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Role of information System in Decision Making Process

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Abstract

The role of Management Information Systems (MIS) is defined and analyzed in light of its capability for decision making process. The decision-making process and its impact on top-level management in an educational planning organization are explained with an emphasis on automated decision making. This paper focuses on decision making information system. MIS plays a vital role in not only collecting and managing information but also representing it in various useful formats for the top-level management to make important organizational decisions.

MIS provides faster access to the required information which helps the organization to make effective and timely decisions regarding every aspect such as investments, employment, products, etc. depending upon the organization. Decision-making refers to choosing a certain line of action from among several alternatives. Decision-making is a major metric to determine the organizations' success or failure. The effectiveness of the organization depends upon the quality of decisions that informs its operation. This paper focuses on understanding the need, benefits, types of MIS, the MIS model, the decision-making system, and majorly the role of MIS in the decision-making of the organization.

Keywords: Benefits of management information system, decision making, concept, Need for management information system.

1. Introduction

Management information systems (MIS) is an organized, diverse, and automated information system concerned with gathering, storing, and transferring relevant information to support the management operations in an organization. Currently, educational organizations are in the race to enhance their capability to survive in the competition of the new century global education market. Therefore, educational organizations are attempting to advance their agility level by improving the decision-making process to be more efficient and highly effective to meet the successive fluctuations of the education market (Nutt & David Charles Wilson 2010). The data is distributed among various departments in an organization. Data processing takes place in multiple forms such as graphs, animation of data, diagrams, charts, reports generating accurate and relevant information for the management (Asemi, Safari & Asemi Zavareh 2011).

This paper focuses on the impact of the information system in the decision-making process, which refers to choosing a certain line of action from several alternatives. It is integral management that occurs at every level of control and function. The organization's effectiveness depends upon the quality of decisions that informs its operation. Decision-making is a significant metric to determine the organizations' success or failure. This paper focuses on understanding the need, benefits, types of MIS, decision-making system, and majorly the role of MIS in the organization's decision-making (Zeqiri, Deari & Aliji 2017). The quality of information impacts on managerial decision-making. There are a lot of measures for information quality, and these measures differ from one researcher to another. The information should be accurate or free of error, complete, or contain all the details required to help decision-makers (Berkowitz Allaway 1998).

To make the right decisions, in a short enough form, presented in the same format, relevant to the purpose for which it is necessary, available quickly and timely to support information needs (Zheng et al. 2019).

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2. Review of Literature

Management information systems is an arrangement that translates data into information, communicated in a suitable form to managers at levels of an organization. The information can contribute to an effective decision-making process or planning to be carried out (O'Brien & Marakas 2011). Educational organizations that do not have formal information sharing practices will fail to influence their managers' intellectual capital for educational planning innovation and growth (Okoye et al., 2020; Akram Jalal Karim 2011).

MIS enables the exchange of experiences, which transfers the required information to the management levels to sustain competitive advantage since it affects the decision-making to improve the quality of services provided (Barachini 2009). MIS involves the process of collecting, processing, storing, retrieving, and communicating the relevant information for the purpose of efficient management operations and educational planning in any organization. Thus, the success of effective decision-making is considered the heart of the administrative process is highly dependent partly on available information and partly on the functions that are the components of the process (Okoye et al. 2020; Dodd 2017).

Concept of MIS

Information is a set of classified and interpreted data used in decision-making. It has also been defined as "some tangible or intangible entity that reduces uncertainty about the future state of events." Management information system aims to meet the general information needs of all the managers in an organization or some subunits of the organization (Edmondson 2002). The information is provided in reports and outputs of mathematical simulations. There are two types of reports, namely, periodic and special reports. All managers use the information output to make decisions to solve the firm's problems. A management information system has also been defined as "an integrated user-machine system for providing information to support an organization's operations, management, and decision-making functions. The system utilizes computers, manual procedures, models for analysis, planning, control and decision making, and a database" (O'Brien & Marakas 2011).

Need for MIS

Organizations found it challenging to manage the information as a whole before computer technology bloomed. Developments in computer technology made it possible for the managers to easily gather, integrate, store and manage the information in the form they require depending upon their needs and timing (Becta 2005). Information is used simultaneously by many people. The information must be current, accurate, concise, timely, complete, well presented, and storable. For organizational productivity, solely depending on personal computers is not reliable until it is used efficiently and effectively (Nowduri 2011), also, advanced technological systems for integrating and sorting the data can be costly unless the senior management provisions it to the staff. Thus, information systems came into the picture (O'Brien & Marakas, 2011). The information system is a mechanism that ensures information is available to the managers as per their needs and time. It provides relevant information for decision-making. Management information is an essential input at

every level in the organization for decision making, planning, organizing, implementing, monitoring, and controlling (Okoye et al. 2020).

Managers have to assimilate masses of data, convert that data into information, form conclusions about that information and make decisions leading to the achievement of educational planning objectives. Information is an essential resource for an organization as money, machinery, and human resources. It is critical to the survival of the enterprise. Hence management information system plays a significant role in managing information and making it easy for the managers to collect, integrate and assign the information and ensures effective and efficient decision making (Okoye et al. 2020).

MIS gives an organization and its management a new dimension in managing its knowledge and helps carry out and maximize the management's initiatives in harmonizing the appropriate strategies in short- and long-term planning decisions. MIS is indispensable in the area of decision-making as it can monitor by itself the instability in a system, verify a course of action, and take action to keep the system in control (O'Brien & Marakas 2011).

Benefits of MIS

MIS makes a significant difference for educational decision-making to plan organizations. It provides several benefits such as:

- effective and efficient coordination between departments
- quick and reliable referencing
- access to relevant data and documents
- use of less labor
- improvement in organizational and departmental techniques
- management of day-to-day activities
- day-to-day assistance in a department and closer contact with the rest of the world
- provides a valuable time-saving benefit to the workforce (Djordjevic 2013).

