THE ROLES OF INFORMATION AND COMMUNICATION TECHNOLOGY AND COMMUNICATION CHANNELS IN A TYPICAL OFFICE SET-UP

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ABSTRACT

The chapter aims to provide a systematic overview of Information and Communication Systems (ICTs), their functions and the effect of ICTs on typical office set-up by clarifying the relationships among the organization structures. As a response to the need for understanding the effects of ICTs on organizational structures and business processes, the present study, which is conceptual in nature, opts for a systematic literature review. The study reviews a broad range of scientific studies that focus on the relationship between ICTs and the effects of organizational facts. Therefore, it presents novel and useful information about the effects of ICTs on general management, organizational hierarchy, and strategic business process that can be used by business information technology investors, developers, and users. It is also hoped that the present study provides research implications for researchers who aim to conduct empirical studies to investigate the impact of ICTs on business systems.

Keywords: *Information and Communication Technology, Communication Channels, Office Set-Up*

INTRODUCTION

Information and Communication Systems (ICTs) have developed at an unprecedented pace in the 21st century and influenced every aspect of our lives. To understand the changes in individuals' behaviors in the modern era, it would be helpful to examine the impact of ICTs on daily life and particularly on the consumption choices that affect business strategies, typical office set-up, cities, countries and government structures to a considerable extent.

One of the most concrete indicators of these changes would be internet penetration. To illustrate, in 1995, less than 1% of the world population had an internet connection, while this number increased tenfold from 1999 to 2013. The number of internet users first reached a billion in 2005, two billion in 2010, and three billion in 2014 (Internet Users, 2019). Moreover, the number of internet users' world-wide was around four billion in 2018 (Number of internet users worldwide from 2005 to 2019, 2019). The growth of internet users worldwide has increased more than 3 times within approximately 15 years. Hence, it could be asserted that this increasing trend will be witnessed in the future as well. According to Cisco, 52% of the world population will have internet penetration in 2020 (Cisco Visual Networking Index: Forecast and Trends, 2017–2022 White Paper, 2019). The highest population of internet users is in Asia. In 2018, China, which had the highest number of internet users, has over 802 million internet users, while India had over 500 million internet users (Internet Stats & Facts for 2019, 2019). Based on these statistics, it can be said that around 30 percent of internet users live in these two countries.

Another important indicator of individuals' behavioral change is the increase in mobile device users. Mobile devices provide easy, fast and effortless access to the internet. Also, mobile devices have become more accessible and affordable over time. Therefore, it can be argued that the number of internet and mobile device users is increasing simultaneously. The statistical data about the number of mobile devices in use confirm this observation as well. Web statistic indicators show that around 4.4 billion people are internet users, and 3.3 billion of these users are social media users (What Percentage of Internet Traffic is

Mobile in 2020?, 2019). Therefore, based on these figures, it may be deduced that an increasing number of people are actively using technologies such as augmented and virtual reality, smart wearable technologies, mobile payment and smart home in daily life and consequently, these technologies impact customers' behaviors along with their service-related demands from corporations. This observation can be supported based on two important facts related to ICTs' impact. The first one is the highly increasing number of customers who prefer to do shopping activities online. The number of online buyers has been increased from 1.32 to 2.05 billion between 2014 and 2020(Number of digital buyers worldwide from 2014 to 2021, 2019). In addition to the number of internet buyers, the number of online sellers is another important indicator to understand the influence of the online shopping revolution. According to Statistics, the number of customers worldwide purchasing goods online was 1.8 billion, and the return of retail sales was 2.8 trillion U.S dollars in 2018. Moreover, it is estimated that as the number of online customers continues to increase, the amount of online retail sales will grow up to 4.8 trillion dollars in 2021 (E-commerce worldwide Statistics & Facts, 2019). Therefore, it seems that there is a steady increase in online purchases. Besides online retail shopping, the second important indicator is customers' trust index in online shopping. Deloitte's reports on customers' trust in online shopping show that a great number of people have trust in shopping online (Deloitte, 2016; GFK, 2016, 2017).

Considering all the above-mentioned factors, it can be said that new technological trends in the world have affected life patterns, consumption habits and preferences of customers in the last decade. Thus, private and public institutions need to consider differentiation in people's daily life and consumption habits to provide better services. Moreover, these institutions could follow new technological trends and complete their digital transformation process to better meet the needs of today's customers since new technologies and the internet do not only influence people's daily lives but also the expectations of individuals regarding public and private sector activities. In other words, customers expect the fastest, easiest and most cost-effective service through digital networks. As a result, public and private organizations need to invest in information system technologies, renew their organizational structures and adapt to digital transformation. Using information systems offers various benefits for typical office set-up. These benefits would be making use of rapidly developing technologies, using resources more effectively, and addressing wider audiences.

