The Role of Information Systems in Business Firms Competitiveness: Integrated Review Paper from Business Perspective

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Abstract
This review paper point outthe role of management information Systems in businesses firms competitive advantage from business perspective. Currently, information systems and technologies are a imperative components of successful and competitive businesses. Information technologies consists of Internet-based information systems are playing a vital and expanding role in enhancing firms economic growth. The experience of organizations' managers needs to be provided with the necessary information to reduce risks and make the most appropriate decisions. Thus, firms turn to information systems for the provision of information as firms asset which supplements decision making and performance of business. For the last three decades, different types of information systems are emerged for different intention, depending on the need of the business firms. In today's very competitive business world, there are various information systems are emerged such as transaction processing systems (TPS), office automation systems (OAS), managerial information systems (MIS), decision support systems (DSS), and executive information systems (EIS), Expert System (ES) and others that supports decision making at different levels of management. In addition to this, there are several functional business systems which enables functional areas managers to make right decision and support business operation in functional areas of business(marketing, manufacturing and production, human resource, accounting) and cross functional business information livelihood information-processing and decision-making needs of several departments such as Supply chain management systems (SCM), customer relationship management systems (CRM), enterprise resource planning systems (ERP). Each information systems, functional and cross functional systems plays a different role in organizational hierarchy and management operations. To purpose of this review, reviewer collected different information related with marketing/management information system that supports business decision making and enhances firms competitiveness. This review paper study endeavors to explain the role information systems in business organizations competitiveness.

***Key words*:** Business *Organization, Competitiveness, Strategic advantage, Information Systems.*

1.1. INTRODUCTION

Over the last three decades, there is higher growth in the power, generation and speed of computing, as well as speedy developments in the sphere of data exchange methods and information systems' practicability and capabilities. It can be considered that Information and technologies and information systems have become a well known, unavoidable, or vital part of business firms, political, competitive, cultural, social, and personal life almost in every part of the world. Business firms with focus on information systems is try to gathering needed information for decision making at different levels of management. Because of all-encompassing changes in business background and emerge of computers and internet, the business structure and needed information had change, the competitiveness as a major factor for life of organizations in information edge is preyed of information technology challenges(Hemmatfer, Salehi & bayat, 2010). As pinpointed Martina Casolova by there is high developments, broad utilization of information communication technologies and the vision of the information age suggest that the trend of "going technological" will continue in the near future and furthermore, mostly positive impact on business firms, economy, community and society. At the same time, though, it is necessary to emphasize that, in order to fully benefit from using Information System, their acquisition and utilization must be understood and properly managed (Martina Casolova).

Its well known that information is considered as essential resource in decision-making processes and enhancing firms performance in different aspects. Information system is imperative, however, growing in complex economic scenarios such as the currently one. The experience of organizations' managers needs to be supplemented with the needed information to reduce risks and make the most appropriate decisions. Thus, organizations turn to information systems for the provision of this basic resource. It can be considered as organizational asset. Information system is a way through which data/information flows inside/outside a company, from an employee or department to other employees or departments/organizations. This may occur anywhere, from the firms internal communication to computerized systems that can generate periodical reports for varied users users of information system. Information systems in organizations were understood in the 1970s as an tool to cover solely operational functions which were not support decision making and improvement in organizational improvements. However, new changes and technological advancements have focused them on tactical and strategic functions without neglecting their first functional application (García, 1994). As pointed out by Romeiro and Garmendia (2007), information systems have focused on lower levels such as accounting, financial, sales, marketing, recording and logistics information (Pana, 2014).

Information systems and technologies are a important component of successful firms. It has benefit of improving the efficiency and effectiveness of business processes, managerial decision making, and business collaboration which can increase their competitive positions in a rapidly changing marketplace(Hemmatfer, Salehi & bayat, 2010). The worth of information is directly connected to how it helps decision makers in achieving the business goals.It helps to differentiate data from information and depict the characteristics used to evaluate the importance of data. Understanding the potential impact of information systems and having the ability to put this knowledge to work can result in a successful personal career which can contributes organizations that reach their goals (Pana, 2014).

To understand underlying concept of information system application it's needed to conceptualize information system. Information system can be understood technically as a set of interrelated components that collect, process, store, and distribute information to support decision making, coordination, and control in an organization (Laudon & Laudon, 2013). Moreover, it may also help business leaders and employees to analyze problems, visualize complex subjects, and create new products. It can consists of information about significant people, organization, places, and things within the organization/in the environment surrounding it (O'Brien, 2008).ISs performs four main activities that organizations need to make decisions, control operations, analyze problems, and create new products or services. These are input, processing, output and feedback. Input captures raw data from within the organization or from external environment/users. Processing converts this raw data into a meaningful information. Output transfers the process in sequence to the people who will use it or to the behavior for which it will be used. It requires feedback, which is output that is returned to appropriate members of the organization to help them evaluate or correct the input stage (Laudon & Laudon, 2013).

According to O'Brien & Marakas (2007),information system can be any intentionally set grouping of people, hardware, software, communications networks, data resources, and policies and procedures that can store, retrieve, transform, and disseminate information in business and or. People depends on modern information systems to communicate with one another using a variety of physical devices, information processing instructions and procedures, communications channels, and data resources. An information system can be defined strictly as a set of unified mechanism that collect, process, store, and deal out in order to support choice making, harmonization and control in an association (O'Brien, 2006). As posited by Patterson (2005), an IS is a group of interrelated components that work to carry out input, processing, storage, output and control actions in order to convert raw data into information that can be used to support forecasting, planning, control, coordination, decision making and operational activities in an organization. According to Shim (2000) an information system is a computerized system that processes data and produces information that enhances performances of firms. This process is considered as an information processing cycle (IPC). The IPC consists of input, process, output, storage, and control that required carrying out information system activities. Every business firms in this competitive and technological age needs an information system to keep track of all business activities and performances, to make right business planning, till the product delivery via manufacturing and quality cycles (Laudon & Laudon, 2013).In addition to supporting decision

making, harmonization, and control, in sequence scheme may also help manager and workers study problems, visualize complex subjects, and create new products (O'Brien, 2006).

