

The Role of Management Information System on Strategic Decision-Making

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Abstract

A decision is a choice between two or more alternatives. If you only have one alternative, you do not have a decision. Webster's 9th Dictionary adds some richness to the idea of choice by introducing the idea of uncertainty. It has this to say about the word "decide"; the root of "decision". Decision-making is the hallmark of management in any business or public enterprise; whether big or small. It is an important aspect of the managerial task and takes place at all levels of an organisation. Decision making is the resolution made against every other consideration by the managers to enable or ensure effective implementation of organisational goals and objectives. Management on daily basis is beset with challenges of what to do, how to do it, where to do it, when to do it, and for whom to do it. Strategic decision-making is an ongoing process that involves creating strategies to achieve goals and objectives, and altering strategies based on observed outcomes through management information system. Management information system is basically concerned with the process of collecting, processing, storing and transmitting relevant information to support the management operations in an organisation. Thus, the success of decision-making, which is the heart of administrative process, is highly dependent partly on available information, and partly on the functions that are the components of the process. In spite of many studies carried out by scholars and practitioners in the area of strategic decision-making over the years, much still need to be done about strategic decision-making process and factors affecting it. This paper is builds on previous theoretical and empirical studies to determine the extent to which contextual factors and management information system impact the strategic decision-making processes. The author concludes that sound management information system aids proactive strategic decision-making process and a considerable and competitive edge on the overall business performance.

Keywords: Management Information System: It's Strategic Impact on Decision-making.

Introduction

Decision-making is the process of selecting the best solution among alternatives in order to solve recognised problems. A base for practical, effective, strategic decision-making and the importance in getting decisions and its process approve is to understand the practice of organisation's decision-making processes and to fit the strategic proposal(s) within that framework. Decision-making however, often tends to vary from one decision-making orbit to another; providing hope for any new proposal, but gloom for those seeking consistent, rational, just and equitable decisions. And as it sounds, strategic decision-making is unique by its nature.

In ancient Greek, 'Stratos' was the term for the army and so in Military term 'Strategy' referred to the act of the general. So, the origin of 'strategy comes from the Military arena.

According to Alfred D. Chandler, corporate strategy is defined as “the determination of the basic long-term goals and objectives of an enterprise and the adoption of courses of action and the allocation of resources necessary for carrying out these goals”. W. F. Glueck defined strategy as a unified, comprehensive and integrated plan designed to ensure that the basic objectives of the enterprise are achieved. A strategy when integrated to all parts of the plans is compactable with each other and fixed together well and that strategic planning is a continuous process adapting to change in circumstances. In the same vein, Newman & Logan (1976) see strategy as concern with where an organisation should be headed in the future. Thus, it concentrates on the major moves to be taken by the particular company at the present stage of its development.

Strategy, basically is the pattern of objectives, purposes or goals and major policies and plans of achieving these goals stated in such a way as to specify what business is to be, or is to be in, and the kind of company it is, or is to be in the future. Strategy determines the direction in which the organisation is going in relation to its environment. It is the process of defining intentions (strategic intents) and allocating or matching resources to opportunities and needs (resource-based strategy). A business strategy, however, is the means by which organisations sets out to achieve its desired ends (objectives). Strategic management, according to Thompson Strickland (1987) is the process whereby managers establish an organisation’s long-term direction, set specific performance objectives, develop strategies to achieve these objectives in the light of all the relevant internal and external circumstances, and undertake to execute the chosen action plans. He stressed further that, the strategic function is perhaps the most fundamental and most important aspect of management and managing.

The management practices of successful and unsuccessful organisations have been scrutinised in an effort to learn the really important managerial do’s and don’ts that separate the winners from the losers. Although, what research and experience have taught us so far falls short of a genuine theory of ‘how to manage’, we have nonetheless zeroed in on some notable managerial differences between high-performing and low-performing organisations.

Management information system is a flow of procedures for data processing based on the computer, and integration with other procedures in order to provide information on a timely and effective manner to support decision-making and other management functions. The use of management information system for more effective decision is a key factor in the production of new products or services; to collect information on activities, products produced, productivity ratio, hiring new employees, tracking stock and setting performance target. The goals and objectives of management information systems are the products of business goals and objectives.

