



Measuring the Information Society Of IRAN

MEASURING THE INFORMATION SOCIETY OF IRAN



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2014

Information and Communication Technology
Measurment for IRAN
National indices and International Indicators



Ministry of ICT
Information Technology Organization of
IRAN



Measuring the Information Society of IRAN



Ministry of ICT
Information Technology Organization of
IRAN

Measuring the Information Society of Iran 2014

**Information and Communication Technology Measurement of
Iran**

National Indices and International Indicators

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Foreword from the ICT Minister



During the last two decades, Information and Communication Technology (ICT) has been recognized as a transformational all-purpose technology and as an important enabler for social, cultural and economic development and its wise uptake by any nation is a key principle in growth and development of that society. ICT is now part of development and it has a great impact on economic, cultural, social, and political aspects of human life. It creates jobs and fosters innovation, empowers people, creates new business models and revenue streams, makes governments more agile and responsive and helps greater access to education, healthcare and public services.

The United Nations Conference on Sustainable Development (Rio+20) concluded by embracing a vision of the future outlined in a document entitled “The Future We Want”. Rio+20 highlighted the need to ensure sustainable consumption and production and recognized the power of ICTs to improve knowledge exchange, technical cooperation and capacity building for sustainable development. These technologies and applications can build capacity and allow experience and knowledge in the different areas of sustainable development to be shared in an open and transparent manner.

Finally, I would like to express our concern regarding the digital divide between the developed and the developing countries. In this regard, the activities need to ensure the access to information and communication technologies by all, and should result in supporting national efforts in developing countries in the area of building, improving and strengthening capacities to allow their involvement in all aspects of the global information society. For this, increased attention should be given to the importance of tracking, monitoring and addressing the digital divide.

Dr. Mahmoud Vaezi
ICT Minister of Islamic Republic of Iran

Foreword from the Deputy of ICT Minister



Culture, economy and national security are the main priority areas of most of the development plans in various countries. In these two decades, countries have added modern technologies (e.g. nanotechnology, biotechnology, ICT), environment and human capital to these priority areas. Government of the Islamic Republic of Iran has recognized ICT as a key infrastructural component for social, economic and cultural development of the country. It is expected that ICT should act as an enabler for the different sectors of our economy so that we can provide inclusive and affordable services to the stakeholders of information society of Iran with a higher quality in a shorter time. For realizing the above mentioned roles for ICT, the ICT master plan of Iran has been prepared in alignment with the high-level national policies and international development goals with a market-oriented view and by considering the important role of private sector and international cooperation. Government has started very important initiatives to promote the ICT infrastructures, including high-speed broadband networks and services in the country and it has prepared an appropriate infrastructure for the investment of private sector in this field. It is expected that by such joint investments, new markets and business opportunities will be created in the coming years.

Policy makers of the Islamic Republic of Iran have recognized the importance of measuring and monitoring ICT and they have considered a specific article in the Iran Fifth Socio-Economic and Cultural Development Plan (2011-2015) that instructs Ministry of ICT to develop a system for ICT measurement in the country. According to the plan, Ministry of ICT is responsible for measuring, monitoring and providing analytical reports and feedbacks for the decision makers. Ministry of ICT has assigned one of its subsidiaries named Iran Information Technology Organization (ITO) to develop the ICT measurement system of Iran. ITO has a main role in the development of ICT in the country and it acts as an ICT policy making and monitoring body in Iran.

This report (Measuring the Information Society of Iran) presents the current situation of the country according to the ICT objectives of Fifth Development Plan (FDP) and internationally comparable ICT statistics. We hope that the annual and continuous publication of this report facilitates the achievement of sustainable development and accelerate the country's development.

Hereby, I especially acknowledge His Excellency Dr. Mahmoud Vaezi, ICT Minister of Iran for his valuable guidance, encouragement and continuous support and also the members of the steering committee of ICT measurement of Iran due to their good performance and their cooperation in order to perform ICT measurements in the country, coordinating data collection from different data sources and helping the national coordinating body to analyze and disseminate the results.

Nasrollah Jahangard
Deputy of ICT Minister Director of Information Technology Organization of Iran (ITO)
Chief Director of Information society committee of Iran

The purpose of the report



Five years ago at the end of the Fourth Socio-Economic Cultural Development Plan of Islamic Republic of Iran (2004-2009), Information Technology Organization of Iran (ITO) one of the subsidiary organizations of Iran Ministry of ICT, performed the first country-wide and comprehensive measurement and analysis of ICT indicators in the country with a help of two private sector companies. The objective of that measurement was to measure the progress of country towards the targets that was mentioned in the ICT development plan of Fourth Development Plan according to the 44 indicators. Some part of this data collection process was done at a country-level from governmental organizations (1200 organizations), schools (65000 schools), and universities (180 universities). Another part was based on administrative data collection, field studies, surveys and expert opinions. This measurement process was a challenging one and we learned a lot of experiences in that effort. At that time, ITO faced many challenges such as lack of a measurement model, ambiguity in the definition and measurements methods, lack of governing and national coordinating body and lack of financial resources for measurement and data collection.

Due to the importance of measuring and analyzing ICT indicators in the country and according to the international experiences and quality frameworks, the policy makers decided to consider a law and formal provision for the ICT statistical system in the Fifth Development Plan of the Islamic Republic of Iran. The law instructs Ministry of ICT to develop a system for ICT statistics in the country till the end of second year of the plan. According to this law, Ministry of ICT is responsible for measuring, monitoring and providing analytical reports and feedbacks for the decision makers. Ministry of ICT has assigned Iran Information Technology Organization (ITO) to act as a national coordinating body for ICT measurement and develop an ICT statistical and measurement system for Iran. ITO performed this task with the help of one of the universities and a private sector company. This initiative was an excellent successful working example of cooperation among government, academic and research bodies and private sector in Iran for achieving the country goals and objectives.

The main components of the architecture of the designed ICT statistical system are the conceptual framework in ICT Measurement of Iran (IMI), core ICT indicators, periodic data collection processes and procedures, rules and regulations, international communications, and capacity building. After some introduction about the Islamic Republic of Iran, this document describes the mentioned components in detail. The progress of the Islamic Republic of Iran according to some of the well-known international indices is described in another section. This system and its components will be improved according to the received feedbacks, policy and planning needs, beneficiaries' needs and international trends.

This report is the first formal output of the ICT measurement system of Iran in English that describes the components of the system and progress of Iran towards an inclusive and advanced information society. We are happy to receive your comments and opinions to improve this report for the upcoming period.

Amir Hossein Mohebbali
Manager of IT Strategic Planning and Monitoring Center
Director of ICT Measurement for IRAN (IMI)
Member of Information Society Committee of Iran

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The report includes data from the reports that have been provided by the governmental organizations within the Islamic Republic of Iran, Communication Regulatory Authority (CRA) of Iran, ITU Measuring the Information Society, WEF Global Technology Report and UN E-government Survey.

