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# Theoretical rooting of the relationship between information and communication technologies and institutional excellence

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المحور الثاني: دور تقنيات المعلومات في تحسين الأداء الاستراتيجي للمؤسسات الاقتصادية

## Abstract:

The main objective of this paper is to propose a comprehensive and general framework for how to achieve organizational excellence through the optimal use of information and communication technology (TIC).

The descriptive analytical approach was used to analyze the comparative literature and draw conclusions to reach the main objective. The study found a positive relationship between the dimensions of information and communication technology and the achievement of organizational excellence.

Keywords: information; communication; technology; organizational excellence.

**Jel Classification Codes:** L15, L63.

## ملخص:

الهدف الرئيسي من هذه الورقة هو اقتراح إطار شامل وعامة لكيفية تحقيق التميز التنظيمي من خلال الاستخدام الأمثل لتكنولوجيا المعلومات والاتصالات (TIC).

تم استخدام المنهج الوصفي التحليلي لتحليل الأدبيات المقارنة واستخلاص النتائج للوصول إلى الهدف الرئيسي. ووجدت الدراسة علاقة إيجابية بين أبعاد تكنولوجيا المعلومات والاتصالات وتحقيق التميز المؤسسي.

كلمات مفتاحية: معلومات؛ اتصالات؛ تكنولوجيا؛ تميز التنظيمي.

تصنيف جال: L15 ، L63.

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## **1. Introduction**

The new economy has shifted away from an economy based on traditional manufacturing to an economy driven by knowledge. Technological changes in materials handling, information processing, biotechnology, as well as the globalization of production systems through the establishment of dominant industrial standards that will last until the next strategic inflection point for any new technology are among the most important driving forces for this transformation (Morrar, Arman, & Mousa, 2017).

Information and Communication Technology (ICT) has become a major factor in the future development of the service industry including the telecommunications industry, banking industries, transportation and logistics, among others. The focus on creating new approaches to its development provides confidence in the organization's ability to achieve long-term and sustainable success in the current business environment characterized by rapid and continuous change, and this is called "organizational excellence" which is one of the most recognized concepts that can ensure this competence and ability.

In the context of benefiting from the technological revolution and the communication revolution that granted many advantages to communication organizations owned by them and improving their use and exploitation, many challenges were imposed on communication organizations, most notably their acquisition of these technologies and their exploitation as logic to gain leadership. From this standpoint, we pose the following problem :What is the role of (ICT) in achieving organizational excellence?

### **1.1. Objectives of the study**

This study aims to clarify a number of points as follows:

-Providing a structured scientific theoretical framework by studying the critical importance of ICT for business organizations.

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-Clarify how business organizations can achieve organizational excellence by making good use of ICT in all their dimensions.

- Answer the posed question.

## **1.2. Previous studies**

Access to basic ICT infrastructure is a key to increasing the flow of information and improving communication and by extension increasing possibilities and opportunities (Baba, Shaari, & Alkali, 2011, p. 32). The scope of networking provided by the Fourth Industrial Revolution is an important opportunity for manufacturers to use customer feedback data more widely and more efficiently (Xu, David, & Kim, 2018). The concept of organizational excellence is an academic term that originated from Peters and Waterman (1982) (Al-Dhaafri, Al-Swidi, & Al-Ansi, 2016, p. 48), They also argued that the sources of differentiation are manifold, it is not only product attributes or trade policy, but all value chain activities and even downstream activities (Porter, 2005, p. 24). Excellence is one of the main pillars of the success and building of organizations (Al Baraznji, 2019, p. 1146)

## **2. The framework of the study**

The theoretical side of the study includes two important concepts: ICT and organizational excellence.

### **2.1. Information and communication technology**

Information and communication technology has known many developments until today we are talking about the digital economy, thanks to scientific research that has made technology the main feature of all the developments of the current era.

#### **2.1.1. Definition of ICT**

ICT stands for “Information and communication technology”. It refers to technologies that provide access to information through telecommunication. It is similar to Information Technology (IT) but focuses primarily on communication technologies. This includes the internet, wireless networks, cell phones and other communication mediums. (Ratheeswari, 2018, p. 45). According to UNESCO ICT is a

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scientific, technological and engineering discipline and management technique used in handling information, its application and association with social, economic and cultural matters (Enyia & Emelah, 2021, p. 947)

### **2.1.2. Components of ICT**

Information and communication technology is divided into the following elements: (Tomar, 2021, pp. 5-10)

**- Computer Technology**

**- Network Technology:** Network technology is the use of connected systems either via optic cable, satellite, wireless connections to relay various data, communication and resource in different part of the world.