An essential factor playing a role in the process of decision-making is the information on the internal and external environment of the organisation relevant to the situation to be considered. Precisely, there is the availability of information, and a revolution has taken

place in recent years with new information acquisition, knowledge management, and analysis methods such as the Internet and social media becoming common practice, often called the 'third industrial revolution' (Smith, 2001). The diversity of information sources offered by news agencies, business information publishers, patent offices, etc. may benefit from a better understanding of the actual use made by an influential section of their clientele.

There is, however, an extensive literature available on the subject of strategic decision-making focusing on studies of the psychological and sociological motivation of group decision making; of the choice behaviour in these processes using modeling techniques from mathematics and statistics and on analysis of the influences exerted on the decision makers such as company politics and power clashes. But this paper, however, focuses on factual accounts of the way executives reach these decisions and the information used in this process.

Management Information System Defined

The global business environment is becoming more complex at an increasing rate while greed and globalisation were the two major concepts used to describe the situation, and the other major forces for changes include technological developments, new employment patterns and organisations structures, the growing importance of environmental issues and the death of deference among employees, customers and communities.

The concept of management information system has evolved over the years; comprising many different facets of the organisational functions aimed at processing data from the organisation and presents it at regular intervals. The system was largely capable of handling the data from collection to processing. There is also an increasing need for companies to gain and maintain the confidence of the general public in their business conducts. In this information driven-economies, managers are saddled with the task of surfacing a tool for the extraction of timely and required information from the target audience in order to effect an accurate and productive decision; hence, the birth of Management Information System (MIS).

Management Information System as a system of using formalised procedures based on data from both internal and external sources to enable decision makers make timely and effective decisions for planning, directing and carrying out the activities for which they have appointed. This denotes management information system as a system responsible for the collection, processing and communication of defined data in order to enhance prompt decision-making. It is described also as an integrated system of man and machine for providing the information to support the operations, the management and the decision-making function of an organisation.

Presently, computer and information systems play several vital roles in the smooth running and implementation of various organisational activities such as the formulation of a business plan, formulation and selection of business operating protocols and securities,

design of data bank, etc. This new development saddles computer and information system managers with the task of planning, coordinating and directing researches and facilitating the computer-related activities of firms. They help determine both technical and business goals in consultation with top management and make detailed plans for the accomplishment of these goals. All this requires a strong understanding of both technology and business practices (McLeod, 1995). Scholars have however, resorted to Internet as personal library where all necessary information can be obtained and displayed while computers have significantly altered business management (Bee, 1999). The management information system is presently the organisation nervous systems which respond to opportunities and avoid threats. It is widely acknowledged that firms with the best and most effective information systems are those that have clear and well thought of information strategies. And, because of the varied sources of information, company's executives have resorted to the use of knowledge management to assemble and disseminate useful knowledge to staff.

Information as key factor in the strategic decision-making process

Peter Drucker stated that today's knowledge has power because it controls access to opportunity and advancement. Twenty-first century is undoubtedly a century of knowledge. The everyday usage of available advanced information, business and Internet technologies in business activities confirm that this is not only a phrase from the literature, but true reality.

The vital strategic resources today are the knowledge – individual and organisational. By realising the major value of intellectual resources, companies have begun to manage rationally and improve them. Thus, the importance of knowledge management as a concept of organisational knowledge, aimed at effective application of knowledge to make quality decisions. An organisation in the 'Knowledge Age' is one that learns, remembers, and acts based on the best available information, knowledge, and know-how. An organisation behaves as an open system that takes in information, material and energy from the external environment, transforms these resources into knowledge, processes and structures that produce goods or services which are then consumed somewhere in the world. Knowledge management is based on the premise that just as human beings are unable to draw on the full potential of their brains, organisations are generally not able to fully utilise the knowledge that they possess. Through knowledge management, organisations seek to acquire or create potentially useful knowledge and to make it available to those who can use it at a time and place that is appropriate for them to achieve maximum effective usage in order to positively influence organisational performance.