Typical office set-up around the world is investing in information systems to benefit from and gain a corporate identity in online networks. For instance, 342.4 million businesses worldwide had registered a domain name in 2018 (100+ Internet Statistics and Facts for 2020, 2020). Thus, based on these statistics, it can be argued that a great number of public and private sector typical office set-up have made investments to gain a corporate identity in the internet networks and have their share in digital transformation. These changes may also affect the organizational structure of typical office set-up. In other words, all business processes that exist today do not entirely depend on human beings and most of these processes are realized, controlled and managed through information system technologies in digital networks (Laudon & Laudon, 2012). This way, typical office set-up can build and maintain their relations with customers, suppliers, employees and external environment elements in a digital platform. Namely, R&D activities, service delivery, product-order placement, delivery of the order to the customer, after-sales service, personnel selection workplace, recruitment of the required personnel and all establishment activities, in general, can be managed through digital networks both in public and private typical office set-up. Since information systems perform the functions of classifying, distinguishing, recording, holding the critical information within the organization and presenting this information when required, they may be considered as the most important component of typical office set-up to manage their business processes effectively.

Information and Communication Technologies and their Effects on Typical Office Set-Up

With their different functional features, ICTs support typical office set-up to make accurate decisions and ensure the control of the business processes in the 21st century. Namely, ICTs can collect detailed information about the business processes performed within the organizational units, process, and store then send the collected information to the relevant units when necessary. The development of ICTs has gained considerable momentum in the last decades (Garicano, 2010). This issue has created various questions about general patterns across these technologies, and the robust possibility of these evelopments across various types of functions and industries. Besides, many developments are supporting this view. One of these developments is the tasks performed by the information systems in a coordinated and inter-related manner. Moreover, information systems can analyze problems faced by enterprise managers and employees, visualize their causes, and propose solutions in line with alternative strategies. Also, information systems can help typical office set-up review their strategic decisions by showing the medium and long-term impact of these decisions on different solutions. Thus, the adoption of ICTs has been a matter of scholarly investigation and a great body of scientific research has been conducted to investigate the integration of institutions with ICTs and changes in business processes and organizational structure.

A substantial part of this body of research is on the organizational information systems (Pigni et al., 2010; Tsui et al., 2005). Many empirical studies focus on public and private institutions as well as non-governmental typical office set-up (NGOs). If we make a classification based on the institutional structure of the cases handled in these studies, we can conclude that some common issues are addressed in the stud-ies conducted on public and private sector typical office set-up. The first of these issues is the effect of ICTs on communication channels and processes within the typical office set-up (Laudon & Laudon, 2012; Pigni et al., 2010; Saleem et al., 2017; Tsui et al., 2005). For instance, Pigni et al. (2010) and Tsui et al. (2005) obtained findings about the positive effects of ICT integration into the business processes of institu-tions and the effectiveness of communication between departments and external stakeholders within the organization. Besides, conceptual models have been developed to account for the contribution of ICTs to institutions. Researchers have addressed this issue with a holistic approach, taking the functionality of software and hardware components, which are key elements of ICTs, into account (Garibaldo, 2002; Laudon & Laudon, 2012; Pigni et al., 2010; Tsui et al., 2005).

The first of these conceptual models shows the effects of data and communication systems on data flows and business processes in institutions where they are integrated. In this context, the basic parts of ICTs are computer and computer software. The relationship between these basic parts is also identi-fied (Laudon & Laudon, 2012). Computers and software programs are an integral part of information systems. ICTs provide storage and functional equipment while converting raw data into information. Software programs are a set of commands necessary to process and control the computer. Therefore, ICTs perform the above-mentioned tasks through a business cycle involving three main activities. These activities are input, processing, and output. Input is the process of collecting raw data from the enterprise and its surroundings. The raw data mentioned in this process may not make sense to people for they are not subject to the process and also do not have the necessary formal features (Laudon & Laudon, 2012). As a result of these three basic activities performed by the information systems, raw data obtained from and around the enterprise can be processed and rendered meaningful and usable for the users. Thus, the meaningful and usable state in which raw data are processed is called information.

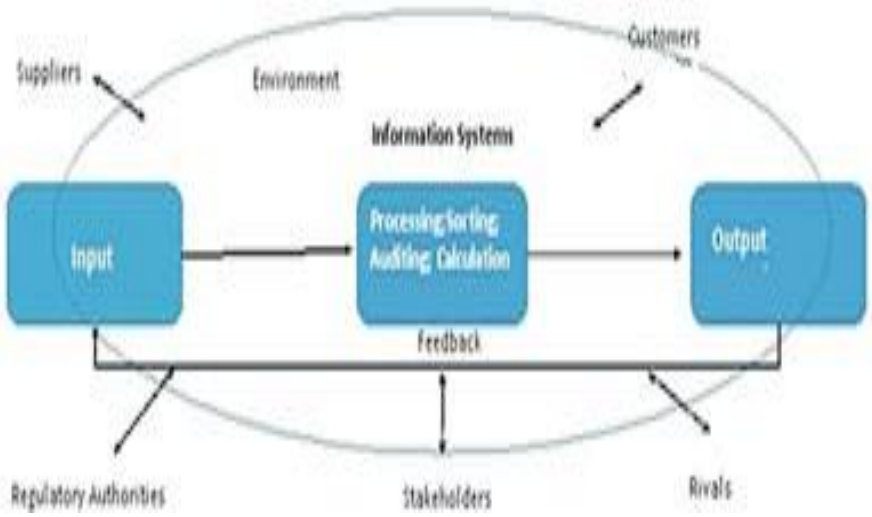

Figure 1: Information Systems Function
(Adapted from Laudon & Laudon, 2012)