**- Telecommunication:** Telecommunication is a universal term that is used for a vast range of information-transmitting technologies such as mobile phones, landlines, VoIP and broadcast networks.

**- Radio communication**

**- Microwave Communication:** Microwave refer to high frequencies above 300MHz and short wave lengths, Effect of fading

**- Satellite Communication:** Communication satellite is an artificial satellite that relays and amplifies radio telecommunication signals via a transponder a communication channel between a source transmitter and a receiver at different locations on earth

**- Fiber optical communication-** Fiber-optical communication is a system in which information is sent from one people to another via optical fibers as light points. Optical fibers have largely replaced copper wire communication in core network in the developed world

ICT consists of various interrelated physical and intangible technologies used to capture, process, manage, display and disseminate data into useful information. It also includes activities that

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deal with problem solving through logical and arithmetic thinking (NASCA, 2015, p. 4).

ITC can be considered to be built on the 4 C's, Computing, connectivity, content, and human capacity (Microsoft Word, p. 29)

## **2.2. Organizational Excellence**

Distinguished organizations, whether governmental or non-governmental, are those that do everything in their power to achieve current needs, and even future expectations through the services they provide and what they will provide in the future.

### **2.2.1. Defining Organizational Excellence**

Excellence was defined by the European Foundation for Quality Management (EFQM) defined excellence as “the outstanding practice in the organization to achieve nine essential concepts, namely, customer focus, management by process and facts, continuous learning, partnership development and public responsibility, result orientation, leadership and constancy of purpose, people development and involvement, and innovation and improvement.” (Al-Dhaafri, Al-Swidi, & Al-Ansi, 2016, p. 48)

Experts from the American Society for Quality argue that “organizational excellence refers to ongoing efforts to establish an internal framework of standards and processes aimed at engaging employees and motivating them to provide products and services that meet customer requirements within business expectations”. Moreover, according to the European Foundation for Quality Management - EFQM: “Excellent organizations are those that achieve and maintain outstanding levels of performance that meet or exceed the expectations of all stakeholders” (Nenadál, Vykydal, & Waloszek, 2018, p. 48)

### **2.2.2. Dimensions of Organizational Excellence**

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Excellence is derived through uniqueness factors. The links between enterprise and customer value chains represent potentials for excellence.

### **- Leadership Excellence**

Leadership has a direct impact on excellence (Borghini, 2013, p. 226). Distinguished leadership is the leadership practice that aims to achieve the highest standards of quality and professional performance using qualifications, skills and experience to achieve strategic and forward-looking goals through the use of governance, extract and adapt the latent capabilities of employees, and excel over competitors through the use of elements of emotional intelligence (Gupta, 2011, p. 345). To respond effectively to the new dynamics (the digital world), companies must begin to think of ways to expand their ecosystems and revenue streams and become more responsive and resilient. (McKinsey & Company.) The competition for excellence in the digital world requires leadership to have the following qualities (HIGHSMITH, 2014, pp. 4-6):

#### **- Adaptive driving**

At the core of any agile or adaptable organization is the ability to stimulate, encourage, and inspire disruptive thinking. Sure, adaptive leadership is about learning, adapting, collaborating, and more—but disruptive thinking lies at the heart of these behaviors. Disruptive change – in technology, in business models, in the speed of product development is very important – but finding, keeping and encouraging disruptive thinkers in an organization will be very difficult is important as well.

#### **- Business flexibility**

Agility is a business necessity, not just a technical one. Agile software development has enjoyed great success over the past 10 years. Creating resilient organizations in an era of rapid change hinges on management's ability to energize new business models, engage

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middle and top management, and change the way product and project manager's link agile concepts and practices to upper management.

- **Responsiveness and Efficiency**

While companies may strive to achieve both, one of these factors must be the driver, the objective, and the other a constraint. Responsiveness is a business strategy. Agility and adaptability achieve that strategy.

- **Knowledge Excellence**

Economically relevant knowledge is the full body of scientific evidence and human experience that is or can be useful in the production and supply of goods and in the invention and design of new products and processes (Hormiga, Batista-Canino, & Sánchez-Medina, 2011, p. 76).