Information Technology Organization of Iran (ITO) appreciates the cooperation of all the governmental organizations that have been participated in the preparation of this report with their reports and helpful comments. ITO also thanks for the support of managers and administrators of Ministry of ICT, especially the Planning and Strategic Supervision Deputy, Communication Regulatory Authority of Iran (CRA) and Telecommunication Infrastructure Company of Iran (TIC).

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1 The Islamic Republic of Iran at a Glance

1.1 Location and population

The Islamic Republic of Iran is located in southwestern Asia. Comprising a land area of 1,648,195 km², it is the 18th-largest in the world; with over 77 million inhabitants. Iran is bordered on the north by Armenia, Azerbaijan and Turkmenistan, with Kazakhstan and Russia across the Caspian Sea; on the east by Afghanistan and Pakistan; on the south by the Persian Gulf and the Gulf of Oman; on the west by Iraq; and on the northwest by Turkey.

Tehran is the capital and largest city, serving as the cultural, commercial, and industrial center of the nation. Iran is a major regional and middle power, exerting considerable influence in international energy security and the world economy through its large reserves of fossil fuels, which include the largest natural gas supply in the world and the fourth-largest proven petroleum reserves.

1.2 History

Iran is one of the world's oldest civilizations. The first dynasty in Iran formed during the Elamite kingdom in 2800 BC. The Iranian Medes unified Iran into an empire in 625 BC. They were succeeded by the Iranian Achaemenid Empire, The Hellenic Seleucid Empire and two subsequent Iranian empires, the Parthians and the Sassanids, before the Muslim conquest in 651 AD. Iranian post-Islamic dynasties and empires expanded the Persian language and culture throughout the Iranian plateau.

The blossoming of Persian literature, philosophy, medicine, astronomy, mathematics and art became major elements of Muslim civilization. Iranian identity continued despite foreign rule in the ensuing centuries and Persian culture was adopted also by the Ghaznavids, Seljuk, Ilkhanid and Timurid rulers. The emergence in 1501 of the Safavid dynasty, which promoted Twelver Shia Islam as the official religion of their empire, marked one of the most important points in Iranian and Muslim history. The Persian constitutional revolution established the nation's first parliament in 1906, within a constitutional monarchy. Growing dissent with foreign influence culminated during the Iranian Revolution, which led to establishment of an Islamic republic on 1 April 1979.

1.3 Gross Domestic Product (GDP)

The economy of Iran is the eighteenth largest economy in the world by purchasing power parity (PPP). Iran's economy is a mixture of central planning, state ownership of oil and other large enterprises, village agriculture, and small scale private trading and service ventures. Its economic infrastructure has been improving steadily over the past two decades but continues to be affected by inflation and unemployment. In the early 21st century, the service sector contributed the largest percentage of the GDP, followed by industry (mining and manufacturing) and agriculture.

Iran has leading manufacture industry in the fields of car-manufacture and transportation, construction materials, home appliances, food and agricultural goods, armaments, pharmaceuticals, information technology, power and petrochemicals in the Middle East.

2 ICT Measurement System of Iran

Due to the importance of measuring and analyzing the progress towards the objectives of information society in Iran and according to the international experiences and quality frameworks, the policy makers decided to consider a law and formal provision for the ICT statistical system in the Fifth Development Plan of the Islamic Republic of Iran. The law instructs ICT ministry to develop a system for ICT statistics in the country till the end of second year of the plan. According to this law, Ministry of ICT is responsible for measuring, monitoring and providing analytical reports and feedbacks for the decision makers. The main components of the architecture of the designed ICT statistical system are the conceptual framework of ICT Measurement of Iran (IMI), core ICT indicators, periodic data collection processes and procedures, rules and regulations, international communications, and capacity building. In the following sections, the mentioned components are described in detail.

2.1 Introduction

- Based on the clause 3, article 46 of Fifth Socio-Economic Development Plan of the Islamic Republic of Iran, Ministry of ICT (MICT) should establish ICT measurement system to evaluate the progress towards related ICT laws in the Fifth Development Plan and information society according to the defined indicators and enhance the status of the country at the national, regional and international levels. Every year, the results of the monitoring should be reported to the government and Parliament of Iran. According to this clause and the approval of the cabinet, every three months, all the governmental organizations and non-governmental institutions are mandated to provide necessary and relevant information, statistics and reports to MICT.

- ITO as an IT governing body is responsible for performing any needed measurement, data collection and dissemination of ICT indicators in the ICT measurement system of Iran. Also, **ITO is the national coordinating body for performing any needed coordination and providing the needed support and reporting mechanisms to the international bodies.**

- Through the past three years MICT has developed all components of the ICT indicators monitoring system and due to its legal obligation mentioned in the Fifth Development Plan by taking the advantage of national and international experiences has launched the ICT measurement system of Iran. The ICT measurement and monitoring system of Iran includes: a conceptual model; Core ICT indicators of Iran; measurement methodology; evaluation and analysis of ICT indicators in the

country; specification of responsible body to support technical, educational and research infrastructure and finally, necessary mechanisms to interact with the international bodies.

2.2 Objective

- The objectives of ICT monitoring system of Iran are:
 - Specification of indicators, their definitions and measurement methods;
 - Specification of principles of the system;
 - Specification of roles and responsibilities;
 - Specification of administrative structure;
 - Specification of financial structure;
 - Schedules the gathering, analyzing and publishing the results of current ICT development and utilization status according the developed indicators toward a continuous monitoring based on the defined indicators;
 - Providing the facilities to prepare and publish the annual reports for the authorities that have been mentioned in the national law and international bodies.
- To achieve the targets that have been mentioned in the law, all the administrative bodies and other responsible beneficiaries in the monitoring system are authorized to design and develop their own measurement and monitoring system in line with the objectives of the ICT monitoring system of Iran.
- The main objective of this system is to gain a common understanding of the progress of the country towards the specified targets and goals. So, the outputs of this system is used for the analysis of the situation; the investigation of country progress towards the Iran's 20-year vision; the goals of the Fifth Development Plan (FDP) law; and internationally developed targets in this field and finally, for the operational planning to achieve the goals in the remaining time frame of the Fifth Development Plan.

2.3 Scope

- The scope of this system is within the boundary of defined indicators and related data collection and dissemination methods at the national and international levels. The working period of this system is by the end of the Fifth Development Plan (FDP) but it can be continued based on the necessity and possibilities.

2.4 Authority

- ICT minister has approved and announced this blueprint and notified it to the beneficiaries to perform their referred assignments in clause 3, article 46 of the Islamic Republic of Iran's Fifth Development Plan (FDP) law.

2.5 Related Upper- Hand documents

- ICT measurement system has been prepared in alignment to the following upper-hand documents:
 - Iran's 20-years vision and its related documents.
 - Fifth Socio-Economic and Cultural Development Plan (FDP) law of Islamic Republic of Iran.
 - Cabinet approvals and instructions.

- Internationally comparable ICT statistics developed by international organizations such as ITU, UNCTAD and UNESCO.

2.6 Responsibilities

- According to the Iran's Fifth Development Plan law, MICT is responsible to implement this system.

