

## Effects of Information Technology Usage on Business Performance

### Bilişim teknolojilerinin işletme performansına etkileri

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#### Abstract

The use of information technologies in enterprises is one of the important developments today. Recently in the world; local and national economies, technological and social trends, regional and national borders have rapidly entered the globalization process. Advanced information technologies have become an indispensable element of businesses in today's competitive and speedy environment. In this study, the definition of information technologies and the effects of IT technologies on business performance were examined. Three previous studies have been reviewed. Depending on the results of the work being done, it may be advisable that the works draw a path to themselves, depending on the effects of the work.

**Keywords:** Information Technology, Business Development, Business Performance

**JEL codes:** M00, L86.

#### Özet

Günümüz işletmelerinde bilişim teknolojilerinin kullanımı giderek artmaktadır. Son zamanlarda yerel ve ulusal ekonomiler, teknolojik ve sosyal eğilimler, bölgesel ve ulusal sınırlar hızla küreselleşme sürecine girmektedir. Günümüzün rekabetçi ve her alanda hızlı olan ortamında, gelişmiş bilişim teknolojileri vazgeçilmez bir unsur haline gelmiştir. Bu çalışma için önceki üç çalışma incelenmiş olup, bilişim teknolojilerinin tanımı ve bu teknolojilerin işletme performansına olan etkileri incelenmiştir.

**Anahtar kelimeler:** Bilişim Teknolojileri, İşletme Gelişimi, İşletme Performansı

**JEL kodları:** M00, L86.

## 1. INTRODUCTION

In today's world, globalism is advanced. Competition has therefore become inevitable, businesses have to follow developments closely in order to combat these, to learn and maintain changes and innovations. A new way of catching this is information technology. Information technology has now entered into his life as an integral part of mankind. People can easily access and store the information they want with these systems, and they can do so from geographical points in various places. It has become an inevitable fact that it has been inevitable to exploit these facilities in their enterprises and to affect their performance. Businesses' use of information technology has been a decisive factor in contributing to management, service and production factors, performance and increasing productivity. Depending on the investments made by the businesses in the information technology, the cost of this depends on the usage of the information technology and it returns with time reflecting on the performance of the operator. In this sense, IT technology has been found to affect business performance and it is inevitable for businesses to use it

Given the history of IT, Computers have been used in the world for over 50 years. It can be seen that there are some periodical changes that will evaluate the development of Information Technologies in terms of commercial life. Information processing is the first of these periods. Up until 80's, computers called mainframes and software specific to these computers were available in this period, but these systems were expensive and could only be owned by large-scale businesses. Despite being expensive, the expectations from these systems were not very high (Avgerou & Walsham, 2017). However, it could be used to carry out simple and simple accounting operations within the enterprise. The expectation of these productivity-oriented systems has begun to show itself after more than 70 years. The need for these mainframe systems to be large, cumbersome, expensive and anticipated and the desire to benefit from the use of computer technology at the mid-level management level contributed to the birth of computers with micro-technology. Another reason for this is that a complete automation development has not been achieved. The most advantageous aspect of this period is that an administrator can use programs on microcomputers without programming knowledge (Gorucu, 2017).

At the beginning of the 1980s, IT was often categorized as data processing systems or management information systems. When it comes to the 1990s, it seems that senior management information systems have been used to provide critical information for top management, expert systems have been used to provide information-based expert support to end users, and strategic information systems that are effective in providing competitive support have begun to be used. At this point, although not a definite and definite boundary, information systems can be grouped into two main groups, administrative and functional depending on purpose, usage and user interaction (Gules, Bulbul, & Cagliyan, 2003).

One of the most important characteristics of the era of today's business world is the constant change in the inside and outside of organizations. In such an environment, success depends on the acquisition of more information than factors such as capital, labor, and the use of this information for business purposes. Today, the main economic resources are neither capital nor natural resources nor labor, the most important one is knowledge. Today, value is created by "efficiency" and "innovation". These are the applications of "information" to work

(Gules, Bulbul, & Cagliyan, 2003) Given the technologies that businesses use, nothing has been able to quickly affect businesses as much as information technology. This technology has made a great contribution to the establishment of new opportunities, new business relationships (Gorucu, 2017).

Beyond this increase in the importance given to information, there are opportunities for information technology to gather, process, store and transmit information. Today, many businesses cannot even do business without computer systems. While a majority of businesses rely on IT to improve their productivity and competitiveness, IT plays a major role in achieving many critical tasks (Gules, Bulbul, & Cagliyan, 2003).

Depending on the investments made by the businesses in the information technology, the cost of this depends on the usage of the information technology and it returns with time reflecting on the performance of the operator. In this sense, IT technology has been found to affect business performance and it is inevitable for businesses to use it (Dulkadir & Akkoyun, 2013).

