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NATIONAL PROFILE OF THE INFORMATION SOCIETY

IN IRAQ, 2013

ECONOMIC AND SOCIAL COMMISSION FOR WESTERN ASIA

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Introduction

Despite the dire security circumstances in most of the Iraqi provinces, discussions in recent forums and conferences reveal an improved understanding of the concepts of the information society and culture in Iraq, rather than a basic knowledge of ICT. This improvement was a result of many efforts by both the government agencies and the private sector.

I. THE ROLE OF THE GOVERNMENT AND ALL STAKEHOLDERS

There are many scattered and limited activities and plans made by the ministries and the local authorities within the provinces to provide information systems for the ministries. These activities only serve the ministry which developed them without being documented or necessarily synchronized or compatible with the systems of other ministries which may use an altogether different development platform. Although the previous meetings of the national strategy team revealed the benefits of ICT such as electronic services and confirmed the integration of the plans and activities of the ministries and the local authorities, no particular body was established to follow up the decisions of these meetings and conferences.

A. NATIONAL INFORMATION SOCIETY POLICIES AND E-STRATEGIES

Despite the great efforts made for formulating a national ICT strategy by experts in these fields, the higher authorities have not yet approved this strategy. The strategy has determined the general and particular needs and purposes in addition to the duties of the ministries, the training centres, and the private sector. This draft directed ministries to use automated services and daily tasks moving them to electronic tools whilst taking into account compatibility with the programs used by other ministries making the data transferable and exchange easier as a part of an e-government project, here are some examples of how each ministry is to handle its responsibility:

- The Ministry of Communication is to offer communication infrastructure between the ministries themselves as well as the ministries and their establishments. This is to be done through fibre optics and Wi-Max technologies. Internet is to be provided in collaboration with the private sector companies;

- The Communication and Media Commission is to set up internet URLs for each of the government establishments. It has the responsibility of giving licenses to companies to encourage investments and hosting the websites of the states' ministries and establishments;

- The Ministry of Higher Education is to use ICT technology for education and the offering of electronic services to teachers and students;

- The Ministry of Education is to adapt ICT curricula for all the stages of school education including testing e-classes in education;

- Training centres are to train ministries' employees to perform the above mentioned tasks in addition to offering them the exams needed for international IT certifications. It is worth mentioning that Iraq contains 300 training centres some of which are licensed by international companies such are Cisco and Microsoft to offer their exams;

- As for the private companies, the strategy encourages them to benefit from ICT by implementing the projects of the various ministries taking into account compatibility with the technologies used by other Iraqi ministries;

- Building up the staff working in the ICT sector through programs planned by the Central Agency of Information;

- Spreading information culture and its applications in society through common programs.

There are several projects and initiatives offered by public institutions that aim towards building the information society in Iraq such as the training of the national cadres in IT and the IT awareness program which are both done by the Ministry of Science and Technology, the university governance index by the Ministry of Higher Education, the development of a portal for e-payment by the University of Baghdad, and the e-health program developed through a partnership between Ministry of Health and the Ministry of Higher Education.

ICT strategy exists:	Yes
Year of adoption	Still not approved
Government Agency in charge (in English and Arabic)	Ministry of Communication وزارة الإتصالات
Pace of implementation (Excellent/ Good/ Average/ Limited)	Despite not being approved yet, the strategy is being implemented at an average pace.

B. PUBLIC/PRIVATE PARTNERSHIP (PPP) OR MULTI-SECTOR PARTNERSHIP (MSP)

A considerable portion of ICT services in Iraq are provided by the private sector, such as mobile phone services, internet services, e-learning programs, e-management, and control system for the oil sector. There are instances of partnerships between private companies and building the capacities of ministry staff. Here are some examples:

- A partnership facilitated and led by ESCWA between the Ministry of Higher Education and Cisco company to introduce 40 academies at Iraqi universities and train the trainers to provide certified training courses. More than 3,000 people have been trained and they achieved international certification;

- A partnership between the Ministry of Higher Education and Oracle to introduce several academies and to offer the company's courses to university students and teachers;

- A partnership between the Ministry of Higher Education, IBM, and Microsoft that all may benefit from services offered by these two companies;

- A partnership between the Ministry of Higher Education and ED Company (South Korea) for the purpose of transforming Iraqi universities into productive institutes by building the students' capabilities to design and assemble electronic devices made in South Korea;

- A partnership between the Ministry of Education and the ICDL institute with the support of UNESCO and ESCWA to establish training centres that offer the ICDL certificate. Five centres has thus far been established. More than 1,500 instructors were trained in the curriculum of this certificate.

It is worth mentioning that the Iraqi government offers an e-portal to Iraqi citizens, this portal provides several services in addition to information about various sectors such as health, education, legislation, laws, and personal documents (http://www.egov.gov.iq/egov-iraq).

C. ROLE OF NON GOVERNMENTAL ORGANIZATION

The role of NGOs in building the Information society in Iraq is limited due to the dire security circumstances in the country preventing cadres of these organizations to be present to establish basic ICT needs. Furthermore, the bureaucratic nature of Iraqi laws and legal processes are a hindrance to the operation of NGOs at the national level. Existing examples are: (1) KOICA (South Korean agency) provided training to government employees from several ministries on various uses of ICT in addition to government institutions with modern electronic devices such as computers, routers, and interactive training equipment. (2) ESCWA offered training to tens of government employees in IT curricula and equipment with several international companies; and (3) the World Bank also enrolled the Iraqi universities in the University Governance and Quality Assurance project of which ICT is one of the foundations.

