



Arab Republic of Egypt
Ministry of Communications
and Information Technology
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2017

National ICT Strategy 2012-2017

**Towards a Digital Society
and Knowledge-based Economy**

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and Knowledge-based Economy

Message from the Minister

The world is witnessing a revolution in information and communications technology (ICT) the scope of which stretches far beyond the realm of the sector itself. No country seeking real, sustainable development and progress can hope to achieve these aims without a strong ICT sector in place to drive the necessary change.

In the midst of this revolution in information and communications technology, Egypt witnessed a different kind of revolution at the beginning of 2011: a peaceful, popular political and social revolution. In the 25 January Revolution, ICT tools and systems, and the use of social networks in particular, played a major role in events. This revolution changed not only Egypt's future path but also the way Egyptians view ICT tools and systems, which have created an important platform for expression of views and in public affairs.

Various factors have contributed to boosting the role of the internet in politics. In Egypt, internet access has expanded significantly over recent years among all sectors of society, particularly among youth. Indeed, there has been a clear transformation in internet usage patterns across the Arab world in recent years, with a marked increase in use of the internet as a means and arena for political activity.

The ICT sector, in the next phase, should focus on adapting ICTs to find solutions to issues of concern to the community. While this process has indeed already begun, the sector should develop a community vision based on the principle that development should occur not only in the public service sector but also in the managerial

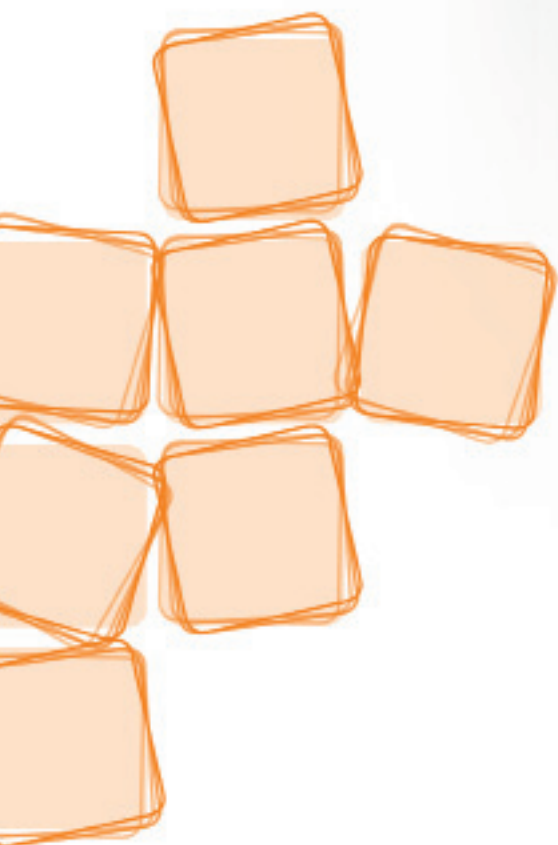
approach of the state and its constituent bodies. This will allow Egypt to achieve a transformation embracing digital citizenship in a technological society that in its own way will be as impressive and far reaching as the change brought about by the 25 January Revolution.

I am looking forward to supporting the start of a new era for the ICT sector in Egypt, building on past successes and lessons learnt. I am confident that more Egyptians will join the information community, working together to establish the foundations of a new economy based on knowledge and sustainable development. There are, of course, numerous factors to consider in maximizing the role of the ICT sector in development. In this new strategy, we have therefore addressed a broad range of actions in a framework of collective action, targeting greater success and progress for the Egyptian ICT sector and for the other sectors of the economy.

I would like to express my gratitude at being offered the opportunity to take over the leadership of the Ministry of Communications and Information Technology (MCIT) at such a critical stage in Egypt's history.

I am pleased to present the National ICT Strategy for 2012-2017, which results from the vision and efforts of an integrated team working in collaboration with various actors in the community.

I am honored to present this document to you on behalf of the ministry, and to be part of the team responsible for not only supporting the future development of the national ICT sector, but also for shaping up new Egypt.