Scholars such as Talvinen, (1995); Toivonen, (1999), focused substantial investigation on management information system and in order skill from commerce imperative. It is increasingly being used by firms in an attempt to a gain a sustainable competitive advantage. Use of information technology to support the marketing function has been no different. Furthermore, Toivonen (1999) proposed that, marketing information systems are physically embodied in information technology, which requires utilization of physical devices and instruction and procedures used to build the system. Information technology may provide opportunities for competitive advantages or be a competitive necessity in currently turbulent business environment. One of the very first benefits that a company gets from the use of an information technology based marketing information system (MktIS) is improvements in the reporting system (Gounaris, Panigyrakis & Chatzipanagiotou, 2007). The another important benefit of information technology based MktIS is the ability to monitor a company's market environment more effectively, specifically with regard to customer relations, and to assist managers and salespeople in meeting their marketing and sales objectives (Speier & Venkatesh, 2002). The implementation of an ITbased MktIS can potentially change the role of the marketing function radically and helps to increase the company's degree of customer orientation(Nakata & Zhu, 2006). Furthermore, the emergence of Web based technologies has generated important business opportunities for organizations, suppliers, channel members and customers. In online social networks/medias, people receive and provide a great deal of information. In this way, social media offers an excellent opportunity for MktIS to promote, sell and distribute firms products.

To understand information system significance, it is logical to conceptualize management information system. A groundbreaking study by Cox and Good (1967) posited that management information system (MIS) as the set of procedures and methods followed to collect, analyses, and disseminate information to be used in marketing-related decision making processes. Marshall and LaMotte (1992) conceptualized MIS as an integral, flexible, formal, and evolutionary computer system that allows the firms use of an organized flow of relevant information to orientate marketing-related decision-making processes. According to Marshall, MIS based on the three main characteristics. *Firstly*, MIS must be understood as integral and flexible, since the marketing activities in a company are interrelated and must be adapted to changing scenarios. *Secondly*, MIS must be formal and evolutionary: designed to achieve specific organizational goals to satisfy the needs of the marketing/ managers over a long period of time. *Finally*, it must provide an organized flow of relevant information to orientate decision-making processes (Marshall, 1996).

As we conceptualized from management information system, it supports managers in decision making at middle level management. However, the concept of business information system is very broad. Business information system (BIS), as a group of interrelated components that work cooperatively to carry out information system activities to transform data into information products that can be used support forecasting, planning, control, and coordination of managerial decision making and to support operational activities which is particularly vital for business decision making. It has resources of people (managers and technical support staffs), hardware (computer and other physical items), software (operating procedures and application software), communication technologies (networked computer) and database resources (Elizabeth, 2008). In most organization BIS make extensive use of information technology such as personal computers for purpose of business decision making. The reasons why computerized business information systems have become widespread are evident in their advantages such as speed, relevance accuracy and dependability. Moreover, BISs have high degree of flexibility due to their ability to be programmed to carryout wide variety of tasks(Elizabeth, 2008).Based on purpose that why organizations uses information system in organization we have two classifications of information system. *(1) To support business operations* - To assist daily business operation and system. *(2)To support managerial decision making* - *supporting* decision making at different levels of management (O'Brien & Marakas, 2007).

According to O'Brien the applications of information systems that are implemented in today's business world can be classified in different ways. For instance, types of information systems can be classifiedas either operation that supports daily operation of business: Support of business operation or managerial decision making. Information system has benefit in supporting of business operation such as transaction processing systems (TPS), process control systems (PCS) and Enterprise collaboration systems (ECS). It is significant in supporting managerial decision

making such as management information system (MIS), decision support system (DSS) and executive information systems (EIS). As depictedby Patterson (2005),there are various categories of information system such as data processing systems, management information systems, decision support Systems and executive information system (O'Brien & Marakas, 2007).

1.2. OBJECTIVE THIS REVIEW PAPER

This review article has been reviewed in the literature of information systems, marketing information systems and management information system books, articles, and journal discussed the concepts of information system as a strategic tool to firms competitiveness. This review paper highlights the role of information systems in business organizations to take competitive advantage.

2. THE ROLES AND TYPES OF INFORMATION SYSTEM IN BUSINESS ENTERPRISE

2.1. TRANSACTION PROCESSING SYSTEMS

Transaction processing systems (TPS) are the fundamental business systems that supplements the operational level of the organization. A TPS is a computerized system that performs and records the routine transactions necessary to the carryout business operation (Laudon & Laudon, 2006). Information generated from TPS can be input for other types of IS such as management information system and decision support system. At the lowest level of the organizational hierarchy there is TPS that support the daily operation of the firm (Belle, Eccles, & Nash, 2001).

2.2. PROCESS CONTROL SYSTEMS

Another operation and technical level information system is process control systems. It Monitor sand controls industrial or physical processes. For instances: petroleum refining, power generation, and steel production systems. A fuel refinery uses electronic sensors linked to computer to monitor substance processes repeatedly and make real-time adjustment that control the refinery process (O'Brien & Marakas, 2007). A process control system has equipment's, computer programs, and operating procedures (Ciortea, 2004).

2.3. ENTERPRISE COLLABORATION SYSTEMS (ECSs)

Office mechanization scheme are one of the most usually second-hand category of in order systems that will help boss manage the flow of information in firms (Heidarkhani *et'al.* 2013). It are enhancing team and work group communications and productivity (O'Brien & Marakas, 2007). Office automation systems are unlike other types of information systems is not specific to any one level in the organization but provide important support for a wide range of users (Belle, Eccles., & Nash, 2011). Office information systems are intentionally designed to complement office tasks with information technology at all levels of management. It enhances employee collaboration and communication. For instance voice mail, multimedia system, electronic mail, video conferencing, data transfer, and group decisions can be achieved by OASs (Shim, 2000).