As shown in Figure 1. above, information systems contain information about the typical office set-up and the environment. Environmental factors such as customers, suppliers, competitors, stakeholders, and regulatory bodies interact with both the organization and the information system. Information systems convert the raw data they gather into information by considering these interactions. In other words, information systems carry out three basic activities: input, processing, and output to transform data about the organization and the environment into the information that typical office set-up need (Laudon & Laudon, 2012). In addition, the system provides feedback to the most appropriate person in the organization for the evaluation and renewal of inputs, processing and output activities. The process of converting the raw data into information is shown in Figure1.

Pigni et al. (2010) conducted a study on the internal relations of ICT technologies in typical office set-up. This study on the impact of ICTs and inter-organization relations (IORs) on supply chain management of enterprises (SCMs) is based on the conceptual model given below. The conceptual model, shown in Figure 2, consists of different model components such as inter-organizational relationship, interroi ICT, inter-organizational collaboration dimension, proposed global approach, general theoretical model and practical implications.

Inter-Organizational Relationship: Chae et al. (2005), Welker et al. (2008), and Palmatier et al. (2007) claim that interorganizational relationship needs to be evaluated qualitatively. This evaluation is carried out based on six different dimensions. Four of these (interdependence, long-term orientation, trust and knowledge sharing) are used to measure the collaboration rating. The first dimension, interdependence, represents alternative suppliers with a degree of interdependence, profit, sales volume and dependency on availability (Palmatier et al., 2007; Walker, 2012). Also, this degree of dependency is evaluated based on the level of work dependency between the producer-distributor and distributor-retailer. The second dimension, long-term compliance, can be defined as evaluating the support of the relationship with the whole (Palmatier et al., 2007; Welker et al., 2008). This dimension is related to top management orientation /commitment (Pigni et al., 2010). The third dimension is trust, which means that each partner is evaluated with benefit and risk sharing, reliability and helpfulness (Palmatier et al., 2007; Walker, 2012).

Trust assessment encompasses scrutiny of interview notes, philanthropy, reliability of partners, and detailed pre-contractual and contract supplier evaluation. The fourth dimension is information sharing, which refers to communicating with the leader of the company about the quantity, quality and typology of the information shared in the systems (Handfield & Bechtel, 2002). Collaboration is the fifth dimension of inter-organizational relationships. Lawrence et al. (2002) define this dimension as the relationship and cooperation between institutions that depend either on a transaction or on official authority. The evaluation of cooperation activities can be carried out on an individual or collaborative basis (Pigni et al., 2010). Duration is the sixth dimension. This dimension is conceptualized through the duration of the relationship established with the firm leader (Handfield & Bechtel, 2002).

Inter-Organizational ICT Characteristics: With this dimension, systems that are used are defined and rated, referring to the business partner's and system's capacity to support supply chain activities such as stocks, storage or order management (Chae et al., 2005). There are two important subdimensions in the inter-organizational ICT characteristics. These dimensions are using pattern and supported process of supplier chain management systems.

Use Pattern and Supported Process: The use of ICTs has positive effects on cooperation between partners in the supply chain. In the conceptual basis model of Chae et al. (2005), it is suggested that the effects of ICTs on supply chain management systems are not determined in advance according to their technological capabilities. Instead, the effects of ICTs are evaluated taking the peculiarities of existing relationships between partners, which arise through interaction, into account. As a result, Chae et al. (2005) argue that it is not possible to make inferences about the characteristics of relationships between ICTs and the typical office set-up that emerge with the supply chain management system. To better understand the effects of ICTs on the supply chain management system, Chae et al. (2005) suggest that the usage and support processes need to be considered as well.
The supported supply chain process aims at strengthening processes through collaboration in various business stages (information and know-how sharing and decision or execution stages) between companies. In this context, several studies suggested that the operational and collaborative nature of intercompany processes and the nine main supply chain processes (aiming at the automation and optimization of buyer-seller interface processes) can be classified into two broad supply chain execution categories and cooperation processes (e.g., Pigni et al., 2010; Pigni & Ravarini, 2008; Rangone & Bertelè, 2004). Thesestudies included definitions and explanations regarding the features and process patterns (supply chain execution and collaboration) of current supply chain management systems.

