

# **Executive Information Systems (EIS): Impact on the Job Satisfaction and Organizational Commitment of Management Accountants in Hong Kong**

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## **Abstract**

Strategic application of information technology (IT) is critical to organizational survival and success [13]. Rockart and Treacy [19] first developed the concept of executive information systems (EIS) as the managers' source of information for decision making. The number of organizations implementing EIS increased sharply in the last two decades [16] [23]. With an EIS in place, the traditional roles of the management accountant changed tremendously from collectors/disseminators of information to designers/managers of information systems [2]. This paper aims to explore the potential impact of EIS on the job satisfaction and organizational commitment of management accountants.

The case study method is adopted for this exploratory study. Two tertiary institutions (one with an EIS and one without an EIS) in Hong Kong were selected for comparison in our study. The results demonstrate that accountants who work in the EIS-organization tend to have higher levels of job satisfaction and organizational commitment than those working in the non-EIS organization. This could be explained by the fact that the nature of work in the former case is more challenging and exciting with a better perceived career prospect than the latter case. On the other hand, accountants in the non-EIS organization might have the perception that, without a working knowledge of EIS, they regard themselves as less competitive in looking for a better job in the future.

The findings in this study suggest that EIS has a direct positive impact on the overall levels of job satisfaction and organizational commitment of management accountants. This phenomenon has far reaching implications. Executives in non-EIS organizations should consider developing and using an EIS in order to reap the benefits. They should also seek the active participation and contribution from the accounting professionals within the firm. The cases also indicate that the combination of EIS and management accountants in organization could provide a leading edge IS infrastructure in all kinds of organizations. Finally, the limitations of this study and suggestions for further research are addressed.

## **1. Introduction**

In the last three decades, the use of computers within organizations has been growing at an accelerated pace. While its application started in transactions processing at operational level, the strategic application of information technology (IT) by senior management nowadays is critical to any organizational survival and success [13]. Rockart and Treacy [19] first developed the concept of executive information systems (EIS) which were initially targeted on executives as the source of information for decision making. The number of organizations having an EIS has increased sharply beginning from the late 1980s [23] and continued gaining popularity in the Asia Pacific region in the 1990s [16].

With the emergence of EIS and other related technologies, the major traditional role of the management accountants as information providers to the executives has been changed tremendously. A research study [2] revealed that the roles of management accountants as collectors and disseminators of information have changed to the new roles as designers of information systems and managers of information flows and resources. The roles of management accountants in EIS will shift from the traditional "computation" and "learning" machines to the roles as "ammunition" and rationalization" machines [21]. Their roles are also essential to all the development and operations stages as far as the prevention of systems failure is concerned [5].

In view of the fact that EIS potentially improve the effectiveness and efficiency of the management accountants' jobs by changing the nature of their work, it is natural to believe that they tend to be more satisfied and committed to work in organizations with an EIS. This paper aims to explore whether EIS has an impact, whether it is positive and negative, on the job satisfaction and organizational commitment of management accountants.

## 2. Literature Review

### 2.1 Executive Information Systems (EIS)

A number of definitions on EIS exist in the literature. In this study, we use the definition of a very similar term, executive support systems (ESS), provided by Rockart and De Long [18]: *“the routine use of a computer-based system, most often through direct access to a terminal or personal computer, for any business function. The users are either the CEO or a member of the senior management team reporting directly to him or her. Executive support systems can be implemented at the corporate and/or divisional level.”* In the 1990s, EIS has become so common that not only senior executives, but also managers of lower levels, could access the system for information search and analysis. It has therefore evolved into an “Enterprise Information System” or “Everybody’s Information System”.

An EIS is a front-end tool to present information to the users through a data warehouse which contains all the current and historical data (internal and external) of an organization. A data warehouse is a set of databases created to provide information to decision-makers [20]. The typical data, which can be either quantitative or qualitative, in the EIS are those stored in all the functional systems and from external sources for information on markets, competitors and customers. The facilities of an EIS are versatile and its major capabilities include drill-down, accuracy and timeliness of data, and colour screens, to name a few [8].