2.4. MANAGEMENT INFORMATION SYSTEMS(MIS)

Management information systems (MIS) are a type of computer information systems that could collect and process information from different sources in organization decision-making in managerial levels (Heidarkhani *etal.*, 2013). It supplements information in the form of pre-specified reports and displays to support business decision making (O'Brien & Marakas, 2007). The next level in the organizational hierarchy is occupied by lower level managers and supervisors. This level consists of computer systems that are intended to assist ready organization in monitor and scheming the deal dispensation behavior that occur at secretarial level. Management information systems (MIS) use the data collected and produced by the TPS to provide supervisors with the necessary control reports (O'Brien & Marakas, 2007). According to Hasan, Shamsuddin, & Aziati (2013), MIS is type of information systems that take data within organization from the system and summarized it to meaningful and useful forms as management reports to use it to support management activities and decision making. It is a planned system of collecting, storing and disseminating data in the form of information needed to carry out the functions of management.

2.5. DECISION SUPPORT SYSTEMS (DSSS)

A Decision Support System is a computer based system future for use by a exacting manager or usually a group of managers at any managerial level in making a choice in the procedure of solve a semi prearranged decision (Asemi,

Safari, & Zavareh, 2011).As posited by Heidarkhani, *et al* (2013), DSSs are type of managerial in sequence scheme that help managers in choice making that needs model, formulation, scheming, compare, select the best that can predict the scenario. According to Khanore, et al. (2011), DSSs are particularly designed to help management make decisions in situations where there is uncertainty or risks about the possible outcomes of those decisions. According to Shim (2000), it is a computer-based information system that assists managers in creation many multifaceted decisions, such as decisions wanted to solve badly defined or semi-structured problems.

2.6. EXECUTIVE INFORMATION SYSTEMS (EIS)

According to Belle *et al.,* executive information systems (EISs) have been developed, which provide speedy access to both internal and external information, often presented in graphical format, but with the ability to present more detailed underlying information if it is required (Belle, Eccles, & Nash, 2011). EISs provide critical information from a wide variety of internal and external sources such as MIS, DSS, and other sources customized to the information needs of chief executives and higher level managers) in easy-to-use displays to executives and managers (O'Brien & Marakas, 2007). According to Patterson (2005), An EIS provides top and middle level managers with a system to assist in taking strategic and tactical decisions. According to Shim (2000), EISs is designed to generate information that is abstract enough to present the whole company operation in a simplified and easy version to satisfy senior management requirements. It is oriented at strategic management of the company. The top management applications are designed to gain information from the other application of the company system such as transaction processing and Management information system.

2.7. EXPERT SYSTEMS (ES)

According to O'Brien and Marakas expert systems (ESs) are the category of Artificial Intelligence which has been used most successfully in building commercial applications used by business organizations (Belle, Eccles., & Nash, 2011). According to O'Brien & Marakas (2007), expert systems are knowledge-based systems that provide expert advice and consultants to users. According to Patterson (2005), an expert system is a computer based program that tries to emulate human reasoning by using artificial intelligence. According to Shim (2000), expert system is a set of computer programs that perform a task at the level of a human expert.

2.8. KNOWLEDGE MANAGEMENT SYSTEMS (KMS)

This type of information system is very new, computer based knowledge system and emerging which focuses on creation and dissemination of firms knowledge to employees within organization. Knowledge management systems (KMSs) are knowledge-based information systems that support the creation and dissemination of business knowledge to employees and managers throughout a company (O'Brien & Marakas, 2007). KMSs are the deployment of a comprehensive system that improve the growth of an organization's knowledge (Salisbury, 2003).

2.9. STRATEGIC INFORMATION SYSTEMS (SIS)

At top level managers make decision which strategic decision. Strategic information systems (SISs) apply information technology to a business firm's products, services, or business processes to help it to gain a strategic advantage over its competitors (O'Brien & Marakas, 2007). According to Belle, Eccles, & Nash, (2011), SISs are special type of organizational information system is used to sustain competitive advantage in the market place.

3. FUNCTIONAL BUSINESS SYSTEMS: IS FROM FUNCTIONAL PERSPECTIVE

Functional business systems are information systems that focus on operational and managerial applications in support of basic business functions in areas of marketing, finance, personnel, production and operation. These are information systems that support applications in functional areas of business, instance, accounting, finance, marketing, operations, and human resource management (Laudon & Laudon, 2013).According to Khanore, *et al*. (2011) information system can be secret by the specific managerial purpose to sales and marketing systems, developed and manufacture systems, finance and secretarial system and workers systems.

3.1. SALES AND MARKETING INFORMATION SYSTEMS

For every business customers are at central point which determines firms existence market. Therefore marketing information system is needed to marketing situation and competition. Marketing information system focuses on customer, business value delivery system, marketing efforts, understanding marketing environment and competition. Sales and marketing function is responsible for promoting and selling the organization's product. Marketing is

focuses on identifying the customers for the firm's products or services, determining wants, planning and developing products to meet needs of customers and promoting these products and services to customers. Sales functions are concerned with contacting customers, selling the products or services, taking orders and following up on sales. Sales and MktIS supports these activities (Laudon & Laudon, 2006). According to Shim (2000), MktIS supports marketing activity in the areas of product decision, marketing programs development and sales forecasting.

3.2. MANUFACTURING AND PRODUCTION INFORMATION SYSTEMS

According to Laudon, manufacturing and production function is responsible for actually producing the firm's goods and services. This system deals and supports the planning, development, and maintenance of production facilities; the establishment of production goals; the acquisition, storage, and availability of production materials; and the scheduling of equipment, facilities, materials, and labor required to finished products (Laudon & Laudon, 2006). According to Hernandez & Rivera (1997) the production information system is a computer program that manages a database of information deals with production. According to Shim (2000) the mission of a manufacturing information system is to utilize computer technology to improve the process and the efficiency of a manufacturing system, thus raising quality of products and lowering the manufacturing costs. In other term, a manufacturing system is a system that takes material, equipment, data, management, and information systems technology as the input and uses manufacturing and information process to bring forth better final products as output (Laudon & Laudon, 2013).