11. MICT has assigned ITO as a responsible body for this system for performing planning, updating, information gathering, analyzing, and disseminating information to the related national and international bodies.

2.7 Principles

- All governmental organizations are responsible to perform necessary preparations in order to collect timely, accurate and updated data from their departments and subordinate units, according to the ICT monitoring system.

- All governmental organizations are responsible to interact with MICT in order to implement the system. They are also responsible to cooperate and interact with their subordinate units and provide updated and accurate information and functional reports in accordance with the schedule and required formats.

- All governmental organizations are responsible to suggest and consider the necessary budget for collecting their updated and accurate ICT statistics of their own organizational units.

- ITO is responsible to consider the needed budget and funds for internal cooperation and data gathering, information analysis and publication, cooperation with international bodies and other assigned responsibilities in its annual budgets.

- The responsibility for publishing the aggregated and analyzed information about the current situation of ICT indicators is by ITO with MICT minister approval at the end of each period.

- IT Strategic Planning and Monitoring Center within ITO is responsible to perform executive affairs of ICT indicators monitoring system.

- ITO is responsible for auditing and validating of collected data. If evidence and quality controls show that some collected data is invalid, ITO will prevent publishing and dissemination of those data.

- However, if the task of collection of data and statistics is transferred to other governmental organization, that organization is responsible for the quality assurance of the collected data. No governmental organization can relinquish its responsibility even if ITO and MICT are responsible for the whole monitoring system.

- All governmental organizations are responsible to consider a section in their websites for publishing their ICT statistics. This section should be available in Persian and English and also reachable by the famous search engines.

- All governmental organizations are responsible to publish their ICT statistics annual report in Persian and English.
- All governmental organizations are responsible for budgeting of the needed and related data collection and disseminations. MICT only covers the cost of coordination affairs, consultants and expert committee expenditure and dissemination and publication of the information.

2.8 Organizational Structure

- One of the key components of the monitoring system is the organizational structure that is responsible for governing the initiative, managing the process and performing the necessary activities for realizing the system in the country. In designing the organizational structure and the national coordination mechanisms and processes, among the templates and supporting mechanisms that have been proposed the UNSD National Quality Assurance Framework has been adopted. In the designed structure, Information Technology of Iran (ITO) is a governing body and Strategic Planning and Monitoring Center (SPMC) of ITO is a managing department for the system that performs all the planning and execution activities for the system. Organizational structure of Iran ICT indicators monitoring system defines the hierarchy of delegation of authority, information exchange, cooperation and distribution of duties. Iran ICT indicators monitoring system organizational structure is depicted in Figure 2-1.

- ITO (IT Strategic Planning and Monitoring Center) is responsible to form the “ICT indicators monitoring system national coordinator working group” in order to employ the national capacity in this field. The members of this working group are the representatives from the governmental organizations and private sector bodies which are introduced by their related bodies according to the request of ITO and approval of the Center. They are assigned by the head of ITO. The working group members are introduced or reinstated by their organization by the end of 24 September of every year in order to plan, coordinate and perform necessary arrangements for monitoring upcoming year.

- ITO may form a working group with the cooperation of Strategic Planning and Monitoring deputy of MICT for consultation and cooperation on audit, data verification, analysis of the compliance of reporting results with the objectives, finalizing appropriate reporting method and quality control in the various stages of monitoring system implementation to meet Compliance and governance requirements.

- All the responsible organizations in the monitoring system should cooperate with ITO for the necessary data collection every year; they should introduce an office branch (legal entity) and a representative as a contact point by the end of September 22 of every year. It is recommended that the representative of each governmental organization should be selected from the ICT, planning or statistics departments. The governmental organization is responsible for the performance of the introduced representative.

2.9 Technical capacity building

- ITO is responsible to perform capacity building in the form of trainings, seminars, courses or e-learning courses to improve knowledge and technical skill level in the field of ICT indicators monitoring.

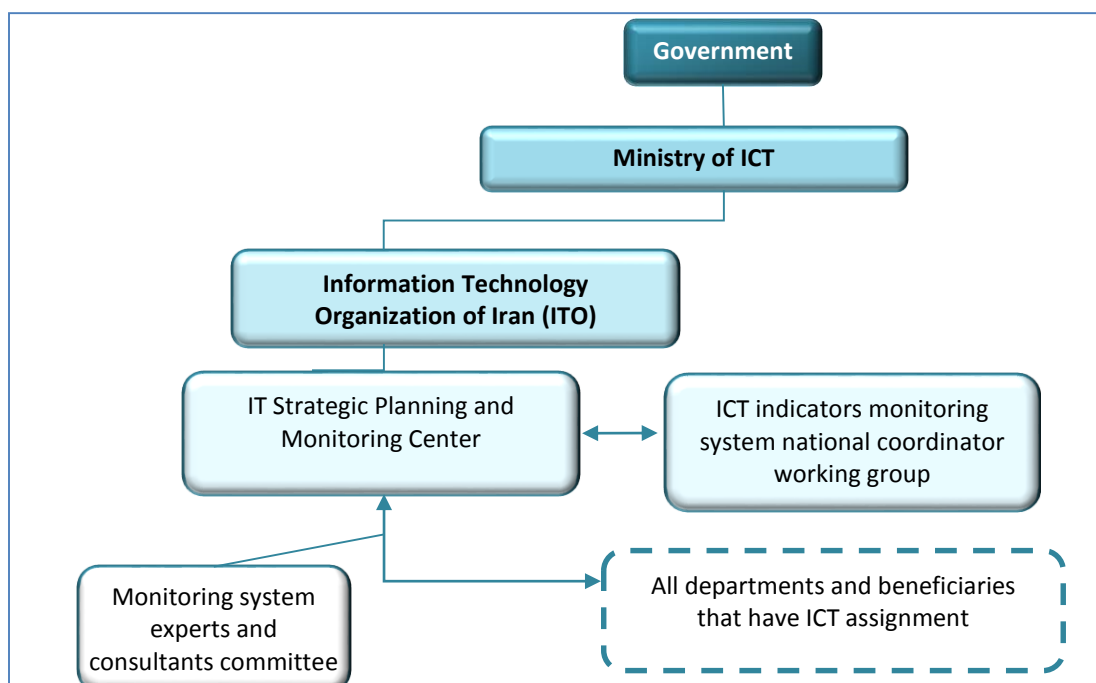


Figure 2-1: Organizational structure of Iran ICT indicators monitoring system

- ITO is responsible to launch a web portal in English and Persian for the collection and dissemination of data and analytical reports. ITO is responsible to manage (preparation, operation, maintenance and updating, systems improvement and uninterrupted access through Internet and information national network) the portal.

- According to Iran's Fifth Development Plan law, all the governmental organizations are responsible to provide their own ICT statistics and reports in accordance with the defined indicators in the ICT Core Indicators of Iran, so all the governmental organizations should establish the needed organizational and informational infrastructures to provide accurate and up-to-date information. They also should develop and implement their annual plan for performing this assignment.