(Nenadál, Vykydal, & Waloszek, 2018, p. 61) See that Knowledge management (focused on tacit knowledge first of all) should be considered as necessary precondition for organizational excellence. Having in-depth knowledge and high specific skill levels leads the organization to a narrower scope, an in-depth search for well-defined solutions relevant to existing areas of knowledge which in turn can be linked to more exploitation and increased types of innovation (Zschockelt, 2009, p. 14)

- **Service Excellence**

Excellence in a service is the development of it with unique recipes. The organization gives an opportunity to put exceptional prices (Abu-Naser & Al Shobaki, 2017, p. 49). The virtual value chain offers different options on products and services to customers (Hollensen, 2010, p. 592)

Effective service delivery requires the immediate provision of information and its dissemination to all relevant actors. This type of information includes service delivery orders, service-specific service graphics and information about service availability levels (Joia, 2007, p. 116).

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## **- Human Excellence**

During recent years different approaches have been developed focusing on the corporate intangible resources, competences, and capabilities, as the main lever of creating competitive advantage. Human capital is important as the foundational source of innovation, and creation value in the knowledge-based economy (Yazdi & Chenari, 2013, p. 4182).

Research indicates that the spread of digital technology, artificial intelligence, and robotics in organizations will create a skills deficit. The managers of some organizations have begun to realize the skill gaps that their organizations will face in the coming years and the need to bring about a change in the composition of workers by forming a new mix of talent and skills in the future. On the other hand; the open talent economy will continue to grow thanks to technology (World Economic Forum, 2020)

## **- Product Excellence**

While product excellence can be an unrivaled source of growth, for many companies, just getting there is a challenge. It provides a key competitive advantage to companies that master its intricacies. At the same time the challenge to create not just one, but a range of successful products has fundamentally increased: broader choice to customers than ever, global competition in every segment, less loyal and pickier customers, and complexity and required investments steadily increasing.

Great products require the best of marketing & sales as well as product development and more intensive collaboration than ever: on the one hand, to understand the value customers see in products, through the appropriate analysis of the customer insights, to derive the product strategy and positioning; on the other hand, to engineer the product ideas with an integrated design-to-cost and modular approach.

Great products are the result of cross-functional thinking and “building bridges” between technology and customer orientation,

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embracing a holistic conception of end-to-end customer experiences thinking about context, systems, and usage scenarios, implementing a superior engineering based on quantitative customer insight and systematic technical excellence, balancing the use of simplicity and complexity for strategic differentiation on portfolio and product level. (Grüntges & Weig, p. 5)

### **3. ICT as a Mechanism for Organization's Excellence**

ICT supports the shareable workspace. Stephen Heppell of Ultralab reports that the use of ICTs to support creativity is commonly found in small, democratic, and high-value economies that focus on intelligence (Gokhe, 2000, p. 2).

#### **3.1. Keeping abreast of rapid and continuous change**

Change is the only constant that organizations deal with in our modern era. There is no doubt that modern environmental conditions are characterized by a high degree of change.

Complexity can be further defined by volatility (speed, magnitude) and ambiguity (the haziness of reality), as well as by uncertainty (lack of predictability). But turbulence has an upside—creating opportunities for those who can weather the dynamism and complexity (HIGHSMITH, 2014, p. 5). The project's structure determines its complexity, which affects the ease or difficulty the team has navigating through the project. Higher complexity implies the need for more structured communication and documentation (Pixton, Nickolaisen, Little, & McDonald, 2009, p. 72).

#### **3.2. Digital Business Process Management Source of Excellence**

The way organizations conduct their business operations can be a source of competitive strength. The organization's main assets - intellectual property, core competencies, financial and human assets - are managed through digital means. Any information needed to support key business decisions is available anytime and anywhere in the organization. Digital businesses sense and respond to their environments more quickly than traditional companies, giving them

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more flexibility to survive turbulent times. Digital companies present extraordinary opportunities for more global organization and management. By enabling and streamlining their work, digital firms have the potential to achieve unprecedented levels of profitability and competitiveness.

Digital firms are distinguished from traditional firms by their near total reliance on a set of information technologies to organize and manage. For managers of digital firms, information technology is not simply a useful handmaiden, an enabler, but rather it is the core of the business and the primary management tool .(Laudon & Laudon, 2006, pp. 5-6)

Structural capital deals with the system and structure of an enterprise. It is the business routines. An enterprise with strong structural capital will create favorable conditions to utilize human capital and allow human capital to realize its fullest potential, and then to boost its innovation capital and customer capital.