3.3. FINANCE AND ACCOUNTING INFORMATION SYSTEMS

Finance and accounting function is responsible for managing the firm`s financial assets and securities, such as cash, stock, bonds, and other investment. The accounting function is responsible for maintaining and managing the firm`s financial records such as receipts, depreciation, payroll (Khanore, et al., 2011). According to Shim (2000) the fundamental task of accounting software is to automate the routine job of entering, recording and posting accounting transactions. This information is organized in an electronic data base format so as to produce financial statements and can be accessed immediately to assist in the management of the firm. A financial management information system provides financial information to all financial managers within an organization. Financial planning and decisions are typically based on information generated from the accounting system (Laudon & Laudon, 2006).

3.4. HUMAN RESOURCE INFORMATION SYSTEMS

Human resources information systems (HRISs) are process of producing, organizing, storing and distributing manpower information to support the organization managers and employees at various levels, in order to make right decisions. Presently, the majority of successful companies are using human resource information systems to support routine operations of human resources processes (Khanore, et al., 2011).The personnel function is responsible for attracting, developing, and maintaining the firm's work force. HRISs support activities such as identification of potential employees, maintaining complete records on existing employees, identifying employee skill gaps and creating programs to develop employees' talents and skills (Laudon & Laudon, 2006). HRISs consists of records of human resource information that facilitates decision making with regards to personnel decision making in organization.

4. CROSS FUNCTIONAL BUSINESS SYSTEMS: IS FROM CFS PERSPECTIVE

As we discussed above section, the functional systems are information system that emphases on a particular business function, it’s possible to classify functional systems into following categories: human resources, accounting, finance, marketing, sales, and productions and operations functions. Even though, these systems are designed to functional areas of business, they not subjected to particular decision. Actually, however, these systems often do not support the information needs of just one particular areas of business or a functional business area, but are incorporated into combinations of several functional systems (Khanore, *et al.*, 2011). To the category of the most popular IS, tools of business intelligence (BI), undoubtedly belong CFS. CFS may be conceptualized as an deliberately organized combination of various functional systems eventually, their fundamental functionalities that are used to support information processing, and decision-making needs of various departments within the organization. In other term, these systems cross not only the departmental and functional boundaries and distinct business functional areas, but may also cross the borders of the whole enterprise and also supports decision making needs of several departments. In spite of the fact that these systems are more sophisticated and more costly to acquire, use and implement within organization, howeverit help companies to improve imperative business processes all across the enterprise, which

consequently leads to effectiveness and greater efficiency. According to O'Brien (2006), inter networked electronic business enterprises "view cross-functional enterprise systems as a strategic way to use IT to share and disseminate information resources and improve the efficiency and effectiveness of business processes (Khanore, et al., 2011). Among the most popular and most commonly used cross functional system certainly enterprise resource planning systems, supply chain management systems, customer relationship management systems, and knowledge management systems (Patterson, 2005).

4.1. ENTERPRISE RESOURCE PLANNING SYSTEMS (ERP)

Enterprise Resource Planning Systems (ERP), is one of cross functional system that eliminate the firm's internal, departmental and functional boundaries as they merge several business processes into an integrated software solution, which enables seamless flow of instantly updated information throughout the company. To make more specific, enterprise resource planning system is an organized combination of mutually connected software modules and a central pool of data. The common database gathers data from and supplies the updates to a various of organizational applications, as posited by Laudon & Laudon (2012) enterprise resource planning, it supports almost all the firm's internal activities, processes and business processes including manufacturing, logistics, distribution, accounting, finance, and personnel functions of a company (Patterson, 2005). The enterprise planning system solutions are designed based on predetermined business processes that indicates the best possible which right and the most successful in achieving goals, problem-solving approaches or solutions in a given business enterprise. As result of this, ERP may enhances an organization goal achievement and consistently reach the business goals and objectives. Thus, the worthiness of these systems resides in the capability to improve and increase organizational efficiency, effectiveness, coordination, and collaboration. As well, because of the fact that updated and current data or information entered by one application is instantly available to the other applications and business processes, utilization of ERP also leads to improved quality of decision-making. All of the mentioned system advantages consequently leads to significant cost saving. Finally, it can be claim that the venture systems "create a base for a more customer-centered association by integrating firm client, operation, finance, sharing data to enable quicker responses to customer and stakeholders requests and information(Patterson, 2005).

4.2. Supply Chain Management Systems (SCM)

In organization supply chain management system is deals with acquiring and processing to production department which can break or make organization production system. Afirm's supply chain is a chain of organizations and business processes for procuring raw materials and inputs, transforming and processing these materials into intermediate and finished products, and distributing the finished products to customers. It connects supplier, developed plants, sharing centers, retail outlets, and clientele to supply merchandise and services from basis from side to side use. And also supply chain deals with flow of materials, information, and payments through the supply chain in both in-out direction (Laudon & Laudon, 2012). It is a managerial system that integrates the management and supply chain processes, which are somehow concerned in producing and moving a product. This system (SCM) is a type of CFS used to support and increase the effectiveness and efficiency of all the activities that are enclosed in the process of creating and selling a product. Just like ERP, SCMS consists of an integrated software applications to support decision making under acquisition of raw materials and sell of finished goods. Unlike ERP, however, SCM crosses the boundaries of the whole enterprise and integrates the business processes, activities and information of a firm with its suppliers and customers. It can be considered that there are three principal categories of supply chain systems: internal, upstream and downstream supply chain system which may, obviously, be merged into an networked system solution (Laudon & Laudon, 2013). Its main purpose of utilization is as followings:

The Internal SCM supports internal supply chain processes and activities to transform the acquired raw materials and services into final products as well as to manage inventory and materials with firm. The Upstream SCM is used to facilitate inbound logistics as it integrates a business with its suppliers and is used to manage and co-ordinate the supply ordering processes and overall relationships with company strategic suppliers which gives company competitive advantage. The Downstream SCM is used to enhance the outbound logistics to supports activities and processes connected with selling, distributing and delivering products to customers or even consumers (Laudon & Laudon, 2013).