Acknowledgements

The Ministry of Communications and Information Technology presents its sincere appreciation and gratitude to each of the following departments for their contribution to the enrichment of this document through various programs, recommendations and feedback: The Information Infrastructure Division; Telecommunications and Resources Department; Central Department of Engineering Affairs; Information, Documentation and Decision Support Center; International Relations Division; Egypt ICT for Development; ICTs for People with Disabilities Initiative; Legislation Committee; and Technical Bureau of the Minister of Communications and Information Technology.

Much appreciation is due also to all organizations affiliated with the ministry that have contributed to enriching this strategy through various programs and projects: the National Telecommunication Regulatory Authority (NTRA); the Egyptian National Post Organization (ENPO); the Information Technology Industry Development Agency (ITIDA); the Technology Innovation and Entrepreneurship Center (TIEC); the Center for Documentation of Cultural and Natural Heritage (CULTNAT); the Information Technology Institute (ITI); and the National Telecommunication Institute (NTI).

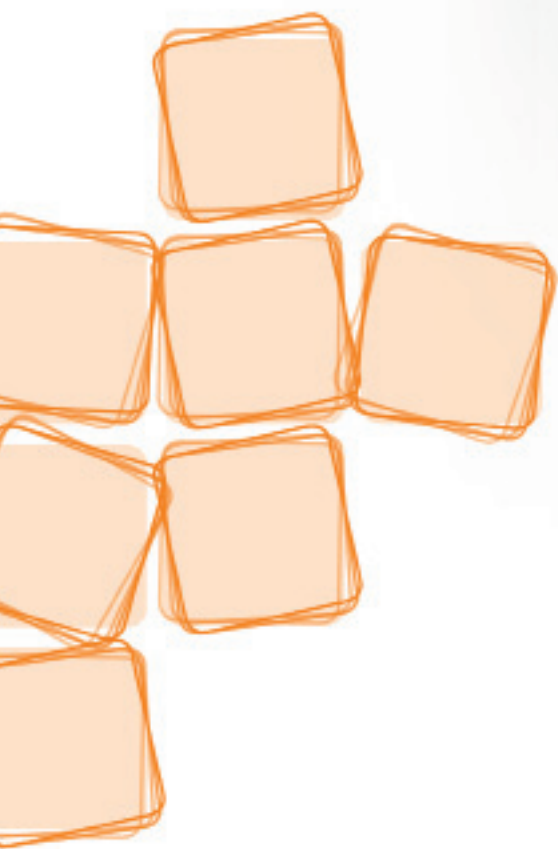
Special thanks are extended to the members of the ICT Strategy Formulation Committee for their continuous support, guidance and feedback.

It is our duty to express our gratitude to all ministries of the Arab Republic of Egypt that took part in crystallizing the framework, as well as many of the ideas and concepts included in the document.

Special thanks to the experts and representatives of civil society, the media and the private sector who reviewed the document and contributed by guiding us at various stages of the project.

Finally, we present our thanks and appreciation to the members of the Transport Committee of the People's Assembly, who provided us with a valuable opportunity to display the outline of the strategy and offered useful and constructive feedback.

We hope that we have succeeded in presenting our views in a transparent and clear manner, and that this document will contribute to boosting work and achievement in Egypt's promising and ambitious ICT sector.



Executive Summary

The Ministry of Communications and Information Technology is working to support an Egyptian ICT sector that plays an active role in facilitating the achievement of political, social and economic goals during the current stage of democratic transition in Egypt. MCIT, therefore, aims to build on Egyptians' positive view of ICT tools and systems, adapting and developing them to serve the requirements of a democratic society. This will include the development of applications that support digital citizenship, opening avenues for community participation in social issues, and protecting freedoms and social justice

Vision:

Towards digital citizenship, and an advanced knowledge-based economy and a smooth transition to democracy

Mission:

To develop a democratic knowledge-based society that supports a strong Egyptian economy and is based on equitable access to information and communications services, guaranteeing the digital rights of citizens and the development of a national industry based on human talent and creativity

