



## **The Impact of Enterprise Management Systems on Management Accounting in Private Companies of Iran**

**Amir Hosseinzadeh<sup>1\*</sup>, Behzad Davari<sup>2</sup>**

<sup>1</sup>The member of Social Security Organization of Iran and M.Sc. graduated, Department of Accounting, Islamic Azad University, Hamadan Branch, Hamadan, Iran, <sup>2</sup>M.Sc. graduated, Department of Accounting, Islamic Azad University, Hamadan Branch, Hamadan, Iran. \*Email: [amirhosseinzadeh\\_m@yahoo.com](mailto:amirhosseinzadeh_m@yahoo.com)

### **ABSTRACT**

The research aims to explore the impact of enterprise management system (ERP) in management accounting activities. It includes a set of the developed hypotheses to evaluate how ERP training and seller support affect applying ERP systems and decision-making in five management accounting activities. The five management accounting activities include capital budgeting, budgeting, forecasting, activity-based costing and operational and reporting statements. The data collected using information questionnaire. The results show that ERP system improves quality of management accounting process, like seller support, training affects application of ERP system, but they have little impact on decision-making. Due to the research results, it can be concluded that ERP systems affect management accounting. Therefore, ability of applying ERP systems can be developed by proper training and seller support in an applied system.

**Keywords:** Enterprise Management System, Accounting Management, User Training, Seller Support

**JEL Classifications:** L32, M41

### **1. INTRODUCTION**

Various changes in dynamic world of business make difficult contest to manual systems to survive. Separate and unconsolidated (isolated) systems cannot exchange data within organization easily, whereas communication and information exchange is very important for growth and survival of any organization.

It is very important for organizations that are faced with developing competitive market, global market changes, exchange rate fluctuations and frequent political changes regionally and globally. According these reasons, most organizations use IT solutions such as enterprise management system (ERP) systems, supply chain management systems, expert systems and artificial intelligence (AI) to survive and success in the market. An ERP system is software that helps organizations to integrate their commercial activities through a common database, overall planning and wide optimizing organizational resources. Compared with non-integrated systems that are activity-based systems, ERP system is process-based.

Originally, ERP term refers to how planning a large organization to use wide organizational resources. Today, ERP systems can cover a wide range of activities and integrate them as a unified database. It includes various business sections such as finance, production, sales, value chain human resource (HR) management, customer relationship management, purchasing and inventory control.

Implementing an ERP system is not always successful (Bhatti, 2008). There are many situations that caused ERP failure or success. This proves that preliminary assessments of budget, time and other resources are important in successful implementation of ERP. The main reason for failure of ERP systems is to consider it as an IT solution, rather than a commercial solution.

Reducing duplicate data, improving efficiency of different processes and workflow, improving productivity and efficiency, reducing the fixed cost and improving customer satisfaction can be considered as benefits of ERP systems. Disadvantages of ERP systems include their difficulty to be implemented according customer demand, time consuming, re-engineering process and worthless investment to implement ERP. It is important for Asian

countries, including Iran because, as a developing country, there is raised a question that if it does not yield many benefits, will it be worth for massive investment in ERP? After implementing ERP system, lack of IT knowledge and user reluctance to adopt new technologies are important issues in the country.

### 1.1. Problem Definition

Although most organizations apply financial sector of ERP systems that are so vital for them, but there have not been conducted enough studies on the relationship between ERP and accounting management in Iran. Therefore, the main purpose of present research is how the selected ERP systems affect successful implementation of management accounting in private companies of Iran. To facilitate the path, there are separately compared five management accounting activities with two factors, namely ERP successful implementation with user training and seller support. Management accounting activities include capital budgeting, budgeting, forecasting, activity-based costing (ABC) and operational and reporting statements.

### 1.2. Purpose of the Research and its Questions

The exploratory research aims to determine whether ERP has positive impact on management accounting activities. To achieve this objective, the following questions have been raised. All these questions focus on five main identified management accounting activities.

1. How organizations apply ERP systems in management accounting?
2. How ERP systems can be useful in decision process?
3. What is the effect of implementing ERP systems on management accounting?