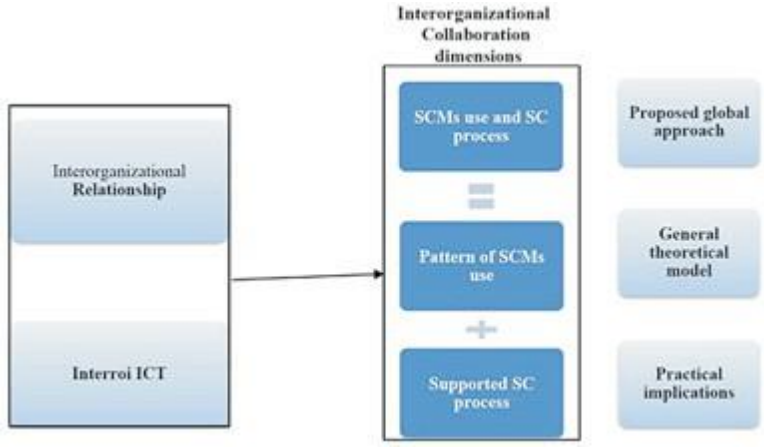

Figure 2: The conceptual model of the effects of ICR, IO ICT on SCMS (Adopted from Pigni et al., 2010)

This conceptual model presented in Figure 2 is a hybrid model developed by combining different dimensions of models proposed by Chae et al. (2005), Subramani (2004) and Pigni et al. (2010). Therefore, Pigni et al. (2010) suggest that this conceptual hybrid model can explain the effects of information communication technology systems (ICTs) and inter-organizational relationship's (IOR) on supplier chain management systems' (SCMS) usage and processes.

On the other hand, Tsui et al. (2005) conducted a study on the critical motives such as agility, asymmetry, efficiency, innovation, legitimacy, necessity, reciprocity, and stability in the use of inter-organizational information systems by typical office set-up. Tsui et al. (2005) emphasized that motivation, relational connection and behavior processes of the organization leaders' preferences and preferences related to inter-organizational system technologies are affected by changing situations since motivations that provide partnerships form the basis of these processes. Explanations regarding these motivations are presented as follows (Tsui et al., 2005):

- **The Agility Motive:** typical office set-up tend to use these systems to increase their agility and responsibilities for environmental changes (Rockartand & Short, 1991; Zaheer & Zaheer, 1997).
- **The Asymmetry Motive:** typical office set-up may need to use a system to exert power or control over other typical office set-up that are a part of the chain in their business processes (Tsui et al., 2005).
- **The Efficiency Motive:** typical office set-up may be motivated to use inter-organizational systems to increase their internal efficiency and inter-organizational efficiency (Clemons & Row, 1991; Johnston & Vitale, 1988; Konsynski & McFarlan, 1990; Malone et al., 1987).
- **The Innovation Motive:** typical office set-up might be motivated to use an inter-institutional system for innovation and creative value purposes (Bowker & Star, 2001; May & Carter, 2001; Strader et al., 1998; Thomke & Von Hippel, 2002).
- **The Legitimacy Motive:** The basis of this motivation is to increase the legitimacy and reputation of an organization to exist under current norms, beliefs, expectations of external components or the prevalence of an application in the industry (Teo et al., 2003).
- **The Necessity Motive:** Government agencies, legislation, industry or professional regulatory agencies form the general framework for the realization of business processes with legal regulations (Christiaanse & Venkatraman, 2002; Clemons & Weber, 1990). Thus, typical office set-up adopt the use of an inter-agency system to meet the regulatory or non-regulated legal requirements to perform their activities.
- **The Reciprocity Motive:** Another source of motivation for an organization to use systems is reciprocity. This motivation stems from the desire to achieve common or mutually beneficial goals or interests and to facilitate cooperation, trust-building and coordination (Ferratt et al., 1996; Holland, 1995; Kumar et al., 1998; Pouloudi, 1999).
- **The Stability Motive:** An institution may want to use inter-organizational systems to reduce environmental uncertainty and achieve stability, predictability, and reliability in its relations with others (Li & Williams, 1999).

It is generally accepted that more than one of the motives mentioned above can affect an organization's decision to adopt and use the inter-organizational information systems. These motives can help develop an effective understanding of information sharing, prevent opportunistic behavior, and increase loyalty among partners by enhancing trust among partners (Tsui et al., 2005). In addition to these benefits, under favorable conditions, it may be thought that some features may come to the fore when the eight motives mentioned above interact within an institution. Tsui et al. (2005) argue that some positive elements may arise in an institution that uses inter-organizational systems in environments where transparent cooperation is effective. These eight motives can shape asymmetry, manipulation, pressure or conflict within typical office set-up.

A conceptual model depicting these factors has been shown in Figure 3. It is understood from the conceptual model of IOS collaboration that any of the motives mentioned above can interact with motives that may arise. For example, it is suggested that the motive of reciprocity can interact with some other motives simultaneously (Tsui et al., 2005). In other words, partner organizations in communication should be able to understand and meet each other's organizational needs and expectations. Requirements to be met may include higher levels of efficiency, greater agility, increased innovation, greater stability, or greater legitimacy or reputation. Thus, cooperation between institutions that are stakeholders in business processes is more likely to increase. Moreover, the willingness of typical office set-up to do business with each other might also increase. These motives might also enable typical office set-up that have the same business purposes to be competitive. The aforementioned conceptual models emphasize that ICTs can create business value for the institutions where they are employed. To use information systems effectively and efficiently, it is vital to understand the problems ICTs are designed to solve, architectural and design elements involved and organizational processes in which such solutions are realized.

