

The Critical Success Factors of Management Information System (MIS) and Executive Information System (EIS) in Decision Making Process.



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# 1 Introduction

In the past years when managers need to take specific decision in their firms, they have to spend a lot of time between gather the related information and forecasting. After that the technology era enhance the organization performance by providing plenty of information systems each one has his character and specialties to work with. For instance, Management Information System is a computer base system which support managers to achieve specific goals. Another Information System, is Executive Information System which is also for support managers to make their decisions, but it is tend to be more professional than MIS [1]. Management Information System and Executive Information System both are essential in order to make clear decisions in any firm, so these information systems work with current and future information by making specific and sufficient projections. In addition, Executive Information System tend to be highly expensive and limited to executive workers compared with Management Information System which can be used by employees of operational level not executives. In order to analyse any information system, The Critical Success Factors must be considered [2]. This research will focus on the Critical Success Factors of both systems in three areas which are Human resources, Interaction with the system and Information and Technology in decision making, to analyse if the Executive Information System can be replaced by Management Information System in the organization.

## 2 Background

The informatic and data Scientists spend enormous time and effort in order to generate one information system [3] including the collecting data process from the resources, then planning the materials, after that develop the design, then testing the initial version and if it is success they will start the implementation step, finally after the operation step which is maintenance, as a result the scientists want to ensure their effort was move correctly [4] . So, this research will analyze both Executive Information System (EIS), and Management Information System (MIS) with one of evaluation tool which is Critical Success Factors. To eliminate the worse consequences of information systems happening the specialists need to evaluate their systems in the early steps before the implementing stage, and CSF will help them to do that. In addition, Critical Success Factors have plenty of standard which can use to evaluate the information system and each standard will focus on critical area of the system, that if they lead well they will enhance the outcome of the information systems and maximize the success [5] . this paper will centralize on three of them which are human resources, interaction with the system and information and technology. Before the information system invention most of the managers in their organization using their thought and their analytical thinking depending on their experiences if they want to decide without any help of the technology, so the consequences of their decisions are not accounted and might affect the organization and harm the bold goals of it because any decision was made by human in general has sort of his thoughts domination, which will affect their decision. Additionally, lack of knowledge in specific area will lead to time waste, and they might depend on trial and error processes. In general, managers need to take decisions when they have new business investments or in the assets purchases with dealer and this kind of decisions normally related to top and high management level in the organization [6] . Mainly in any organization when it comes to decision making process the decisions separated depends on the level of management. As a result, the strategic decisions will be related to high level managers, the middle management with middle goals decisions, finally the operation level which is the lowest level of management in the organization and this layer will have a control of short-term decisions the Figure 1 below illustrate the three levels [7] .

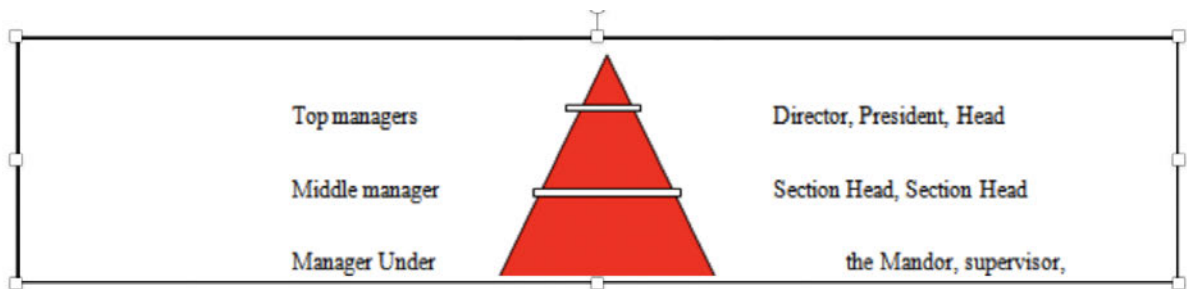


Figure1.The Hierarchy of Leadership [7]

### 3 Information systems (MIS, EIS):

#### 3.1 Management Information System (MIS)

When MIS come which is one out of information systems that rely on computer, it solves many problems and obstacles of human interaction with decisions by offering lots of services such as providing specialist information that help manager in decision making processes and in planning phase, because the clear plans consist of the clear information. In specific way, Management Information System helps the managers in the middle level of management by support them with information and it take time element into account so it gives them the information they needed in appropriate time to enhance the decision-making process. In addition, MIS will help and support their decision by providing reports of the outcome, as it is described below in the Figure 2 [8]

