



14. Information and Communication Technology Sector

Summary

The information and technology sector (ICT) constitutes the vital foundation of different business sectors all over the world, and it represents the backbone of all governmental services provided to citizens in most developed countries. This sector suffers many problems in the Kurdistan region, including:

- Scarcity of expertise and human resources.
- Scarcity of introduction to new systems and technologies.
- Lack of financing.
- Scarcity of use of ICT in vital institutions such as security services, border crossings, citizenship and civil records, customs, and so on.

There is an urgent need to reform governmental institutions and to reorganize their administrative operations in order to conform to e-government systems. Also, a database must be established to help provide the best outcomes in all sectors. It is worth noting that freedom of communication is one of the recent principles adopted by human rights organizations, because of the importance of communications in shortening distances, facilitating human life, opening up to the world, and interacting with changes.

Introduction

The ICT sector has become a model for a super-fast developing world. ICT has become available in all fields of learning. Personal computers (PCs) have become a necessity, and are as available in many homes as other durable goods. The same applies to tools of modern communication, such as mobile and wireless phones. Computers, information systems, software, and communications constitute the foundation for different business sectors all over the world, and represent the backbone of all governmental services provided to citizens in all countries. Moreover, ICT has become a crucial indicator of economic trends and a main standard for business performance quality. The use of ICT has become a standard for classifying world economies as developed or underdeveloped, based upon to the contribution of different sectors to the GNP. Consequently, this distinguished sector, and its relation with learning and modern sciences, its super speed and its ability to reduce costs and make life easier has become indispensable for people and entire nations.

Furthermore, freedom of communication through modern technology (internet, mobile phones, etc.) is a recent right adopted by human rights organizations all over the world, and is just like other basic right or freedom that international law and national constitutions guarantee.

Characteristics of the ICT Sector in the Region

1. Use of information technology (IT) is still extremely limited. Most applications are restricted to personal and domestic use, while there is a scarcity of advanced information systems, the use of which is rare and limited to a few banks and communications companies.
2. There is an absence of a culture of use of the IT field of science and its applications. Traditional methods, such as paper documentation and conventional learning, continue to prevail. There is also a lack of interest in keeping abreast of progress in this sector.

