Constantinides (2003) are much in line with those of Spathis and Constantinides (2004), which suggested that ERPs are more effective as regards to information processing. The relationship between ERP and MA information was also analyzed by Scapens and Jazayeri (2003), who revealed that information visibility was increased after the ERP installation. In a similar fashion, a case study conducted a year later by Spathis and Ananiadis (2005), attempted to answer whether the management of accounting information was influenced by ERP. The outcome of their research, adds support to the findings of prior studies, indicating that an ERP system is able to support effectively information processing. Further, as Dechow and Mouritsen (2005) note, ERPs lead to the consolidation of organizational data. In 2006, Spathis found that there is a positive correlation between ERP systems and MA information quality. Drawing on the responses of 73 Greek enterprises, the author reports that after the implementation of ERP, the MA information appears more flexible, accurate, timely and reliable. In later works, Rikhardsson and Kraemmergaard (2006), Granlund (2007), Grabski et al. (2010), Kanellou and Spathis (2011) and Valkafiotis et al. (2011) provide evidence that ERP are able to automate information processing, improve gathering of data and make the accounting information more comprehensive, flexible, timely and reliable. The results provided by Colmeranes (2009), suggest that there is a positive correlation between ERP systems and MA information quality and as a result, reinforce the outcomes of Spathis (2006). It is also important to consider Sangster et al.’s (2009) argument that, the success of ERP systems plays a crucial role in the information processing. Specifically, according to the authors, a successful ERP system is related directly to the automation of data collection and the quality improvement of MA information. Therefore, it follows that enterprises that adopt successful ERP systems would be able to face a number of positive changes in regards to their information processing.

Consequently, based on the above facts, the relationship between the success of ERP and accounting information has not been analytically examined. This study will try to fill in this void by further examining the impact of a successful ERP on the quality of MA information. The expected relationship is captured in the fourth research question:

**RQ 4:** Effective ERP systems will improve management accounting information quality

### 2.5 ERP and the role of management accountants

Past literature indicates an ongoing skepticism regarding the extent to which Management accountants’ role, working tasks, skills and behavior change in an enterprise, after the implementation of an ERP system. In response to the changes in practices, methods and procedures of MA as well as in quality characteristics of MA information, numerous researchers expect the role and responsibilities of Management accountants to face dramatic changes, (Granlund and Malmi, 2002; Caglio, 2003; Quatttone and Hopper, 2005; Mouritsen and Thrane, 2006; Newman and Westrup, 2006; Rikhardsson and Kraemmergaard, 2006; Sayed, 2006;
Granlund, 2007; Rom and Rohde, 2007; Thrane and Hald, 2007; O'Mahony and Doran, 2008; Jean-Baptiste, 2009; Grabski et al., 2009; Hyvonen, 2009; Spathis and Kanellou, 2011). Some authors claim that Management accountants have lost some control over traditional accounting tasks that can be carried out by information systems, general managers or other hybrid accountants, (Caglio, 2003; Scapens and Jazayeri, 2003; Quatttone and Hopper, 2005; Sutton, 2006; Rom and Rohde, 2007), while others report that Management accountants are now relieved from traditional routine tasks and have more time to focus on value-adding tasks and support the decision making process, (Mouritsen and Thrane, 2006; Sayed, 2006; O'Mahony and Doran, 2008; Valkafiotis et al., 2011). Therefore, a number of important management tasks may be added to accountants work. In more detail, the more accurate and timely information following the implementation of ERP systems, enable Management accountants to spend less time on data collection and devote more time on information analysis, scenario building, internal reporting, information systems design as well as on business decision making process, (Rom and Rohde, 2007; Hyvonen, 2009).