Developments in information technologies cause radical changes in business structure. Businesses are increasing the efficiency of their processes in entering new markets, offering their products and services, and offering new ways and solutions for customer acquisition and customer loyalty. In this context, organizations that use new technological systems are said to have improved by seeing improvements in their lives. In brief, information technology is more than just computers. In addition to computers, then, data recognition equipment, communications technologies, factory automation, and other hardware and services are involved. (Eason, 2014)

Also the Internet has opened up a new range of possibilities for enriching interactions with customers. For example, Dell Computer has succeeded in attracting customer orders and improving service by placing configuration, ordering, and technical support capabilities on the web. It coupled this change with systems and work practice changes that emphasize just-in-time inventory management, build-to-order production systems, and tight integration between sales and production planning. Dell has implemented a consumer-driven build-to-order business model, rather than using the traditional build-to-stock model of selling Erik Brynjolfsson and Lorin M. Hitt 29 computers through retail stores, which gives Dell as much as a 10 percent advantage over its rivals in production cost (Brynjolfsson & Hitt, 2000).

## **2. INFORMATION TECHNOLOGY APPLICATIONS IN BUSINESS**

There are sub-systems to support the ordinary employees who have undertaken the tasks of information technology in enterprises, standard jobs from top managers whose job is to make strategic decisions. Each subsystem constitutes information technology. When referring to the systems used in the business, Administrative support systems, management information systems, Decision Support Systems, Office automation systems, Internet / Intranet / Extranet usage, auxiliary systems. The advantages offered by Information Technologies are too great to be ignored and become one of the most important tools to be used for the success of the business. Today's organizations are using the resources of many sources to refine their knowledge by means of information technology and make it available to managers. In organizational processes, information technology contributes to the

organization's operational efficiency, while achieving its strategic objectives also contributes (Gorucu, 2017).

The technological information we can use today is predicted to be only 1% of what can be used in 2050. Industries will be faced with a technology-based competition that is developing very rapidly and who will win if they match before, who will lose it if they reject it. Businesses that want to succeed in the global market have to be faster than their competitors in discovering and implementing new technologies. Because in the future, the industry will face a technology-based competition. In this competitive environment, the first to compete will win the competition, the others will lose. In other words, competitive superiority will be achieved by businesses that manage technology well. Considering that the developments in the field of computers will continue to increase at this rate, future transfer of technology management information between the enterprises will be made even easier and the chance of success in the enterprises that transfer these developments to practice will be further increased (Karadal & Turk, 2008).

Creating competitive advantage in any company, information technology has a powerful effect on competitive advantage in either cost or differentiation. The technology affects value activities themselves or allows companies to gain competitive advantage by exploiting changes in competitive scope. Information technology can alter the relationship between competitive scope and competitive advantage. The technology increases a company's ability to coordinate its activities regionally, nationally, and globally. Also can determine the role of information technology in industry structure (Sakas, Vlachos, & Nasiopolous, 2014).

Some works have been done to understand the effects of information technologies on businesses. The first of these was carried out in the province of Konya and the scope of the research was limited to 350 enterprises operating in Konya and registered in the KOBINNET information network (2002). Survey method was used to collect data for research. For the purpose of the research, it is considered that the enterprises included in the main mass should be small or medium scale industrial enterprises, the number of employees should be 150 and the activities should be active for at least three years. In this context, the research was conducted on 220 enterprises.

Prepared questionnaire forms have been sent to businesses via both mail and internet by sending invitations to the e-mail addresses of the enterprises. As of January 30, 2002, returned questionnaires were examined and 66 questionnaires were obtained which are suitable for evaluation.

Factors in Table 1 were asked with a five-point likert scale to determine the extent to which IT achieves the expected goals with the use of IT in enterprises. Scale 0 means no reach and 4 means high level.

| Purposes  | Avrg |
|---|------|
| Following the innovations   | 2,5  |
| Participating in the quick decision-making process                  | 2,24 |
| To providing the most appropriate data stream in the enterprise     | 2,18 |
| To providing group work   | 2,17 |
| To access information quickly and cheaply                           | 2,15 |
| To provide information sharing and coordination between departments | 2,02 |
| Increasing the efficiency of the organization                       | 1,97 |
| Effective communication with suppliers                              | 1,76 |
| Speeding up order and supply process                                | 1,74 |
| Increasing competitive power  | 1,74 |
| Reducing the number of employees                                    | 1,21 |

**Table 1.** Levels of achievement of expected goals with IT usage in enterprises (Gules, Bulbul, & Cagliyan, 2003)

According to table 1, results are statistically significant. The level of achievement of the expected objectives with the use of IT in the enterprises is as shown in Table 1. These factors are; to follow the innovations (2,50), to participate in the quick decision making process (2,24), to provide the most appropriate data stream within the enterprise (2,18), to provide group work (2,17), sharing and coordinating information between departments (2,02), increasing the efficiency of the organization (1,97), effective communication with suppliers (1,76), speeding up the order and supply process (1,74), increasing competitiveness (1,74) and reducing number of employees (1,21).