- At the end of each period, ITO is responsible to report the aggregated data and analytical reports of ICT indicators monitoring system for the approval of MICT minister.

2.10 Timing for the activities in the Iran ICT Indicators Monitoring system

- The proposed timing for the various activities in the ICT indicators monitoring system has been depicted in Table 2-1.

2.11 Budgeting and finance

- All governmental organizations are responsible for considering the necessary budget for data collection, performance measurement and announcement in their annual ICT budget.

- Some of the indicators in the Core ICT Indicators of Iran should be collected by using a statistical survey. Statistical Center of Iran (SCI) is responsible to perform the needed statistical surveys. The

Table 2-1: ICT indicators monitoring system schedule

Activity	Timeline	Report 2013	Report 2014	Report 2015
ICT indicators monitoring system notification / corrections / amendments based on the comments of beneficiaries and the analysis of last year report / modification in upper documents and assignments / changes in the definition of indicators according to new national and international definitions	August 22 (After the previous publication)	2013	2014	2015
Deadline of assignment / reviewing of beneficiaries and the introduction of beneficiaries organization representatives, as well as determination of members for ICT indicators monitoring system national coordinator working group	September 22	2013	2014	2015
Organizing the monitoring operations, including outsourcing, financing, capacity building and providing infrastructure comply with the duties decided in the system and the implementation process guideline	January 20	2013	2014	2015
The deadline to collect and send functional information related to indicators with official confirmation and comply with process and identification of indicators to ITO	April 20	2014	2015	2016
The deadline for quality control and reports compliance checking by ITO	May 21	2014	2015	2016
Reports checking in ICT indicators monitoring system national coordinator working group and committee of experts and consultants, and preparation of analytical reports	June 21	2014	2015	2016
Paper and electronic publication, and informing national and international beneficiaries	July 22	2014	2015	2016

cost of such special surveys must be considered in the annual budget of SCI.

- MICT is responsible for the costs associated to the needed staff (operational/current) for annual monitoring implementation, national coordinator working group, experts and consultants, beneficiaries training, Iran ICT indicators monitoring portal development and maintenance, publication, notification, participation in the national or international communities to defend and present Iran achievements, and data management. The necessary budget should be considered in the ITO annual budget.

2.12 System review method

- ITO and MICT are responsible to release corrections or amendments according to beneficiaries' comments, the previous year analysis reports, national and international document changes, and changes in the definition of indicators according to new national and international definitions by the end of August 22 by getting any required approval.

3 Core ICT Indicators of the Islamic Republic of Iran

- According to the of Iran's 2025 Vision, Iran is a developed country which has the first rank in the economics, science, and technology in the region, with the Islamic and revolutionary identity, that plays an inspiring role in Islamic-world and interacts positively and effectively in the international relations. First level priorities for the technology development of Iran are indicated in Figure 3-1. The following priority areas have been specified in the ICT Strategic Plan of Iran. These priority areas are shown in Figure 3-2.

- Development of ICT Infrastructure
- Cyber security
- ICT Economics
- ICT Research and Development
- Laws and Regulations for cyberspace
- e-government
- e-health
- e-commerce
- e-banking
- e-learning
- Islamic and Iranian culture and content in cyberspace
- e-judiciary
- International Indicators/Indices

- Designing a system for ICT measurement has been done in three stages: Planning, Design and Measurement. At the planning phase, the following activities were performed:

- Identifying beneficiaries needs
- Study and analysis of Iran's high-level documents.
- Study and analysis of some similar countries for using their experiences in this field.
- Study and analysis of international reports, rankings and indicators.
- Benchmarking and study of chosen countries.

In design phase, according to the outputs of phase one and existing experiences, architecture of ICT measurement system were designed. The main components of this architecture are the conceptual

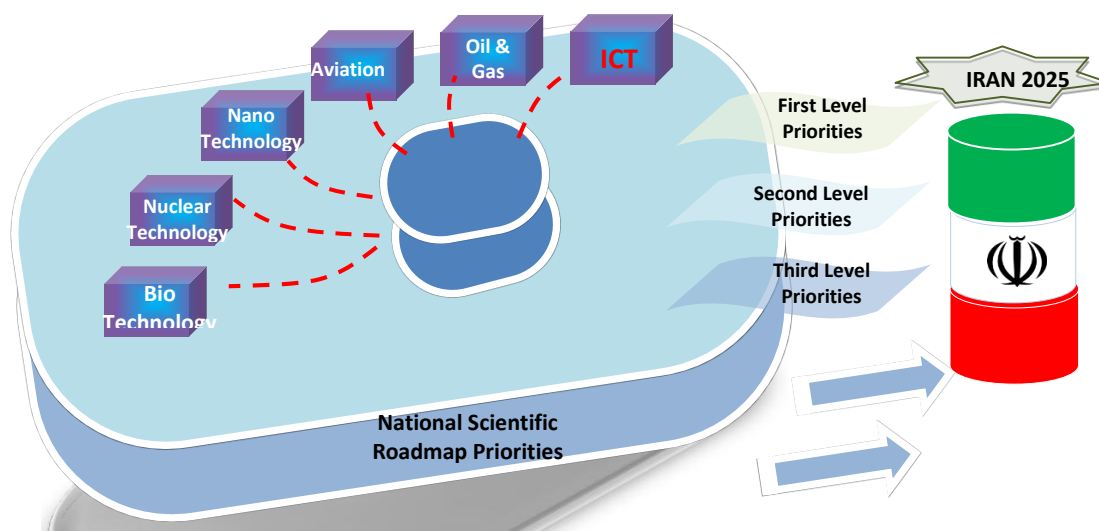


Figure 3-1: First level priorities for technology development of Iran



Figure 3-2: Priority areas in the ICT Strategic Plan of Iran

framework of ICT Measurement for Iran (IMI), Iran's ICT core indicators, periodic data collection processes and procedures, rules and regulations, international communications, and capacity building. The conceptual framework specifies the main priority areas for definition of indicators. This framework has been defined based on Iran's high-level policy documents and supply-demand model. The priority areas in this framework are as follow:

1. National facilitating Infrastructures
 - 1.1 ICT infrastructures
 - 1.2 Cyber security
 - 1.3 Revenue and investment in ICT

- 1.4 ICT R&D
- 1.5 Legal framework
- 1.6 Culture and content in cyberspace
- 2. Key Functional areas
 - 2.1 e-government
 - 2.2 e-health
 - 2.3 e-learning
 - 2.4 e-commerce
 - 2.5 e-banking
 - 2.6 e-justice
- 3. International ICT indicators and readiness models (ITU IDI and EIU Digital Economy)

After defining and verifying this framework, Core ICT indicators were proposed. For each indicator, definition of that indicator, desired target for that indicator in every year of the Fifth Development Plan, measurement method and roles and responsibilities related to that indicator has been defined. In phase 3, measurement of indicators was performed for determining the value of each indicator in the first year of the plan. According to this measurement, some definitions and/or measurement methods were modified. Some of the indicators were measured by Statistical Center of Iran (SCI). Table 3-1, shows the defined indicators and their specified target.

