Management Information System

Moulik Mehta
Department of Technology Management
University of Bridgeport
Bridgeport, CT, USA

Prof. Christian Bach
Department of Technology Management
University of Bridgeport
Bridgeport, CT, USA

Abstract—**Management Information Systems has been a part of every business or industry. Technological recent years have brought advances about m recent years many changes that water-utility managers will be expected to understand and use in their positions of management responsibility.**

Keywords—Management Information System; Supply Chain Management; Decision Support System; Enterprise Resource Planning; Customer Relationship Management; Knowledge Management System;

OVERVIEW

The concept of "management-information systems" (MIS) is not new- through the years, all management people have had to de-vise some system by which they could communicate with, and evaluate the performance of, their organization [1]. The Management Information System was specifically developed to improve scheduling of field personnel and to provide management reports that identified problems and pinpointed areas for improvement. Proper scheduling would minimize travel time and match the right crew size and equipment to each job [2]. Information Technology optimizes the use less resources by intellectual information for making the decision, helping further to implement support regulating effort without huge delays. Making decision is very difficult as competitive environment, less resources, time factor and vision to achieve goal [3].

RESEARCH METHODOLOGY

Review Centric

Using databases supplied by the University of Bridgeport, a wide variety of journals were obtained including *Journal of Management Information Systems. Design of Management Information Systems* and many more. MIS scholars have for several years applied this survey research and it is well described and has proper steps which if followed closely can yield authentic interpretable data [4]. After an analysis of research, philosophical perception that can lead to qualitative research are explained which is followed by parts on qualitative research methods, techniques, and source of analyzing and interpreting qualitative data [5]. With various research the study has been completed to understand the concept.

Introduction

Most evaluations of information systems are provided only in efficiency oriented terms on a post

hoc basis by system users [6]. More recently, organizations have begun to create information systems that can provide a strategic impact and earn substantial profits [7]. Information systems activities (those tasks associated with acquiring, deploying, and managing information technologies) are in a considerable state of flux in many organizations [8]. Computer-based information systems are becoming important for executing strategies of business. Business managers, are surrounded by insufficient new systems with missed target dates and overrun budgets [9]. Making operational decisions useful, timely data is needed for managers in environment of manufacturing. The information system that is existing show two short coming i.e. it is very complicated to understand easily, it is very slow for effectiveness [10].

MANAGEMENT INFORMATION SYSTEM

A group of utilities and man-power for gathering, diversifying, recovering and processing information that is used, or required by managers, in the performing their function is defined as Management Information System [11]. An MIS can be described as collection of procedures that are connected amongst themselves and mechanisms for data accumulation, storage, and retrieval, which is designed to convert organizational data into information appropriate for managerial decision making [12]. A management information system (MIS) is a combination of systems as well as process which collects data from various sources, gather it and present it in a legible format. A comprehensive overview of all the information needed to make decisions ranging from daily minutiae to top-level strategy is collected in a report and Managers use an MIS to create these reports [13]. Firm and the forecast of its performance explains MIS with the information available in it. Generally, various reports like analytical reports or any other timely reports are the sources of these information [14]. Organizations generally does not have attenuate information system though forecasted a blended management information system along with related databases and with growth of data application [15]

Figure 1: Management Information System and its types.

Decision Support System

Decision support system refers to the area of management information systems which completely helps in decision-making. It excludes manufactured decision systems which essentially brings the proper decisions for management approval - e.g., many inventory-control and billing systems [16]. A DSS for organizing marketing policies and assigning resources for retailers is explained. This decision support system consist of model which builds and analyzes methodology [17]. In last ten years we have observed the development of systems that are computer-based that support groups of people in various tasks, including limited decision making. [18]. The decision support system helps in decision making of operations, financial management of a company that includes building strategies. Decision support system can be a model driven, data driven, communication driven, document driven as well as knowledge driven [19].