Above and beyond the division of SCM based on the supply chain part, it is also possible to categorize these systems by their information-processing support functionalities. From this point of view, there are two main types of *supply chain planning and supply chain execution systems* (Laudon & Laudon, 2013). The former helps companies determine production quantities to meet the customers' demand and that is why the supply chain planning software helps businesses suggest sourcing and manufacturing plans, distribution and logistics action statements or product demand forecasts (Nowduri & Al-Dossary, 2012). In addition, the execution SCM is used to integrate the outbound logistics which focuses on actual movement of products from the company to warehouses, distribution centers, retailers, or customers. The last possible classification of SCM is based on type of product demand forecasting.

The original type of SCM, categorized based on the production decision-making, is known as a build-to stock or push-based system. As we understood from its name, this software is based on a decision-making, uses mathematical functions and modeling algorithm that creates production schedules based on forecasts of demands for products, and once the goods are produced, they are pushed further in the chain, either to warehouses, distribution centers, or retailers (Laudon & Laudon, 2012).

The more recent SCM, which is network based or Web-driven and inter networked electronic business enterprises, made-to-order or pull-based model. The build-to-order systems the manufacturer only begins assembly after an order has been placed. Usage of this system leads to lower inventory carrying costs, reduced product cycle time, and to its utilization a company may be able to effectively implement the just-in-time (JIT) strategy to have better inventory flow in organization, because of accurate delivery of goods in the right amount and as it are needed (Shim, 2000).

Currently, there are a number of emerging technologies which supports business activities in different activities. In the Information Age, the functionality of the SCM systems is enabled mainly by web technologies, including the Internet, intranets and extranet, which consequently enhance performance and increase efficiency of these systems. The outgrowth of internet-based technologies and networks, all involved parties can easily and quickly communicate with each other, instantly share updated information with regard to supply, inbound deal with acquisition of raw materials and outbound logistics deals with selling and distribution of goods, or actual demand, and thus make better decisions regarding any process or activity of the production cycle. Besides this, thanks to the standardized web-based environment, the SCM may be effectively used also on a global scale to coordinate global chains that include participating members from many countries. Lastly, to encapsulate the business benefit of SCM, among the top benefits of using these systems doubtless belongs to well-run supply chain, accurate information instantly available to all involved parties, significant time saving, reduced supply chain costs, and even increased sales through the correct and exact availability of products where they're needed (Laudon & Laudon, 2012) & O'Brien & Marakas, 2007).

4.3. CUSTOMER RELATIONSHIP MANAGEMENT SYSTEMS (CRM)

Customer Relationship Management Systems may be understood as CFS that are implemented to increase efficiency and effectiveness of organizational operations by crossing the company's internal as well as external boundaries. Company produces goods and services that should sold to the customers to enhance firms sustainability. As the name of the system solution suggests, it is application which very customer oriented than others and used to manage and coordinate relationships with company's customers, the more sophisticated types also contain modules used to integrate firm's relationships with strategic business partners and employees. Similar to ERP or SCM, CRM system comprises of a combination of networked software applications and shared database or a part of database, which collects and integrates data about customers from all over the organization. Subsequently, the CRM software performs customer data analysis and provides the results to corresponding applications and to so-called customer contact points that serve as a method of interaction between the business and its customers, for instance e-mail, web site, customer service desk, etc. Overall to enhance business enterprise relationship with customers that can improves company sales performance (Khanore, *et al.*, 2011).According to Laudon & Laudon (2012), CRMS is the profitable "software letters range from place tools that do incomplete function, such as personalizing Web sites for specific customers/target audiences, to large-scale enterprise applications" and provide modules or applications for sales force automation (SFA), acquiring customer complaints, customer service, and marketing (Patterson, 2005).

The sales force automation feature may Supports Company to increase the efficiency of productivity by focusing on sales and service on the most profitable customers.

Customers service applications helps firms to provide updated information about customers to contact points and thus to make the customer support and service more efficient and marketing modules include tools for analysis of data about marketing and customers and consequently identify the opportunities for product/service modification, improvement or adjustment, as well as for cross-selling, up-selling and bundling in which combination of products is sold as a bundle at a price lower than the total cost of the individual products (Patterson, 2005). Because of the fact that customers have an enormous value in the information age and are considered a most valuable business asset, the CRM systems might be considered a must have system solution for businesses that are trying to compete, succeed and sustain in the digital era, as they help companies and organizations understand and work with their customers, determine the financial lifetime value of customers and identify exclusive needs of customers. Therefore, it can be claimed that business value of these systems involves improved customer satisfaction that consequently leads to increased loyalty and customer patronage, more effective marketing and decreased costs direct marketing, customer acquisition and retention, improved efficiency of processes connected with marketing and sales, and thus significant time saving,and generating increased sales revenues.

4.4. KNOWLEDGE MANAGEMENT SYSTEMS (KMS)

Just like customers and suppliers to business enterprise, firms information, wisdom and knowledge have tremendous value in the era of the artificial intelligence and it can be stated that quality and usage of these assets can spell the difference between the success and failure of a business in the very competitive environment in the era of computer technology. In other words, acquisition, creation and dissemination of information and/or knowledge in an enterprise, eventually, between a company and its business partners have a direct impact on a business' position on the market. As result of the above mentioned realities, it is possible to assert that KMS has become one of the major strategic uses of information technology and that is why many firms are designing, implementing and utilizing knowledge management systems to effectively manage, design and share knowledge and business know-how to achieve goals of enterprises. According to O'Brien & Marakas (2007), the goal of KMS is to support knowledge workers to create, organize, and make available important business knowledge, when it's needed in an organization. This consists of processes, procedures, patterns, reference works, formulas, best practices, forecasts, and fixes (Khanore, et al. 2011). In other words, the main goal and also value of KMS lies in its ability to capture or allocate the desired knowledge, weather new or existing, and deliver it to where it is needed, what consequently helps a business become competitive.