Table 3-1: Core ICT Indicators of Iran

No.	Indicators	Unit	Target in 2015
Development of ICT Infrastructure			
1	Proportion of households with broadband Internet access and access to the National Information Network (NIN) (With minimum 512Kbps)	Percent	60
2	International Internet bandwidth	Gbp/s	4000
3	Domestic Internet bandwidth	Gbp/s	20000
4	Subscriber capacity per population	Subscriber	842
5	Number of active data centers in the country	Data center	40
6	Proportion of broadband Internet services that are provided with service level agreement	Percent	100
7	Proportion of villages with more than 20 households with access to telephone at home	Percent	100
8	Proportion of villages with more than 20 less than 20 households with access to public payphones	Percent	100
9	Proportion of villages with more than 70 households with ICT centers	Percent	100
10	Proportion of rural population with mobile network coverage	Percent	100
11	Proportion of rural households with Internet access	Percent	60
12	Number of Internet hosts per 10000 population	Host	*
13	Capacity of transit Internet connections (Internet hub)	Gbp/s	*

No.	Indicators	Unit	Target in 2015
Cyber security			
14	Number of governmental organizations which have implemented ISMS (Information Security Management System) according to the ISO 27001 standard	Percent	53
15	Percentage of local Security Operations Centers (SOC) that have been developed for the national ICT network management centers	Percent	100
16	Percentage of CSIRT implementations in the main governmental organizations	Percent	100
17	Number of cyber security labs	Lab	29
18	Percentage of Primary Key Infrastructure (PKI) implementation and operation	Percent	100
19	Percentage of cyber security equipment and software that have been developed and manufactured locally	Percent	70
20	Percentage of standard and secure Internet software portals	Percent	100
21	Number of secure servers per 1 million population	server	*
ICT Economics			
22	ICT goods and services exports as a percentage of total non-oil exports	Percent	15
23	ICT goods and services exports as a percentage of total non-oil exports	Percent	10.4
24	IT sector share of GDP	Percent	2
25	Percentage of IT parks which have been developed by the investment of private sector	Percent	*
ICT Research and Development			
25	ICT research budget as a percentage of GDP (ICT research intensity)	Percent	2
26	ICT research budget as a percentage of total research budget of the country	Percent	3
27	Percentage of papers in the ICT field that have been written by local researchers and registered in ISI to the all papers that have been written by local researchers and registered in ISI	Percent	5
28	Proportion of public scientific and research centers with broadband Internet access	Percent	100
29	Proportion of public scientific and research centers with Internet access to the National Research and Education Network (NREN) of Iran	Percent	100
Laws and Regulations for cyberspace			
30	Percentage of in-place laws and regulation in cyberspace	Percent	100
e-government			
31	Proportion of governmental G2C e-services	Percent	70
32	Proportion of governmental G2B e-services	Percent	70
33	Proportion of governmental G2G e-services	Percent	100

No.	Indicators	Unit	Target in 2015
34	Proportion of governmental services that have been provided by the front desk offices of public services of government	Percent	100
35	Proportion of governmental organizations with access to the National Information Network (NIN)	Percent	100
36	Proportion of governmental organizations with Internet access	Percent	100
37	Proportion of governmental organizations that have located their databases in the local data centers	Percent	100
38	Proportion of governmental organizations and educational institutes with standard and secure portals	Percent	100
39	Proportion of population with multipurpose national smart cards	Percent	100
40	Percentage of registration and auditing of properties in the cities and rural areas	Percent	100
41	Progress of the National Spatial Data Network Infrastructure (NSDI)	Percent	100
42	Proportion of governmental organizations that have located their data in NSDI	Percent	100
43	Percentage of full ERP system implementations in the governmental organizations	Percent	60
e-health			
44	Proportion of population with the Electronic ((EHR) Health Record	Percent	100
45	Proportion of health centers with access to the National Health Network (NHN)	Percent	60
46	Proportion of health centers with standard and certified information systems	Percent	80
47	Proportion of population with the Insurance Smart Card (ISC)	Percent	30
48	Proportion of doctors that use the Visiting and e-the prescription system	Percent	15
e-commerce			
49	Local e-commerce share of total amount of local commercial transactions in the country	Percent	20
50	Foreign e-commerce share of total international commercial of the country	Percent	30
51	Proportion of businesses with access to the National Information Network (NIN)	Percent	100
52	Proportion of businesses with access to Internet	Percent	100
53	Proportion of customs with access to the e-customs system	Percent	100
e-banking			
54	Percentage of e-payments to the total cash flows in the country	Percent	80
55	Proportion of banks that have developed e-signature infrastructure and can use this infrastructure	Percent	100
56	Proportion of banks with a core-banking system	Percent	100
e-learning			
57	e-learning (composite index)	Percent	30

No.	Indicators	Unit	Target in 2015
57-1	Proportion of teachers in schools that use computer for the educational purposes	Percent	10
57-2	Proportion of professors in the universities that use computer for the educational purposes	Percent	45
57-3	Proportion of courses that are taught by using e-learning facilities in schools	Percent	25
57-4	Proportion of courses that are taught by using e-learning facilities in universities and educational institutes	Percent	30
57-5	Proportion of schools that use e-learning	Percent	20
57-6	Proportion of universities that use e-learning	Percent	30
57-7	Proportion of computers with educational purposes in schools	Percent	20
57-8	Proportion of computers with educational purposes in universities	Percent	30
57-9	Proportion of computers with broadband access in schools	Percent	7.25
57-10	Computers with broadband access per 100 students in schools	Percent	14
57-11	Proportion of elementary and secondary students with broadband Internet access at home	Percent	100
57-12	Proportion of tertiary students With broadband Internet access at home	Percent	100
Islamic and Iranian Culture and Content in Cyberspace			
58	Proportion of e-publications to the total publications in the country	Percent	10
59	e-books to the total books published in the country in every year	Percent	10
60	e-magazines and e-journals to the total published magazines and journals in the country in every year	Percent	10
61	Proportion of Iranian and Persian social networks	Percent	10
62	Proportion of indexed certified books, magazines, journals, movies and music that have been stored in electronic archive to the total number of certified books, magazines, journals, movies and music	Percent	15
e-judiciary			
63	Proportion of court electronic records to the total court records	Percent	100
64	Proportion of judicial e-services	Percent	100
International Indicators/Indices			
65	ITU IDI for Iran	-	6.22
66	Rank of Iran in the ranking of UN e-government Index UN e-government Index	Rank	Second in Region
67	Rank of Iran in the ranking of WEF Networked Readiness Index (NRI)	Rank	80

4 ICT development in Iran based on the internationally comparable ICT statistics

With the growing recognition of ICT as a driver for social development and economic growth, there is a need for reliable, comprehensive and comparable statistics to support government and industry decisions. Measuring ICT for development has been emphasized in the World Summits on the Information Society (WSIS). The Summits have highlighted the importance of measuring progress towards the information society through internationally comparable statistical indicators. These indicators measure ICT deployment and uptake on the basis of internationally comparable ICT statistics. These metrics will help policy makers monitor trends, identify areas for policy action and compare their ICT developments with those in other markets. In this section, Iran's performance from an international perspective across various ICT indicators has been shown.