II. ICT INFRASTRUCTURE

A. MARKET STRUCTURE AND REGULATORY LANDSCAPE

The Ministry of Communications and Information Technology is the regulatory authority in this sector. The Communications and Informatics Law was presented to the Iraqi House of Representatives in 9/4/2012, and was planned for enactment at the end of 2013. This law covers the following: the telecommunications spectrum ranges to be used, protecting national security by enhancing the communication security, the tasks of the relevant authorities, and setting prices for the ICT sector that are suitable to citizens. What is present in the current structure and what can be achieved in the future can be summarized in the following manner:

- All telephone switchboards are connected through fibre optics technology;

- All ministries and universities are connected to switchboards through fibre optics, so all ministries and universities are connected to each other;

- Licensing companies which provide internet services through fibre optics within Iraq (from Turkey, Jordan, Syria, the KSA, and Iran) by connecting cables to the switchboards allowing for internet and intranet services;

- Using DSL to connect internet services to residential areas is unfeasible at the moment as fixed phone line networks are damaged. Until this problem is resolved, the Ministry of Communication relies on internet providers to deliver services to residential areas. These services currently rely on wireless networks but are not subject to the supervision of the Ministry;

- The Ministry of Communication provides internet services through Wi-Max technology in parks and markets owned by the government and within the campuses of all universities. Some Iraqi universities also provide free internet on their campuses through Wi-Max and Wi-Fi technologies;

- The Ministry of Communication designed and implemented several data centres to offer electronic services and applications for ministries;

- The private sector introduced data centres to several areas within the provinces, making them accessible to the people.

Mobile Telephone Services	Competitive (Private sector)
Fixed Telephone Services	Monopoly (Public Sector)
Internet Services	Competitive (Private Sector)

B. PENETRATION OF ICT SERVICES

The following table represents the expected percentages for ICT penetration at the end of the year 2013:

Indicator	ICT penetration (end of 2013)
The Number of Fixed Phone Lines Per Hundred Families	6%
The Number of Mobile Phones Per Hundred Adult Persons	50%
Number of Mobile Phones Lines Per Hundred Families	80%
Number of PCs per Hundred Adult Persons	5%
Number of PCs per Hundred Families	10%
Number of Internet Subscribers per Hundred Families	10%

C. INITIATIVES/PROJECTS FOR ICT INFRASTRUCTURE AND DEVELOPMENT OF NEW SERVICES

The government presented several drafts for ICT laws to the House of Representatives. Examples of these include: (1) the Law of Communication and Information (Second draft in the year 2012), (2) the law on the right of information access (first draft, 2013), (3) the cyber crime law (first draft, 2010).

The right to information access law has the following objectives: giving citizens access to information as this is a right preserved by the constitution, enhancement of transparency in government work, and countering corruption in government agencies. The objectives of cyber crime law are: providing legal protection for the legitimate use of PCs and information networks, and punishing offenders who commit acts which violate the rights of other ICT users.

D. ICT CONNECTIVITY

Through its supervision over the mobile phones private sector companies, the Ministry of Communication ensured that the entire area of the Republic of Iraq is covered. 80 per cent of Iraqi families own at least one mobile phone and there has been an increase in the use of smart phones.

As for the internet services, their penetration in the provincial centres through the internet providers is obvious, but their penetration decreases in the more remote areas within the provinces.

E. INTERNET INFRASTRUCTURE

There are currently more than seven national companies providing internet services in Iraq, including: Earth Link, Broadband Internet Services, HalaSat, DijlaNet, Kalimat, El-Suhd Net, Al-Jazeera. These companies compete with each other in the improvement of their services to both government institutions and the private sector, and also in reducing subscription fees. The internet infrastructure in Iraq can be summarized as follows:

- Private sector internet providers offer internet services to all the ministries and the government institutions in addition to private organizations and the civil society organization through the Wi-Max technology and the Wi-Fi technology internally. This type of connection provides in minimal internet needs of users;

- Internet services for homes are also provided through the Wi-Max technology;

- Parts of the areas belonging to ministries and universities have free internet services through Wi-Fi;

- The conference and meeting rooms in the government institutions are equipped with audio-visual conferencing tools operating through fast wireless internet;

- A considerable number of the government institutions staff can connect to the internet though their smart mobile phones;

- Some of the government institutes (universities and research centres) have adapted IPv6 addresses. The State Company for Internet Services is authorized to distribute these addresses;

- There are many servers within the government institutions which offer computer services for the institution itself, and there are servers which provide these services to other ministries as well;

- Some of the government and private sector institutions prefer to host their own websites and electronic applications on servers outside Iraq;

- The board of trustees in the Communication and Media Commission recommended testing 3G mobile internet with Zain Telecommunications. This will begin before the end of 2013. 4G mobile internet is still unavailable in Iraq.

The following table clarifies the indices of the use of communications media in Iraq:

Index	2010	2011	2012
No. of Mobile Phone Users	22,604,498	24,413,656	26,324,513
No. of Fixed-Line Phone Users	1,750,500	1,945,000	2,098,000
No. of Internet Users	4,516,849	5,510,556	6,412,644
No. of Computer Owners	2,067,489	2,545,761	3,116,156

III. ACCESSIBILITY TO INFORMATION AND KNOWLEDGE

A. PUBLIC DOMAIN INFORMATION

Several institutions published their plans and achievements on the internet, constantly updating this information and making it accessible to others through electronic applications such as e-learning, e-health, and unemployment registration forms. People who have transactions within these institutions can use the internet to follow them. Some institutions, and especially universities, make their virtual libraries available for free access, examples of this include Iraqi Virtual Science Library, University of Baghdad e-library, the Ministry of Labour, and Social Affairs e-library.