4.5. ENTERPRISE APPLICATION INTEGRATION (EAI)

Finally, very new emerging trends in cross functional system solutions suggest combination of various CFS into one application. This process as well as the combination of several CFS is known as enterprise application integration (EAI). EAI, or so called business Solutions, which are also termed as Enterprise Suites or e-Business Suites, depends up on flexible software that enables the interconnection of CRM, ERP, SCM modules into one system solutions. In spite of the fact that the EAI might be very expensive to develop, implement and maintain, in the long run, its effective utilization, especially in large corporations, may bring significant values and much greater efficiency and effectiveness on information sharing, decision making and business process support than the usage of the solely CFS (Cesalova, 2012).

5. THE ROLE OF IS AND A BUSINESS STRATEGIC OBJECTIVES

Up until the half -1950s, business enterprises managed all financial and business information and its flow with paper records. During the past five decades, more and more business information and the flow of information among key business actors in the environment has been computerized. Businesses invest in information systems as a way to cope with and manage their internal production functions and to cope with the demands of key actors in their environments and competition. Firms invest more in information systems for the achieving business objectives (Laudon & Laudon, 2013).

A. Operational Excellence

Businesses enterprises continuously seeks to increase the efficiency of their operations and processes in order to better profitability. Information systems and internet based technologies are some of the most important tools available to managers for attaining higher levels of efficiency and productivity in business operations, particularly when coupled with changes in business practices, processes and management behavior(Laudon & Laudon, 2013).

B. New Products, Services, and Business Models

Information systems and technologies are a major enabling tool for business firms to develop new products and services, as well as entirely new business models. A business model designates how a company produces, delivers, distribute and sells a product to create wealth (Laudon & Laudon, 2013).

C. Customer and Supplier Intimacy

To produce and sell company products, a firm needs to create intimacy with suppliers and customers. When a business really knows its customers and serves them well, the way they want to be served, the customers generally respond by returning and purchasing more from that business enterprise which raises revenues and profits. Similarly with suppliers: the more a business engages its suppliers, the better the suppliers can provide vital inputs. If there is defect in raw material supply, it may leads to failure in production system and customer dissatisfaction. This lowers costs of acquiring raw materials and customers. How to really know your customers, or suppliers, and focusing customer retention is a central problem for businesses with millions of offline and online customers (Laudon & Laudon, 2013).

D. Improved Decision Making

Many commerce managers operate in an in order mist bank, never really have the correct information at the correct time to make an knowledgeable choice. Alternatively, managers rely on forecasts, best guesses, and luck. This kind of decision may results in over or underproduction of goods and services, poor allocation of resources, and response times. These poor outcomes increase costs and lose customers. In the past one decade, information systems and technologies have made it reliable for managers to use just in time data from the marketplace when making decisions. Using this reliable and real time information, managers can immediately allocate repair resources to affected areas, inform consumers of improvement efforts, and recover service fast (Laudon & Laudon, 2013).

E. Competitive Advantage

When firms attain one or more of these business objectives operational excellence comes next; new products, services, and business models; customer or supplier intimacy; and improved decision making chances are they have already achieved a competitive advantage. Doing things better than competitors, good business strategies, charging less for superior products, and responding to customers and suppliers in real time all add up to increases sales and profits that competitors cannot match and gives competitive advantage to firm (Laudon & Laudon, 2013).

F. Survival

Now business environment is stiffly competitive in which competitors are implementing new systems, technologies and business strategies that enhances their business operation and performances. In line with this, business firms also invest in information systems and technologies because network based information technologies are requirement of doing business. Sometimes these requirements are driven by industry-level changes (Laudon & Laudon, 2013).

5.1. MARKETING INFORMATION SYSTEM AS A TOOL FOR COMPETITIVENESS

One of the major factors in highly competitive environment that enhances business enterprise performance is knowledge management and also firms for achieving the competitive advantages should concentrate in it information system. It has a critical role in business performances financial and non-financial aspect such as decision making as a big role of management. ISs were thought to be similar with corporate data processing and considered as some back-room operation in support of daily operations (Rockart, 1979). Strategic SISs are systems that shape a business unit's competitive strategy (Callon, 1996, & Neumann, 1994). Strategic ISs are touted throughout the commercial press and the academic literature as the way to attain the greatest benefits from an investment in new information technologies (Bajjaly, 1998).Information system is characterized by its ability to significantly change the manner in which business is conducted, in order to give the firm strategic advantage (Turban *et al*, 2006). Gaining competitive advantage is crucial for business enterprises. Competitive advantage can be understood as 'a product or service that an organization's customers value more highly than the same with competitors offerings'. Competitive advantages are typically impermanent as competitors often look ways to imitate

the competitive strategy. In order to win of competition, organizations have to continually develop new competitive advantages through developing and using information system and technology to have better business strategy (Porter& Millar, 1985).

5.2. COMPETITIVE STRATEGIES AND ROLES OF INFORMATION SYSTEMS

Greater interest to most managers is the development of a strategy aimed at establishing a profitable and sustainable position against these five forces models (Turban *et al*, 2006). To establish such a position, a companies are required to develop a strategy of performing actions differently from competitors. Porter (1985), proposed three competitive strategies that enhances business competitiveness: cost leadership, differentiation, and niche strategies. Additional strategies have been developed by other strategic-management scholars (Neumann, 1994). Turban *et al*, (2006) cited eleven strategies for competitive advantage while organizations utilize information system and technology for its business operation; in this review paper we presented his literature.