4.1 Administrative Data on Telecommunications/ICT of Iran

Indicators that have been defined in this sub section for the Collection of Administrative Data on Telecommunications/ICT are structured on the basis of network, traffic, revenue, investment, public access and broadcasting. These indicators refer mainly to telecommunication activities within the content and media sector. Table 4-1 to Table 4-4 have been reported by Communication Regulatory Authority of Iran (CRA).

Table 4-1: Fixed-telephone networks

No.	Indicator	Unit	March 2013
1	Fixed-telephone subscriptions	Subscription	30,048,903
2	Percentage of fixed-telephone subscriptions	Percent	38
3	Fixed wireless local loop subscriptions	Subscription	1,413,068
4	Percentage of villages with residential fixed-telephone	Percent	72.3
5	Public payphones	Payphone	173,475

Source: CRA of Iran

Table 4-2: Mobile-cellular networks

No.	Indicator	Unit	March 2013
1	Mobile-cellular telephone subscriptions	Subscription	65,876,662
2	Percentage of mobile-cellular telephone subscriptions	Percent	85
3	Percentage of the population covered by mobile-cellular network	Percent	94
4	Percentage of the villages covered by at least a mobile-cellular network	Percent	64
5	Percentage of the population covered by at least a 3G mobile network	Percent	48

Source: CRA of Iran

Table 4-3: Internet

No.	Indicator	Unit	March 2013
1	International Internet bandwidth	Mbit/s	112,640
2	Fixed(wired)-broadband subscriptions	Subscription	4,796,493
3	Wireless-broadband subscriptions	Subscription	1,971,101
4	Active mobile-broadband subscriptions	Subscription	899,281
5	WIMAX subscriptions	Subscription	1,071,820

Source: CRA of Iran

Table 4-4: Revenue and Investment

No.	Indicator	Unit	March 2013
1	Revenue from all telecommunication services	USD	3,810,915,971
2	Annual investment in telecommunication services	USD	3,662,607,266

Source: CRA of Iran

4.2 ITU ICT Development Index 2013

The ICT Development Index (IDI) is a composite index combining 11 indicators into one benchmark measure that serves to monitor and compare developments in ICT across countries. The IDI was developed by ITU in 2008 and first presented in the 2009 edition of *Measuring the Information Society*. The IDI measures the level and evolution over time of ICT developments in the countries, digital divide and development potential of ICTs. According to the proposed conceptual framework for IDI, the ICT development process and a country's transformation to becoming an information society can be depicted using the following three-stage model:

- Stage 1: ICT readiness (the level of networked infrastructure and access to ICTs)
- Stage 2: ICT intensity (reflecting the level of use of ICTs in the society)
- Stage 3: ICT impact (reflecting the result/outcome of efficient and effective ICT use)

Based on the conceptual framework, the IDI includes 11 indicators. For the IDI, the distance to a reference measure was used as the normalization method. The reference measure is the ideal value that could be reached for each variable. The indicators and sub-indices included in the IDI were weighted based on the PCA results obtained when the index was first computed. The reference values, weight of each indicator and the value of these indicators for Iran according to the MIS 2013

Table 4-5: Iran performance according to the ITU ICT Development Index (IDI)

Indicator	Reference Value	Weight (%)	2011	2012
ICT access				
Fixed-telephone subscriptions per 100 inhabitants	60	20	37.1	38
Mobile-cellular telephone subscriptions per 100 inhabitants	190	20	74.9	76.9
International Internet bandwidth per Internet user	621,834	20	3540	3772
Percentage of households with a computer	100	20	38.5	41.8
Percentage of households with Internet access	100	20	25.2	26.5*
ICT use				
Percentage of individuals using the Internet	100	33	21	26**
Fixed (wired)-broadband Internet subscriptions per 100 inhabitants	60	33	2.4	4.1
Wireless-broadband subscriptions per 100 inhabitants	100	33	0.5	1.4
ICT skills				
Adult literacy rate	100	33	85.7	85.7
Secondary gross enrolment ratio	100	33	48.6	48.6
Tertiary gross enrolment ratio	100	33	85	85
Note: *Estimation for 2013 is 37.9				
** Estimation for 2013 is 31.4.				

Table 4-6: IDIs of for Iran and the Republic of Korea, 2011 and 2012

Country	Rank 2012	IDI 2012	Rank 2011	IDI 2011
Iran (Islamic Republic of)	90	3.79	88	3.61
Korea (Rep.)	1	8.57	1	8.51

and MIS 2012 reports have shown in Table 4-5. Table 4-6 shows a comparison between Iran and the Republic of Korea in 2011 and 2012.

According to the MIS report 2012, Islamic Republic of Iran is one of the top ten countries with the greatest change in the Use sub-index of IDI. According to this report, Iran is included in the Asia and Pacific region countries in which fixed-broadband sub-basket value is less than 5 per cent of GNI. This report mentions that Iran has launched a 3G mobile network and a few numbers of mobile broadband subscribers have been added to the network.

4.3 United Nations E-government Development Index (EGDI) 2014

The United Nations global survey of e-government presents a systematic assessment of the use and potential of information and communication technologies to transform the public sector by enhancing efficiency, effectiveness, transparency, accountability, access to public services and citizen participation in the 193 Member States of the United Nations, and at all levels of development.

The United Nations E-government Development Index (EGDI) that is published in the UN global survey of e-government is a composite indicator measuring the willingness and capacity of national

administrators to use ICT to deliver public services. The assessment conducted by UNDESA rates the e-government performance of countries relative to one another as opposed to being an absolute measurement. Mathematically, the EGDI is a weighted average of three normalized scores on the most important dimensions of e-government, namely scope and quality of online services, development status of telecommunication infrastructure, and inherent human capital. The E-participation index is a supplementary index to the E-government Survey. This index focuses on the use of online services to facilitate provision of information by governments to citizens, interaction with stakeholders and engagement in decision making processes. Table 4-7, shows E-government Development Index and E-participation index of Iran according to the E-government Survey 2014.

Table 4-8 shows a comparison between Iran and Republic of Korea as the best performer in the 2014 ranking.

According to the UN E-government Survey 2014, Islamic Republic of Iran has a 3rd rank in the Southern Asia region. This survey reports that 74 countries (38 per cent) ranked as middle-EGDI and Islamic Republic of Iran lies in the middle-EGDI group. According to this report, Iran is among the upper-middle income countries that has provided the facility to download forms as useful service for disadvantaged and vulnerable groups. Also, Iran is among those upper-middle income countries that has provided specific services for women. In the UN E-government Survey 2012 report, Islamic Republic of Iran is was among the whole-of-government top performers.

