

Information technology as a factor of creating and developing of competitive advantages of businesses

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Abstract

Information technology has changed business structures and organizational processes. Each organization is now aware of benefits and implication of information technology in business and also its ability in creating competitive advantage. Current worldwide movements show us that information technology will continue to be an important resource for development of businesses. Intensive use of information technology makes organization more innovative and speeds up business processes that in turn become more efficient and competitive. Today, usage of information technology becomes crucial for all businesses and organizations. Information technology is viewed as a competitive weapon critical for the organizational competitiveness and their competitiveness will be assessed according to their ability to outperform traditional competitors and newcomers. Only organizations that are in the forefront of technological solutions will be able to gain competitive advantage in the future. Therefore, we consider that this paper will help businesses to understand how information technology supports business processes and how can be used as a factor of creating and developing of competitive advantages.

1. Introduction

The field of information technology development is constantly evolving. New techniques and tools are continuously being introduced and the information revolution has most clearly invaded our homes and is hard not to agree that life has improved substantially. Experts have said that we are entering the information age because of information technology usage. In the last part of the twentieth century information technology not only changed the face of communications, but also gave impetus to economic growth, and today there are few aspects of life which are not affected by information technology¹. Information technology means any computer based tool that people use to work with information and support the information and information processing needs of an organization. Furthermore, recent years have witnessed an increasing convergence of digital technologies. Information technology has gradually converged with telecommunication technologies to give as information and communication technology (ICT)². Information technology created linkages and networks that bring together people, markets, goods or even countries and enable individuals and groups to engage in activities which were previously

impracticable and inaccessible (Graham). Information technology can contribute to income generation and enables people and enterprises to capture economic opportunities by increasing process efficiency and creating economic opportunities for employment [14]. Furthermore, the usage of information technology and their application are regarded as a factor of creating and developing of competitive advantages for any business.

It is interesting to note that the role of information technology in any organization is getting more important day after day. We can see businesses that start up where not possible without online access (Amazon.com, eBay.com etc.) and many of jobs such as Web designer, network administrator etc. did not exist prior to decade ago. Modern businesses are not possible without help of information technology and most authors (Lucey, 2005; Hicks, 1997; Wilkinson, 1982) would agree that information technology is playing an increasingly important role in organizations of all types, regardless of their size. The rate of technological change in information technology is so rapid and most new technologies become absolute few years after it was introduced (Hicks, 1997).

The developments in the field of information technology have brought a lot of novelty in business processes and affected the organizations. Usage of information technology is revolutionizing the rules of business, resulting in structural transformation and playing an important role to foster innovative products and business processes challenge has now shifted to incorporate information technology in both the internal and external activities of organization [15].

¹ There is no consensus on the usage of the term information technology. Some authors prefer terminology such as "new technology", and others "information and communication technology (ICT)". This paper uses the term "information technology", because it is descriptive and generally understood. Information technology refers here generally to all tools in task accomplishment.

² The term of information and communication technology (ICT) is sometimes used to emphasize the growing importance of communication technology such as local area network (LAN) and the Internet.

We should emphasize that there are studies that show us different approaches and reported about information technology usage for business purposes (Hicks, 1997; Davis and Olson, 1985), but the emphasis on the usage of information technology to gain competitive advantage is new and there have been only a few existing studies that have dealt and examine information technology usage as a factor of creating of competitive advantage. To place this study in the context, we turn out to the papers by Haag, Baltzan and Philips (2006), and Šendelj (2006). They noted that information technology support business processes and influence on organizational structures, as well as more than ever businesses are using information technology to gain and sustain competitive advantage (Haag, Baltzan and Philips, 2006; Šendelj, 2006). Along this line our study objective concentrates on the usage of information technology for competitive advantage purposes. In this paper we draw two streams of the literature, namely usage of information technology in business and organization, and usage of information technology as a factor of competitive advantages. The focus is to show how businesses can use information technology to gain competitive advantages over their competition, while as enterprises have began to understand the importance of new technology as an enabler of economic development. Thus, this study provide a framework of effective use of information technology in business and offers an alternative approach to investigate how information technology can be used as a factor of creating and developing of competitive advantages of businesses.

This research is one of the few academic studies that investigate the usage of information technology as a factor of competitive advantages. Therefore, this study extends the body of knowledge on this research topic and intends to improve a better understanding of the role that information technology can play in business and organizations.