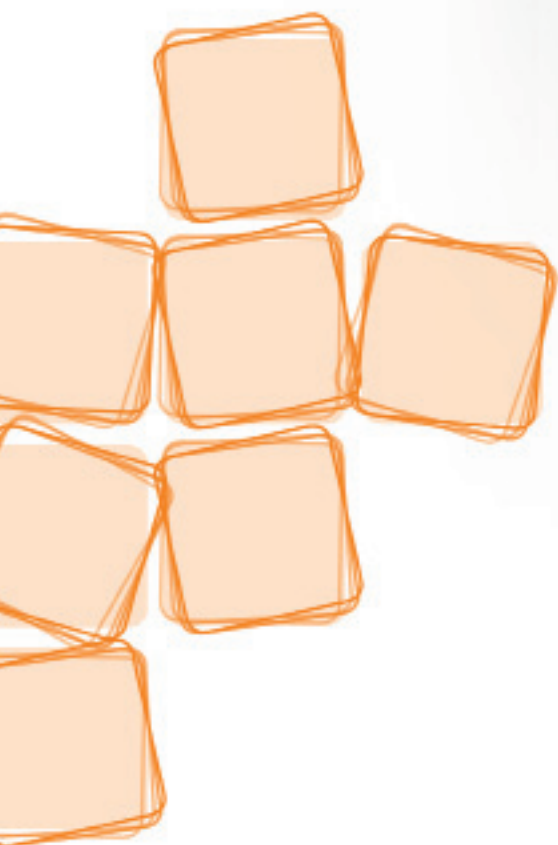
To achieve this mission, four strategic objectives have been identified:

- Supporting the democratic transition
- Promoting digital citizenship and information society
- Promoting sustainable development
- Strengthening the national economy

The National ICT Strategy for 2012-2017 focuses on a number of quantitative targets related to important indicators. With regard to supporting the democratic transition and promoting the information community and digital citizenship, the aims are to raise the number of high-speed internet subscribers in Egypt to 13 million by 2015, to have personal computers in at least 40% of Egyptian households within five years, and to establish a national network of 1,000 Technology Homes.

On the development front, targets include providing all schools and educational institutions with high-speed internet access; promoting the use of electronic signature applications in three government agencies; raising the volume of e-commerce by 20%; increasing the proportion of e-banking customers using online or mobile banking to 30%; and improving Egypt's ranking in the field of Arabic digital content by increasing the number of trusted websites by 8-10 %.

With regard to strengthening the economy, the targets are: to maintain ICT sector growth rates of 7-10% over the next five years, while increasing the sector's contribution to national income to 5%; to raise revenues generated from outsourcing services to \$2.5 billion and from intellectual property to \$1 billion; to expand the volume of investment in the ICT sector by 20% to LE 55 billion; and to boost exports of software and embedded software within two years to \$500 million. Another important factor is employment, with plans to increase the number of professionals working in outsourcing to 75,000, in IT to 30,000, and in innovation and entrepreneurship to 10,000. The strategy also includes the expansion of the national network of technology parks to 20, and the growth of Egypt Post as a primary savings facility by a yearly average of about 15%.



Supporting the democratic transition

Promoting digital citizenship and information society

Promoting sustainable development

Strengthening the national economy

With regard to access and coverage for high-speed internet and mobile services, MCIT aims to achieve:

- Geographic coverage for fixed internet services for 75% of Egyptian households at 2 megabits per second (Mbps) by 2015, and 90% of households at 25 Mbps by 2021.
- Availability of 3G mobile services for 98% of the population by 2015, and 4G mobile services for 90% of the population by 2021.
- 4.5 million households, approximately 22% of Egyptian households, subscribing to high-speed internet services by 2015, and 9 million households by 2021.
- 8 million subscribers to mobile internet services by 2015 and 14 million subscribers by 2021.
- 50% of government agencies connected to the internet at 25 Mbps and at least one public access point at 25 Mbps serving 50% of localities by 2015, and all government agencies connected to the internet at 25 Mbps and one public access point serving all major centers and localities by 2021.

The strategy also addresses the legislative environment required for the coming phase.

This involves the amendment of a number of existing laws: Telecommunications Law No. 10 of 2003, for example, contains certain articles that require amendment in line with Egypt's democratic transition that will promote political openness and protect freedom of expression.