According to Choo, companies need information as a basis for strategic management and ensuring decisions. The influence of information on the strategic decision-making process and its role on the consideration of alternative solutions that are available will vary according to the requirements of each specific decision-making process. There is distinct

difference in the manner in which information is actually utilised. Executives of large companies need adequate high-quality information pertinent to their businesses in order to be able to manage their organisations in the most appropriate way. Information is an intrinsic component of nearly every activity in the organisation. This information is a resource that can take many different forms during all the various phases of the decision-making process.

Data, Information and Knowledge

Knowledge is often defined as a "justified personal belief." "And, an intellectual understanding is the state of appreciating truth or information". Knowledge generally is based on information. This raises the question of how the upgrading of information to knowledge has been achieved in organisations. Knowledge management is the planning, organising, motivating, and controlling of people, processes and systems in the organisation to ensure that its knowledge-related assets are improved and effectively employed. Knowledge-related assets include knowledge in the form of printed documents such as patents and manuals, knowledge stored in electronic repositories such as a "best-practices" database, employees' knowledge about the best way to do their jobs, knowledge that is held by teams who have been working on focused problems and knowledge that is embedded in the organisation's products, processes and relationships. Knowledge management was initially defined as the process of applying a systematic approach to the capture, structuring, management, and dissemination of knowledge throughout an organisation to work faster, re-use best practices, and reduce costly re-work from project to project (Nonaka and Takeuchi, 1995).

The decision-makers follow a series of predetermined and communicable steps that transform given external or internal information according to these rules of logic. Reasoning is thus seen as the processing of selected cognitive content, using the logic of causality: an intentional, constructive, rule-based and conscious activity. The building blocks of this analytical or rational knowledge are pieces of information or judgments." Analysts still suggest that "there is a positive relationship between the amount of information available to the decision-makers and the extent to which decision-makers are likely to make use of rational analysis to increase useful knowledge".

According to Nonaka (1991), "information is a flow of messages, while knowledge is created and organised by the very flow of information, anchored on the commitment and beliefs of its holder". He stresses further that knowledge within the company has to be used to contribute to the decision-making process by the stakeholders. This concept is the basis for Nonaka's treatises on knowledge management where he distinguishes two types of knowledge; tacit or implicit knowledge that is privately held by individuals in the organisation and explicit knowledge that is shared among individuals in the organisation. In other words, knowledge management has explored the differences between 'know how'

and 'know what'; an essential distinction according to its pioneers, supposedly first made by Aristotle.

Nonaka (1994) further explains how knowledge management (KM) in its current sense aims at identifying and analysing knowledge with the objective to maximise the value of this knowledge for the organisation. This effort entails opening up the 'private' intellectual capital of employees. Thus, making more explicit and generally available the knowledge objectives that reside within these employees' heads or private files but that are relevant for the organisation as a whole or when it concerns strategically valuable knowledge-for executives on top of the organisation. Within an organisation, the exchange of information and ideas among knowledgeable members can result in new insights that are more powerful than the individual pieces of information.

The Strategic Role of Information

"Information is something that changes the state of its recipient or more specifically, the knowledge state. A slight variation is to say that information is what determines a decision or allows a choice to be made. Making a decision represents a change of state (from undecided to decided) on the part of the decision maker. A message understood by the recipient and which changes that person's knowledge base". The strategic role of information in decision-making is clearly put with the phrase that the knowledge state of the executive is changed by the use of information. In other words, information aids in reducing the uncertainty about an issue to be decided and thus an important factor in the whole process of decision-making (Rowley, 1998).

However, this role is not always recognised in strategic management theories and normative treatises that claim to cover all elements of the decision-making process, information as an essential factor in this process is often merely a hidden aspect (e.g. Drucker (1973).