Cost Leadership strategy: Organizations can use information systems to basically shift the cost of doing business or reduce the costs of enterprise processes and to lower the costs of customers or suppliers, for example-commerce, business to consumer and business to business models, electronic procurement systems to reduce operating costs. The cost leader delivers a product of acceptable quality at the lowest possible cost. It tries to open up a significant and sustainable cost gap over all other competing firms. The cost advantage is accomplished through superior position in relation to the key cost drivers (Hemmatfer, Salehi & bayat, 2010).

Niche strategy: aim of niche marketing is to serve specifically selected market groups in very satisfying which enhances company competitiveness. Choose a narrow-scope segment which is niche market and be the best in quality, speed, or cost in that market(Hemmatfer, Salehi & Bayat, 2010). Information systems support this strategy by producing and analyzing data for customized sales and marketing techniques. Information systems enable companies to analyze customer buying patterns, purchasing power, tastes, and preferences intimately so that they effectively and efficiently delivery advertising and marketing campaigns to smaller and smaller target markets (Laudon & Laudon, 2013).

Differentiation strategy: business enterprises can use information technologies and systems to develop unique features and to reduce competitors' differentiation advantages, which can be achieved through using online live communication systems and social networks to better understand and deliver customer service; by using technology to create intermediaries to offer value-added service and improve customers' connection to its web business; applying advanced and established measures for online operations than offline practices(Manyika 2009).The objective is to recognize and keep performance that is superior to any competitors in satisfying those buyer needs. Hence, effective differentiation leads to premium prices and above-average profitably if there is approximate cost parity (Laudon & Laudon, 2013). Manufacturers and channel members are using information systems to create products and services that are individualized and customized to fit the customized specifications of individual customers (Hemmatfer, Salehi & bayat, 2011).

Innovation strategy: In currently competitive business scenarios innovations is needed to sustain. Business enterprise can use information systems to create new products and services, to develop new or niche markets, and to radically transform business processes via digitization that is using digital modeling and simulation of product design to reduce the time and cost to the market (Chui & Fleming 2011). By having this in mind, Internet and telecommunications networks provide better capabilities and opportunities for innovation(Laudon & Laudon, 2013).

Growth-strategy: business firms can use ISs to expand domestic and international operations and to modify and coordinate into other products and services, for instance, establishing global intranet and global operation platform; establishing Omni-channel strategy to draw firms growth which enables to leveraging importance of online and offline channels (Rigby, 2011).It enhances firm's market share, enables to get more customers, sales and profitability. Thus strategy strengthens a company and grow-up profitability in the long run. Web-based selling can facilitate growth by creating new marketing channels, such as electronic auctions(Laudon & Laudon, 2013).

Strategic Alliance: Currently, competitive world alliance with various stakeholders is needed to win turbulent environment. Organization scan use ISs to enhance relations with partners via electronic business applications, which consists of developing virtual organizations and inter-organizational information systems (Hemmatfer, Salehi & Bayat, 2011).Work with business partners in collaboration, alliances or digitized firms. This strategy develops synergy, allows firms to focus on their core business, and opportunities for growth(Laudon & Laudon, 2013).

Operational effectiveness strategy*:* Improve the manner in which internal business processes are executed so that a firm accomplish similar activities better than competitors (Porter, 1996). improvements in internal business process can increase employee and customer satisfaction, quality, and productivity while shrink time to market. Improved decision making and management, this contribute to improved efficiency (Hemmatfer, Salehi & Bayat, 2011).

Customer-orientation strategy*:* Concentrate on making customers delight-ment. Highest competition and the realization that the customer is king (queen) is the basis of this strategy. Network based systems that support customer relationship management are particularly effective in this area because they can provide a customized, personalized relationship with each customer (Hemmatfer, Salehi & bayat, 2011). Use ISs to tighten bondage with suppliers and customer which focusing on customer relationship management (Laudon & Laudon, 2013).

Time strategy*:* Customers wants to save their time and treat time as a basic resource, then managing and utilizing it to the firm's advantage is needed. "Time is money" Web-based time, first-mover advantage, real time delivery or manufacturing, competing in time (Keen, 1988), and other time-based competitive concepts emphases the significant of time as an asset and a source of competitive advantage. One of the driving forces behind time as a competitive strategy is the need for firms to be immediately responsive to customers, markets, and changing market conditions (Hemmatfer, Salehi & Bayat, 2011). The another is the time-to-market competition. Introduction innovative products or using information technology to provide exceptional service, companies can create barriers to entry from new entering to the market (Turban *et al*, 2006).

Lock in customers or suppliers strategy: Encourage customers or suppliers to stay with business enterprise rather than going to competitors. Locking in customers has the consequence of reducing their bargaining power (Turban *et al*, 2006).

Increase switching costs strategy: Discourage customers or suppliers from going to competitors for economic advantage (Turban *et al*, 2006).

6. CONCLUSION

This review paper highlights the role of Information Systems (IS) in business organizations and competitive advantage on a business perspective. IS becomes inevitable in today's information age as it has the power to bring massive benefits to businesses, organizations, and the whole society. As briefly discussed in this review paper, IS more definitely, types of information systems, functional systems, and cross-functional system solutions such as SCM, CRM, ERP enables businesses to electronically exchange data and information anytime and anywhere in the world with other end users, customers, suppliers, and business partners. Consequently, it helps companies build competitive advantages and successfully compete in today's fast changing global economy. In today's turbulent business environment, business organizations, in order to fully take advantage from business organizations should emphasis on the alignment of information system acquisition with business processes and overall business strategy. In conclusion, this review paper highlighted the role of IS in business organizations and competitive advantage on a business perspective. Effective implementation and utilization of business information system provides business organizations with strategic advantage and enhances organizational competitiveness.