Additionally, a number of new laws and regulations will be prepared, drafted and activated covering areas including freedom of information, cyber security and e-commerce. There are also plans to develop labor laws related to working at home and part-time and temporary employment for university students, which will increase the number of people working in outsourcing.

The strategy will be implemented through a number of strategic pillars: International Cooperation; ICT Innovation and Entrepreneurship; ICT Industry Development; Digital Citizenship; Human Capacity Building; Government ICT Infrastructure and Digital Services; and Telecommunications and Postal Service Infrastructure.

The general policies of the strategy cover green ICT, Arabic digital content, cloud computing, digital identity management, access to information, e-commerce, mobile applications for development, manufacturing of tablet computers for education, open-source software and empowering people with disabilities.

The strategic pillars include specific initiatives: The Digital Identity Management Initiative, The Educational Reform using ICTs, Cloud Computing and Tablet Computer Initiative, The Arabic Digital Content Initiative, Back to Africa Initiative and ICT for Empowering People with Disabilities Initiative (PWDs). In addition to the high-speed Internet Initiative which was launched in 2011 (eMisr).

In total, the strategy comprises over 40 programs and 120 projects.

					Strategic Goals				
					Supporting the Democratic Transition	Promoting Digital Citizenship and Information Society	Promoting Sustainable Development	Strengthening the National Economy	
Strategic Axes	Telecommunications and Postal Service Infrastructure	<ul style="list-style-type: none"> Program to enhance cooperation and interaction between all parties in the postal sector Cybersecurity program 	<ul style="list-style-type: none"> Program to raise the efficiency of postal networks Program to modernize and diversify postal products and services National Broadband Initiative Green ICT initiative 	<ul style="list-style-type: none"> Program to support environmental protection and sustainable growth Program to improve access to postal services through ICTs and promote innovation in postal service provision 	<ul style="list-style-type: none"> Program to enhance international alliances National Broadband Initiative Program to modernize and diversify postal products and services 				
	Government ICT Infrastructure and Digital Services	<ul style="list-style-type: none"> Digital identity management program 	<ul style="list-style-type: none"> E-signature activation program e-Commerce program Initiative for education development using IT, cloud computing and the Egyptian Educational Tablet Computer Green ICT initiative Arabic digital e-Content initiative 	<p>Programs to develop State sectors:</p> <ul style="list-style-type: none"> Healthcare services Educational services Agricultural services Development of commercial sector activities through chambers of commerce Development of financial sector activities Improvement of the work environment in administrative entities Legislative services Housing sector People's Assembly and Shoura Council work systems Transport system Security system Tourism system Infrastructure in marginalized regions Ministry of Foreign Affairs system Ministry of Culture system National Broadband Initiative 	<ul style="list-style-type: none"> National Broadband Initiative Arabic digital e-Content initiative E-signature activation program e-Commerce program Initiative for education development using IT, cloud computing and the Egyptian Educational TABLET 				
	Human Capacity Building	<ul style="list-style-type: none"> ICT for Illiteracy Eradication Initiative 	<ul style="list-style-type: none"> Program to promote research and support researchers Olympiad in Informatics Outsourcing and IT services training program at the Arab level ICT Empowering People with Disabilities Back to Africa initiative Training for IT trainers program 	<ul style="list-style-type: none"> ICT certificate scholarship program "Computer Competence Certificate (C3)" Technology Homes program 	<ul style="list-style-type: none"> Human development program Egyptian Olympiad in Informatics Education development program for Egyptian universities (EDU Egypt) Professional training program Specialized training program Centers of excellence Training program 				