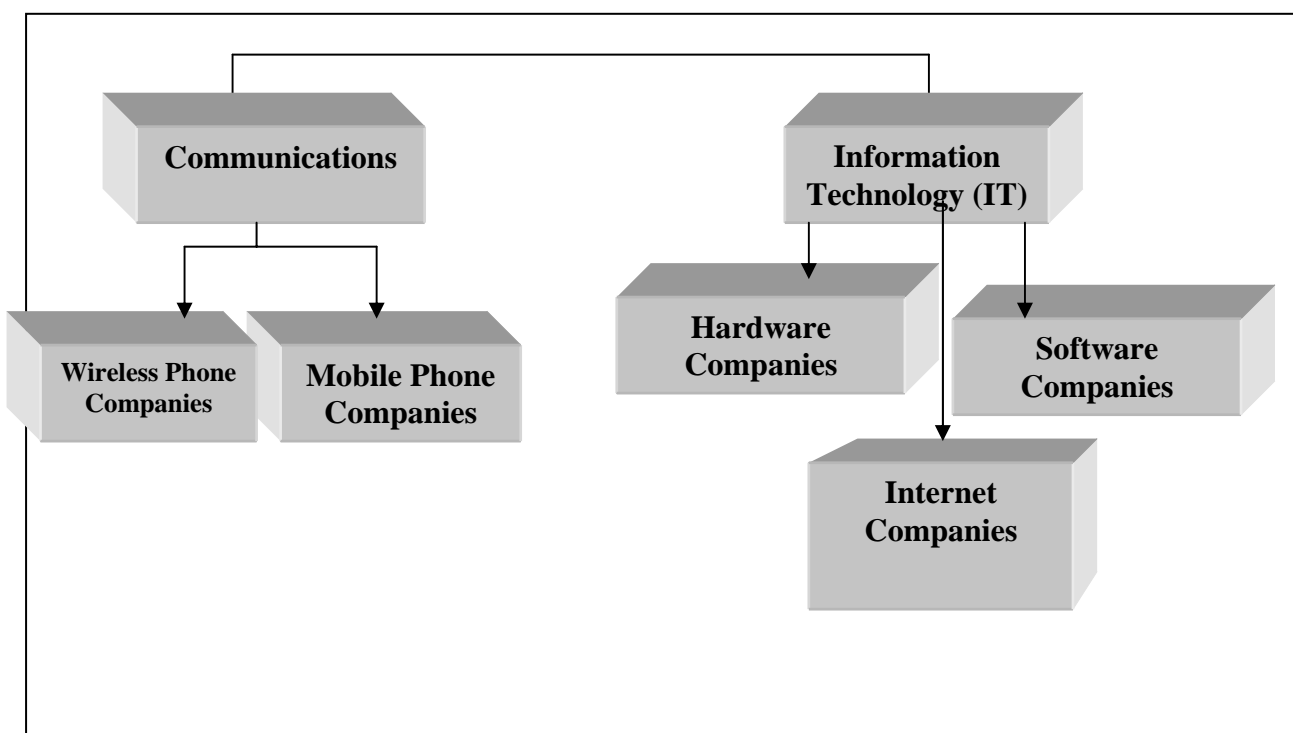
3. The IT market in the region is restricted to computers and their accessories, while there is an absence of a market for software and advanced systems.
4. There is a state of chaos in marketing products and technologies in the region, as poor quality and inferior products dominate.
5. Scarcity of regional experts in the field, as most of them are self-taught, and only a few are educated or trained abroad, and are hence capable of taking the lead in fast change and development.
6. Lack of interest in ICT in the region's educational curricula. Complicated and outdated curricula prevail, amid an absence of ICT education and applications across several school levels and colleges.
7. Absence of legislative protection for patents, technology transfer contracts, and ICT use and applications.
8. The shift towards automation of institutions that had started in 1994 (to shift from the use of paper to electronic files) is progressing slowly and lacks a clear vision of the future targeted model of the electronic shift.
9. Slow expansion of internet centers, services, and cafés, with the existing ones restricted to a limited number of users.
10. The presence of a clear trend to adopt principles of ICT training at the governmental, private, and personal use levels, and the expansion of these programs to include civil society organizations that provide free training with international funding.

Methodology

Major Partners

1. Large communication companies
2. Large IT companies
3. Computer and electronics offices and sales outlets
4. Modern communications offices, companies, and sales outlets

Classification of the ICT Sector



Problems	Proposed Solutions
1. Absence of legal and regulatory frameworks that bind investors and large ICT companies to transfer knowledge or share it with local experts.	1. Motivate large companies to share knowledge with emerging local experts. <u>Stakeholders:</u> Ministry of Communication Investment Commission
2. Scarcity of experts working in IT and absence of accurate information about available expertise in the region.	2. Proposed solutions: ❖ Prepare specialized IT cadres by opening more institutes and colleges. ❖ Embark on introducing new and important specializations that are as of yet unavailable. ❖ Adopt diversified methods of education and training. ❖ Intensify the use of foreign expertise and fellowships in ICT <u>Stakeholders:</u> Ministry of Higher Education and Scientific Research Ministry of Communication

Advanced Electronic Networks and Systems

Problems	Proposed Solutions
1. The absence of connection link agreements with neighboring countries to reduce communication fees.	1. Reach agreements with neighboring countries to set up joint fixed and wireless networks that reduce cost for consumers and improve the efficiency of the communications network. <u>Stakeholders:</u> Ministry of Communication
2. Scarcity of introduction of new systems such as GS Mover Protect, and the absence of free services such as Voice Over Internet Protocol (VOIM).	2. Enact legislation to provide for introducing these services and amend existing legislation to allow for wide use of information services, taking into consideration the accelerating development of innovations in this vital sector. <u>Stakeholders:</u> Ministry of Communication

Establishment Permits and Awarding Contracts

Problems	Proposed Solutions
1. The absence of legislation that restricts work permits to IT experts or that restricts	1. Impose legislative controls that restrict issuing work permits to experts in the field.