Therefore, understanding the characteristics of information systems to distinguish them from computers and computer programs, in general, is of utmost importance. Information systems cannot be designed and developed only with an architectural structure in which technical features and human factors are lacking. To better understand these systems, it is necessary to consider and evaluate the organization, management and technology dimensions and environmental characteristics of the typical office set-up together. Information systems have a multi-disciplinary structure. Today, it is possible to distinguish the disciplines of information systems as technical and behavioral sciences. It can be said that information systems have a socio-technical structure as they involve two different disciplinary structures. The socio-technical structure of information systems is shown in Figure 3 below.

Figure 3. Socio-Technical Structure of Information Systems
(Adapted from Laudon & Laudon, 2012)

As seen in Figure 3 above, information systems include technical approaches such as management science, computer science, and operations research science. It also includes human-centered behavioral approaches such as psychology, economics, and sociology. The technical approach focuses on mathemati-cal models, physical technologies and formal capacities for dealing with information systems. Therefore, it is useful to define each one separately to better understand the focal points of the different disciplines with a technical approach. There are three critical elements in computer science. The first of these is to be able to carry out transactions on the computer. The second one is the ability to transfer data over the network in an effective way. Finally, the third one, is to able to store data and access related units and individuals. On the other hand, in management science, management decisions and application models are emphasized based on the information obtained as a result of processing the data available for the organization where information systems are used. Finally, in operations research science, the focus is on the mathematical techniques necessary to optimize business process operations such as shipment, inventory control and transaction costs of products produced by the organization (Laudon & Laudon, 2012).

The behavioral approach includes the examination of human beings and the characteristics of human beings. In these areas, the use of information systems and behavioral issues that arise as a result of long-term experiences are addressed. Sociology examines the contribution of information systems for the development of typical office set-up. It also focuses on how individuals and typical office set-up are affected by information systems. Besides, psychology studies the cognition and attitudes of decision-makers towards information systems. Moreover, psychology investigates the perceptions of individuals and typical office set-up about the use of information systems. Finally, economics deals with the effects of information systems on control, cost and profit structures of typical office set-up (Laudon & Laudon, 2012).

The behavioral approach emphasizes that technical knowledge should not be ignored. To optimize the performance of typical office set-up and to maximize profitability and service quality by minimizing costs, it is necessary to have a management style that can consider both approaches. For this reason, managers of the typical office set-up should be able to comprehend and manage the socio-technical characteristics of the information systems and have sufficient knowledge to bring up solutions to the problems that may arise from both structures.

Organizational Structure Evolution in Institutions

Information system technologies have an impact on the structural characteristics of typical office set-up. When the information systems technologies are not developed and used by the typical office set-up, the bureaucratic organizational structure is regarded as an appropriate structure to maintain and complete business processes. Weber et al. (1978) argue that the behavior of employees in the bureaucratic organizational structure can be guided by the help of a program, a set of rules and traditions. He also argues that business processes can be carried out smoothly by ensuring authority-based dominance and providing a clear definition of applicable rules. However, work to be done in typical office set-up might not be clearly stated in writing. In addition, due to the effects of developing a free market economy, it might not be enough for employees to perform only to maintain the system order and complete the processes. Today, contrary to the concept of the central government, with the effect of globalization, different business divisions within typical office set-up in different regions of the world can be managed through bureaucratic systems, and business processes can be completed towards a common goal. Due to the high number of employees in the organizational structure of the bureaucratic system and the slow execution of business processes, negative work rate results may emerge. Moreover, another important problem arises when the fixed and clear rule structure and work order of the bureaucratic organizational structure are taken into consideration. typical office set-up with bureaucratic organizational structures cannot easily change and apply strategies according to changing environmental factors (Olsen, 2006).

Typical office set-up can realize reforms in cumbersome organizational structures thanks to information system technologies. typical office set-up may shrink large bureaucratic organizational structures to accommodate the pace of the digital age and reduce the number of hierarchies. Consequently, typical office set-up flatten their hierarchical structure. This way, the productivity of the employees may increase.

