The Benefits of the Management Information System for Small and Medium Enterprises (SMEs) on the Quality Management System

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Abstract

The increasing number of Small and Medium Enterprises (SEMs) is one of the important factors in the economic growth of a country. In improving the performance of SEMs, management information systems are thought to be able to play a positive role in the progress of SEMs. However, there are not many studies that summarize the extent to which management information systems are able to provide benefits to the SEMs sector. This paper is a literature review that discusses management information systems in decision making, especially in the field of SEMs. The review is carried out on articles with the topic of management information systems or decision-making systems, especially those related to the SEMs sector. We identified about 22 articles published in the last decade then analyzed and drew conclusions. The purpose of this study is to see the benefits provided by management information systems, especially in the SEMs sector. In this study it is known thatthe use of management information systems in SEMs has been reported by various studies. It is known that management information systems provide many benefits to SEMs such as helping in the field of production, capturing, storing, data integration, decision making, reporting, resource management, strategy formulation.

Keywords: Management information system, SEMs, decision making, quality management system.

1. Introduction

Management Information System (MIS) is a planning system part of internal control in business consisting of the use of documents, people, technology, and procedures in management accounting. The goal is to solve various problems in business including are: service, product cost, and business strategy. All these systems are used with a view to analysing other information systems on the application of operational activities in every organization. So many benefits resulting from management information systems. The function of a system is not only limited to managementonly, but also for the rest of the organization as a whole, pushproductivity as well as cost savings in an organization, increase the quality of human resources because each unit in the work system is more, coordinated and systematic, providing convenience for the management, supervise and delegate performancein all departments that have coordination and relationships, drive efficiency and effectiveness to produce more real-time dataand accurate(Berisha - Shaqiri, 2014; Meiryani, Siagian, Puspokusumo, & Lusianah, 2020). Information has become an essential resource for managing modern organizations. This is so because today's business environment is volatile, dynamic, turbulent and necessitates the burgeoning demand for accurate, relevant, complete, timely and economical information needed to drive the decision-making process in order to accentuate organizational abilities to manage opportunities and threat(Ghaffarzadeh, 2015). Informational application which depends on the information already input while answering to a given query. For example, a decision support system could provide, comparative sales figures for one week/month and the next projected revenue figures based on new product sales assumptions, consequences of different decision alternatives, given past experience(Nowduri, 2011). Small and Medium Enterprises or also known as SMEs (Small and Medium Enterprises) play an important role in developing the economy, but there has not been much research on the development of management information systems in improving the performance of SMEs. To improve the performance of SMEs, it is very important to be supported by the use of information technology such as the use of information management systems(Lisanti, Luhukay, Veronica, & Mariani, 2014).

2. Literature review

a. Information Management in Manufacturing SMEs

There are numerous benefits that result from implementing a functional information management system. For a manufacturing company being able to do that, it first has to be capable to track and

trace individual products, or at least products on batch level throughout their manufacturing processes. This already implies a major challenge for some manufacturing SMEs. At the companies introduced in section two, it is not possible to track an individual product over the whole chain and attach measuring data at different steps to it. Interestingly, the second company was at the beginning convinced that they are capable of at least tracking batches throughout their manufacturing process but a closer analysis resulted in various pitfalls changing the original order along the process. One of these pitfalls was just the automated loading of machining robot where always three parts stayed in the cell when the batch was changed. A general benefit of tracking individual products is that companies can combine relevant product and process information and put it to use later. In the manufacturing of small batches or even single products this offers the advantage of always being able to check what process steps the product already passed and what parameters have been used. This can be the basis for an in-process adjustment of parameters based on the product state before each process step to increase quality in terms of reducing scrap and rework. Other benefits include, for example, proof for demanding customers, efficient product life cycle management and feedback in case of product failure. When thinking of information management in manufacturing SMEs, one of the major points is that the information processes and the information management infrastructure have to be able to handle the increased information flow and put it to use. Or at least the existing IT infrastructure must offer interfaces to add additional solutions providing the information and interpret it in a valuable way. Engineering specific is the sheer amount and variety of possible information based on process parameters and changes of product state along the production chain. This is crucial as without a capable information infrastructure, the additional amount of information and data can cause more problems than doing well by overwhelming users and systems(Wuest et al., 2017). An organization held transactions that must be processed in order to carry out daily activities. Salary factors must be prepared, sales and payments on estimates must be needed. All this and stuff the other is data processing activities following a standard procedure certain. Computers are useful for data processing tasks such as this, but a management information system also performs tasks and more than just a data processing system. Is a processing system information that applies skills for management and for decision making decision (Martins, Assis, Coelho, & Almeida, 2019). A Management Information System (a term commonly known to people) is a human/machine system integrated (integrated) to provide information that supports the function operations, management and retrieval decisions in an organization. This system uses software (software) hardware (hardware) computer, manual procedure, model management and decisions and a databases (Vafaei & Harati, 2010).