					Strategic Goals				
					Supporting the Democratic Transition	Promoting Digital Citizenship and Information Society	Promoting Sustainable Development	Strengthening the National Economy	
Strategic Axes	Digital Citizenship	<ul style="list-style-type: none"> Program for the production and dissemination of information Activation of a partnership with the ministries, agencies and companies operating in the ICT sector as the main sources of data National Broadband Initiative 	<ul style="list-style-type: none"> ICT Empowering People with Disabilities Internet Safety 	<ul style="list-style-type: none"> Digital identity management initiative Technology Homes program Program to raise inclusion of rural and marginalized areas through ICTs ICT Empowering People with Disabilities Program to support civil society organizations through ICTs Program to improve access to postal services through ICTs and promote innovation in postal service provision 					
	ICT Industry Development		<ul style="list-style-type: none"> Industry development Program to support SMEs through ICTs Outsourcing and IT services training program 	<ul style="list-style-type: none"> IT exports promotion program Technology zones development program Outsourcing and IT services training program Initiative for education development using IT, cloud computing and the Egyptian Educational TABLET 					
	ICT Innovation and Entrepreneurship		<ul style="list-style-type: none"> ICT centers of excellence program E-learning program to promote use of technology in support of innovation and entrepreneurship Green ICT initiative 	<ul style="list-style-type: none"> Entrepreneurship support program Program to promote research and support researchers 	<ul style="list-style-type: none"> ICT centers of excellence program E-learning program to promote use of technology in support of innovation and entrepreneurship 				
	International Cooperation		<ul style="list-style-type: none"> Cooperation with international organizations 	<ul style="list-style-type: none"> Back to Africa initiative 	<ul style="list-style-type: none"> Bilateral cooperation Regional cooperation Strategic development partners program 				

Quantitative Indicators and Goals

Legislation

General Applicable Policies (digital identity management, green technology, access to information, empowering people with disabilities, mobile device applications)

Strategy Drafting Methodology

The Ministry of Communications and Information Technology was established in 1999 to develop the national ICT sector. Highlights of MCIT's journey so far include the release of the National Communications Plan in 2000, the Strategy for Building the Information Society in 2003, the IT Industry National Development Strategy in 2006, and the National Strategy for Communications and Information Technology in 2007.

The National ICT Strategy for 2012-2017 is another important stage of this process. Yet it is also significant as its release comes at the beginning of a new era for Egypt. As such, the strategy was formulated for implementation in an atmosphere of political and economic change, to support the country's transition while contributing to the development of the communications sector both regionally and internationally. As with previous strategies, it focuses on integrating ICTs across all sectors to serve the national development priorities, which include preserving natural resources and the environment.

Primary Considerations

In the formulation of this strategy, the primary considerations were the political and economic changes taking place in Egypt, the development of the communications sector both regionally and internationally, and Egypt's national development priorities, in addition to the achievements and challenges of the sector over the last decade.

Work Methodology

The methodology followed in the drafting of the strategy relied on participation and dialogue between MCIT and affiliated entities, in addition to community dialogue with government entities, the private sector and civil society organizations. Work began following the formation of a specialized committee by the Minister of Communications and Information Technology mandated to draft the strategy. The committee included representatives from various departments of MCIT and its affiliated entities. The general framework and main features of the strategy were defined and reviewed in cooperation with the executive committee of the ministry.

In February 2012, an executive summary of the strategy was introduced before the People's Assembly and the Cabinet. In addition, dialogues were initiated with the wider community, including meetings with representatives from the private sector, civil society and the media. As ICT impacts on performance across all sectors of the economy, MCIT held a meeting with representatives from all government ministries to ensure their needs would be reflected within the new ICT strategy.

This meeting included a review of efforts exerted over the previous 10 years, an overview of the features of the National ICT Strategy for 2012-2017 and discussion of the future plans of the various ministries in this context.

In March 2012, a detailed presentation on the ICT sector was held for the Transport and Information Committee of the People's Assembly highlighting the progress of the sector through successive development strategies since 2000 and the features of the new strategy. The drafting team incorporated relevant input from the attendees into the current document.

Strategy Framework

The present document is divided into two main parts:

The first part includes the vision, mission, aims and policies for the ICT sector from 2012 to 2017, as well as the most important legislative amendments that will be formulated during this period.

The second part introduces the seven main pillars of the strategy and their corresponding programs, and the six targeted initiatives to be implemented through the executive plan of the strategy.