Figure 2: Characteristics of Decision Support System

Enterprise Resource Planning

Distinctly called Enterprise Resource Planning, they are the tools of software which manage data of enterprise and then provide that information who need it. Such kind of system are helpful for companies to

deal with its supply chain and various activities which are in today's business [20]. While implementing enterprise resource planning (ERP) systems it has led to huge reduction of costs in administration and inventory, and large amount of money in logistic preserving at companies like as Dow Corning, IBM, and Texas Instruments, others have failed [21]. Many companies have ERP's that are their own software applications. These program work by bringing together a company's various work systems and business flow processes to obtain intelligence in profession, increasing workflow, commanding and cost cutting. In fact, all companies use "ERP" application. The basic principles for using ERP systems, and their specific policies, goals, including workflow are appropriate to every sector [22].
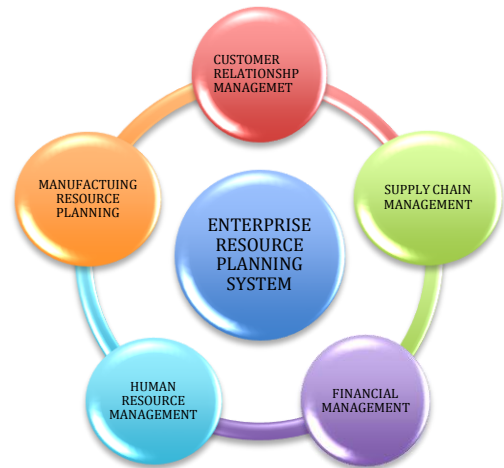

Figure 3: Variables involved in ERP Systems [23].

Customer Relationship Management

A planning of combined approach to relationship of customer is Customer Relationship Management and cannot be termed as a product or technology. CRM requires the focus of company and its culture with reappraisal as well as reorientation involving every business functions [24]. The biggest hurdle in customer relationship management that any company will face is user who successfully adopt this CRM. An individual's denial for the new technology can become significant for the successful practice of CRM in organization [25]. It was in 1990s when in merchant and probationer community came up with the term called customer relationship management which is used for describing customer solution based on technology like sales force automation [26]. The function of customer relationship management provides organizational learning regarding customers by allowing companies to study purchase behavior along transaction by various channel [27]. Customer satisfaction is an important CRM variable that must not bypass our observational review. In fact, customer satisfaction is essential to fortunate application of the marketing approach [28]

Figure 4: Above cycle shows the flow of CRM.

Supply Chain Management

Organizing resources and information with management of merchant, production, assembling and dispense centers is called supply chain management [29]. A supply chain can be defined as a set more than two entities which involve upstream and downstream products flow, services, finances, and/or information from a source to a customer [30-32]. The upstream of supply chain increases if the customers are dissatisfied which extends the use of industrial dynamics along with behavioral aspect of performance. On the basis of operation planner's suggestion, conclusion are made which points position as important variable in supply chain and have been absolutely proven [33]. Supply chain management is identified as the combination of important business processes across it [34]. Supply chain mainly relies on four types that are logistic cost, quality, productivity and customer service [35].
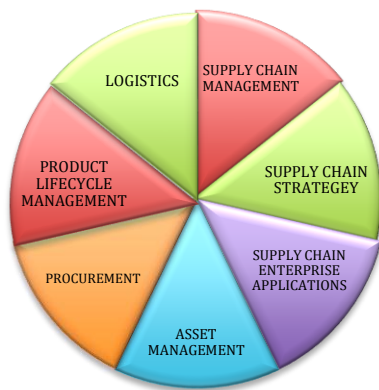

Figure 5: Factors associated with Supply Chain Management.