b. Management information system theory in decision making

Decision making is to assess and make choices. This decision was taken after going through several calculations and alternative considerations. Before the choice is made, there are several stages that may be passed by the decision maker. This stage may include identification of the main problems, developing alternatives to be chosen and arriving at the best decision making. The concept of a decision system closed obviously assumes a rational person who logically examines all alternatives, ranks according to the importance of the results, and selects the alternative that leads to the desired outcome best/maximum. Quantitative model decision making is usually closed decision system model. An open decision system view decisions as being in a complex environment and partly unknown. Decisions are influenced by the environment and in turn the decision process then affects the environment. Decision makers are considered not to be logical and completely rational, but more show rationality only within the limits suggested by the background, view of alternatives, ability to handle a decision model, and so on(Fuglseth & Grønhaug, 2003). Decision making plays an important role because the decisions taken by managers are the result of the final thought that must be carried out by his subordinates or the organization he leads. The manager's decision is very important because it involves all aspects. Mistakes in making decisions can be detrimental to the organization, ranging from image loss to money loss. Decision making is a thought process in solving problems to get the results to be carried out (Al-Tarawneh, 2011; Janssen, van der Voort, & Wahyudi, 2017; Khakheli & Morchiladze, 2015; Nooraie, 2012). Use information systems in organizations, turned out to be able to strengthen the organization's ability to achieve its goals. Development of science such as management accounting, science management knowledge, theories management and processing computer, enabling maturation SIM concept, as it exists today. So that the SIM concept can be seen as a fundamental extension of management accounting by incorporating ideas and techniques management science, theory of management behavior and decision decisions and computer skills, then complete the embodiment of the idea SIM concept (Mayssara A. Abo Hassanin Supervised, 2014). Management science is applicationScientific methods and quantitative analytical techniques for management problems. Model formation for analysis management is usually used the formula math or calculation procedure who generally need

assistive devices computer. On progress, management theories emphasize in terms of behavior and motivation on organizational structures and systems in the organization. Developments in management theories are important for MIS designer, because it helps in understanding the role of human systems or machines and is useful for the development of decision models (D.K. Aswal , Ajay Singh, Shahswati Sen, Manmeet Kaur, C.S. Viswandham, G.L. Goswami, 2002). The role of decision makers includes the ability to gather information, the ability to analyze and interpret, the ability to use a broad enough concept of human behavior and predict a better future(Utami, 2011).

3. Method

This paper is a literature review that discusses management information systems in decision making, especially in the field of SEMs. Articles are collected by Google, Google Scholars and mendeley databases. The review is carried out on articles with the topic of management information systems or decision-making systems, especially those related to the SEMs sector. We identified about 22 articles published in the last decade then analyzed and drew conclusions.

4. Results and discussion

Small and medium enterprises (SMEs) are characterized by either the number of employees or level of assets or turnover or both across the world. In Asia/Pacific region, SMEs account for 90% of enterprises and provides 32 to 40% of employment. On the other hand, in Latin America, SMEs make up more than 98% of enterprises and more than 80% of employment. SMEs which consist of over 90% of enterprises in many countries are responsible for large number of innovations, product and services development and also contribute to the growth of the countries by creating employment, creating knowledge, investment opportunities and trade. They are providing solutions for both in-house implementation and also through SaaS (Software as a Service) model. The solutions include automating production processes, capturing, storing and integrating the data, and processing captured data for decision making and report generating (*Adopting Information Systems in a Small Company : A Longitudinal Study*, 2016; Singh, Molokov, Lechshak, & Kuspanov, 2012). Other research shows that management information systems on SEMs show that information systems are useful in decision making in capturing changes and market opportunities(Cagnazzo, Tiacci, & Rossi, 2014). The use of management information systems in SEMs is also reported to be useful for human resource management(Abounajmi, Gharleghi, Samadi, & Majid, 2015). In formulating strategies to win the SEMs business competition, it is known that management information systems are able to have a positive impact on assisting in the management of corporate strategic information so that SEMs are expected to be able to compete and survive (Awotayo, 2020).

Table 1. Summary of the benefits of management information systems in the SEMs sector based on previous research

No	The role of management information systems in SEMs	Percentage (%)
1.	Production	8,33
2.	Capturing	8,33
3.	Storing	8,33
4.	Data integration	8,33
5.	Decision making	33,33
6.	Reporting	8,33
7.	Resource management	8,33
8.	Strategy formulation	8,33

Sources: (Abounajmi et al., 2015; Awotayo, 2020; Cagnazzo et al., 2014; Singh et al., 2012; Singh, Molokov, Lechshak, & Kuspanov, 2015; Wuest et al., 2017).

5. Conclusion

The use of management information systems in SEMs has been reported by various studies. It is known that management information systems provide many benefits to SEMs such as helping in the field of production, capturing, storing, data integration, decision making, reporting, resource management, strategy formulation.

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