B. ACCESS TO INFORMATION AND PUBLIC INFORMATION

Most of the Iraqi institutions publish their regulations and other information on the internet and makes them accessible to all the segments of society. The Ministry of Education (www.moedu.gov.iq) published free electronic copies of school curricula for the intermediate and preparatory grades. The Iraqi Commission Computers and Informatics (www.icci.edu.iq) published internet training courses lectures. A number of colleges published the lectures presented by their professors on their websites (www.e-learning.scbaghdad.edu.iq).

The universities of Baghdad, Basra, and Salah Ed-Din have all participated in the Ibn Sina E-Learning Project with UNESCO's aid. Several professors organized their lectures electronically and were uploaded to a server present in the University of Philadelphia in Jordan. All of these lectures are now present on an Iraqi server and available to all students. The Iraqi Virtual Science Library (IVSL) is a pioneering project providing professors, researchers, and students with information access. Most ministries participate in this project and it had more than 20,000 participants by the end of August 2013.

C. MULTI-PURPOSE COMMUNITY PUBLIC ACCESS POINTS

Several social access points have been implemented with the aid of ESCWA. The Ministry of Higher Education introduced training centres to use computer networks making the texts of these training courses available through special websites. A training centre which offers the International Computer Driving License (ICDL) was opened in the Ministry of Education. KOICA equipped the student labs to perform experiments and allowed students to access any ICT information needed through the internet.

IV.   ICT CAPACITY BUILDING

A. ICT IN EDUCATION AND TRAINING

In the recent past, "computer literacy" used to be discussed in Iraq. This is no longer an issue as it has shifted to increasing the information culture. The Ministry of Education sponsored the writing a collection of books on ICT for intermediate and preparatory school classes since 2010 and more than 150,000 students were trained as a result. A number of students in the elementary stage in private schools and some governmental school were also taught in this domain.

In the Ministry of Higher Education, computers courses are taught to more than 60,000 students in the freshman and sophomore years for all the faculties of sciences and humanities. The R&D department in the ministry requires training in computer basics (ICDL, IC3, and IT Skills) and attaining the relevant certificates as a prerequisite for application for higher education in Iraq. More than 50,000 students were trained in the years 2010-2012.

The Communication and Media Commission and computer centres of different universities in addition to the private sector centres annually offer training courses in most of IT specializations and for token values. There are more than 20,000 trainees annually in the commission and the other training centres.

It is worth mentioning than many colleges use modern teaching technologies such as projectors, smart boards, and e-classes.

B.   TRAINING PROGRAMS FOR CAPACITY BUILDING IN THE USE OF ICT

Computer centres offered courses and standard training programs to their trainees since 2005. Tremendous efforts were made to acquire authorization from international organizations to administer direct exams through the internet in all IT specializations. The Computer Centre Administration in the University of Baghdad was able to open four academies for the courses and programs of Cisco, Microsoft, IBM, and Oracle. The administration opened an international examination centre which represents Pearson VUE for more than 900 IT related certificates. An exam centre represents Prometric offering more than 1,100 IT related exams, in addition to opening exam centres for ICDL, I3, and IT Skills.

The opening of the Cisco academy did not only happen at the University of Baghdad, but more than 44 establishments across Iraq were opened, in addition to 150 centres which cover international exam centres for computer basic courses. The computer centre at the University of Baghdad organizes summer training courses for children under six years old, preparing an elementary course which explains the benefits and components of computers.

V. BUILDING CONFIDENCE AND SECURITY IN THE USE OF ICTS

A. USE OF ELECTRONIC TRANSACTIONS AND DOCUMENTS

Public sector institutions can be classified into two types in terms of handling citizen transactions: the first is through electronic applications stored on servers connected to the internet, the citizen can then follow his transaction through entering a code into the internet. The second is through applications which are stored over an internal network and not the internet. The citizen would then follow up with the terminals relating to his transaction.

The Ministry of Planning in collaboration with other ministries arise issuing an electronic national ID card for every Iraqi citizen, it is to be used for unified entry to the state's institutions and this project will be accomplished by the end of 2015. The Ministry of Finance in collaboration with other ministries issued a smart card for paying the wages of university employees, this has been implemented and in use since the beginning of 2012.

B. ONLINE AND NETWORK SECURITY

The ICT strategy draft includes the implementation of the regulations necessary for the security and protection of computer systems and networks, the formation of specialized professional teams for computer emergencies, and the adaption of licensed programs and high-security software.

To achieve these goals, the cabinet transferred the formation of a national information commission act, the second revision of the act took place in 2/10/2013 and it will be fully enacted early next year. The act will provide a legal environment for establishing an advanced and integrated national institutional system which would connect most of the state's institutions through efficient and secure networks pushing the move to an information society forward. One of the tasks of this commission is to form national response teams. Two hacking attempts for governmental establishments were observed in 2011 and 2012 and they were contained with the aid of experts from universities.

C. PRIVACY AND DATA PROTECTION

The ICT strategy draft stressed the enactment of laws which would guarantee the security, protection, and data exchange needed for the privacy of both citizens and institutions. It also stressed the amendment and enactment of intellectual property laws for software products and electronic content.

The privacy and data protection laws have already been discussed and studied and now they are complete, they have been transferred to the House of Representatives for approval and enactment. Examples of these laws include cyber crime and the right of information access law. These laws will become compulsory in all government agencies and fall under the supervision of the National Information Commission.