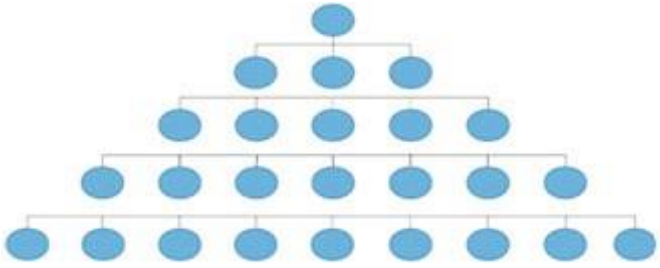

Figure 4: Effects of Information Systems on Organizational Structures (Adapted from Can et al., 2011)

Also, organizational structure can respond flexibly to changes arising from the effects of internal and external factors (Laudon & Laudon, 2012). Low-level employees can obtain the information they need to make decisions through information systems without being subject to any audit and have the right to make decisions during a business process in typical office set-up. Middle and senior managers can quickly obtain updated information about changes in internal and external factors and business processes at any time. Besides, managers can control, supervise and direct the wider audiences in lower echelons through information systems. Hence, the number of hierarchies within the organization can be reduced and typical office set-up can avoid high management costs. In post-industrial societies, authoritarianism has begun to rely on knowledge and ability rather than formal positions. As a result, the need for change in management perceptions and application models has emerged as new markets have become open systems thanks to globalization and developments in ICTs. With increased opportunities to access desired information at any time and place, professional employees tend to manage themselves. Thus, organizational management can be maintained by posing a centralization approach.

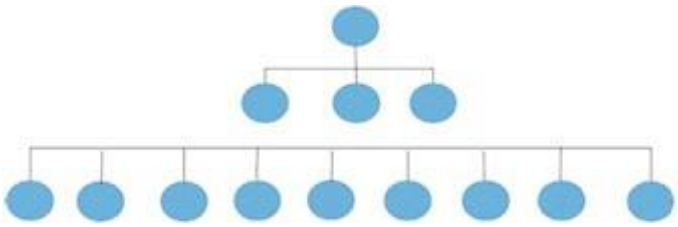

Figure 5. Flattened (Simple) Organizational Structure under the Influence of Information System Technologies (Adapted from Laudon & Laudon, 2011)

Nowadays, with the help of information system technologies, typical office set-up can carry out their activities by bringing their employees together and transferring them across different posts without opening any branches. In addition, customer needs and requests can be responded promptly. With the development of virtual communication tools such as the internet and videoconferencing and digital telephony, virtual workplaces have become more common in the digital age. Thanks to virtual workplaces, employees are provided with the opportunity to complete most of their work in their customer offices or home.

Virtual workplace applications have increased rapidly due to time and economic savings and the effects of increasing business efficiency (Afgün, 2006). Today, virtual workplaces are used in many service sectors, especially in education, health, and marketing sectors. Along with virtual workplaces, virtual organizational structures have also emerged. Here, it might useful to provide the definitions of virtual organization in the relevant literature. typical office set-up which bring together employees that are experts in their fields to put forward a business that will benefit a common purpose is called virtual organization (Can et al., 2011). As it is understood from this definition, virtual typical office set-up can combine the strengths of multiple typical office set-up to bring them together to create a common value.

Furthermore, virtual organizations are integrated with special structures within computer systems and digital networks (Mowshowitz, 1997). In other words, virtual typical office set-up is typical office set-up that use, utilize and benefit from computers, internet, and ICTs. Virtual typical office set-up are the organizational structures in which employees can work together by using ICTs without being affected by spatial and temporal differences (Wiesenfeld et al., 1999).

The organizational structure of virtual typical office set-up is shown in Figure 6. Below;

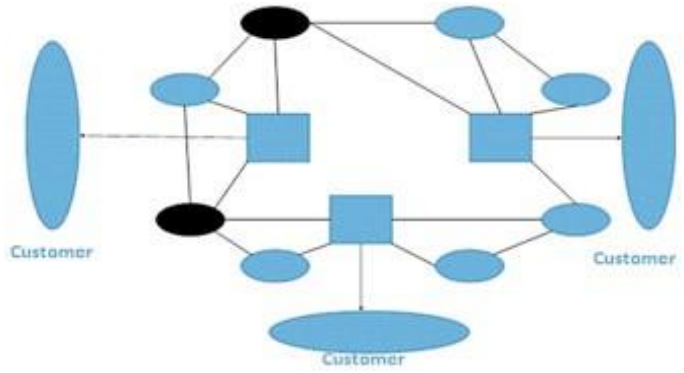

Figure 6. Virtual Organization Structure and Relations (Adapted from Pinchot, G., 1996)

As seen in Figure 6. above, different business groups are created for multiple customers at the same time in virtual typical office set-up. While ensuring this, employees and managers within the groups are not fixed. Put differently, the employees who have the expertise needed to realize a particular business project and the group manager who is to manage them are brought together for a while and may be directed to different jobs after the project is completed. An important point here is the difference in the communication processes between the business groups. In contrast to the hierarchical organizational structure, communication between individuals and groups in virtual typical office set-up is carried out voluntarily, isolated from hierarchical positions and business departments. In other words, communication and collaborations established in virtual typical office set-up are voluntary. Thus, there is no hierarchical superiority between the communication parties in this process (Lipnack & Stamps, 1994).