In order to answer these questions, the research objectives are as follows:

- Determining the relationship between user training and seller support with ERP application in five management accounting activities;
- Finding the relationship between user training and seller support with decision-making performance by focusing on financial sector;
- Determining the effect of ERP systems on management accounting.

### 1.3. Research Importance

Although ERP systems are widely used throughout the world and have been studied in recent several decades, but they have not properly discussed in Iran and other developing countries. Therefore, it is a new topic in the countries.

As applying and developing ERP systems require a huge investment, it is not effective for organizations, but will have indirect effects on countries in long-term. Therefore, it is important measuring decisions to implement ERP systems in Iran. Several studies have examined various factors affecting successful implementation of ERP system (Doan and Davenport, 1998). One of them is user training and seller support that can be considered as an important factor in the country. By slow diffusion of technology and knowledge to general public in countries such

as Iran, most organizations have experienced extreme reluctance of their employees to change their normal work routine toward using IT solutions. This can be due to fear of technology or fear of losing job. Seller support is another important factor in Iran.

The present research examines two important factors in developing countries like Iran. It also evaluates actual impact of ERP systems on management accounting process.

### 1.4. Research Scope

There are three main areas that will cover the research:

1. An area where is limited to five main management accounting activities, which can be classified as capital budgeting, budgeting, forecasting, ABC and operational and reporting statements;
2. An area that contains companies that apply ERP systems at least for 1 year;
3. The selected sample companies from manufacturer and service organizations only in private sector.

### 1.5. Examining the Research Literature

Some researchers have examined various aspects of ERP systems such as success factors, reasons for failure and their effects on various commercial activities. There have been conducted various studies in countries such as Canada, Australia, Egypt, Malaysia, India, Romania and Denmark in relation to different aspects of ERP systems, accounting profession and its success factors. Several studies have been summarized in the following.

ERP systems affect management accounting and methods of capital budgeting, but the impact has been on elementary level. ERP allows performing methods with greater details and more accurately as well as more frequent reporting. After implementing ERP, report of "good news" with time delay will be reduced dramatically (Esteves et al., 2004). ERP system affects process of transactions at operational level, but it has no influence decision-making and reporting (Hope and Fraser, 2003). ERP facilitates accepting new accounting methods such as ABC, product life-cycle costing and the balanced scorecard of performance. Performance of ERP systems is not changed dramatically. If ERP system is combined with value chain management systems, it will lead to performance changes. ERP systems have positive impact on collecting information of accounting management. Seller support and user training affect successful implementation of ERP system. Therefore, response time for service, qualitative consultants and seller involvement are important. Of course, factors such as seller long-term strategies, ability to sell future, financial efficiency, market feedback and product flexibility are long-term important factor that have been overlooked (Rom and Rohde, 2006).

Lack of user training and failure and inability to understand how business process has been changed using ERP system have a negative effect on organizations. Employees show reluctance to change their routine work. Lack of IT knowledge in accounting reduces applying controls and other facilitators of information systems. It will be increased for accountants and management as other staff members.

Using ERP systems, accountants can spend more time to analyze business decisions. ERP system provides a richer structure for accountants so that they can use it to improve quality of their works. In short, there is disorganization in literature about ERP potential (ability) on management accounting methods and public opinion to accept it. Perception of accountants and other staff in financial sector is effective to apply ERP systems and other information systems.

## 2. RESEARCH DESIGN

### 2.1. Research Approach

Examining literature of past research suggests that there is significantly uncertainty about impact of ERP systems on management accounting methods. There has not been conducted a similar research in Iran. The present research is experimental. As ERP is used in an organizational position, it is difficult to observe laboratory with the controlled variables. So this is a field study. The variables have high external validity (reliability) and this solution can be generalized and applied to other cases in the future.

### 2.2. Theoretical Bases

The first objective of this research is to determine how ERP success factors will affect applying ERP systems on management accounting activities. For this purpose, there have been considered five management accounting activities, including capital budgeting, ABC, forecasting and performance statement and reporting. Two factors -user training and seller support- have been

selected as success factors for implementing ERP, which they are discussed in this study (Figure 1).