D. COUNTERING MISUSE OF ICTs

The ICT strategy draft included laws and legislations for cyberspace crimes in accordance with international agreements and conventions. Training centres organize training courses and awareness workshops on this issue in partnership with the Ministry of the Interior to limit electronic and cyber crimes and to publish information about any possible or pending internet threat. The cyber crime law includes legal penalties for the abuse of computers, electronic devices, and computer networks. These penalties include monetary fines and may include prison terms. Although this law has not yet been enacted, the Ministry of the Interior has a division whose task is to follow cyber crimes such as electronic fraud, the observation of pornographic content, and the content which is offensive to individuals and families.

VI. ENABLING ENVIRONMENT

A. LEGAL AND REGULATORY ENVIRONMENT

Investment and development in the ICT sector is protected through legal frameworks such as the Ministry of Communications and Information Technology Law, the Media and Communication Commission law, the communications and information law, and also the Iraqi investment law No. 13 in 10/10/2006, the registration of companies law No. 21 for year 1997). The draft of the strategy includes several such frameworks. Several workshops are being organized to explain the importance of e-signatures especially after Iraq signed the Arab Agreement of the Regulation of Electronic Signature in Cairo in 2008. The e-signature and e-transactions law were issued in Iraq as law no. 78 for the year 2012. E-commerce and e-payment were totally unacceptable to the Iraqi society, but the Ministry of Higher Education and the Ministry of Science and Technology introduced this topic in conferences and in projects to university students at the masters-level. These efforts resulted in an increase in the interest in e-commerce and e-payment. This was further encouraged by the amended trade law, No. 78 for year 2004, even though this interest is still limited to students, teachers, and researchers. Several markets have opened offering the service of delivering foreign goods bought by people over the internet to their houses.

e-transactions law available (yes/no)	Yes (No. 78 for year 2012)
e-signature law available (yes/no)	Yes (No. 78 for year 2012)
Management of PKI available (yes/no)	Yes

B. DOMAIN NAME MANAGEMENT

The Communication and Media Commission is the party which manages the top level domain name (.iq) and the domain names which pertain to the work of an institution (such as .gov or .edu and others). A circular was issued from the Cabinet to all public sector institutions that it is imperative for them to register with the Communication and Media Commission on both levels of domain names (the national one and the one pertaining to the type of work of the establishment). Several forums were held to in the Communication and Media Commission and in several universities about the availability of Arabic URLs for these websites.

Name of ccTLD registrar	*Name in English: Communications and Media Commission* *Name in Arabic:* هيئة الإعلام والإتصالات
URL of registrar	*(http:// www.cmc.iq)*
Total Number of ccTLD registered in the country for the years 2008, 2009, 2010, 2011, 2012.	*313*

C. STANDARDIZATION IN ICT

The interest in quality assurance and reliability increased in all ministries and varying success and achievements rate. The Ministry of Higher Education introduced quality assurance divisions within the ministry and all universities. The ministry also introduced divisions in all faculties in universities to apply international higher education standards, starting with engineering faculties which apply the ABET international standards. All universities, their faculties, and most of the state's institutions document their quality assurance activities on their websites. The Ministry of Communication also supervises the application of international standards in the selection and implementation of ICT. The rest of the ministries have modest contributions in introducing of quality assurance units. The Ministry of Higher Education presented a recommendation to the cabinet to the effect of forming a national assembly to oversee the application of quality assurance in governmental institutions.

D. ICT INVESTMENTS AND GOVERNMENT-SUPPORTED FACILITATION MEASURES

After the political change of 2003, Iraq has indisputably become a large market for investment in all domains including ICT. Security circumstances, however, made most Arab and foreign companies reluctant

to invest in Iraq, for this reason investment remained limited to national companies and a limited number of Arab and foreign companies. US$ 5 billion were invested in cell phone licenses. There are four cell phone licenses in Iraq given to AsiaCell, Atheer Telecommunications, Iraqna, and KorkTel. An increase in the investment is expected after the direction taken by the Ministry of Higher Education towards making the Iraqi universities productive through contracting with private sector companies. There are several projects in this direction such as: (1) launching a training centre for engineering and IT specializations in the Jadiriyah Complex resulting from an agreement signed between the University of Baghdad and ED (Korean company) and which is to be implemented in early 2014, (2) The e-health project between the University of Baghdad and IBM which was approved by the Ministry of Higher Education and transferred to the Committee of Investments to allocate the funds necessary for it, (3) the electronic university between the University of Technology and some Korean companies and (4) the patient ID card which was designed and implemented by the Iraqi Commission Computers and Informatics. The Ministry of Communication transferred three recommendations to improve ICT in the period between 2013 and 2017, these are:

- Increasing fixed line tele-density at a rate of 100,000 per year and extending the services provided by broadband through fixed phone lines to include voice, data, TV, and games. And also to increase the number of post offices to reach the standards of Universal Postal Union. US$ 850 million has been allocated for this activity;

- Increasing wired and wireless internet subscriptions to 1,866,000 and to promote the quality of the service, in addition to extending the service to 20 per cent of the schools and hospitals. US$ 500 million has been allocated for this activity;

- The protection of wired and wireless communications from hacking, US$ 700,000 has been allocated for this.