Prior pieces of research work, also investigate whether there is a relationship between the success of an ERP system and the extent of change in the role of Management accountants. For instance, Sangster et al. (2009) based on a sample of 668 UK members of Chartered Institute of Management Accountants (CIMA), report that the failure of an ERP system limits the role of Management accountants in an enterprise. On the other hand, a successful ERP system advances the role of Management accountants as they become more of business partners to senior management and at the same time, changes the skills required in order to work effectively in a complex ERP environment. The evidence of Sangster et al. (2009) adds support to the results of relevant studies, (Jarvenpaa, 2007; Grabski et al., 2009). Similar results were obtained by Jean-Baptiste (2009), who highlights the fact that enhanced knowledge and skills are critical factors for an accountant that works in an ERP environment. Therefore, a Management accountant is necessary to have IT skills, consulting and analytical abilities, teamwork and communication skills, strategic thinking and experience in ERP systems. The ability of accountants to communicate effectively with the management team and explain adequately the results of financial data were also deemed as important, (Grabski et al., 2010). Contrary to these researches, Granlund and Malmi (2002) and Granlund (2007) argue that the impact of ERP on Management accountants is limited and therefore, the tasks of their work change only to some extent. In addition, Kholeif et al. (2007) and Jack et Kholeif (2008) report the findings of their empirical studies and conclude that the failure of an ERP application has no influence on Management accounting profession. Their view is not consistent with Grabski et al., (2009) and Sangster et al. (2009) who claimed that the failure of an ERP system limits the role of Management accounting professionals. Interestingly, Grabski et al. (2010) claim that “in all of the ERP implementations, whether successful or not, the management accountants are affected” and move on to say that when an ERP application is more successful the adopting enterprise will face more dramatic changes in the Accounting department. The researchers also note that ERP systems result in positive changes of Management accountants’ job satisfaction, (Grabski et al., 2010).

Based on the above mixed discussion concerning the relationship between the success of an ERP system and Management accountants, we formulate the following research question:
**RQ 5:** The role of management accountants and their working tasks change after a successful ERP implementation

The five research questions, as summarized and presented in Table 1, provide a complete framework for understanding how management accounting changes in a successful ERP environment. Figure 1 illustrates the research model which is proposed and shows how its variables are related to each other and will be empirically tested in a future study.

**Table 1:** Research Questions of the present study

<table>
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<tr>
<th>Hypothesis</th>
<th>Statement</th>
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<tbody>
<tr>
<td>RQ 1</td>
<td>Effective ERP systems will improve Management accounting reports’ quality</td>
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<tr>
<td>RQ 2</td>
<td>Management accountants will experience the adoption of new management accounting techniques after the successful ERP implementation</td>
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<tr>
<td>RQ 3</td>
<td>The Effectiveness of an ERP system will lead to improved decision making processes</td>
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<tr>
<td>RQ 4</td>
<td>Effective ERP systems will improve Management accounting information quality</td>
</tr>
<tr>
<td>RQ 5</td>
<td>The role of Management accountants and their working tasks change after a successful ERP implementation</td>
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</table>

**Figure 1:** The proposed Research Model

### 3. Factors Affecting the Effectiveness of an ERP system

In order to meet our research goals, the analysis of the dimensions of our research model is necessary. The proposed research model includes a) main characteristics
of integrated Information systems, as independent variables and b) specific characteristics of Management accounting as dependent variables. The selected variables, as briefly described in this section, have been widely recognized to affect the effectiveness of an ERP system.

**Level of ERP integration**

There are numerous pieces of previous work that try to explain the factors influencing the level of ERP success in an enterprise. One of the most frequently mentioned factors is the level of ERP integration. The more integrated an information system, the more successful its implementation for the adopting enterprise, (Girrard and Farmer, 1999; Helms, 1999; Bagranoff and Vendrzyk, 2000; O'Leary, 2000; Bae and Ashcroft, 2004; Quattrone and Hopper, 2005; Alles et al., 2008; Saharia et al., 2008). Modern enterprises, decide to adopt integrated systems in order to support all their functional areas and meet their needs. They often add on their already adopted ERP systems other software packages, such as Customer Relationship Management (CRM), Supply Chain Management (SCM), Business Intelligence (BI) and Business Analysis (BA) systems and so on, in order to increase their functionality. However, an integrated information system is characterized as a big challenge and demands considerable time, effort, changes in the organizational structure and step by step integration in order to be successful.

**Proper ERP implementation**

Another crucial factor for ERP success identified in the literature, is the proper implementation of the system, (Arnold and Sutton, 2002; Wright and Wright, 2002; Bailey et al., 2003; Shang and Seddon, 2003; Bae and Ashcroft, 2004; Brown and Nasuti, 2005; Weidenmier and Ramamorte, 2006; Kholeif et al. 2007). An ERP system is a complete software package that, in order to be characterized as successful, it must be implemented properly, based on the specific characteristics of the adopting enterprise, (Shehab et al., 2004). The implementation phase of an integrated information system requires IT skills and significant experience and it can be achieved successfully with the participation of internal or external IT consultants. The implementation, in order to be complete, includes the following activities: users training, installation of hardware and software systems, business process analysis, business process maping, business process adaption, etc, (Bingi et al., 1999; Beretta, 2002; Umble et al., 2003).