The following  $H_0$  and alternative hypotheses were developed to test the relationship between user training and seller support on applying ERP in management accounting activities.

$H_0$ : There is no relationship between ERP user training with the following cases:

- ERP applications in capital budgeting;
- ERP application in budgeting;
- ERP applications in ABC;
- ERP application in performance statement and reporting;
- ERP application in forecasting.

$H_0$ : There is no relationship between ERP seller support with the following cases:

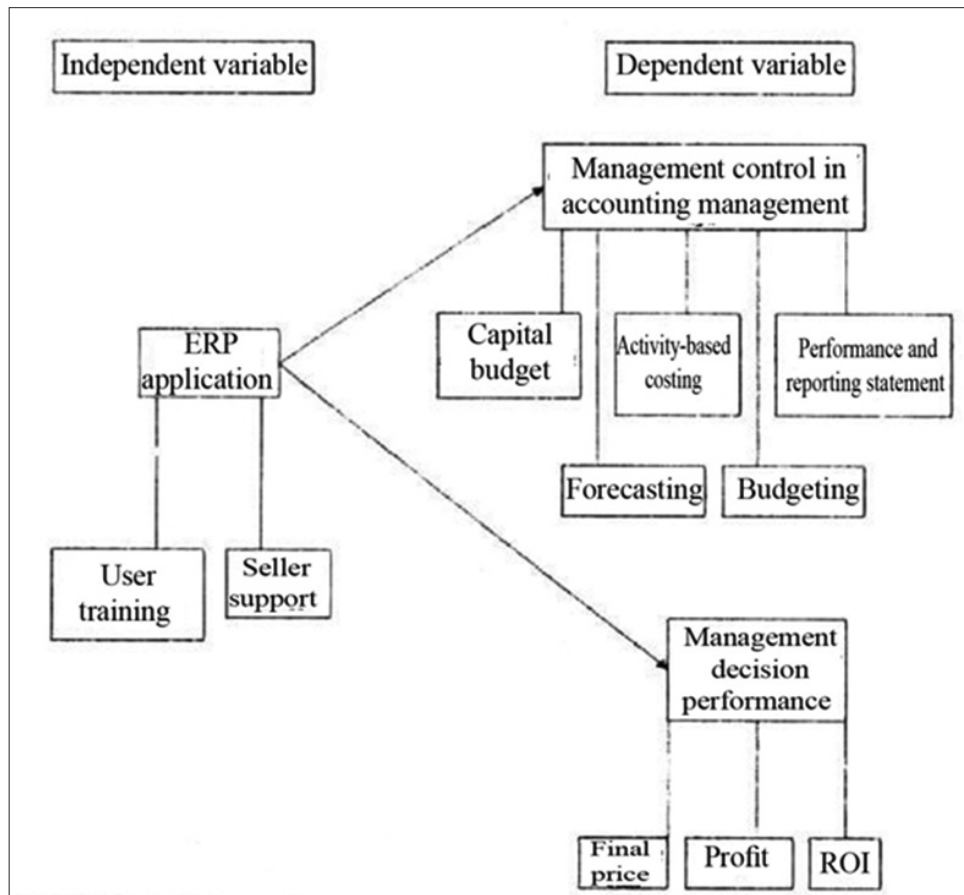
- ERP applications in capital budgeting;
- ERP application in budgeting;
- ERP applications in ABC;
- ERP application in performance statement and reporting;
- ERP application in forecasting.

#### 2.2.1. Alternative hypothesis

$H_1$ : There is a relationship between ERP user training with the following cases:

- ERP applications in capital budgeting;
- ERP application in budgeting;

Figure 1: Theoretical foundations and independent and dependent variables of the research



- ERP applications in ABC;
- ERP application in performance statement and reporting;
- ERP application in forecasting.