permits to companies that provide evidence of their capacity in knowledge transfer and development in IT-related fields.	<u>Stakeholders:</u> Ministry of Interior Ministry of Communication
2. The short validity period of work permits and contracts for wireless phone companies and internet stations limits their potential for progress.	2. Facilitate issuing establishment permits and impose controls that allow for reasonable work periods for wireless phone companies and internet station contracts in order to ensure effective operations. <u>Stakeholders:</u> Ministry of Communication

Financing

Problems	Proposed Solutions
1. The absence of bank facilities for ICT enterprises, as financing is restricted to the advance payment method. This is particularly important for mega enterprises that require large financing, as this causes reluctance in initiating such enterprises and limits their potential. Moreover, available financing is traditional, complicated, and requires many collaterals and liabilities. Financing institutions lack sufficient knowledge of the prospects and advantages of these enterprises.	1. Facilitate the use of partially paid letters of credit instead of the full advance payment and diversify available forms of financing for ICT enterprises. This must be coupled with further reform for the regulations that control financing operations. <u>Stakeholders:</u> Central Bank

Electronic Financial Services

Problems	Proposed Solutions
1. Absence of electronic stock exchanges that motivate the use of ICT for commercial and financial purposes.	1. Set up electronic stock exchanges in order to develop advanced leaders who can assist international and local business sectors to expand their scale of operation in the region. <u>Stakeholders:</u> Central Bank
2. Absence of electronic payment cards, 4Cs and 4Gs machines.	2. Motivate existing banks to deal with electronic payment cards. <u>Stakeholders:</u> Ministry of Finance Central Bank

Public Sector

Problems	Proposed Solutions
1. Absence of IT, including internet networks, at government security offices,	1. Provide the private sector with the opportunity to set up advanced electronic

<p>border crossings, and citizenship and civil records departments. Current operations are based on personal assessment, paper documentation, and the discretion of local directorates on dealing with records and information.</p>	<p>systems for these institutions for wider scale adoption in their operations in addition to training security forces and civil servants on their use.</p> <p><u>Stakeholders:</u> Ministry of Defense Ministry of Interior</p>
<p>2. Many public employees evidently do not comprehend the importance of ICT use in the governmental sector or its basic principles, applications, and advantages.</p>	<p>2. Train and develop human resources in the governmental sector on ICT use and applications with the assistance of specialized centers, institutes, and experts so they become capable of responding positively to the private sector and foreign investment needs. This may also make it easier for these sectors to explain the details and benefits of ICT.</p> <p><u>Stakeholders:</u> Ministry of Planning All ministries and governmental institutions</p>
<p>3. Inspection authorities and customs officials at border crossings do not handle the fragile, imported IT apparatus and equipment with care. Hence, major parts are often damaged, which passes enormous costs down to importers and investors, and impedes fulfillment of their obligations towards clients.</p>	<p>3. Adopt modern electronic means for border crossing inspection, and give imported ICT products special treatment at inspection and customs. It is preferable that these departments have trained experts to handle these sensitive products.</p> <p><u>Stakeholders:</u> Ministry of Interior Ministry of Finance</p>

Challenges and Aspirations

Challenges

This sector will face a number of challenges in the future because of the continuous need for keeping abreast with large, fast-paced worldwide developments in the IT sector and technological sciences. These challenges include:

- ❖ The need to reform governmental institutions and re-engineer administrative operations to conform to e-government systems.
- ❖ The increasing pressure that necessitates expanding the opportunities for the use of new electronic applications in a manner that helps advance and open the markets for ICT activities.
- ❖ The dire need to review all existing legislations to verify that they support potential widescale ICT use in commercial and financial operations and in educational curricula.

Aspirations

The business sector in the Kurdistan region looks forward to the day when information and communication technology becomes available to all individuals, institutions, and companies in a manner that contributes to the progress and prosperity of economic activities.

The business sector aspires:

- ❖ To establish information technology cities to host the operations of mega companies in coordination with local companies.
- ❖ To establish a model electronic city in the region to be a permanent and continuously updated ICT exhibition.
- ❖ To embark on reforms of governmental institutions in preparation for applying an e-government system in the future.
- ❖ To reform the educational system at all stages to keep abreast with developments in ICT and comprehend new technologies (coordination, simulation, training, manufacturing, laboratories).