VII. ICT APPLICATIONS

A. E-GOVERNMENT

Three ministries (The Ministry of Science and Technology, the Ministry of Communication, and the Ministry of Higher Education) collaborated in the implementation of the e-government project in Iraq benefitting from the experiences of Arab and foreign countries. The beginning in 2004 was not too successful as the plans to launch and continue the project were absent. The project was suspended throughout 2006 and 2007 due to the security circumstances. Several conferences were held in 2008 and 2009 to assess the infrastructure and as a result the Committee for Electronic Governance was formed in February 2009 with the Minister of Science and Technology presiding over it. In April 2010 an action plan for the strategy of e-governance was formulated to be approved in the same year. 3,000 government officials were trained in the development and implementation of electronic applications for e-governance in partnership with UNDP. The efforts of the above mentioned ministries finally materialized in the launching of Iraq's e-government portal (www.egov.gov.iq) which contains information and services for citizens, the public and the private sectors. As for infrastructure, the Ministry of Communication provided mobile phones connectivity to most of the Iraqi regions and offered the Wi-Max and Wi-Fi technologies to most ministries and institutions. Although the work is progressing slowly, connectivity is available in most of Iraq, all communications problems are expected to end as fibre optic technology will used to cover all Iraq and connect it to neighbouring countries and the world. Furthermore, all airports are connected to a high speed communication system to exchange data and connecting the passport systems in- and outside of Iraq.

Until the end of 2011, the government information systems situation indicated that each government institution had limited applications allowing for work to take place within the institution itself without having compatibility with the applications of other institutions. There is also a general lack of electronic applications directed at the service of the citizens.

In the years 2012 and 2013, programming teams were formed in the Ministry of Higher Education. The tasks of these teams included the design and development of applications which implement international standards making them available on the internet and the intranet. One such system is the e-management program which was implemented in the Minister of Higher Education's office, the Iraqi Commission Computers and Informatics, the University of Baghdad, and some of the private colleges. These programming teams are now preparing to design and implement an electronic system for the Ministry of the Interior. Some other applications implemented within the e-government project include:

- The electronic form for acceptance to Iraqi universities (www.icci.edu.iq);

- The electronic form for acceptance to higher education in universities (www.hs.uob.edu.iq);

- The electronic form for acceptance to night classes in universities (www.hs.uob.edu.iq);

- Distance learning in the training centres which have partnerships with international establishments and companies (www.cc.uobaghdad.edu.iq);

- IT experts in the University of Baghdad made a recommendation for hastening the implementation of e-government applications and achieving compatibility between them. This recommendation states that experts are to be selected to work as consultants to the ministries (one consultant for each minister), they are to be charged with surveying the reality of the current situation of the use of information and electronic means in their respective ministries to determine a time schedule for transforming the processes of their ministries to electronic ones. A monthly meeting is to be held by these consultants to present what was achieved in each ministry and to exchange ideas and establish a fruitful collaboration between the programming teams assigned to design and implement. The ministers are to follow up with their consultants to receive reports about the rate of achievements and so forth. This will allow all ministries to finish their work at a similar pace reaching the goal of a full e-government.

URL of e-government portal: *(http://www.egov.gov.iq)*		
Information	General	*Yes*
	Laws	*Yes*
	Directories	*Yes*
Services	Static Info	*Yes*
	Downloadable Forms	*Yes*
	Interactive	*Yes*
e-payment		*No*
Online account		*Yes*
Bilingual		*Arabic. English*
Citizen Participation	Blogs	*Yes*
	Polls	*Yes*
Social Media	Facebook	*No*
	Twitter	*No s*
	LinkedIn	*No*
	YouTube	*No*
	Other	*The e-government concepts training course*
Additional Services	RSS	*No*
	Web Statistics	*Yes*
	Search	*Yes*
Mobile version	Support for smartphone/tablet	*No*
	Dedicated App (iOS or Android based)	*No*
Other features		-

Name of Authority in Charge of ICT in Public Administrations	وزارة العلوم والتكنولوجيا *Ministry of Science and Technology http://www.most.gov.iq*
Name of e-Government authority	اللجنة الوزارية التوجيهية للحوكمة الألكترونية *e-Governance Ministerial Steering Committee* *http://www.egov.gov.iq*
Number of implemented government e-services	*76*
Number of planned government e-services	*24*

The services mentioned in the table above include 10 e-government services, 22 information services about government services, 12 e-learning services, and 8 e-health services. The rest are general electronic services. There are efforts being made now to offer additional electronic services and projects such as the e-collection project for state taxes in addition to the execution of state tender and contract procedures through the government's official portal.

B. E-BUSINESS

Although the ICT strategy draft includes clauses to encourage and facilitate e-commerce, it is still very limited in Iraq and only available through banks and private sector companies which offer e-payment cards to all their clients. Some companies, added links to their websites which allow the citizens to purchase and sell merchandise via them, these companies would then act as mediators in the delivery of merchandise to citizens.

After the Ministry of Communication linked the banks to each other, the government encouraged the banks to benefit from the communication technology available for exchange and circulation of e-transactions to serve the citizens. The Iraqi Central Bank prepared an e-banking law and transferred it to the State Shura Council to discuss and approve it.