H<sub>1</sub>: There is a relationship between ERP seller support with the following cases:

- ERP applications in capital budgeting;
- ERP application in budgeting;
- ERP applications in ABC;
- ERP application in performance statement and reporting;
- ERP application in forecasting.

Dependent and independent variables for the first objective can be summarized in the following table (Table 1).

The second aspect of this article is to find the relationship between two factors of ERP success and enterprise decision performance in financial sector. Decisions are made in different situations for different activities. In this paper, we only consider three important aspects of: Profit, final cost and return on investment (ROI).

**2.2.2. The second hypothesis**

H<sub>0</sub>: There is no relationship between user training with the following cases:

- Performance of decision making related with profit;
- Performance of decision making related with ROI;
- Performance of decision making related final cost.

H<sub>0</sub>: There is no relationship between seller support with the following cases:

- Performance of decision making related with profit;
- Performance of decision making related with ROI;
- Performance of decision making related final cost.

**2.2.3. Alternative hypothesis**

H<sub>1</sub>: There is a relationship between user training with the following cases:

- Performance of decision making related with profit;
- Performance of decision making related with ROI;
- Performance of decision making related final cost.

H<sub>1</sub>: There is a relationship between seller support with the following cases:

- Performance of decision making related with profit;
- Performance of decision making related with ROI;
- Performance of decision making related final cost.

Dependent and independent variables for the second objective can be summarized in the following table (Table 2).

**2.3. Methodology**

**2.3.1. Population and sampling**

There are about 60 companies in Iran that have applied ERP systems in manufacturing and service activities on private sector of the country. The companies can be defined as the research population. There are responses from 32 organizations that will be considered as the research sample. This sample is approximately 53.33% of this population. The sample is chosen randomly that includes most of major industries such as garment, petrochemical, metal and nonmetal, pharmaceutical, investment and so on.

**2.3.2. Collecting data**

Data was collected through interviews and questionnaires. The questionnaires consisted of closed and open ended questions. The closed-ended questionnaires were designed based on Likert five-point scale. The questionnaires were answered by financial chief officers, management accountant, financial controller, financial managers and financial accountants. The answers were analyzed using interviews, questionnaires and statistical observations by tools such as Chronbach’s Alpha, correlation and ANOVA. The data were analyzed using SPSS software.

**3. RESULTS AND DISCUSSION**

**3.1. Tools’ Validation**

The Chronbach’s Alpha has been used to determine reliability of the collected data. Alpha value should be larger than 0.68; in this case, total data are considered as valid. According the calculations, values of Chronbach’s Alpha and reliability of the research were 0.803 and 80% respectively that show high internal consistency

**Table 1: Objective No. 1: Dependent and independent variables**

Dependent variable		Independent variable	
Capital budgeting	Management accounting	Training IT to user and process recognition	Success factors
Budgeting		Seller support	
Forecasting			
ABC			
Performance statement and reporting			

ABC: Activity-based costing

**Table 2: Objective No. 2: Dependent and independent variables**

Dependent variable		Independent variable	
Profit	Performance of decision in management accounting	Training IT to user and process recognition	Success factors
ROI		Seller support	
Final cost			

ROI: Return on investment



(internal validity) of the research. The values were obtained by analyzing data using ANOVA and Pearson correlation techniques (Tables 3 and 4).

Pearson correlation approach has been used to determine the relationship between variables. If this value is close to +1, there will be a stronger positive correlation; and if it is closer to -1, the reverse relationship will be stronger. If ANOVA significant is <0.05, there is a relationship between both variables. According Table 3, there is a relationship between user training and five methods of management accounting, when significant level of ANOVA is <0.05.

In Table 4, Pearson correlation shows a positive relationship between user training and ERP application in management accounting.

According Table 3, we can see the relationship between seller support and ERP application in management accounting methods, except in budgeting. Budgeting involves significant level of 0.325 that is >0.05. Pearson correlation shows a positive relationship between seller support with ERP application on ABC, performance statement and reporting and forecasting.