It is affirmed that in the twenty-first century the only way for a successful organization to maintain its competitive excellence is to be quicker in learning than its competitors [Chen et al., 2004]. The operational process, which ensures a organization to complete its various operational tasks, is the most effective of working methods and processes after a long-term accumulation and deposition (Yazdi & Chenari, 2013, p. 4183).

Information systems can help companies extend their reach to remote locations, offer new products and services, reshape jobs and work flow, and potentially profoundly change the way they conduct business. Today's information systems provide the power of communication and analysis that companies need to conduct trade and conduct business. Coordinating global work teams and servicing domestic and international reporting needs is a major business challenge that requires robust information system responses (Laudon & Laudon, 2006, pp. 2-3).

### **3.3. Changing the Nature of knowledge**

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Rapid technological advances in computational power and communication technologies are changing the nature of knowledge, skills, talents, and knowledge of individuals in the workplace (Yazdi & Chenari, 2013, p. 4180). Examples of software systems and technological means used to obtain and disseminate information to employees within the organization:

**3.3.1. Integrated Business Software:** It is a group of systems that work together to automate the processes of the organization and link them in a unified and integrated manner to the enterprise resource planning (especially large organizations) (ERP) in its expanded form, which allows the effective use of resources, financial account management, customer relationship management (CRM), Supply Chain Management (SCM), Human Resource Management (HRM) (McCue, 2022).

**3.3.2. Technological systems and means for special functions:** they are means of strategic planning and evaluation, examples of which are:

- Balanced Score Card (BSC): which allows transforming intangible investment into tangible investment by translating operations into focused strategic thought, influence and focus on employee behavior, strategies for continuous learning and feedback, training and communication, teamwork, motivation, empowerment, creativity, development, then reaching building relationships with customers and their loyalty and measuring levels of satisfaction (Fernandez, 2020).
  - Projects and Portfolio Management Systems (EPM): An integrated system is achieved by creating three portfolios: Applications Portfolio, Infrastructure Portfolio and Project Portfolio.
  - Systems for specific industries.
  - Cross-regulatory systems (comprehensive): basic systems for electronic commerce, Internet services.
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- Common systems for preservation and search for knowledge: documentation and content management, systems for data storage and extraction (Vallabhaneni, 2008, pp. 209-300).

IT systems can link different information with each other. Where CRM systems provide new information about the customer or his behavior towards the organization, project management systems are used in planning new management efforts in the organization, the project headquarters, and business software increases transparency and clarity in communicating information to the parties concerned with it. The integration of private software applications (ERP) affects all functions of the organization. It works to reshape the organization's operations, work flow, design, interaction between people and culture, spending on developing innovative capabilities. Information technology systems support the extraction of tacit knowledge by facilitating the free expression of performance and ideas, as well as supporting work teams and groups (Joia, 2007, p. 117).

### **3.4. Revenue generation**

Ross (2010) argues that ICT value generation results from shifting the focus on standardization, optimization and cost control to the innovative uses of emerging technologies such as social media, cloud computing, and mobile devices; marketing velocity; flexibility to pursue changing opportunities; and building new products and services. Revenue generation is the result of four value propositions that are as follows (HIGHSMITH, 2014, p. 29):

- **Business support:** Utilizing the growing technology capabilities of business partners, IT value focuses on coordination and pushing development responsibilities to the business partners.
  - **Solution/platform delivery:** IT value creation is more traditional, coming from building and deploying systems and capabilities.
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- **Business process design:** IT value creation focuses on enterprise process design and optimizations, outsourcing much of the build function to vendor partners.

#### 4. Conclusion

This transformation is more visible in information and communication companies and business success is linked to the use of information and communication technologies to maintain and expand competitive advantage and achieve huge returns for shareholders.

ICTs are increasingly recognized as an important strategic asset for the competitive advantages of sustainable companies. This study provides evidence that customers and investors place higher value on companies with better efficiency in information and communication technology, and this enables them to achieve greater profitability and revenue growth.

ICTs with characteristics such as flexibility and interaction help employees and managers to transfer and share knowledge across the organization and process information by creating vertical information systems rather than hierarchical channel systems to achieve sustainable organizational excellence.

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