Table 4-7: UN e-government Index and E-participation index of Iran

Index	Value	Stage I	Stage II	Stage III	Stage IV	Total
Online Service Index	0.3701	59%	48%	19%	18%	35%
Index	Value	Internet users	Fixed telephone subscriptions	Mobile-cellular telephone subscriptions	Fixed-broadband subscriptions	Wireless broadband subscription
Telecommunication Infrastructure Index	0.2940	26%	37.63%	76.10%	4.03%	1.34%
Index	Value	Adult literacy	Gross enrolment ratio	Expected years of schooling	Mean years of schooling	
Human Capital Index	0.6882	85.02%	76.71%	13.78%	7.8%	
Index	Value	Total	E-information	E-consultation	E-decision making	
E-participation Index	0.2941	27.59%	55.56%	4.55%	0	

Table 4-8: E-government development index of Iran and the Republic of Korea

Country	Rank	EGDI	Online Service	Telecommunication Infrastructure	Human Capital
Iran (Islamic Republic of)	105 (out of 193)	0.4508	0.3701	0.2940	0.6882
Korea (Rep.)	1	0.9462	0.9764	0.9350	0.9273

4.4 World Economic Forum Network Readiness Index 2014

The Networked Readiness Index that has been proposed by World Economic Forum measures, on a scale from 1 (worst) to 7 (best), the performance of 148 economies in leveraging information and communications technologies to boost competitiveness and well-being. This index is reported in the *Global Information Technology Report* which provides a comprehensive assessment of networked readiness, or how prepared an economy is to be applied the benefits of information and communications technology (ICT) to promote economic growth and well-being. Using updated methodology that was introduced in 2012; the report ranks the progress of 148 economies in leveraging ICT to increase productivity, economic growth and the number of quality jobs. The ranking also shows how far some countries have gone in bridging the digital divide – not only in terms of developing ICT infrastructure, but also in terms of economic and social impact – and highlight the main strengths and weaknesses countries are facing.

The networked readiness framework translates into the NRI, comprising four sub-indices: these sub-indices measure the environment for ICTs; the readiness of a society to use ICTs; the actual usage of all main stakeholders; and, finally, the impacts that ICTs generate in the economy and in society. The three first sub-indices can be regarded as the drivers that establish the conditions for the results of the fourth sub-index, ICT impacts. These four sub-indices are divided into 10 pillars composed of 54 individual indicators in total, according to the following structure:

- A. Environment sub-index
 - 1. Political and regulatory environment
 - 2. Business and innovation environment
- B. Readiness sub-index
 - 3. Infrastructure and digital content
 - 4. Affordability
 - 5. Skills
- C. Usage sub-index
 - 6. Individual usage
 - 7. Business usage
 - 8. Government usage
- D. Impact sub-index
 - 9. Economic impacts
 - 10. Social impacts

The final NRI score is a simple average of the four composing sub-index scores, while each sub-index's score is a simple average of those of the composing pillars. Table 4-9 shows the rank and score for each sub-index and pillars of the Network Readiness Index (NRI) of Iran. Table 4-10 compares Network Readiness Index of Iran with the top performer in the ranking.

4.5 Measuring the WSIS Targets in I.R. Iran

The World Summit on the Information Society (WSIS) Geneva *Plan of Action* identified ten targets to be achieved by 2015, along with numerous recommendation based on different action lines. The *Partnership on Measuring ICT for Development* should tracks the progress towards achievements of the WSIS goals and targets. For this reason, the *Partnership* has developed a set of core indicators

Table 4-9: NRI of Iran according to Global Information Technology Report, 2014

Environment sub-index (Rank:86, Score:3.79)		
Pillar	Rank 2014	Score 2014
1. Political and regulatory environment	86	3.53
2. Business and innovation environment	86	4.04
Readiness sub-index (Rank: 110, Score: 3.87)		
3. Infrastructure and digital content	103	3.14
4. Affordability	118	3.74
5. Skills	85	4.73
Usage sub-index (Rank: 3.05, Score: 113)		
6. Individual usage	111	2.39
7. Business usage	129	3
8. Government usage	91	3.76
Impact sub-index (Rank: 107, Score: 2.97)		
10. Economic impact	114	2.77
11. Social impact	105	3.17

Table 4-10: Network Readiness Index of Iran and Finland, 2014

Country	Rank 2014	NRI 2014	Rank 2013
Iran (Islamic Republic of)	104 (out of 144)	3.42	101
Finland	1	6.04	1

designed to monitor ICT developments. They cover ICT infrastructure, household ICT access and individual use of ICT, business ICT use, the ICT sector, trade in ICT goods, and ICT in education. A subset of these indicators has been applied to measuring the ten WSIS targets. Other WSIS targets go beyond the areas covered so far by Partnership's core indicators and include targets on connecting health centers, libraries, post offices and scientific and research centers, and encouraging linguistic diversity and local content on the Internet. The *ITU Measuring the WSIS Targets- a Statistical Framework* has identified a set of numerical indicators to track the targets and to guide countries in their monitoring efforts. Information Technology Organization of Iran (ITO) as a national coordinator for measuring the Information Society in Iran has included these indicators in the international component of Core ICT Indicators of Iran. This organization has collected most of the data related to these indicators from the identified data sources and in the following table the collected data for the indicators of WSIS targets has been reported. It should be mentioned that the collected data for measuring household ICT access and individual use of ICT in Iran are based survey that has been done by Statistical Center of Iran with the support and supervision of ITO in 2014, according to the latest version of Manual.

Table 4-11 reports the collected data by ITO for each WSIS targets. It should be mentioned that according to the methodology of ITU, some of the telecommunication and ICT in education indicators are collected from ITU databases and UNESCO statistics division.

Table 4-11: Collected data to measure progress made by I.R. Iran towards the ten WSIS targets

Indicator	2013	2012	Source
Target 1. Connect all villages with ICTs and establish community access points			
1.1: Proportion of rural population covered by a mobile cellular telephone network, by type of mobile cellular telephone technology (%)	69.7	*	Communication Regulatory Authority (CRA)
1.2: Proportion of households with telephone, by type of network, by urban/rural (%)	97.6	*	Statistical Center of Iran (SCI)
1.3: Proportion of households with Internet access, by type of access, by urban/rural (%)	37.8	*	Statistical Center of Iran (SCI)
1.4: Proportion of individuals using the Internet, by location, by urban/rural (%)	30	26	Statistical Center of Iran (SCI)
1.5 : Proportion of households with Computer access, by type of access	45.9	*	Statistical Center of Iran (SCI)
Target 2. Connect all secondary schools and primary schools with ICTs			
2.1: Proportion of schools with a radio used for educational purposes (%)	5.1	2.5	Ministry of Education
2.2: Proportion of schools with a television used for educational purposes (%)	4.5	7.4	Ministry of Education
2.3: Learners-to-computer ratio.	23.5	19.4	Final WSIS Targets Review
2.4: Proportion of schools with Internet access, by type of access (%)	51.7	50.7	Final WSIS Targets Review
Target 3. Connect all scientific and research centers with ICTs			
3.1: Proportion of public scientific and research centers with broadband Internet access (%)	100	100	Ministry of Science, Research and Technology
3.2: Presence of a national research and education network (NREN), by bandwidth (Mbit/s)	Yes (1 Gbp/s)	*	Information Technology Organization of Iran (ITO)
3.3: Proportion of public scientific and research centers with Internet access to a NREN (%)	3.85	2.5	Information Technology Organization of Iran (ITO)
Target 4. Connect all public libraries, museums, post offices and national archives with ICTs			
4.1: Proportion of public libraries with broadband Internet access (%)	76.2	49.9	Iran Public Libraries Entity (http://www.iranpl.ir)
4.2: Proportion of public libraries providing public Internet access (%)	51.7	45.3	Iran Public Libraries Entity (http://www.iranpl.ir)
4.3: Proportion of public libraries with a web presence (%)	29.4	NA	Iran Public Libraries Entity (http://www.iranpl.ir)
4.4: Proportion of museums with broadband Internet access (%)	63	30	Cultural Heritage and Tourism Organization