User training on ERP system influences decision related to ROI. This has been reflected using significance = 0.027 in ANOVA table. However, Pearson correlation shows a low relationship between two variables. Decisions related to the final cost and benefit show significance level (significance) higher than 0.05. Therefore, there is no correlation between the two variables. A similar situation can be considered for seller support, decision making related to profit and final cost. As significance level and Pearson correlation values are 0.035 and 0.074 respectively, we can suppose that there is a relationship between seller support and decision related to ROI.

Now we discuss on the impact of ERP on five activities of management accounting. There is evidence that shows ERP system is useful to improve efficiency, performance, accuracy of capital budgeting, forecasting, performance statement and reporting and ABC.

Some organizations have applied ABC after implementing ERP system. In case of budgeting by ERP systems, respondents have conflicting opinions so that some respondents have suggested that they do not apply directly ERP system for budgeting, and others have expressed hope that budgeting is removed and move toward other budgeting techniques to prepare flexible and multi-faceted budgeting.

The results show that there are held training sessions for staff in accounting process and management accounting activities. The sessions increase applying ERP systems appropriately. According the provided responses by organizations, in initial stage of implementing ERP system, there was reduced performance, but it will be increased in user training and enhancing their understanding of the system. Finally, there is created a fixed level of performance. Now, we suppose training management decision-making has a limited impact on decisions of changing business

**Table 3: Significant level between independent and dependent variables using ANOVA**

Variables	ANOVA significance level
User training and capital budgeting	0.048
User training and budgeting	0.048
User training and ABC	0.017
User training and performance statement and reporting	0.032
User training and forecasting	0.016
Seller support and capital budgeting	0.012
Seller support and budgeting	0.325
Seller support and ABC	0.044
Seller support and performance statement and reporting	0.040
Seller support and forecasting	0.019
User training and profit	0.598
User training and ROI	0.027
User training and final price	0.189
Seller support and profit	0.539
Seller support and ROI	0.035
Seller support and final price	0.441

ROI: Return on investment, ABC: Activity-based costing

**Table 4: Correlation between user training and seller support**

Correlation-seller support	Correlation-user training	Dependent variable
Capital budgeting	0.259	-0.267
Budgeting	0.369	-0.064
ABC	0.075	0.348
Performance statement and reporting	0.280	0.410
Forecasting	0.561	0.448
Profit	-0.120	-0.194
ROI	-0.091	0.074
Final price	0.029	0.048
Correlation at significance level of 1%		

ROI: Return on investment, ABC: Activity-based costing

that are not understood by the system automatically. However, all respondents agree that ERP system provides timely and reliable information that indirectly leads to higher accuracy of decision-making at all levels of finance department.

At the same time, seller support has also affect operational level in management accounting so that his obligation on ERP systems is an important and smooth (without problem) matter to guide business operations without any interruptions. Ability to contact seller in a defective system and the spent time to fix a problem affect application of ERP in accounting process. Availability seller, when customer needs him, is vital for smooth management accounting activities.

Now we consider management decisions. Given the fact that ERP system does not directly facilitate decision-making, but information and techniques such as ROI affect the automated system. Mostly people are involved in process. As a result, seller support and availability has a limited impact on decision-making performance related to financial aspects.

Most responses indicate that advantage of ERP system in financial sector is related to the provided data and information by its reporting aspect. There is no direct suggestion that ERP system has been applied in decision-making process on financial sector. ERP system can be used as a facilitator in business and operational processes and provide suitable information for decision-making at various levels. It also has ability to sort data using different methods so that meets managers' needs.

Most respondents have agreed with available controls in ERP system that increases applying internal audit activities. Using ERP system, organizations can coordinate themselves with more advanced management accounting techniques such as ABC, profitability indicators and techniques to measure non-financial performance.

ERP has a significant impact on ABC (about 60%). It is a new technique of management accounting that has been supported by most ERP models. Some organizations, which do not use this technique, have created standard of cost centers and identify the associated cost for each customer or product using ERP system.

Forecasting is another technique in management accounting system that has been strongly supported by ERP system. The predictions are carried out based on past data that are available in these projects. Most organizations have been suggested that apply their ERP system for budgeting in range of 30–40%. More than 40–50% of ERP system is applied in capital budgeting. Most respondents agree that ERP system increases accuracy of capital budgeting, but it cannot change budgeting way.