Economic Performance Effects of Information Systems on Institutions

In the modern world, globalization takes place quickly and effectively through ICTs. Therefore, attention has been paid to the contribution of ICTs to the development process, effectiveness, and macro-economy. Relevant literature, especially concerning the contributions of ICTs to the economy, has suggested two main findings of interest. The first of these findings is that ICTs do not have any positive effects on firms' performance and economy. Research producing findings that indicate no relationship between ICTs and firm performance and/or economy was carried out about two decades ago.

On the other hand, there is also evidence that investments in ICTs lead to an increase in firm performance and economic development. In the relevant literature there are many empirical studies with findings supporting this view (Atzeni & Carboni, 2006; Brynjolfsson & Hitt, 1995, 1996; Gargallo-Castel & Galve-Górriz, 2012; Lichtenberg, 1995; Seo et al., 2012). ICTs provide typical office set-up with three different economic values. Among the economic benefits provided by the information system technologies, it is worth mentioning the cost of capital. The concept of capital cost has emerged as a result of the applications for growth and vertical integration strategies, which are proposed as a useful model for typical office set-up, especially during the production economy periods. It is suggested that the companies will make fixed investments in production and service facilities in different countries, employ personnel with specialization and high production amount will reduce the costs (Fishburn, 1968; Peltzman, 1976; Samuelson, 1937). However, investing more may not yield returns in the same direction (Fisher et al., 1921; Hill & Jones, 1992; Milgrom & Roberts, 1990; Snow & Warren Jr, 1996). It is also possible to generate a higher income at less cost. Today, thanks to information system technologies, typical office set-up can conduct and manage their business processes in many different regions of the world without making fixed investments and employing a high number of employees. Thus, information systems are seen as a production factor that can replace the traditional capital- and labor-intensive business model (Laudon & Laudon, 2012).

On the other hand, several findings suggested that transaction and coordination costs were reduced due to ICTs (Williamson, 2007). An important benefit of information communication systems for organizations is that they help to reduce transaction costs. Transaction costs include the costs of performing many transactions, such as using new markets, communicating with remote suppliers, selecting, placing and performing quality control audits, obtaining insurance, and collecting information on products and services (Williamson, 2007). In other words, transaction costs include measuring valuable features or product performances for products or services. As used herein, the term measurement consists of physical and proprietary rights to the performance characteristics of products, services, and units. There are three main elements that transaction cost theory attaches importance to develop business models to ensure international entrepreneurship. These are firm-specific advantages, country-specific advantages, and internationalization-specific advantages, respectively. Company-specific advantages include the presence of unique assets such as patents and licenses in the company's assets, and the ability to provide transactional advantages. In addition, if the country-specific advantages include a reliable and accurate market structure, its geographical advantages may minimize potential risks, decrease transaction costs, and increase the country's free-market agreements.

Last but not least, export supports, licenses, partnership agreements, opportunities for direct foreign investors are among the specific benefits of internationalization. Considering the advantages that are assumed to reduce the transaction costs mentioned above, information systems technologies are another advantage factor since they reduce transaction costs considerably. This might be the reason that the amount of investment in information systems has become an important item in the annual budget. Making this investment cannot be seen as a luxury investment in today's competitive conditions.

Information systems can carry out many activities that can be realized through a computer without needing human beings and reduce the number of employees for typical office set-up in the manufacturing or service sector. Furthermore, information systems eliminate fixed investment expenses such as construction and machinery costs (Laudon & Laudon, 2012). Considering the economic benefits provided by the information systems in the long term when compared to their cost, it is expected that the number of typical office set-up that invest in information systems will increase in the coming years. In addition, information systems technologies increase the quality of public services while decreasing transaction costs. Thus, the use of information systems is increasing day by day in the public sector as well while many countries include the use of information systems in the scope of their science, technology, and industrial policies. One of the most concrete indicators of this situation is the investment targets included in the public investment programs of countries. For instance, in the public investment program published by the Turkish Ministry of Development for 2018, investments in information systems are projected (Kalkýnma Bakanlýðý, 2018).

Another economic benefit that the use of information systems provides is a reduction in management costs. According to the proxy theory, businesses should not be structured to target the highest amount of profit target and regulate all its relations according to this target. Instead, contemporary businesses are considered as an organization that encompasses all contractual ties between individuals who consider their interests (Jensen, 2014; Laudon & Laudon, 2012). To illustrate, typical office set-up employ managers to manage and maintain their business processes. Managers employ employees to do the work on their behalf. Owners of the typical office set-up act as a proxy for the executives to do the work on their behalf. In the same way, managers delegate employees to complete work on their behalf. Business owners supervise their designated managers to see if things are running smoothly. Managers are also required to supervise the work of employees due to their accountability to the business owners. The main reason for conducting this audit is that the proxies do not put their interests before corporate interests. The audit process needs to be carried out regularly and repeatedly. Supervising and managing the work of managers and employees becomes more costly if the typical office set-up have a large organizational structure and perform their business processes in different geographies.

Furthermore, as the organizational structure grows, it becomes difficult to carry out such audits accurately and realistically.