According to Porter & Millar (1985), "the information revolution is affecting competition in three vital ways: It changes industry structure and thus alters the rules of competition, it creates competitive advantage by giving companies new ways to outperform their rivals and it spawns whole new businesses, often from within a company's existing operations". But there is one hitch with these statements of Porter and Millar; what they really discuss is 'information technology' instead of information, exposing a distinction that is often misapprehended (Wilson, 1997). Porter (2001) in his work stressed more on the advantages of information on an organisation but also discussed on the dangers (myths) of the Internet- the new found information source, which indeed, does make this difference between information as a precursor to knowledge and information technology itself. He warns that uncritical diminishing attention by firms to strategy development by depending unrealistically on the Internet information technology can weaken the profitability of these firms. But he also states that the "great paradox of the Internet is that it's very benefits – making information widely available also makes it more difficult for companies to capture

those benefits as profits", because this information then may become available to every competitor in equal amounts.

Peter Drucker (1973) described this issue by stating that Japanese managers do not begin the decision-making process by looking for answers but pays much attention to the preceding diagnosis of the problem. But even then, Drucker does not mention specifically the fact that diagnosis needs to be supported by information. In Japan, for example, managers consult with subordinates in order to collect information and opinions. Accordingly, utility in business organisations depends on information and so, under the idealisation of full information, the principle of optimisation may be restated as a principle of utility maximisation".

The concept of a 'mental image' of the decision problem helps to understand the relationship between effective decision-making on the one hand and the need for knowledge and information on the other (van Riel, 2002, p. 19). "Decision-makers must have a reasonably accurate and complete mental image in a business process and its interfaces with the world in order to be able to make decisions effectively and efficiently, and exert control over the process". Managers will therefore, attempt to improve their understanding of the situation by making use of external information to make better decisions. "The resulting improvements in the quality, scope and detail of the mental image of the decision problem can be understood as increases in the utility of the knowledge that a decision-maker possesses for executing decision tasks in the process".

Strategic Decision-Making

Decision-making is the essence of management and all management involves decision-making. It is an important aspect of the managerial task and takes place at all levels of an organisation, and encompasses the steps that individuals and groups should follow when making decision plus the analysis of the barriers that prevent effective decisions being made. Decision-making is the resolution made against every other consideration by the managers to enable its effective implementation of an organisational goals and objectives. Decision-making according to Heinz Weihrich, Mark V. Cannice & Harold Koontz (2011), is defined as the selection of a course of action from among alternatives; it is at the core of planning. A plan cannot be said to exist unless a decision-a commitment of resources, direction, or reputation-has been made. Decision-making is however, only a step in planning. Decision can be positive or negative. It is positive when the action is geared towards ensuring effective and prompt accomplishment of a company's goals. While, negative decision does not go well with the company's mission and objectives. This, of course, is referred to as irrational decision and always detrimental to the company, consumer, society, and the country in general.

In a highly competitive business environment like ours, managers require an in-depth understanding of not only the business environment, but also decision-making capabilities which is the hallmark of effective managing. Study also showed that organisations with

weak managers can wreck the sounded strategy, but forceful execution of even a poor plan can often bring victory. Realising that even the best strategic plans are worthless without the input and commitment of lower-level managers, top management forms planning groups of managers and key employees at many levels from various departments and workgroups. They develop and integrate a series of strategic plans aimed at achieving the company's primary objectives. Strategic plans at this point detail the implementation, evaluation, and control issues rather than attempting to perfectly forecast the future, the plans emphasize probable scenarios and contingency strategies. The sophisticated annual five-year strategic plan is replaced with strategic thinking at all levels of the organisation throughout the year. Strategic information previously available only centrally to top management is available via local area networks and intranets to people throughout the organisation. Instead of a large centralised planning staff, internal and external planning consultants are available to help guide group strategy discussions. Although, top management may still initiate the strategic planning process, the resulting strategies may come from anywhere in the organisation. Planning is typically interactive across levels and is no longer top down. People at all levels are now involved in the process in this information-driving economy.

The role of management information system on decision making

Management Information System (MIS) is concerned with the process of collecting, processing, storing and transmitting relevant information to support the management operations in an organisation. Thus, the success of decision-making, which is the heart of administrative process is highly dependent partly on available information, and partly on the functions that are the components of the process.

When you base your decisions on data available from management information systems, they reflect information that comes from the operations of your company. Management information systems take data generated by the working level and organise it into useful formats. Management information systems typically contain sales figures, expenses, investments and workforce data. If you need to know how much profit your company has made each year for the past five years to make a decision, management information systems can provide accurate reports giving you that information. Management information system, therefore, is used across all levels in an organisation.