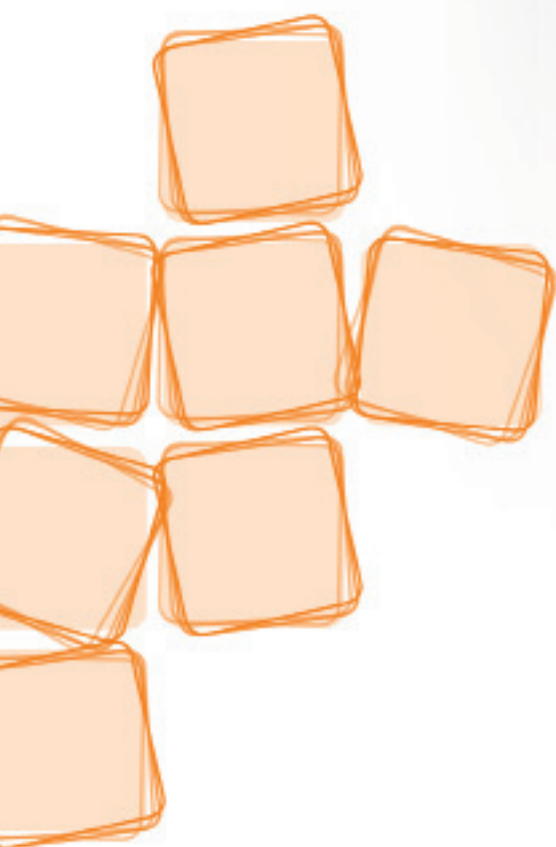
The executive plan of the strategy, including all the projects to be implemented through the strategic axes and targeted initiatives, is presented in a separate document.



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1 - Towards a Digital Society and Knowledge-based Economy

The ICT revolution has extended the reach of the sector far beyond facilitating communication, to the extent that sustainable development in all fields now largely relies on the use of ICTs.

Egypt's 25 January Revolution, which in early 2011 set the country on the path of political transformation, was itself largely influenced by the use of ICTs, in particular social networks. Aside from the major changes this revolution ushered in for Egypt, it has also changed the way Egyptians perceive ICT tools and systems, which have created an important platform for them to express their opinions, participate in public affairs and join together to find solutions to issues of common concern.

Since the revolution, not only has there been considerable growth in the number of Egyptians using the internet, but significant changes in the way the internet is used, with one of the more notable shifts being the increase in young people engaging with political rather than entertainment-related content.

In this context, three main features of the internet are clear: its interactive nature; the absence of a central organizational authority, making content online more difficult to control and monitor than traditional media content; and the broad social base of users, which is not limited by geographic or political boundaries.

As a result, those using the internet are not mere recipients of content but active participants in its formation. This has brought about a change in the very nature of communication: ordinary members of society are now able to respond and interact. Indeed, online dialogue is often peer-to-peer in nature, reflecting less the social

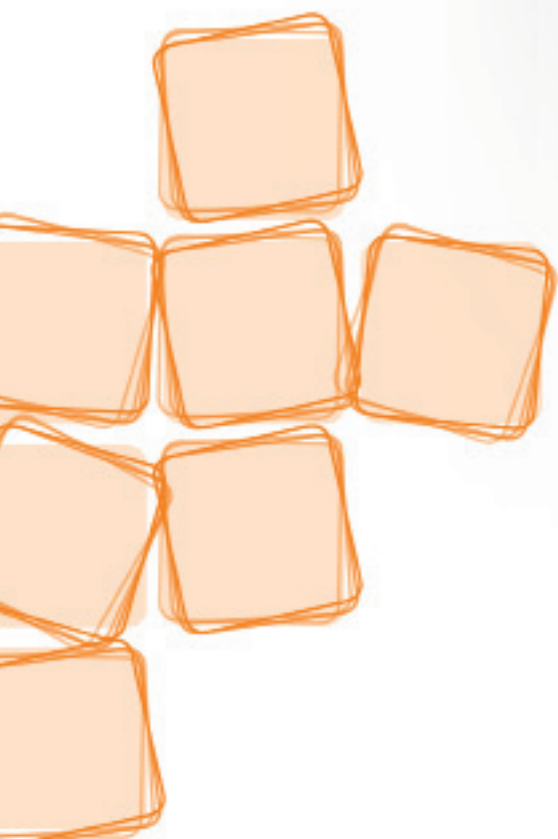
position or political affiliation of interlocutors than their opinions on certain topics. Some argue that the influence of the internet within society and the prevalence of networking have brought about a shift from hierarchical state to networking community.