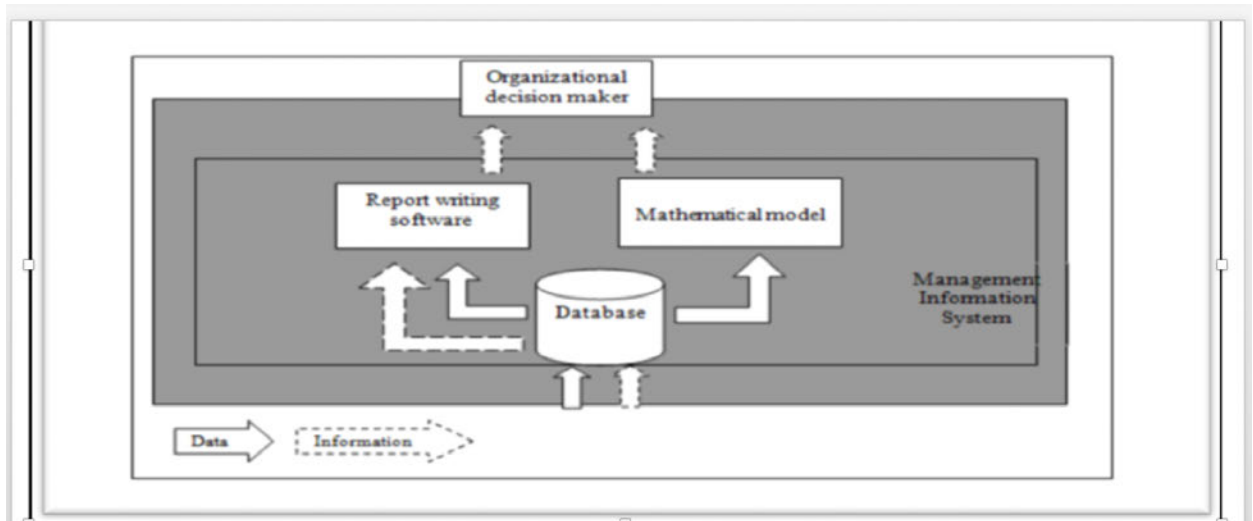


Figure2.Management Information System Model [8]

Basically, what Figure 2 above said is that the Database contain the organization information of all part related of this system so, if the Information System will work in transport sector that means the data base contain big data about the public transportation and MIS role is to extract the related data by using the mathematical model and generate the critical reports to help the decision makers and support their steps

#### 3.2 Executive Information System

On other hand, before the EIS the long-term goals were such a burden on the executives because it needs lots of information as well as deep knowledge and analytical view, so when the executives need to take high level decision they have to gather number of papers and documents and doing a lot of calls with the specialists. As result, the scientists have invented the EIS Executive Information System. Although the high-level managers partially took the benefits from EIS in early years when EIS generated due to the lack of skills, after that the EIS has the feature of ease the goals decision process between the executives and enhancing the outcome [1] The Executive Information System model has number of features which are relatively fit with high managers needs, they can be illustrated as high-level outcomes. One of them is the efficiency of reports extracted by presenting the visual and numerical information in one report, also it has the feature of personalize the reports, another feature is related to the trends and critical issues in the organization, so if the organization has gone out of the systematic goals, then the EIS issue exceptional reports. In addition, EIS can get deep information by integrate the external and internal environment of the organization. Moreover, EIS can follow the Critical Success Factors of the system and manage them. As a result, EIS enhance the decision-making process by minimize the number of steps and differentiate from MIS by the usefulness and the easiness as they illustrated in EIS model below[1]