MIS provides vital information at senior levels to help make strategic decisions. At other levels, MIS observes an organisation's activities and distributes information to everyone in the organisation and customers. MIS is very important for every organisation because it not only collect and manages information, but also represents it in various formats useful for the management to make important organisational decisions. It is a system providing management with accurate and timely information. Such information is necessary to facilitate the decision-making process and enable the organisations planning, control, and operational functions to be carried out effectively.

Management Information System increases competitiveness of the firm by reducing cost and improving processing speed. The power of technology has transformed the role of information in business firms. Now information has become recognised as the lifeblood of organisations and without information, the modern company is dead. MIS and its organisational subsystems contribute to the decision-making process in many ways. Power has stated that making decisions is an important part of working in the business environment. Companies often make decisions regarding operational improvements or selecting new business opportunities for maximising the company's profit. Companies develop a decision-making process based on individuals responsible for making decisions and the scope of the company's business operations. A useful tool for making business decisions is a management information system. Historically, MIS was a manual process used to gather information and funnel it to individuals responsible for making decisions. It is an organisation-wide effort to provide decision making process. The system is a formal commitment by executives to make the computer available to all managers. The main idea behind MIS is to keep a continuous supply of information flowing to the management, afterwards, by data and information gathered from MIS, decisions are made.

According to Obi (2003), MIS is useful in the area of decision making as it can monitor by itself disturbances in a system, determine a course of action and take action to get the system in control. It is also relevant in non-programmer decisions as it provides support by supplying information for the search, the analysis, the evaluation and the choice and implementation process of decision-making. Adebayo (2007) stressed the need for MIS in decision-making as it provides information that is needed for better decision-making on the issues affecting the organisation regarding human and material resources. MIS may be viewed as a means for transformation of data, which are used as information in decision-making processes. Figure 1 shows this understanding about information as data processed for a definite purpose.

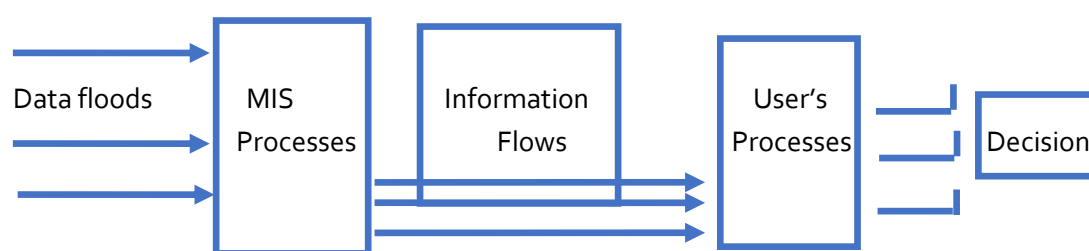


Figure 1 - MIS in decision making.

Source: Researcher's Construct

MIS differs from regular information systems. The primary objective of these systems is to analyse other systems dealing with the operational activities in the organisation. MIS is a subset of the overall planning and control activities covering the application of humans, technologies, and procedures of the organisation. Within the field of scientific

management, MIS is most often tailored to the automation or support of human decision-making.

Conclusion

From the results of the data analysis in respect of this study on “the Role of Management Information System on Strategic Decision-Making Process” the author concludes that the role of information in decision-making cannot be over-emphasised. Effective decision-making demands accurate, timely and relevant information. MIS provides accurate and timely information necessary to facilitate the decision-making process and enable the organisation’s planning, control, and operational functions to be carried out effectively.

The author also observed that MIS also play crucial roles in providing a wide range of streamlined options from which decision-makers are able to make their preferred choices and this ensures that whatever choices are made by decision makers, the outcome, more often than not, becomes positive. This, as a matter of fact, is the reason why many decision makers and others interviewed tend to prefer using MIS tools when making tough business choices. The MIS plays the role of information generation, communication problems and helps in the process of decision making. The MIS, therefore, plays a vital role in the management, administration and operations of an organisation. The essential aspect of management information system’s aid to strategic decision making is that managers in this present information driving economics prefers scooping information wherever it resides to analyse, manage, and process knowledge in making effective decision.