The most critical factors to efficient and effective work for an organization are the minimum amount of time. MIS supports this aspect of gaining profit and ensures that employees do not have to collect data manually for filing and analysis. Instead, that information can be entered quickly and easily into a computer program Baskerville & Myers 2002). As the data grows, it is becoming difficult for educational planning and to analyze the data. Hence MIS provides a platform for building programs to access the data in response to the queries by management. With faster access to needed information, managers can make better decisions about procedures, future directions, and competitors' developments and make them more quickly (Deja 2019).

3. Discussion And Conclusion

The environment in which educational institutions exist today is dynamic and competitive. Many issues confronting institutions are reduced public financial support, pressure on limited operating resources, increased competition with other schools, globalization, and heightened public scrutiny (Dodd, 2014). Among various educational institutions that constitute technical colleges, the most threatened institutions are private colleges. These institutions are in serious trouble, and their student numbers are declining (Fernandes & Ebrary

2009). Information quality occurs along ten dimensions, is defined by the information's customer, and constantly changes over time. Top-level managers, administrators, and educational leaders must understand the dimensions and dynamic nature of information quality to effectively use information as a rational decision and a vehicle for managerial planning and control decisions (Laudon & Laudon 2019).

Management Information Systems is of paramount importance to reach effective organizational decisions. The literature presented in this study explained the significant role of MIS in the decision-making process enhancement in an organization. MIS is deemed an integrated user-machine system that provides information to support operations, management, and decision-making functions at various levels of an organization (Alavi & Carlson 1992). Organizations are aware that MIS is a special-purpose valuable system for management objectives. The study has highlighted that MIS should be accessible in supplying appropriate and high-quality information from its generation to its users. For MIS to be vital and practical, a carefully conceived, designed, and executed database should exist to communicate the adaptive decisions. The hardware and software components of management information systems are reviewed along with the type of organization functions for which applications software is designed to support. Three educational planning strategies are helpful to drive the development and deployment of management information systems. Cost-reduction, quality improvement, and revenue growth — will be introduced and serve as the foundation for discussing the types of management information systems that can be implemented to support the strategies. Opportunities and challenges presented by the Internet as an integral part of management information systems are also examined, along with an analysis of staffing challenges for information technology departments (Berkowitz & Allaway, 1998).

More importantly, different sources of information, such as formal or informal, structured or unstructured, external or internal information, lower-level or middle-level, or higher-level information, play a crucial role in the decision-making process. Mintzberg et al. (1976) stress strategic decisions, arguing that top-level decisions are essential for driving institutional change in positive directions. As they state, focusing instead on simply improving operational decisions means institutions "may well cause organizations to pursue inappropriate courses of action more efficiently. Further, Harrison and Pelletier (1995) state that strategic decisions are usually the product of the top management team, including the senior managers reporting directly to the chief executive. The senior managers typically represent the president's cabinet for colleges and universities.

Similarly, Dean and Sharfman (1996) reported that decision processes influence strategic decision-making, who found that procedural rationality, the extent to which information relevant to the decision was collected and analyzed as a component of the decision-making process, was positively correlated to decision effectiveness. Dean and Sharfman found that effective managers contained information and applied analytical techniques. Bess and Dee (2008) further state that information is the lifeblood of educational institutions. They observe that while it is an essential element in teaching, learning, and research, it is also a critical part of decision-making since long-term and short-

term planning and the execution of actions to achieve institutional aims rely on the information. But they simultaneously observe that too much, too minor, or the wrong kinds of information can lead to inefficient and ineffective decision making. Buchanan and O'Connell (2006) describe how humans have attempted to supplement cognitive ability with computational power. This author notes the way leaders have wrestled with bounded rationality; that is, organizational leaders ultimately make 'good-enough' decisions for many reasons, including insufficient relevant information (Ajayi & Omirin, Fadekemi 2007). The implication is that people would make more economically rational decisions if sufficient relevant information could be gathered and made available. Structured, analytical processes based on quantitative methodology alone are often focused on optimization. Confidence in decisions is derived through iterative data gathering and refinement of mathematical computation will steadily increase as the process continues and the results are iteratively refined (Dodd, 2017).

According to the organization's website (2013), instructional research professionals are responsible for collecting, analyzing, and converting data into information that supports decision-making in higher education. AIR (2013) boasts on its website: "In short, most of the important decisions made on campuses regarding an institution's most vital programs and responsibilities are based on analytics produced by IR professionals." At colleges and universities, the widely-practiced convention is that a director of institutional research is responsible for coordinating the production and delivery of this information for the institution. Bergquist and Pawlak (2008) have noted the importance of the institutional research function and the information produced by the corresponding functions at institutions. Higher-level administrators need to use quality. The move to evidence-based decision-making and more formalized institutional processes for decision-making can also be seen as having yet another benefit for educational institutions. The author spoke of countering single-loop learning and associated decision-making and problem-solving techniques that previously characterized the institutions. The participants clearly said how these mechanisms had proven ineffectual in helping the institution identify and respond to environmental changes (Dodd, 2017).

Finally, it is believed that to enhance MIS, any organization that uses MIS to improve its decision-making processes should develop effective communication channels between management and information professionals. Good communications then facilitate the task of creating relevant and appropriate information systems. It is no simple checklist to produce the perfect MIS automatically. The organization thus would be aware that what is required is an awareness and understanding of fundamental principles and functions in which the design, implementation, and operation of MIS are the results of rational decisions rather than haphazard development without considering the real organizational needs (Roig 1997).

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