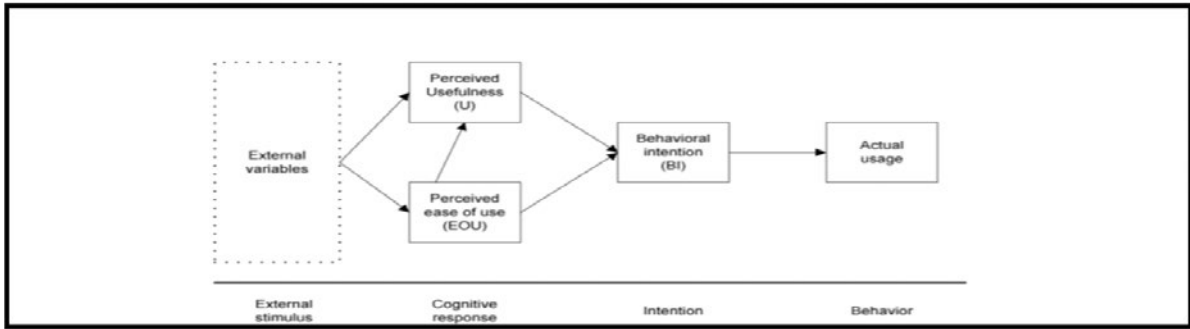


Figure3.Executive Information System Model [1]

It is clear from the EIS Model above that the main features are the EOU (Perceived Ease of Use) and U (Perceived Usefulness) which is in Cognitive response, and these features can differentiate the EIS from MIS. Additionally, the (BI) is the way of Actual usage so that will mainly affect the decision process by enhance the outcome. Finally, the External variables refer to deep and integrated information

## 4 The evaluation:

The evaluation of Management Information System and Executive Information System mainly depends on the Critical Success Factors of the information systems based on computers and they are many, the main CSF here related to three centralized area which are human resources, interaction with the system and information and technology, each area of these factors has number of standards to be analyzed, and how these factors can enhance the decision-making processes[2] To begin with Human Resources of CSF. It is referring to how the managers can get the benefits from the information systems. This factor is the most important factors because a number of EIS users fail to enhance their decisions by using the EIS and that caused by the lack of knowledge of the users, as a result the information system seems insufficient for them and did not achieve their expectations. Secondly the interaction with the system, this factor refers to information system environment and how the information system can change depending on the organization environment, such as if there is problem happening in the organization to what extend the information system will be fixable with this problem and change the outcome by adapting the systems with new environment, and this factor is really beneficial especially in business environment, because the environment is always changeable. Finally, the information and technology here EIS might affected by this factor more than MIS. Because EIS use information from inside and outside the organization and it needs deep and wide reliable information resources, so the scientists have the role to choose the suitable model of EIS when the build it for the organizations [2] To be more specific, the analysis of Critical Success Factors with Management Information System had done by using questionnaire with 253 participants, and this questionnaire has 23 different questions in the three CSF of the MIS, the responses has used the Management Information System in their business. The result conclude that the most important factor of MIS is Information and technology, followed by human resources and finally the interaction with the system, and they mentioned that the MIS has helped them by provided the related information of the critical issue of the organization, but it did not settle the issue without help from them [8] In contrast, the Executive Information System with the three CSF (human resources, interaction with the system and information and technology), and it is rely on the hierarchy administration level. Interviews were done with 18 of the top managers in 18 pioneer companies to ask them open ended questions about the CSF and their information systems, their answers concluded as the Information and technology significantly the most important factors among the rest, then the human resources factor has the second degree of the CSF in their responses, finally the interaction with the system (Salmeron Herrero, 2004). In addition, they have mentioned most of EIS were work as they expected and they achieved their goals, but two cases were failed to success in their strategies by using EIS, and the reason behind this was the scientists deviated from the CSF while generate the EIS [9]

## **5 Conclusion:**

In conclusion, by analysed the CSF with both information systems. It is suitable to say that, there are number of differences among MIS and EIS. The MIS and EIS each have clear responsibilities to achieve inside the firms, and it is clear that any information system linked to the management layer. As a result, Management Information System tend to be suitable with managers in the middle layer of organization hierarchy and managers in the low level (the operational layer). MIS can help them with limited decisions making processes in the organization and clarifying the work problems, which are fit with their work natural. However, EIS normally qualified with executives in the top layer of management levels. The executives' routine tends to be tough and their decisions need deep information from inside and outside organization environment. Furthermore, their decision must be inclusive for all the organization departments which can be done with EIS not MIS. Although the EIS tend to be expensive due to the professional work, it needs qualified mangers to take the EIS advantages.

## **6 Recommendation:**

To conclude with number of recommendations that might help in the future researches. The main aspect of Information System successful is the scientises of information systems, they must understand the natural of organization and their activities, to build suitable Information System. Secondly, the top layer managers have essential role to successful the Executive Information System in building phase. Finally, the Critical Success Factors have essential role to success the Information Systems especially the information and technologies part in MIS and EIS.

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