References

- Agor, W. (1986). *The logic of intuition: How top executives make important decisions*. Organisational Dynamics, 14(3), 5-18.
- Antonic, S. (2005). *Knowledge management: A look into our future* University Library "Svetozar Markovic". Infoteka, 6 (1–2), 77–82. Retrieved from: <http://scindeks.nb.rs/article.aspx>
- Allen, B. (1990): *New developments in economic theory: Information as an Economic Commodity*. American Economic Review, 80(2), 268-273.
- Allison, G.T. (1971): *Essence of a decision: Explaining the Cuban missile crisis*. Boston: Little, Brown and Co.
- Aremu Bashiru (2014): *Introduction to Management Information System*, Africa International Institute of Professional Training and Research, 2nd Ed.
- Atherton, M. & Vile, D. (2007): *The business intelligence inflexion point: Information is a right, not a privilege*.
- Auster, E., Choo, C.W., (eds.), (1996): *Managing information for the competitive edge*. New York: Neal-Schuman Publishers.
- Baum, J.R. & Wally, S. (2003): *Strategic decision speed and firm performance*. Strategic Management Journal, 24, 1107-1129. VII.
- Binney, Derek (2001): ‘The Knowledge Management Spectrum – Understanding the KM Landscape’, Journal of Knowledge Management 5(1): 33–42. (available at www.bellandnet.org/km)
- Boles, T. & Messick, D. (1995): A reverse outcome bias: The influence of multiple reference points on the evaluation of outcomes and decisions. *Organizational Behavior and Human Decision Processes*, 61(3), 262-275.

- Brenner M. (2005): *Technology intelligence at Air Products: Leveraging analysis and collection techniques. Competitive Intelligence Magazine*, 8(3), 6-19.
- Brouthers, K.D., Andriessen, F., & Nicolaes, I. (1998): *Driving blind: Strategic decision-making in small companies. Long Range Planning*, 31(1), 130-138.
- Buchanan, L. & O'Connell, A. (2006): *A brief history of decision making. Harvard Business Review*, 84(1), 32-41.
- Calhoun, K., Teng, J., & Myun Joong, C. (2002): Impact of national culture on information technology usage behaviour: An exploratory study of decision making in Korea and the USA. *Behaviour & Information technology*, 21(4), 293-302.
- Carr, C. (2005): Are German, Japanese and Anglo-Saxon strategic decision styles still divergent in the context of globalisation? *Journal of Management Studies*, 42(6), 1155-1188.
- Carton, F. & Adam, F. (2005): *Understanding the impact of enterprise systems on management decision making: An agenda for future research. The Electronic Journal of Information Systems Evaluation*, 8(2), 99-106.
- Choo, C.W. (1996): *The knowing organisation: How organisations use information to construct meaning, create knowledge and make decisions. International Journal of Information Management*, 16(5), 329-34
- Cray, D., Mallory, G.R., Butler, R.J., Hickson, D.J., & Wilson, D.C. (1988): *Sporadic, fluid and constricted processes: Three types of strategic decision making in organisations. Journal of Management Studies*, 25(1), 13-39.
- Dane, E. & Pratt, M.G. (2007): *Exploring intuition and its role in managerial decision making. Academy of Management Review*, 32(1), 33-54.
- De Alwis, G. & Higgins, S. (2001): Information as a tool for management decision making: a case study of Singapore. *Information Research*, 7(1). <http://informationR.net/ir/7-1/paper114.html>.
- Michael Armstrong (2012): *Human Resource Management*, 12th Ed. Kogan Page, UK.
- Nonaka, I. & Takeuchi, H., (1995): *The Knowledge Creating Company*.
- Papows, J. (1998): *Enterprise.com: Market Leadership in Information Age*, London: Nicholas Brealey Publishing.
- Tarres, C. (2007): *Value creation and new intermediaries on Internet. An exploratory analysis of the online news industry and the web content aggregators. International Journal of Information Management*, 27(3), 187-199.