The rest of article is organized as follows. In the following section we provide a comprehensive review of the literature in the area of information technology and their usage in business and organizations. The review begins with discussion why information technology is essential and so important for business and should be central to any organization. We than describe information technology and their usage for competitive advantages. Lastly, we conclude our study with a discussion and suggestions for further research as necessary.

2. Literature review

Theoretical literature and researches studying have found that there is interaction between information technology and organization. Studies reported findings regarding the influence and usage of information technology in business and organization. Specifically, the studies has shown that nowadays information technology have become an essential part of organization. While, technological developments have transformed the majority of wealth creating work from "physically-based" on work "knowledge-based" and

information technology and knowledge³ are now the key factors of production [16].

Studies have reported too that information technology is crucially important today and is a vital feature of the move to a knowledge society (Haag and Cummings, 2006). More than ever businesses are using information technology in their business processes and there is a complex relationship between information technology and organizations (Laudon and Laudon, 2006). It has also been found that information technology are not only used to carry out and improve business operations, but information technology become important, if not the most important factor in organization (Holsaple).

Studies of such work indicated that traditionally (1970 and 1980) information technology were used to support operational functions, but compared with traditional business, today information technology facilitate an increased interactivity, flexibility, cheap business transactions as well as improve interconnection with business partners and customers. Furthermore, with the rapid development of information technology in early 1980s the role of information technology has changed, went out of style and from it's conventional function of supporting business and business needs. The role of information technology emerged as a strategic tool and a factor of competitive advantage and many business firms began to view information technology as tools to gain advantages over their competitors. This new role of information technology is highlighted in several studies (Šendelj, 2006; Haag, Baltzan and Philips, 2006; Lucey, 2005).

Combs (1995) noted that information technology is one of the most important factors of any production activity and technical changes can have profound consequences. Successfully companies recognized that as a result of technology the business environment is continuously adopting to that environment (Kotler, 2002). The results are in line with those of an earlier studies which explores changes in the organizational structure of an organization as result of usage of information technology.

As noted earlier, usage of information technology has improved business operations and has played a central role in enabling the growth of the knowledge society. Even critics of such view agree that information technology have very real impact into our life. While, some authors argue that what makes organizations digital is the fact that so many people rely on computers and the Internet usage, which opens completely new opportunities for enterprises, businesses and customers (Gupta).

Information technology literature has also recognized (Lucey, 2005; Haag and Cummings, 2006; Panian, 2005) that information technology is an integral part of modern organization and business. Panian (2005) stated that information technology has offered new business opportunities (Panian, 2005). Modern businesses are not possible without help of information technology and information technology plays significant role in the way the product is produces, promoted and provided and enables firms to perform tasks even when individuals are located in

³ Knowledge means the skills and judgment of all workers at whatever level was to be gathered from every part of the organization.

different countries or geographical locations (Hicks, 1997). In general, information technology is used to carry out most of the processing, storage, retrieval and output functions, as well as to support all aspects of an organizations functions and activities. Finally, we should emphasize that although existent specialized literatures discuss link between information technology and business, and organizations, literature shows that there is a recognized need for more research in this field in order to rise our understanding of benefits of information technology usage. As such, it is critical to understand the role of information technology as a factor of creating of competitive advantages in businesses in order to develop appropriate strategies and plans for effectively use of information technology. Even though information technology is comprised of all the components that collect, manipulate, and disseminate data or information and usually include hardware, software, people, communication systems and data itself, component part of information technology do not fall within the scope of this study, despite their potential closeness to the issues we discuss.

3. Using information technology in business and organization

The development in the information technology has brought a lot of novelty in business processes. Following the general routes of information technology penetration into business environments, several authors have demonstrated the benefits of information technology for business and organizations (Panian, 2005; Lucey, 2005; Buhalis, 2003). Usage of information technology have introduced transformation to the current business and created new opportunities for companies. Today, companies are relying increasingly on information technology and computers to store, index and analyze information. In addition, information technologies have become crucial to function of modern business.