Availability of e-banking services	*No*	Law number:	
Availability of e-commerce law	*No*	Law number:	
Availability of e-transactions law	*Yes*	Law number:	*78 for year 2012*
Name other laws on e-services	*No*	Law number:	

C. E-LEARNING

Both the ICT strategy draft and the e-government strategy stressed the use of ICT to offer learning opportunities for the general public. To achieve this objective the strategy defined some methods which include: increasing the knowledgebase for the decision makers, preparing IT necessary for training students and teachers, preparing IT necessary for delivering information to the student in an interactive manner, then the preparation of modern learning curricula. E-learning in Iraq can be summarized as follows:

- Designing learning packages to deliver the scientific material to the students. There are many such packages in the Ministry of Education and are present on the site: www.manahj.edu.iq;

- Publishing the lectures of university professors on websites for the students to read (www.e-learning.scbaghdad.edu.iq);

- Cooperation between some of the ministries and the Ministry of Higher Education in offering modern ICT courses and direct learning on the internet;

- Participating in the Ibn Sina e-learning project by the the Ministry of Higher Education. E-learning Centres were introduced in eight universities all over Iraq. In this project professors design their electronic lectures, and then a special committee assesses the academic value of the lectures and ensures they meet the quality standards. The effectiveness of these lectures on students is assessed through questionnaires before publishing them on their server. This provides the students with the opportunity to download the lectures to their PCs and electronic devices. (http://109.224.14.25/moodle1);

- Transforming a number of schools to e-schools by the Ministry of Education. This includes providing PCs and connecting them together through Wi-Fi technology allowing students to reach lectures and hand in homework electronically;

- Designing the Education Management Information System (EMIS);

- Making the Iraqi Virtual Science Library accessible to all universities and most ministries, there are more than 20,000 participants in it at the moment.

Student to computer ratio	5% for the Students of the Ministry of Education 20% for the students of the Ministry of Higher Education
Percentage of schools with Internet access	5% for the Students of the Ministry of Education 100% for the students of the Ministry of Higher Education

D. E-HEALTH

An e-health project is being designed by the Ministry of Health in a partnership with the Iraqi Commission Computers and Informatics and the University of Baghdad Computer Centre. This system will integrate the following systems:

- The Health Information System (HIS);

- The use of Smart Cards for patients' numbers and their main medical information;

- Electronic Medical Records (EMR)/Electronic Health Records (EHR);

- ePharmacy;

- Following emergencies from homes to the ambulance to the emergency room or the surgery rooms, taking the following into account:
  - The possibility of the presence of Mobile Health (mHealth) equipment;
  - The ambulance containing a full set of portable medical equipment with a GPS system and a smart card reader;
  - Following critical cases from inside the ambulance.

- Connecting the labs through a medical information network inside hospitals which contain data transfer units;

- Asset Tracking System;

- Medical Imaging including MRI and so on.

After successfully implementing the above mentioned points, other advanced technologies will be introduced such as a national medical data network with a highly advanced security system which will predict any malicious software attack using an integrated cyber security system offered by IBM in the partnership with Cisco. Electronic operations centres will be built for hospital management, data analysis, and very fast decision making. In October 2013, a workshop was held for the University of Baghdad staff in IBM Middle East headquarters in Dubai concerning smart cities system management, e-health systems, and cyber security systems.

E. E-EMPLOYMENT

In order to fully comply with the quality standards, most colleges have introduced units to follow up graduate affairs. These units build databases for graduate students (CV and contact info) to aid them to find jobs electronically. A number of retired professors designed a website allowing any graduate to register their name and upload their CV. The website, on the other hand, allows private sector companies to view the database and contact the graduates for the purpose of employing them. A recent governmental circular directs all ministries to add a link on their websites which would allow new graduates to apply to work for at these ministries. Employment committees study the application forms and assess them, and then it publishes the names of the accepted applicants on the website.

VIII. CULTURAL DIVERSITY AND IDENTITY, LINGUISTIC DIVERSITY AND LOCAL CONTENT

A. USE OF ICT IN SUPPORT OF CULTURAL AND LINGUISTIC DIVERSITY

To preserve the social fabric of Iraq, the ICT strategy draft stressed that all segments and sects of society are to be given the opportunity to use this technology regardless of their mother tongue and their personal belief. It also ensured that certain websites are to be designed in the languages used in Iraq (Arabic, Kurdish, and Turkmen such as www.turkmen.nl , www.ukh.ac). The Ministry of Culture offers internet services to all Iraqi museums equipping these museums with smart screens to present information on the various civilizations which passed through Iraq. As for the social media networks, these are available to all people, the Ministry of Culture and the educational television offer lectures on the best use of these networks.

B. LOCAL AND NATIONAL DIGITAL CONTENT DEVELOPMENT

The ICT strategy includes directives to public sector institutions to having their own websites on the internet to extend services and information to the citizens. The Communication and Media Commission offers the national domain name (iq) to public sector institutions and the possibility to host websites on its servers. Web design used to be only present in the private sector, now public sector institutions have their own programming teams for the design and upgrade processes of websites. The development of these websites and their adaption of international standards led them to enter into international classifications attaining better rankings than the ones they previously had. The University of Baghdad, for instance, received a classification within the top 700 of the 21,000 universities in the British QS ranking system (topuniversities.com). As for the development and Arabization of the digital content, software teams have developed programs in Arabic according to the request of the parties benefitting from them just as they arabized already developed systems.

C. ICT SOFTWARE, TOOLS, AND R&D PROGRAMS IN ARABIC LANGUAGE PROCESSING

The Iraqi government issued special directions to both the private and public sectors to preserve writing in good Arabic in dissertations, research, and software in addition to translating books in most specializations into Arabic. Dozens of dictionaries in various fields of specialization have been produced (Scientific, economic, financial, commercial, engineering and so on). Optical text reading technology was used by the Central Statistical Organization to accomplish the census and this technology was also used in the correction of exam papers in some colleges and the reading of the central application forms of the universities. The use of open source software is mentioned in the ICT strategy but the actual use of this type of software is still very limited and it is mostly adapted by university professors through placing them in students' masters' projects. Several forums were held to discuss the importance of the use of such software as they will occupy 90 per cent of the software market in the future according to the specialists. It is worth mentioning that the University of Baghdad with the partnership of IBM introduced a full course on open source software for Computer Science and Computer Engineering BS students. The details of this course were designed by IBM experts.