**Users’ satisfaction**

Users’ satisfaction has been found in previous research studies to significantly affect the ERP success. A proper implementation may lead to ERP users’ satisfaction and consequently to an increased business performance. Davis et al., (1989), Delone and McLean, (1992), Seddon and Kiew, (1996) and Venkatesh and Davis (2000) found that perceived ease of use and perceived usefulness of an information system influence the acceptance of technology innovation and promote users’ satisfaction. So, the process of getting users to accept and adopt the integrated system in their daily work processes, in other words a positive appreciation on ERP, is seen as a crucial factor making the project a success. Further, Zheng et al. (2000) and Murphy and Simon (2002) mention that except from tangible benefits, ERP systems can bring to enterprises and intangible benefits such
as users’ satisfaction, that although they cannot be measured easily, they affect the success of the information projects. Considering the above, we conclude that perceived ease and perceived usefulness both affect users’ satisfaction, which in turn influence the level of ERP success, (Rom and Rohde, 2007; Wu and Wang, 2007; Venkatesh and Bala, 2008).

**Time of ERP installation**

The satisfaction of users, however, usually does not occur immediately but after a reasonable period of the system utilization. Furthermore, according to Nicolaou (2004), the benefits an ERP can bring to enterprises, derive a long period after the system’s installation. Numerous scholars have also mentioned that the time of installation is crucial not only for the pros and cons of ERP systems but also for the characterization of the system as successful or not, (Granlund and Malmi, 2002; Brazel, 2004; Brignall and Ballantine, 2004; Doran and Walsh, 2004; Jackling and Spraakman, 2006). So, considering the above, we can argue that the time of installation is an influential factor of an ERP project success.

**Evaluation of the system and Post Implementation Review**

The evaluation of ERP is a complex, detailed and interesting process that aims to examine “whether the scope, planning and benefits of the implemented system are compatible with the intended system scope, planning and anticipated benefits”, (Nicolaou, 2004). The significance of the evaluation has been presented widely in the professional literature. Academics and practitioners strongly recommend the use of an evaluation system to improve the effectiveness and increase the level of success of an adopted ERP, (Bingi et al., 1999; Holland et al., 1999; Sumner, 1999; Rosario, 2000; Nah and Lau, 2001). An evaluation system used in an enterprise, carries out a set of specific activities to determine what was successful as well as what needs to be improved in the implemented information system in order to be characterized as successful and efficient, (Gelinas and Sutton, 2002).

**Improvements and Upgrades**

Improvements and upgrades are necessary in the changing business environment for enterprises that want to adapt to new circumstances and conditions, (Keanney and Tryfonas, 2008; Karagiorgos et al., 2010). After the ERP project goes live, enterprises should continue with upgrades and improvements, to take full advantage of the new system’s capabilities. The success of an ERP system appears to be related to the timeless improvements and upgrades, (Hossain et al., 2002).

**Business process reengineering (BPR)**

Business Process reengineering (BPR) is a subject matter in which extensive research has been carried out, especially in relation to ERP systems. BPR in general, seeks to achieve performance improvement by redesigning and reorganizing the business processes, (Hammer and Champy, 1993). In the world of complex information technology, in order enterprises to take advantage of the best practices offered by a new ERP system, their processes and activities have to be aligned with it. When business activities are not aligned with the procedures incorporated in ERPs, they must be radically redesigned to meet the requirements of the new system and consequently, increase business performance. According to the
academic community, for business units their process reengineering is a good opportunity following the implementation of an information system and further, the success of an ERP system often depends on the degree of BPR, (Bingi et al., 1999; Zheng et al., 2000; Hamilton, 2003; Karagiorgos et al., 2010).

4. Conclusion

This paper has presented a survey of research in the field of the interaction of ERP systems and management accounting practices. ERP systems are the standard integrated business software used by most enterprise worldwide and have a profound effect on all areas of an organization and certainly on its financial, accounting and management accounting function.

The paper has presented a taxonomy of ERP and management accounting research that is believed to be covering the most important issues in the field of ERP/MA interaction. Several dimensions, such as the extent of BPR performed in an organization, successful implementation, user satisfaction and post implementation review of the ERP system have been identified to play a major on ERP effectiveness. While several major issues have been discussed in presenting our research framework, we reckon that there are interesting areas that need to be further investigating, such as Business Intelligence and Risk Management in relation to ERP systems. In addition, certain control factors identified in the literature of IS, such as the size of the enterprise should be taken into account. Of course our research framework calls for further empirical research aiming at investigating the relationships identified between the proposed variables.

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