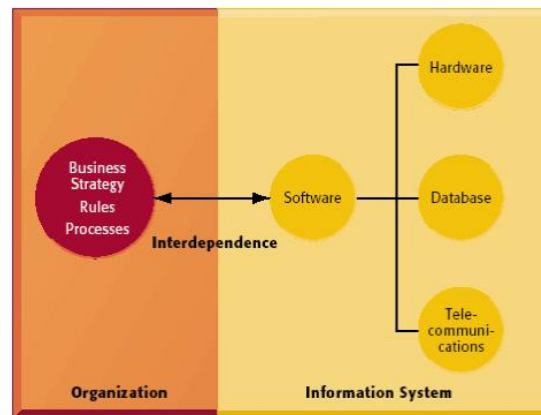
According to Hicks (1997), information is truly the lifeblood of a business and information technology supports business and organization (Hicks, 1997). Higher level of automation, high speed communication and improved access to information can all provide significant benefits to a modern business organization (Bocij, Chaffey, Greasley and Hickie, 2003). This is creating new business opportunities and organizations are using this technology in everyday business activities as well as to take advantages of business. Therefore, we consider that understanding the impact that information technology has on an organization, is critical to running a successful business (Haag, Baltzan and Philips, 2006). In recent years, business is conducted in a global environment and has changed as a result of information technology development and usage. Development of the Internet, as well as intranets and extranets in the 1990s, revolutionized the usage of information technology in business and organization and

enhanced business distribution to a global electronic marketplace. Networking provided the infrastructure for both intra and interorganizational cooperation, and consequently, altered the best practices in the organization (Buhalis, 2003). Today, many organizations and businesses have international operation and global impact while as information technology have become the corestone of business. The role of information technology has progressively increased as business become complex and has been forced to operate in more complex economic, technological and social environment (Nash, 1989). Lucey (2005) found, that modern business operates in complex environment and organizations are faced by an accelerating rate of change (Lucey, 2005). While Combs (1995), noted that information processed from information technology is very important aspect of decision making in organization, especially in competitive business environment (Combs, 1995). Similarly, Wilkinson (1982), observed that information technology in the world of business is essential to improving accountability of business activities (Wilkinson, 1982), and also had a major influence on where work can be carried out. Furthermore, information technology has potential to transform business organizations and may change the way a company work.

It is often stated that organizations change with the implementation of information technology, because information technologies are very powerful technologies. Theories based on the sociology of complex organizations also provide some understanding about how organizations which primarily develop before the computer era are often inefficient, slow to change and less competitive then newly created organizations (Laudon and Laudon, 2006).

Authors such as Lucey (2005), Davis and Olson (1985), and Combs (1995) stated that information technology was paid more attention since 1980s and its first organizational functions were in the automating and productive jobs and performing routine tasks (Lucey, 2003; Davis and Olson, 1985; Combs, 1995). However, only since the early 1990s information technology have fundamentally and greatly increased the possibilities of businesses. Just like offices, telephones, filing cabinets, and efficient tall buildings with elevators were once of the foundations of business in the twentieth century, information technology is a foundation for business in the twenty-first century.

It is evident therefore that information technology helps business compete in a global environment by helping organizations utilize the power of technology to run business operations efficiently (Laudon and Laudon, 2006), and there is a growing independence between organizations ability to use information technology and its ability to implement strategies and achieve corporate goals (see Figure). Today, what a business would like to do often depend on what its business system will be able to do as a result of usage of information technology.



Source: Based on Laudon and Laudon (2006)

From the point of view of business in contemporary business systems there is a growing interdependence between information technology and its business capabilities. Changes in strategy, systems rules, and business processes increasingly require changes in hardware, software, databases, and telecommunications. Information technology changes both the relative costs of capital and the cost of information. Information technology has become the largest component of capital investment for firms in many industrialized societies (Laudon and Laudon, 2006), and business organizations invest in information technology because information technology provides real economic value to business. Therefore, the decision to invest in this technology assumes that the returns on this investment will be superior to other investments in buildings, machines or other assets. These superior returns will be expressed as increases in productivity, revenues or long term strategic positioning of the firm in certain markets (Laudon and Laudon, 2006). As illustrated in previous paragraphs, we can see that from a business perspective information technology is an important factor for creating value for organization and the application of information technology in business has opened up new possibilities for organizations. These technologies had enormous impact in changing business and are one of the driving forces which make production transparent, increases flexibility, reduce stocks and lead time, improve the communication with suppliers and improve the performance of the business processes (Avgerou and Cronford, 2002).

4. Usage of information technology for competitive advantages

The current business environment is a dynamic, fast-changing and highly competitive one. This can be explained at least partially, by the tremendous leaps that information technology has taken in the 30 years, especially the last 15-18 years of the Internet era. Information technology enables organizations to expand geographically and coordinate their activities regionally, nationally, and globally. As a result, businesses are no longer limited by traditional organizational boundaries or physical locations. They now have to compete on a global basis and to fight against traditional competitors and newcomers.