Knowledge Management System

Organizations have been developing information systems that are designed mainly to provide the sharing and combining of knowledge and are termed as Knowledge Management System (KMS). Since Knowledge Management System are been brought into organizations, very little research exists to help in

developing and implementing of these systems or to help expectations with benefits of these systems [36]. Knowledge management is a self-control which leads to a combined approach to identify, acquire, and calculate all of the information of enterprise's assets. The assets here can include databases, documents, policies, procedures, and previously un-captured skill and experience of employees [37]. The knowledge management should look on to operate properly and to be competitive globally. A strategy in knowledge management needs to be completely inter-related with the strategies of business in an organization to reach to the success of organization [38]. Knowledge is a commodity, with its powerful management needs to invest in other commodities like money and man power. Human resources should be trained so that they can capture and segregate knowledge. And they will need the right hardware and software tools to do that [39]. The knowledge creation and its dispersion have become very important point. Maximum knowledge is considered as a valuable asset that is planted in products also with high-technology and planted in the knowledge of hugely migrating employees [40]. The objective of Knowledge Management is to make and utilize intelligent capital effectively. This objective is valid for all enterprise and its activities that has considerable difficulties behind it [41].

DISCUSS MODEL

In past ten years, studies have gone through the literature of MIS and a framework with research was presented. Ives, Hamilton and Davis developed a model which had a combined approach to conceptualize and categorize MIS [42]. Assumptions of fit, performance as a dependent variable, rational actors, and a deterministic model in both organizational research and MIS research are critiqued [43]. Management-Information Systems is not new, all management people through the years had to devise a system by which they could communicate, and organization's performance could be evaluated [44]. In the past, as similarity with regular processing of data grew, making interest to regular processes of decision making and were gradually directing efforts to the develop a computerized systems that holds management. These systems which involved regular process of decision making, like a systems that controls inventory and schedules resources. These control systems, as they were referred to as MIS, have been placed on systems [45].

RESTULT AND FINDINGS

MIS is described as a well-coordinated information system, a database which provides management with required information in planning making decisions. New technologies have further made the recourse to MIS in management critical due to the changing situation and surrounding. Also it points out some challenges that can affect use of MIS [46] Many essential problem areas have come up in (leisuring a

management information system for operating and maintaining command of a big system that are explained herein. Three types of design approaches i.e. method and equipment improvement, data augmentation and decision orientation [47]. Although management information systems can make considerable contributions to improve the quality and speed of decision making, the man-machine interface remains its most crucial component [48].

CONTRIBUTION AND NEW INTUITION

Information systems are important to of every organization where managers invest huge amounts of funds and various resources on information systems generally do not have the idea of which applications will be helpful to the organization [49]. The ability of presenting presume reports focused to the facts needed to particular managers is the attributes that differentiate an MIS from the very common type information management system (IMS) [50]. An "MIS environment" (consisting of a particular organizational structure and computer technology) may be said to jointly produce each of the three variables above. In addition, an inquirer's world view, i.e. his overall "image" of the world [5], within which his MIS appreciation is imbedded, also serves a co-productive function [51].

CONCLUSION

The impact of management information systems on industries is increasing as the capacity of the applications grows to new role and departments. The successful implementation relies on consideration and proper adaptation of the systems to the workflow in organization, Importance on clarity should be the objective of the plan outlined is not intentional to help as an instruction for better practice on the belief that distinct steps for making a performance calculation, management system that concentrate the formation of inclusive and perceptible steps of performance, distinctly directed to financial rewards is best way. By observing the interactions along these components of the model along with components itself, a clear image comes up as to what consist in success of information systems. Instead of making MIS to support distinct styles, MIS information should prioritize the styles and create a more equitable approach towards provision of information.

REFERENCES

[1]Tevlin, J., *Management Information System.* Public Productivity Review, 1983. **7**(2): p. 197-197.

[2]Jordan, J.K. and J.N. McLeod, *System Control: The Key to a Successful Management Information System.* Journal (American Water Works Association), 1979. **71**(3): p. 136-140.

[3]AO'Brien, J., et al., *Management information systems.* 2006.

[4]Pinsonneault, A. and K.L. Kraemer, *Survey Research Methodology in Management Information Systems: An Assessment*, 1993.