According to this research, the levels of IT use of businesses were generally average. However, research findings suggest that there was a partial increase in the level of use of IT in the last three years, including the study period (Gules, Bulbul, & Cagliyan, 2003).

Second research has been done in Gaziantep (2013). Since the number of textile enterprises is high and it is easier for companies to conduct questionnaires with reference references, textile firms that manufacture in the manufacturing sector in Gaziantep province have been used for research.

In the questionnaire study, 21 questionnaires were prepared and researches were conducted on 20 enterprises using information processing technologies and serving in the textile sector.

| Effects of Information Technology on Business Performance               | Strongly Disagree | Disagree | Agree Little | Agree | Strongly Agree |
|---|-------------------|----------|--------------|-------|----------------|
| Accessing information faster  | 0                 | 0        | 0            | 13    | 11             |
| The convenience of querying and obtaining information about Competitors | 0                 | 0        | 0            | 12    | 12             |
| Ensuring competitive advantage  | 0                 | 0        | 9            | 12    | 3              |
| Increase of the firm's image in the market                              | 0                 | 0        | 7            | 9     | 8              |
| Facilitation and acceleration of access to vendors and suppliers        | 0                 | 0        | 2            | 13    | 9              |
| Pre-contact before face-to-face with the customer                       | 0                 | 0        | 0            | 11    | 13             |
| Better management of products and services for sale                     | 0                 | 0        | 1            | 17    | 6              |
| Ensuring customer satisfaction  | 0                 | 0        | 3            | 13    | 8              |
| Closely monitoring technological developments                           | 0                 | 0        | 4            | 14    | 6              |
| Training of personnel and informing personnel                           | 0                 | 0        | 6            | 9     | 9              |
| More accurate and timely decision making                                | 0                 | 0        | 1            | 8     | 15             |
| Increase in profitability   | 0                 | 0        | 7            | 14    | 3              |
| Increasing number of customers  | 0                 | 0        | 8            | 12    | 4              |

**Table 2.** Effects of Information Technology Usage on Business Performance (Dulkadir & Akkoyun, 2013)

The following explanations can be made from the data in Table 2. In this study, the performances of the businesses using the information technologies were searched and the questionnaire was searched for performance questions like this. According to the results of the study, the answers of "agree" and "strongly agree" in the use of information technology are more and more important, thus the importance of the use of information technologies is more evident (Dulkadir & Akkoyun, 2013).

In the third study, the information systems and information systems strategy was explored in the manufacturing sector in the organized industrial zone in Karaman province. This study was carried out with the aim of demonstrating the use of information systems and information systems strategy in the food industry. Information systems are dealt with as executive support systems, executive information systems, decision support systems, office automation systems, artificial intelligence and expert systems, electronic data processing systems, local and external networks. The application was made to the large enterprises operating in the food sector in Karaman province.

| What is the strategic value of information systems we are using?     | Avrg |
|--|------|
| It helps to lower costs.   | 2,5  |
| It helps us to be different than our Competitors.                    | 2,65 |
| It allows us to upgrade our product quality.                         | 2,7  |
| It helps us drive new products to the market before our Competitors. | 2,61 |
| It helps to improve the productivity of the production process.      | 2,71 |
| It allows us to diversify our products.                              | 2,6  |
| It enables our company to provide quality customer service.          | 2,63 |
| It helps me get into new markets.                                    | 2,71 |

**Table 3.** What is the strategic value of information systems (Bay, Akpınar, & Bezirci, 2017)

According to table 3, information Systems help us to improve our productivity and help us to get into new markets (2.71) with the highest value and help us to lower costs (2.50) with the lowest value. It cannot be said that information systems are effective in reducing costs because they are not used with decision support and artificial intelligence systems or because

integration is not achieved. According to this study it can be seen, information systems does not only lower the costs, but also helps enterprises in many areas (Bay, Akpınar, & Bezirci, 2017).

### 3. CONCLUSION

In today's society, power will be in the hands of those who possess knowledge. Societies that produce the information they need most quickly and use it quickly in science, technology and production will be stronger today. Using existing information to transmit new information and development of new technologies will facilitate the continuation of economic development in the society.

By adapting to the developments in information technology, enterprises can benefit from this technology and increase their planning, coordination and supervision capacities, thereby excelling themselves in competition against other businesses. Nowadays, effective use of information technology has become one of the preconditions for the success of an enterprise.

In this studies above, the performances of the enterprises using the information technologies were examined. The questionnaire was used to answer such performance questions. According to these three studies it can be said that information systems help enterprises such issues like, following the innovations, providing group work, to access information quickly and cheaply, to provide information sharing and coordination between departments.

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