By using the above facilities, executives can now obtain their required sophisticated information directly from the EIS without the assistance by the management accountant. However, accountants are more capable to perform further analysis on the information, if required, than the staff in other functional areas because their professional training focuses on the processing of financial and non-financial information to the managers. Thus, they create additional value to the organization even though EIS has made available a vast amount of useful information.

An EIS could generate tremendous benefits to the organization. A survey of IS managers in the US on the grouping of EIS benefits conducted by Iyer and Aronson [9] indicates that those benefits are very broad, from the availability of data to the improvement of executive performance. Based on this study, it can be seen that the tangible and intangible costs of not using an EIS are significant. In addition, an EIS could create positive effects on the entire image of the organization, such as retaining and attracting high quality staff as well as providing a better image to the customers, suppliers, competitors and investors in the marketplace [14].

### 2.2 Role of Management Accountants

The major role of management accountants is to *“produce information that helps managers and executives in organizations make better decisions”* [1]. Back in the early 1980s, Cunningham [4] has already mentioned that management accounting was a profession under threat from developments in computer technology. Over the past years, we have actually seen the tremendous impact of computer and communications technologies on the way the accountants perform their duties. Although some of the traditional management accounting jobs and functions were lost, there are ample opportunities for the management accountant to assume new roles within an EIS environment. An example of some newly created positions is business analyst who focuses on the information needs of managerial users.

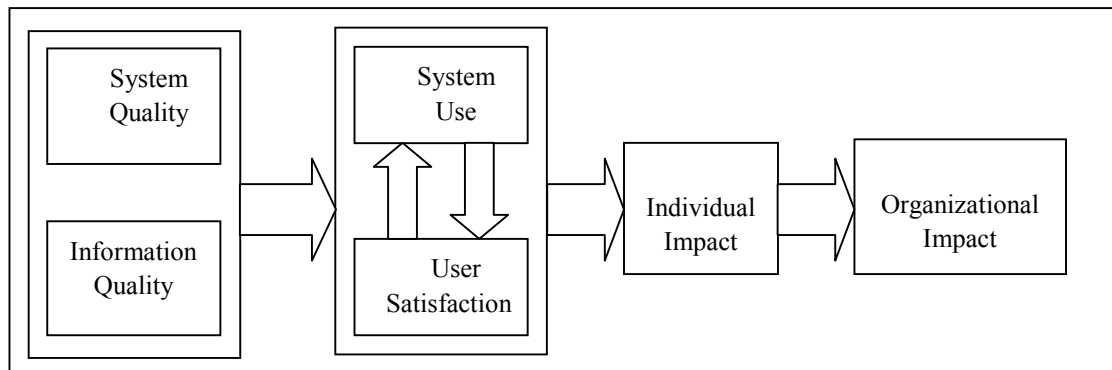
The image of accountants as bean counters has greatly changed. Baker [3] states that *“EIS now perform many of the tasks that once were part of the accountant’s daily routines.”* In the current information age, management accountants need to “re-engineer” themselves so that their professional value can be continually maintained. However, the impact of EIS on the management accountants tends to be different in organizations with differing sizes or organizational structures. Other underlying factors include corporate history in the use of management accountant, the EIS knowledge possessed by senior managers or executive users, and the nature of business engaged.

Since information provision to relevant users on a timely basis is critical to the success of an organization, management accountants are in the best position to assume the coordinating role between the technical specialist and the end users in developing information systems. It is important that management accountants are involved in the steering committee to oversee the whole process of EIS development from the initial proposal to the final implementation stage [3]. Even the management accountant can be a champion or co-champion for the EIS implementation and operations since computers now automatically perform most of the hitherto manual tasks [21].

### 2.3 EIS Impact

The impact brought about by various information systems in organizations has been significant. DeLone and McLean [6], in the quest of dependent variables for IS success, developed a comprehensive taxonomy on the various dimensions of IS success. The six major dimensions identified include system quality, information quality, use, user satisfaction, individual impact and organizational impact. According to the model, system quality and information quality affect system use and user satisfaction which are highly interacted. This creates an impact on the individuals who use the system and, through the use, have a higher level of satisfaction in their work. Finally, satisfactory performance from the individual staff could ultimately lead to information systems success. The model is presented in figure 1.