[5]Myers, M.D., *Qualitative research in information systems.* Management Information Systems Quarterly, 1997. **21**: p. 241-242.

[6]King, W.R. and J.I. Rodriguez, *Evaluating Management Information Systems.* MIS Quarterly, 1978. **2**(3): p. 43-51.

[7]Lederer, A.L. and A.L. Mendelow, *Convincing Top Management of the Strategic Potential of Information Systems.* MIS Quarterly, 1988. **12**(4): p. 525-534.

[8]Zmud, R.W., *Design Alternatives for Organizing Information Systems Activities.* MIS Quarterly, 1984. **8**(2): p. 79-93.

[9]Lederer, A.L. and R. Nath, *Making Strategic Information Systems Happen.* The Executive, 1990. **4**(3): p. 76-83.

[10]Moore, L.T. and J. Byrd, *Effective Alternatives to Large-Scale Information Systems.* Interfaces, 1981. **11**(1): p. 36-40.

[11]Ein-Dor, P. and E. Segev, *Strategic Planning for Management Information Systems.* Management Science, 1978. **24**(15): p. 1631-1641.

[12]Martin, J.A. and E.S. Overman, *Management and Cognitive Hierarchies: What Is the Role of Management Information Systems?* Public Productivity Review, 1988. **11**(4): p. 69-84.

[13]David Ingram, D.M., *What Is a Management Information System?*http://smallbusiness.chron.com/10/29/2015 12:32PM. 2014.

[14]Asemi, A., A. Safari, and A.A. Zavareh, *The role of management information system (MIS) and Decision support system (DSS) for manager's decision making process.* International Journal of Business and Management, 2011. **6**(7): p. p164.

[15]Power, D.J., *The Impact of Information Management on the Organization: Two Scenarios.* MIS Quarterly, 1983. **7**(3): p. 13-20.

[16]Jones, J.W., Administrative Science Quarterly, 1980. **25**(2): p. 376-382.

[17]Lodish, L.M., *A Marketing Decision Support System for Retailers.* Marketing Science, 1982. **1**(1): p. 31-56.

[18]George, J.F., *The Conceptualization and Development of Organizational Decision Support Systems.* Journal of Management Information Systems, 1991. **8**(3): p. 109-125.

[19]Power, D.J. *A Brief History of Decision Support Systems.* 2007; Available from: http://dssresources.com/history/dsshistory.html.

[20]Ragowsky, A. and T.M. Somers, *Special Section: Enterprise Resource Planning.* Journal of Management Information Systems, 2002. **19**(1): p. 11-15.

[21]Karimi, J., T.M. Somers, and A. Bhattacherjee, *The Impact of ERP Implementation on Business Process Outcomes: A Factor-Based Study.* Journal of Management Information Systems, 2007. **24**(1): p. 101-134.

[22]Getman, G., *Defining ERP: Enterprise Resource Planning Principles, Strategies, Practices*

and Technology *www.etszone.com 10/29/2015 12:54PM.* December 21st, 2008.

[23]Khare, S. *Boosting HR Efficiency with an Enterprise Resource Planning System.* 2015; Available from: http://careerbright.com/career-self-help/boosting-hr-efficiency-with-an-enterprise-resource-planning-system.

[24]Knox, S., et al., *Customer relationship management* 2007: Routledge.

[25]Zablah, A.R., D.N. Bellenger, and W.J. Johnston, *Customer Relationship Management Implementation Gaps.* The Journal of Personal Selling and Sales Management, 2004. **24**(4): p. 279-295.

[26]Payne, A. and P. Frow, *A Strategic Framework for Customer Relationship Management.* Journal of Marketing, 2005. **69**(4): p. 167-176.

[27]Mithas, S., M.S. Krishnan, and C. Fornell, *Why Do Customer Relationship Management Applications Affect Customer Satisfaction?* Journal of Marketing, 2005. **69**(4): p. 201-209.