IX. MEDIA

A. MEDIA DIVERSITY, INDEPENDENCE AND PLURALISM

Before the change of the political regime in 2003 media had neither independence nor variety, after the change the opportunity was given to establish TV and radio stations without any restraints and in total freedom. The Iraqi Communication and Media Commission was formed under law 65 for the year 2004 to regulate this domain. It is expected that a new law concerning it would be issued as it is currently being discussed in the House of Representatives. The commission has the following tasks:

- Issuing licenses to TV and Radio stations;

- Offering these stations total freedom and independence whilst maintaining a supervision and follow up with these stations to ensure that they respect the law of the land and international treaties.

There are about 30 Iraqi TV stations, most of them are privately owned. The Communication and Media Commission offers all registration and license information to all types of media through its website. Although the communication has no specific requirement concerning the participation of women in the condition for granting licenses, all Iraqi stations take women's participation into account. The House of Representatives recently passed a law for the protection of journalists and media workers.

Media outlets	Number	Language(s)	Ownership			
			Private	Mixed	Government	Foreign
News papers	57	Arabic	43		14	
Electronic newspapers	10	Arabic	9		1	
Magazines						
News agency	150	Arabic/English	138		12	
Radios	23	Arabic/English	20		3	
Televisions	34	Arabic/English	25		9	

Source: www.iraqws.com

B. THE MEDIA AND ITS ROLE IN THE INFORMATION SOCIETY

To increase its role in society, some of the media channels transmit in more than one language, all media in Iraq use advanced technologies such as audio-visual interactive systems. The Communication and Media Commission was an example for the rest of media channels as it did the following:

- The formation of a website (www.cmc.iq) which contains all information, laws, and activities of the commission;

- Issuing a monthly magazine (Tawassul) to build ICT awareness;

- The organization of several conferences about the reality and freedom of media in Iraq.

There are several educational TV channels which offer lectures for the lessons of the intermediary and preparatory grades of school, and also continuous lectures for increasing IT awareness through teaching computers, these lectures are directed to parents. Furthermore, most channels meet with ICT specialists to discuss the benefits and harms of using the new electronic devices (tablets and smart phones). A TV channel called "Al-Jamiyyiah" was established to document the many activities of the Ministry of Higher Education, universities and colleges.

C. CONVERGENCE BETWEEN ICT AND THE MEDIA

Iraq has a decent infrastructure capable of providing audio-visual transmission and internet. The state represented by the Ministry of Communication invested in this infrastructure as did the private sector

through internet service providers. TV and radio transmissions moved to the mobile phone environment as all mobile phone service providers offer visual transmission through mobile phones. Media organizations benefitted from the infrastructure to transmit over the internet through their websites. As for the Iraqi journals, they all have websites through which they publish an electronic version of their issues, keeping their previous issues in an archive. The ICT strategy draft stressed the integration of media with modern communication technologies to use state of the art technology to deliver information to the people. The ICT strategy draft also stressed that media is to educate people on the importance of these modern technologies and we have seen that there are several TV educational channels which handle this issue on a daily basis.

X.   INTERNATIONAL AND REGIONAL COOPERATION

A. FINANCING OF ICT NETWORKS AND SERVICES

The government has allocated a decent percentage of its budget for the implementation of ICT networks. It was the government's general belief that control and direct supervision are necessary to implement these projects. Later on voices stressing the importance of empower the private sector to accomplish projects while the government confines itself to direction, supervision, and follow up appeared in the House of the Representatives and the Cabinet. Several workshops were held in Jordan, Lebanon, and the Emirates to encourage investment by private national and foreign companies. But the security situation of Iraq confined investment to Iraqi companies with a small number of foreign companies which have representation within Iraq. The government encouraged banks to finance the private sector's investment in Iraq. Some of the sources for financing ICT arrived through the support of international organizations (ESCWA, UNICEF, UNESCO, the World Bank, and KOICA). The World Bank invited a number of Iraqi IT specialists to participate in the University Governance and Quality Assurance Project at the end of 2012 and also sponsored the conference for launching the exam Iraqi University Governance Screening Card Conference. Ministries have allocated large funds for R&D in pioneering projects including IT projects, an example of this is the funding for the Iraqi Virtual Science Library.

B. INFRASTRUCTURE DEVELOPMENT PROJECTS

Iraq's federal budget is 93-95 per cent dependent on crude oil exports. These exports are spent on the provision card subsidies, fuel subsidies, the social welfare network and the salaries of the Iraqi government's employees. Practically, what is left from this budget is insufficient for Iraq to rebuild the infrastructure which needs hundreds of billions of dollars making resort to investment imperative. For this reason, investment law No. 13 for the year 2006 was issued, and according to it two investment commissions were formed in Iraq:

- The National Investment Commission;
- The Investment Commissions for the Provinces.

The law stressed facilitating Arab and foreign investments through tax exemption for 10 years from the project's beginning and offering lands for investment for 50 renewable years in addition to giving investors the right to residency and facilitated entry and exit from the Iraqi lands. The law included all the fields of investment except the extraction and production of oil and gas, the banking sector, and insurance companies. There are many projects for the development of the infrastructure such as:

- The extension of prepaid fixed-line phone system to 500,000 fibre optics lines once residential areas are connected to fibre optics at a cost of 2,300,000,000 Iraqi Dinars. The project is expected to be complete in 6 months and internet will be one of the main uses at that time;

- Linking of all ministries and universities to each other through fibre optics technology in addition to connecting Iraq to the neighbouring countries;

- The design and implementation of data centres to facilitate and protect the data flow from and to the establishments connected to these centres;

- Connecting the Iraqi universities to the Arab Universities' Network which participates in the University Governance Project which is managed and supported by the World Bank;

- Encouragement and support of the productive universities project through facilitating agreements between the universities and foreign companies as universities allocate a tract of land for foreign company to build factories for the production of electronic devices using Iraqi labour and the supervision of the companies, in addition to marketing for the product inside Iraq and outside it.