Now, if we consider all these factors, evidence indicates that ERP system affects management accounting activities so that increases its reliability, accuracy and timely. However, this influence is not so high that change accounting management process. Factors such as user training and seller support can improve application of ERP system in management accounting activities. Training ERP system can be indirectly useful for decision-making process.

## 4. CONCLUSION

The present research offers new evidence regarding the impact of user training and seller vendor in management accounting process and decision-making performance. Due to apply ERP system, information will be provided for companies in real-time, large-volume and high reliability to make decisions.

The research results suggest the relationship between user training and seller support with applying ERP in operational level. The better and more prominent seller training, the more optimal potential of ERP system. It requests that ERP system need to renew its organizational business processes. Therefore, cooperation between seller of ERP system and enterprise as well as between user training and company can be considered as components of success of ERP in any organization. In addition, accountants and financial employees require high IT skills to apply their knowledge in the driven workplace by IT. Some participated organizations

in the study agreed that IT knowledge is not required among accountants and other staff of financial sector. Organizations have spent high money and time for user training. ERP enhances job promotion and financial benefits for employees on long-term. As a result, most Iranian companies is now less reluctance of staff to implement ERP face and demanded to obtain recognition of their advanced technology. Seller support is important when we prove ERP system: Upgrading hardware, system and new versions; earning royalties; conducting user training; customer focus.

Quick access and seller support are important issues that increase applying ERP in management accounting methods. Due to different functional levels of ERP system in budgeting, seller support has less effect on it, but other methods of management accounting can be improved by seller support.

However, the impact of user training and seller support on performance of ROI decisions, profit and final cost is very minor because of the lack of direct application ERP system in decision-making. These results suggest that ERP system tool is powerful for activities in operational level, but decision-making by ERP system is not supported. These findings are consistent with all ERP sellers such as Sap and Oracle. They stated that ERP systems target management of operational level and strategic management systems can have a significant impact on decision-making process.

ERP system improves capacity and accuracy of the used data for budgeting and capital budgeting. This allows better tracking of projects and investments that seem more logical. Increasing frequency of updating budget and range of information on many organizations are benefits of applying ERP system for budgeting and capital budgeting. Performance statement and reporting get the most benefits from ERP system. As ERP increases speed, accuracy and timely data and removes mistakes and repeated works, results of forecasts have focused on long-term courses. Using ERP within the specified time will increase number of forecasts.

ERP system increases levels of activities available for internal auditors, providers of non-financial indicators and analysts of company's profitability. According to the study, some proposals are suggested as the following.

### 4.1. Suggestions

- Do not let using very special software systems in training sessions.
- Training process usually happens at end of system implementation cycles, so intensive training after implementing the system has not enough good result. Therefore, it is important to start training courses can lead to appropriate results, if it is held before system implementation. After implementing, it is better to hold sessions to solve problems.
- However, business processes associated with change or changes on system caused by customer tastes. Employees should be trained adequately for these changes.
- Improve IT awareness of management and accountants in financial sector.
- Specify proper coordination and cooperation with seller and agreements necessary to support him.

- By studying resources and websites affiliated with clients and sellers, consider factors such as seller long-term strategy, seller support capabilities, financial capabilities, market feedback, production flexibility and achieve maximum benefits.
- Evaluate results of training sessions and user performance.
- During education, just not educate how to use ERP system, but why and how to use the system.
- Consider a long-term program to implement a support strategic planning system such as support decision systems, AI and enterprise strategic management systems for better long-term decisions.
- Avoid frequent changes in management accounting practices resulting in working and training deformation.

#### 4.2. Future Research

The future research can be conducted by focusing on similar subject areas and other accounting activities in public sector for small and medium size organizations in Iran. Researchers can also study other ERP success factors such as top management support, oversight committees and staff resistance. As ERP system includes lot of models such as production, sales, HR, inventory and so on, it allows you examine each section and its flexibility separately.

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