[28]Yim, F.H.-K., R.E. Anderson, and S. Swaminathan, *Customer Relationship Management: Its Dimensions and Effect on Customer Outcomes.* The Journal of Personal Selling and Sales Management, 2004. **24**(4): p. 263-278.

[29]Thomas, D.J. and P.M. Griffin, *Coordinated supply chain management.* European journal of operational research, 1996. **94**(1): p. 1-15.

[30]Mentzer, J.T., et al., *Defining supply chain management.* Journal of Business logistics, 2001. **22**(2): p. 1-25.

[31]Tan, K.C., *A framework of supply chain management literature.* European Journal of Purchasing & Supply Management, 2001. **7**(1): p. 39-48.

[32]Lambert, D.M., M.C. Cooper, and J.D. Pagh, *Supply chain management: implementation issues and research opportunities.* The international journal of logistics Management, 1998. **9**(2): p. 1-20.

[33]Harland, C.M., *Supply chain management: relationships, chains and networks.* British Journal of management, 1996. **7**(s1): p. S63-S80.

[34]Croxton, K.L., et al., *The supply chain management processes.* The international journal of logistics Management, 2001. **12**(2): p. 13-36.

[35]Morash, E.A., *Supply Chain Strategies, Capabilities, and Performance.* Transportation Journal, 2001. **41**(1): p. 37-54.

[36]Alavi, M. and D.E. Leidner, *Knowledge management systems: issues, challenges, and benefits.* Communications of the AIS, 1999. **1**(2es): p. 1.

[37]Koenig, M.E.D., *What is KM? Knowledge Management Explained* http://www.kmworld.com/ *10/29/2015 3:44PM.* May 4, 2012.

[38]Lovreković, Z., *Online Journal of Applied Knowledge Management* http://www.iiakm.org/ *10/29/2015 3:53PM.* 2013.

[39]Davenport, T.H., *Some Principles of Knowledge Management* http://www.strategy-business.com/ *10/29/2015 3:58PM.* January 1, 1996.

[40]Wolf, B., *Introduction to Knowledge Management* www.mitpress.mit.edu *10/29/2015 4:06 PM.* 2000.

[41]Wiig, K.M., *Knowledge Management: An Emerging Discipline Rooted in a Long History* http://www.krii.com/ *10/29/2015 4:10PM.* 1999.

[42]Bozeman, B. and S. Bretschneider, *Public Management Information Systems: Theory and Prescription.* Public Administration Review, 1986. **46**: p. 475-487.

[43]Weill, P. and M.H. Olson, *An Assessment of the Contingency Theory of Management Information Systems.* Journal of Management Information Systems, 1989. **6**(1): p. 59-85.

[44]Tolle, W.A., *MANAGEMENT-INFORMATION SYSTEMS.* Journal (American Water Works Association), 1971. **63**(11): p. 688-691.

[45]Bedford, N.M., *The Concept of Management Information Systems for Managers.* Management International Review, 1972. **12**(2/3): p. 25-29.

[46]Adeoti- Adekeye, W.B., *The importance of management information systemsnull.* Library Review, 1997. **46**(5): p. 318-327.

[47]Stoller, D.S. and R.L. Van Horn, *Design of a Management Information System.* Management Technology, 1960. **1**(1): p. 86-91.

[48]Ryzhov, V.S. and G. Shkliarevsky, *The Structure of Management Information Systems.* International Studies of Management & Organization, 1981. **11**(3/4): p. 157-177.

[49]Ragowsky, A., N. Ahituv, and S. Neumann, *Identifying the value and importance of an information system application.* Information & Management, 1996. **31**(2): p. 89-102.

[50]Cobb, C.W., *PROBLEMS AND PRINCIPLES IN THE DEVELOPMENT OF MANAGEMENT INFORMATION SYSTEMS.* International Journal of Mental Health, 1976. **5**(4): p. 103-120.

[51]Swanson, E.B., *Management Information Systems: Appreciation and Involvement.* Management Science, 1974. **21**(2): p. 178-188.