The organizational structures of the typical office set-up grow, proxy costs (management costs of employees) also increase. This is where information technologies benefit typical office set-up. Owners and managers can easily obtain necessary information about the business processes and employees' performance thanks to these technologies. In other words, due to information systems technologies, transaction and proxy costs of typical office set-up are reduced. Consequently, typical office set-up can complete their business processes with fewer employees more quickly and effectively.

Conclusion/Recommendations

Managers can bring employees of diverse cultures and characteristics together in their business projects and guide them towards the same goal using the information system technologies. Besides, managers can evaluate the work performed by different workgroups in terms of compliance with the business plan, detect existing deficiencies, and intervene quickly to eliminate identified deficiencies. Moreover, managers can monitor and evaluate the performance of each employee in different business projects. Customer requests and demands can also be taken into consideration during the product or service development stages of the typical office set-up and necessary information can be communicated to customers instantly about business processes. After product or service delivery, after-sales services can be provided for customers. All information flow processes within and outside the organization can be maintained with the help of information system technologies. In other words, it is possible to see ICTs in action in every stage of business processes. The links between business processes and ICTs have been included in several conceptual models that have been elaborated on in this chapter. These models are ICR, IO ICT's conceptual model, and IOS collaboration conceptual research models respectively. Firstly, the model of ICR, IO ICT's effects on SCMS have been discussed with a focus on motives that might influence inter-organizational collaboration. This conceptual hybrid model explains the effects of information communication technology systems (ICT) and inter-agency relationship (IOR) on the use and process of supplier chain management systems (SCMS).

The second conceptual model is IOS collaboration. This model addresses the motivational sources that encourage typical office set-up to use their ICTs institutionally. These motives are agility, asymmetry, efficiency, innovation, legitimacy, necessity, reciprocity, and stability, respectively. Based on the model of IOS collaboration, by using ICTs, institutions can focus their organizational structures and position them in line with a common business goal. Relational factors such as trust and loyalty, and the effects of behavioral processes such as information sharing, joint decision making, and conflict government are also included in the model. Along with these relation-ships, the impact of behavioral processes on collaboration is also emphasized. Productivity, agility, innovativeness, and institutional reputation are regarded as sub-factors in ensuring cooperation between institutions. Apart from these models, the socio-technical point of view, which states that management information systems contain behavioral and technical aspects has contributed to the literature to a great extent (Laudon & Laudon, 2012). According to the socio-technical view, different scientific branches that make up the information systems are divided into two different groups technically and behavior-ally. The technical group includes the computer, operational and management sciences. The branches of science in the behavioral group are economics, psychology, and sociology. Thanks to this view, it is possible to obtain information about different branches of science and their close relationship with each other. Besides, the socio-technical view helps identify and understand the conceptual framework that underpins the multi-faceted effects of information systems on institutions.

Furthermore, the impact of information systems on the evolutionary process of the organizational structures of institutions is another important issue dealt with in this chapter. Since the 1960s the literature on organizational structures has grown considerably.

The relevant literature suggests that there are two different organizational structures which are horizontal and vertical (bureaucratic) in nature. This issue is addressed in terms of various dimensions such as changing environmental factors (Olsen, 2006); common goals; effectiveness and efficiency in business processes; government bureaucracy; and performance. In this chapter, relevant literature has been reviewed and the effects of information systems on the organizational structures of institutions have been presented. Accordingly, the characteristics of bureaucratic and flattened (simple) organizational structures have been discussed. Also, the extent of the contribution of information systems to business processes and organizational effectiveness in both bureaucratic and receding organizational structures has been explained. Moreover, the present chapter has provided relevant information about the features of the virtual organizational structures, business and organizational structures based on studies.

Finally, the present chapter has focused on the effects of ICTs on institutions, ICTs contribution to economic development, and changes and developments in organizational structures. Some studies have suggested that ICTs offer economic benefits to institutions. On the other hand, some studies have not presented any positive findings on ICT adoption in various aspects. Specifically, from the 80s until the mid-90s, when the ICTs started to develop and become widespread, no positive relationship was found between the increase in company performance and the use of ICTs. On the other hand, studies conducted as of the mid-90s and during the 2010s have detected positive correlations between firm performance and the use of ICTs (Gargallo-Castel & Galve-Górriz, 2012; Seo et al., 2012). Considering the periods when these two strands of research revealing opposite results were conducted, we can say that the positive effects of the ICTs on the performances of the institutions have recently begun to be understood more clearly. These benefits, in turn, help typical office set-up find new markets to sell their products and / or services, increase sales, increase customer satisfaction and firm loyalty, reduce fixed and variable costs in business processes. Moreover, higher production and / or service output is available in return for less labor. Thus, it is possible to say that firm size may not accurately predict firms' competitiveness in the market these days. Nowadays, ICTs are essentially required to overcome the disadvantages that business size and management costs may bring since they help to reduce different costs such as management, business process, proxy, production unit, information acquisition, financing, transportation, and quality cost. Thus, ICTs help user typical office set-up compete with their rivals in the market.

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