According to Buhalis (2003), these developments have direct impacts on the competitiveness¹ of organizations (Buhalis, 2003), as they determine the two fundamental roots to competitive advantage, i.e. differentiation and cost advantage. On the one hand, information technology enable organizations to differentiate and specialize their products to each customer, as well as to offer the opportunity to target the market segment of one, i.e. each individual customer. On the other hand, information technology assists organizations to share information internally and with partners, and thus maximizes their efficiency, but also allows consumers to interact constantly with suppliers (Buhalis, 2003). Organizations can achieve competitive advantage using information technology in an appropriate way to answer business requirements, only if they know how to apply this technology in their own organizational processes and activities. This awareness is vital to the organizational success (Telebjehead, 2008). A competitive advantage of an organization is based on constant innovation, speed and ability to differentiate or reduce the cost of products, while as relationships between all competitors are dynamic and continuously evolving. Today, firms rely on information technology to gain a competitive advantage by lowering the cost of doing business or by improving customer's perception about the qualities of their products and services. Constant innovation in applications of hardware, software and Network computing means that only dynamic organizations, that can access the requirements of their stakeholders and respond efficiently, will be able to outperform their competition (Buhalis, 2003). As a result, information technology has become an enabler of competitive advantage of business. Some evidences indicate that usage of information technology has led to the improvement of organizational efficiency and effectiveness (Ajhvan, 2004), as well as information technology can create competitive advantage for an organization and improve its competitive position in the market. Using information technology enables organizations not only to reduce the production cost per unit but also to follow up the pricing and organizations can ensure that they remain competitive by maximizing the utilization of their resources,

¹ Competitiveness is the ability of organizations to outperform their competitors in such a way that they gain greater benefits from their activities. (See: Buhalis, D., 2003).

especially fixed costs (Buhalis, 2003). The key points mentioned so far can also be found in a study published by Hicks (1997). He points out that information processing activities and information technology have come to be seen as essential to successful enterprises since information technology provides companies with potential to put their information resources to more effective use for competitive advantages (Hicks, 1997). Srića and Spremić (2003) observed that among this impacts are increased competitive advantage (Srića and Spremić, 2003), increased product quality, shorter product cycles, easier business growth, improved productivity, fast access to data, automatization and more and better information (Hicks, 1997). Similarly, recent research (Haag and Cummings, 2006) has demonstrated that organizations can use information technology to achieve a competitive advantage by supporting and enabling operational excellence, major business initiatives, and organization transformation (Haag and Cummings, 2006). In order to create sustainable competitive advantage in an organization using information technology, we must first understand the influence of technology on organizational activities and processes and know how this technology influences the business and performance of organization, to define business opportunities on the basis of information technology, to assess technological innovations, to design the new technology in the form of a business model, to manage the changes relating to technology and to implement appropriate technology (Tabb, 2006).

If an organization does not possess competitive advantage, it can not survive in the long run. The more the difference between the organization and other competitors, the more sustainable and strong the competitive advantage will be. Competitive advantage is a result and sustainability is a situation created after the failure of imitative and patterning attempts of the factor causing the competitive advantage. What makes an organization a successful one in the long run is the possession of sustainable competitive advantage (Telebjeahad, 2008) Although there is evidence that information technology can be a source of competitive advantage, several authors have questioned whether

information technology can assist organizations to achieve sustainable competitive advantage. Information technology usage through the value chain of activities which in turn enable the organization to optimize and control function of operations for easy decision making is also debatable (Buhalis, 2003). There is often no significant correlation between information technology spending and profitability. Information technology frequently fail to add value in an organization's operation and costs associated often exceed the benefits generated Technology does not guarantee profitability and it may even worsen the competitive position of firms and the attractiveness of an industry.

Conclusion

Recent trends in the development of information technology have shown growth in usage of information technology for business purposes. Furthermore, intensive use of information technology in business makes organizations more innovative and speeds up business processes. The use of information technology has major impact on business that in turn can result in greater productivity and sustainable competitive advantage. The study proved that as a driving force of today's rapid development information technology has significant positive impact on business and information technology should be used as a powerful tool to achieve competitive advantage.

Although, the use of information technology have come to be seen as essential to successful of businesses and organizations and literature discuss link between information technology and business and organizations and it's usage for competitive advantages, we should emphasize that there is a need for more research in this field. Therefore, more attention should be paid to information technology which should be more incorporated in business and organizations and used as factor of competitive advantages in businesses, since this technology today is the key to better succeed in business. Business and organizations which know to use and to benefit effectively from information technology will be at a competitive advantages.

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