C. WSIS Follow-up

The Communication and Media Commission prepares semi-annual reports to measure the ICT performance indices comparing them to the rest of the world. There is a new tendency within the websites, which is to document the success stories so that others would read them and benefit from them. An example of this is the University of Baghdad publishing the Cisco academies success stories in the period extending from 2005 to 2012.

D. Participation in Internet Governance activities

Unfortunately, Iraq did not participate in the Conference and Public Consultations to Establish the Arab Internet Governance Forum held in Lebanon in 2012 according to which the forum was formed. Although the Communication and Media Commission made great efforts in conjunction with the Ministry of Communication made great efforts to promote awareness about the Arabic domain names, but it did not participate in the formulation of the ICANN policies. A questionnaire directed at the BA and BS students in the University of Baghdad indicates that there is a great desire for registering Iraq in the Arabic domain names since 82 per cent of the 10,000 students have voted.

XI.   BUILDING THE ICT SECTOR

A. ICT FIRMS

There are three types of ICT firms in Iraq: public sector firms, private sector firms, and mixed sector firms. The private sector firms implement the majority of the communications projects (more than 70 per cent of them) and these companies offer internet services to all the governmental institutions and to the houses. A recent directive from the Ministry of Communication lowered residential internet prices to one third of its value making that rate about US$ 20 per month.

As for the types of firms, there are the mobile phone companies (4 companies), the internet service providers, there were more than 180 computer services companies in the year 2012. Some of these companies have marketing, maintenance, and guarantee licenses from international companies such as HP and Microsoft. Certain companies have specialized in the design and development of electronic systems for government agencies such as the library system, the student registration system and so on.

Most of the government's institutions rely on the private sector to provide them with ICT services although institutions have their own cadres for these services. Iraq remained totally distant from providing certified software until 2010 when the Computer Centre in the University of Baghdad began to hold several forums under the headline "The Culture of Certified Software" to deans, professors, and university students. After this, an agreement was made with Microsoft to offer 1,000 certified copies of Windows 7 and the Office 2010 package to be distributed to the colleges and university centres. After the success and acceptance of the experiment by professors and students a recommendation was extended to the Minister of Higher Education to apply this experiment in all universities. A directive from the minister to implement was given to this effect.

B.   GOVERNMENT FACILITATION

The government represented by the Ministry of Finance allocates funds for the state's institutions to implement their projects, the government also encourages ministries to adapt the principles of partnership and investment with private sector companies whether these were local, Arab, or foreign. The draft of the strategy included several clauses on facilitating tenders and payments, reducing the routine in the processes of analysis and transfer through making them electronically available for all and placing deadlines for each process before presenting the results of the analysis and transfer on websites to achieve transparency in all of the phases of the projects.

C.   CONTRIBUTION OF ICT SECTOR IN THE NATIONAL ECONOMY

The government's budget allocates large sums to ministries corresponding to the needs of these ministries to implement all types of projects including ICT. There are no particular percentages of these funds dedicated to ICT as it is up to the ministry itself to determine the part of its budget needed to spend on the ICT sector according to the priorities of spending each of these ministries have. Certain ministries spend more money on ICT than others such as the Ministry of Higher Education, the Ministry of Communication, and the Ministry of Science and Technology. Estimated and unofficial statistics indicate that ICT in all of Iraq receives 2 per cent of the total budget. The government encourages resorting to national companies in small and intermediate solutions, large solutions, however, are implemented through the efforts of Arab and foreign companies. Certain government and private organizations have software teams to meet their demands for electronic solutions.

D. R&D AND INVESTMENTS IN THE ICT SECTOR

Each ministry in Iraq has a directorate for Research and Development which encourages ideas and projects supporting them financially. ICT projects do take a large percentage of the total number of projects. The Ministry of Higher Education and the Ministry of Education organize tournaments for students in the

ICT domains adapting the innovative projects both on the level of the ministry or on the national level. According to the directives of the Ministry of Higher Education, each university introduced a division for marketing the scientific products. These are connected to the university chairman's deputy for scientific affairs. The task of these divisions is to receive the scientific productions of students and professors, integrating them, and then sending them to division of product marketing in the Ministry of Higher Education to market them to both public and private sector establishments.

A recent agreement was reached between the University of Baghdad and IBM to form a centre for innovation to build human resources in most of the ICT specializations.

E. INVESTMENTS IN THE ICT SECTOR

The draft of the ICT strategy encouraged investment in information technology and formulated the legal framework for investment relating to incentives and exemptions (the Iraqi Investment law No 13 for year 2006). Several investment initiatives were encouraged, one of them is the one made by the Iraqi Commission Computers and Informatics to promote electronic systems to most of the government institutions in addition to the software teams in computer centres which designed and promoted several university electronic systems. The last of the initiatives adapted by the Ministry of Higher Education is the one implemented by the University of Baghdad to design electronic examination software to determine the level of the higher education students for the year 2013 in computer and IT skills. This software was promoted to all Iraqi universities and was used by 15,000 students. This system replaced the certificates which were adapted in 2012 (IC3, ICDL, IT Skills) and in this case local investment replaced foreign investment, almost US$ 1 million were saved as a result.

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