Figure 1: DeLone and McLean's Model of IS Success [6]



Based on the DeLone and McLean model, "individual impact" might cover a variety of dimensions. Previous studies mainly investigate the impact of EIS on executives' decision making and organizational intelligence [10] [11]. In this study, we would like to address the impact of EIS on the management accountant as an individual.

### 3 Research Question

Historically executives rely on the management accountants to gather information for making business decisions. EIS now provides a wide range of information to the executives in different forms. The increasing use of EIS in organizations creates significant impact on the management accountants. The reasons are threefold. First, not all executives obtain information directly from the EIS themselves, but with the assistance from the management accountants. Second, management accountants use the EIS from time to time to discharge their duties. Third, management accountants participate in the development of EIS at all stages [5].

In this study, we examine the impact of EIS on the management accountants by comparing the job satisfaction and organizational commitment of management accountants who are working in organizations "with" an EIS and those "without" an EIS. In particular, we address the following question:

*How does the job satisfaction and organizational commitment of the management accountants in organizations with an EIS compare to those in organizations without an EIS?*

In order to provide an answer to the above question, we seek to compare the job satisfaction and organizational commitment of the management accountants working in two organizations in the same industry and in similar size: one with an EIS and one without an EIS.

### 4 Research Methodology

The objective of this study is to explore the impact of EIS on the management accountants. Since no prior research has been conducted on the relationship between EIS and the management accountants, we therefore chose the case study method with grounded theory approach as the research method for this study. In each sample organization, semi-structured interviews with the management accountants will be conducted. In order to ensure data validity, multiple subjects within the same organization will be interviewed.

Qualitative methods can be used to uncover and understand what lies behind any phenomenon about which little is yet known [22]. The case study method is the preferred strategy under the following situations [24]:

- when “how” or “why” questions are being posed
- when the investigator has little control over events
- when the focus is to understand complex contemporary phenomenon within some real-life contexts, and allows an investigation to retain the holistic and meaningful characteristics of real life events.

According to Locke [12], job satisfaction is defined as “*a positive emotional response to the job resulting from an appraisal of the job as fulfilling or allowing the fulfillment of the individual’s job values.*” In this study, we adopt the five-item instrument addressing general job satisfaction from the Job Diagnostic Survey [7]. Although the instrument is quantitative in nature, the questions are being used as a general guide in the interviews.

Organizational commitment is defined as “*the relative strength of an individual’s identification with and involvement in a particular organization*” [17]. Such value commitment can be generally characterized by:

- (a) a strong belief in and acceptance of the organization’s goals,
- (b) a willingness to exert considerable effort on behalf of the organization, and
- (c) a strong desire to remain with the organization and to work hard toward its goals

In this study, we use the Organization Commitment Questionnaire (OCQ) developed by Mowday, Steers and Porter [15] as a reference in the process of data collection.

## 5 Case Studies

The case study approach is adopted for this exploratory study. Two tertiary institutions in Hong Kong were selected as the cases for our study. One of them has an EIS in use (hereinafter called EIS-organization) while another one does not have an EIS (hereinafter called non-EIS organization). In the former case, semi-structured interviews were conducted with both the staff in the Management Information Office (responsible for the EIS development and maintenance) and an accountant in the Finance Office. In the latter case, we interviewed an accountant in the Accounting Operations Unit within the Bursar's Office.

The first case is the EIS-organization. Their EIS was first available for use in September 1992. This initial system was DOS-based using “Commander” as the front-end tool for providing an interface to the users. Later in 1995, the EIS was upgraded to a client-server platform operating in a Windows environment. In September 1999, the EIS was further upgraded to a web-based platform using “Essbase” as the multidimensional database. The users of EIS are all senior management staff, including the President, Vice Presidents, and Department Heads. The number of users increased from approximately 50 initially to the current number of 140. The components of the EIS appear on the screen consist of the following:

- Financial System
- Staff Number
- Student Number
- Staff Contact Hours and Student Credits
- University Statistics
- University Grants Council Statistics

Transactions in the Financial System are updated to the EIS daily on a batch basis around midnight. Although the day-end processing does not provide real-time information, a daily update on the financial transactions is enough in an academic institution. Actually, the majority of transactions are originated from the Financial System, or what they call “Budget Unit Commitment”. Other data in the EIS are updated on a monthly, semester or yearly basis.