References

[1] Asemi, A., & Safari, A., & Zavareh, A.A. (2011). The Role of Management Information System (MIS) and Decision Support System (DSS) for Manager's Decision Making Process. International Journal of Business and Management, *6 (7); pp. 164–173.*

[2] Belle, J-P.V & Eccles, M.G., & Nash, J.M. (2001) Discovering Information Systems.

[3] Callon, J. D., (1996). Competitive Advantage through Information Technology. New York: McGraw Hill, USA.

[4] Ciortea, M. (2004). Aspects Regarding: The Types of Process Control Systems, International Conference on Theory and Applications of Mathematics and Informatics, *pp.90–95.*

[5] Cox, D. F., & Good, E. (1967). How to build a marketing information system. Harvard Business Review, *45(3).*

[6] Elisabeth Hard castle (2008), Business information systems: Ventus Publishing ApS.

[7] García de Madariaga, J. (1994). Análisisyevolución de los sistemas de información de marketing. ESIC-*Market, 83, 51-62.*

[8] Gounaris, S. P., Panigyrakis, G. G., & Chatzipanagiotou, K. C. (2007). Measuring the effectiveness of marketing information systems: An empirically validated instrument. Marketing Intelligence &Planning, *25(6), 612-631.*

[9] Hasan,Y., &Shamsuddin,A., & Aziati ,N. (2013), The Impact of Management Information Systems adoption in Managerial Decision Making : A Review, The International Scientific Journal of Management Information Systems,*8,(4),pp.010-017.*

[10] Heidarkhani, A., &khomami, A.A, &Jahanbazi, Q., & Alipoor, H. (2013). The Role of Management Information Systems (MIS) in Decision-Making and problems of its Implementation, Universal Journal of Management and Social Sciences, *3(3),pp. 78–89.*

[11] Hemmatfar M., Salehi M., & Bayat (2010) Competitive Advantages and Strategic Information Systems: International Journal of Business and Management, *5 (7)*

[12] Hernandez, W, & Rivera, J. M. (1997). A Production Information System, an Application in the Pharmaceutical Industry, Computers ind. Engng, *33 (1) pp. 15-18.*

[13] Keen, P., Williams, R. (2013). Value architectures for digital business: Beyond the business model. MIS Quarterly, 37(2), 642-647.

[14] Retrieved from The Relevance of Porter's Five Forces in Today's Innovative and Changing Business Environment.

[15] Khanore ,S.,&Patil ,R.,&Dand ,H. (2011) management information system, Institute of Distance and Open Learning , University of Mumbai.

[16] Laudon, K. & Laudon, J. (2006) Management Information Systems: Managing the Digital Firm, 9th ed. Prentice Hall.

[17] Laudon, K. C., & Laudon, J. P (2011): Management information systems: Managing the digital firm (11th Ed.). Prentice Hall, Upper Saddle River, NJ, (9th Ed.). Prentice Hall, Upper Saddle River, NJ.

[18] Laudon, K. C., & Laudon, J. P (2013): Essentials of Management information systems: (10th Ed.). Prentice Hall, Upper Saddle River, NJ, (10th Ed.). Prentice Hall, Upper Saddle River, NJ.

[19] Marshall, K. P. (1996). Marketing information systems: Create competitive advantage in the information age. Boston, MA: Boyd & Fraser Publishing Co.

[20] Marshall, K. P., &LaMotte, S. W. (1992). MktIS: A marriage of systems analysis and marketing management. Journal of Applied Business Research, *8(3), 61-73.*

[21] Martina Casolova: Vysoká škola manažmentu v Trenčíne, Trenčín: Gaining Benefits from Cross-Functional Information Systems a Socio-Technical Approach to MIS.

[22] Nakata, C., & Zhu, Z. (2006). Information technology and customer orientation: A study of direct, mediated, and interactive linkages. Journal of Marketing Management, *22 (54).*

[23] Neumann, S. (1994). Strategic Information Systems Competition through Information Technologies. New York: Macmillan.

[24] Nowduri, S., & Al-Dossary, S. (2012). Management Information Systems and Its Support to Sustainable Small and Medium Enterprises International Journal of Business and Management, *7 (19), pp. 125–131.*

[25] O'Brien, J (2006): Management information systems (7th Ed.). McGraw Hill, Burr Ridge, IL.

[26] O'Brien, J (2008): Management information systems (8th Ed.). McGraw Hill, Burr Ridge, IL.

[27] O'Brien, J.A., & Marakas, G.M. (2007) Management information systems -10th ed., by McGraw-Hill/Irwin, a business unit of The McGraw-Hill Companies.

[28] Patterson, A. (2005) Information Systems - Using Information, Learning and Teaching Scotland.

[29] Porter, M. E. (1996). What Is a Strategy? Harvard Business Review.*Pp.45-59.*

[30] Porter, M. E., and V. E. Millar (1985). How information gives you competitive advantage. Harvard Business Review, *63, (4), pp.149-158.*

[31] Rockart, J.F. (1979). Chief Executives Define Their Own Information Needs. Harvard Business Review, *19 (3).*

[32] Salisbury, M.W. (2003). Putting theory into practice to build knowledge management systems. Journal of Knowledge Management, *7(2), pp.128–141*.

[33] Shim, J.K. (2000) Information Systems and Technology for the Non-information Systems Executive, by CRC Press LLC.

[34] Stephen T. Bajjaly. (1998). Strategic Information Systems Planning in the Public Sector, University of South Carolina. The American Review of Public Administration, *28 (1), pp. 75-85.*

[35] Talvinen, J. M., & Saarinen, T. (1995). MktIS support for the marketing management process: Perceived improvements for marketing management. Marketing Intelligence & Planning, *13(1).*

[36] Toivonen, R. (1999). Planning the use of information technology in marketing: The case of Finnish forest industries. Forest Products Journal, *(49) 25-30.*

[37] Turban, E., King, D., Lee, J., & Veihland, D (2008): Electronic commerce: A managerial perspective. Prentice-Hall, Upper Saddle River, NJ.