Indicator	2013	2012	Source
4.5: Proportion of museums with a web presence (%)	39	10	Cultural Heritage and Tourism Organization
4.6: Proportion of post offices with broadband Internet access (%)	90.4	90.2	I.R. POST
4.7: Proportion of post offices providing public Internet access (%)	0	0	I.R. POST
4.8: National archives organizations with broadband Internet access	100	100	National Library and Archive Organization
4.9: National archives organizations with a web presence	100	100	National Library and Archive Organization
4.10: Proportion of items in the national archives that have been digitized (%)	20	8.35	National Library and Archive Organization
4.11: Proportion of digitized items in the national archives that are publicly available online (%)	9	6.26	National Library and Archive Organization
Target 5. Connect all health centers and hospitals with ICTs			
5.1: Proportion of public hospitals with Internet access, by type of access (%)	100 ADSL (%25), Wireless (%20), Fiber (%9), Others (%46)	*	Ministry of Health and Medical Education
5.2: Proportion of public health centers with Internet access, by type of access (%)	90	*	Ministry of Health and Medical Education
5.3: Level of use of computers and the Internet to manage individual patient information.	3.1 Million Person E-Health Doc	*	Ministry of Health and Medical Education
Target 6. Connect all central government departments and establish websites			
6.1: Proportion of persons employed in central government organizations routinely using computers (%)	73	*	Deputy of Management Development and Human Resource of Presidency
6.2: Proportion of persons employed in central government organizations routinely using the Internet (%)	60	*	Deputy of Management Development and Human Resource of Presidency
6.3: Proportion of central government organizations with a Local Area Network (LAN) (%)	100	100	Deputy of Management Development and Human Resource of Presidency
6.4: Proportion of central government organizations with an intranet (%)	100	100	Deputy of Management Development and Human Resource of Presidency

Indicator	2013	2012	Source
6.5: Proportion of central government organizations with Internet access, by type of access (%)	100	100	Deputy of Management Development and Human Resource of Presidency
6.6: Proportion of central government organizations with a web presence (%)	100	100	Deputy of Management Development and Human Resource of Presidency
6.7: Level of development of online service delivery by national governments.	25% of total services	*	Deputy of Management Development and Human Resource of Presidency
Target 7. Adapt all primary and secondary school curricula to meet the challenges of the information society, taking into account national circumstances			
7.1: Proportion of ICT-qualified teachers in schools (%)	38.5	*	Ministry of Education
7.2: Proportion of teachers trained to teach subjects using ICT (%)	71	68	Final WSIS Targets Review
7.3: Proportion of schools with computer-assisted instruction (%)	74	74	Final WSIS Targets Review
7.4: Proportion of schools with Internet-assisted instruction (%)	20.7	*	Ministry of Education
Target 8. Ensure that all of the world's population has access to television and radio services			
8.1: Proportion of households with a radio (%)	57	*	Statistical Center of Iran (SCI)
8.2: Proportion of households with a TV (%)	98.4	*	Statistical Center of Iran (SCI)
8.3: Proportion of households with multichannel television service, by type of service (%)	40399 IPTV User	0	Statistical Center of Iran (SCI)
Target 9. Encourage the development of content and put in place technical conditions in order to facilitate the presence and use of all world languages on the Internet			
9.1: Proportion of Internet users by language, country level (%)	In Gathering	*	
9.2: Proportion of Internet users by language, top ten languages, global level (%)	In Gathering	*	
9.3: Proportion of Webpages, by language (%) (Persian Language)	0.8	*	http://w3techs.com
9.4: Number of domain name registrations for each country-code top-level domain, weighted by population	*166.1 per ccTLD, 104.9 per registration	166.1 per ccTLD, 104.9 per registration	Final WSIS Targets Review

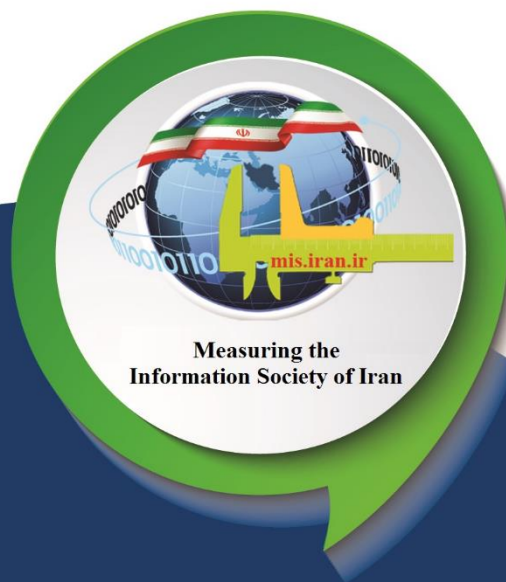
Indicator	2013	2012	Source
9.5: Number and share of Wikipedia articles by language.	300,000	200,000	http://en.wikipedia.org
Target 10. Ensure that more than half the world's inhabitants have access to ICT's within their reach and make use of them			
10.1: Mobile cellular telephone subscriptions per 100 inhabitants.	85	76.1	Communication Regulatory Authority (CRA)
10.2: Proportion of households with telephone, by type of network.	97.1	*	Statistical Center of Iran (SCI)
10.3: Proportion of individuals using a mobile cellular telephone.	61.5	*	Statistical Center of Iran (SCI)
10.4: Proportion of individuals using the Internet.	30	26	Statistical Center of Iran (SCI)
10.5: Proportion of households with Internet access, by type of access.	37.8	*	Statistical Center of Iran (SCI)
Annex 1. Connect all businesses with ICTs			
A.1 Proportion of businesses using computers	70	*	Statistical Center of Iran (SCI)
A.2 Proportion of businesses using the Internet, by type of access	*	*	Statistical Center of Iran (SCI)
A.3 Proportion of businesses using mobile cellular telephones	90	*	Final WSIS Targets Review

Note: I.R. Iran. Level of use of computers and Internet to manage individual patient information

Level of use	Local health care	District/regional health care	National health system
Paper	2	1	1
Computerized Data	5	5	5
Computerized Data plus electronic transmission via Internet	5	5	5
Note: 5: Very High (over 75%), 2: Low (Lower 25%), 1: None			

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