## 6 Analyses and Implications

In the EIS-organization, there are currently ten “accountant” users of EIS in the Finance Office. They use the EIS primarily for getting relevant information for decision making purpose. With the EIS in place, accountants in this institution are able to extract useful data and information from the EIS at any time so that they could improve the efficiency and effectiveness of their work. In general, accountants in this EIS-organization tend to have high levels of job satisfaction and organizational commitment. This could be explained by the fact that the nature of their work is

more challenging and exciting with a better perceived career prospect. In addition, their working experience and exposure in EIS is critical to their potential change of jobs to other organizations in the future.

In the non-EIS organization, accountants tend to have relatively lower levels of job satisfaction and organizational commitment, compared with the EIS-organization. This phenomenon could be explained by the perception that, without a working knowledge of EIS, they regard themselves as less competitive in looking for a better job in the future. A view that is supported by the increasing number of organizations that use EIS to enhance their internal and external profiles, and their competitiveness in the industry. On the other hand, they perceived the use of EIS as an indication of management competence, a learning organization and more competitive and better image in the society.

The cases demonstrate that EIS has a direct impact on the overall levels of job satisfaction and organizational commitment of management accountants. As job satisfaction and organizational commitment are major determinants of task performance and staff loyalty, the existence of EIS will enhance both the efficiency and effectiveness of information activities performed by the management accountant. Because EIS incorporates both internal and external data, they will be more involved with internal and external customers through increasing organizational communication. Hence, executives should not ignore the behavioral implications of EIS on the management accountants.

The positive impact on the management accountants brought about by EIS has far reaching implications. As far as the practitioners are concerned, executives in a non-EIS organization should consider developing and using an EIS in order to reap the benefits. They should also seek the active participation and contribution from the accounting professionals within the firm. While accountants are under “threat” in organizations with extensive IT application, they need to be proactive in adapting to the ever-changing organizational environment in the new century. Based on the above analyses, the combination of EIS and management accountants in organization could provide a leading edge IS infrastructure in all kinds of organizations.

## **7 Limitations and Further Research**

There are several limitations inherent in this research. First, the two case studies do not represent the whole population of accountants in organizations. Further research is required to reach a larger sample of management accountants working with an EIS.

Second, there might be other factors, apart from EIS use, that affect the levels of job satisfaction and organizational commitment among management accountants. Further research is required to explore the effects of other factors in order to increase the explanatory power of this study. These factors might include management style, organizational culture, job nature, and business sector, etc.

Third, the response of management accountants working in academic institutions might be different with those in other private or public sector organizations, that is, industry specific. Further research is required to extend the study covering those working in other organizations of various industries.

Finally, the impact of EIS is not easy to define [6]. While previous studies have investigated the EIS impact on the executives, its impact on the management accountants has yet to be explored. In this study, we address “job satisfaction” and organizational commitment” as the construct for “impact”. Further research is required to determine the most appropriate issues in defining “impact”.

## **8 Conclusion**

As the traditional role of management accountants is to provide value-added information to executives, the emergence of EIS in recent years has assumed this role in a more effective and efficient manner. It can be seen that the accountants’ role within an EIS environment is versatile and changing, from the participation of EIS development to the frequent use of EIS in creating value to the organization.

Although there are a number of factors affecting job satisfaction and organizational commitment of management accountants, the potential impact from the use of EIS should not be overlooked. While the literature is lack of studies addressing the impact of EIS on the management accountants, ample opportunities exist for research in the following dimensions of “impact”:

- positive and negative
- tangible and intangible,
- direct and indirect

With the increasing interaction between EIS and management accountants in the future, it might be appropriate to further explore the various behavioral and non-behavioral implications resulting from the use of EIS, particularly on the management accountants.

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