MCIT seeks to embrace this shift, and to empower all Egyptians to play a full and active role as digital citizens in the development of their community and society.

1.1 The ICT Sector: Past and Present

The amazing development in ICT usage in Egypt would not have occurred without the technical and institutional boom set in motion by the government since 2000. The newly established Ministry of Communications and Information Technology set out to establish a vibrant and open ICT sector, to ensure wide access to fast internet through a solid infrastructure capable of attracting investment and supporting the development of both the sector and the wider economy, and to promote the training necessary to enable citizens to adapt ICT tools and systems to serve the community and boost the economic performance of the state.

In 2000, MCIT initiated a National ICT Plan to ensure the spread and effective use of ICT among both individuals and businesses, and to establish legislative and regulatory rules to guarantee an open market for ICT services. As part of this process, MCIT identified best practices, critical success factors and potential challenges, allowing it to amend ICT policies and restructure the sector in response to real-time needs.



The Egyptian Information Society Initiative, introduced in 2004, achieved tremendous progress in expanding and modernizing the ICT infrastructure. It also laid firm foundations for continuous development at a rate at which Egyptian society could adapt, reducing the digital divide between different sectors of society by providing access to high-speed internet and ICT tools for individuals and institutions. A major success of the initiative was the establishment of an educational base offering all Egyptians the chance to adopt and use ICTs. The plan also focused on using ICTs to develop and improve public services, particularly in the fields of healthcare and education. The 2004 strategy focused on Public Private Partnerships and on fair regulation of the ICT market.

Recognizing the essential role of ICT in social and economic development, MCIT devised the ICT for All program to fulfill two main goals: first, raising citizens' quality of life by helping the government improve public service provision through the use of ICTs and the development of a knowledge-based society; and second, facilitating citizens' access to computers and high-speed internet, raising youth employability through ICT training, thus, encouraging government employees to undertake internationally accredited ICT certification programs.

Egypt's ICT Strategy of 2007 was formulated to build on the progress achieved by the government in partnership with the private sector and civil society.

It focused on establishing local, regional and global partnerships attracting investment through a range of incentives, and the establishment of technology parks such as Smart Village and Contact Center Park in Maadi.

A major component of the strategy was the promotion of exports in ICT outsourcing services. Strategically located at the crossroads of Europe, Africa and the Middle East, and enjoying a large pool of young, multilingual and technically proficient human resources, Egypt has quickly developed a strong outsourcing industry and positioned itself as a world leader in the field.

The successful growth of Egypt's ICT sector is clear in the following indicators:

- During the period 2008/09-2010/11, the ICT sector raised an annual average of LE 33.71 billion in revenues, with an average annual growth rate of 11.63%, and contributed about 4% of GDP
- The ICT sector recorded a growth rate of 3.71% in the last quarter of 2011
- Between 2006 and 2011, the ICT sector contributed with LE 82.28 billion to the treasury.
- Egyptian exports of cross-border outsourcing services via the internet were worth \$1.487 billion a year by the end of 2011. Egypt, represented by the Information Technology Industry Development Agency (ITIDA), was named Offshoring Destination of the Year in 2008 by the National Outsourcing Association, received a European Outsourcing Award in

2009 and was ranked fourth in the 2011 Global Services Localization Index published by A.T. Kearney

- At the end of 2011, the number of mobile phone subscriptions was about 83.4 million, representing a penetration rate of about 102.76%
- At the end of 2011, the number of internet users in Egypt was about 29 million with an annual growth rate of 26%
- At the end of 2011, the number of fixed-line subscribers reached 8.71 million, with a penetration rate of 10.91%
- The Smart Village technology park has attracted investments amounting to LE 6 billion and created 40,000 job opportunities followed by Cairo Contact Center Park in Maadi
- 42,000 direct job opportunities and 120,000 indirect job opportunities were created in the last three years through outsourcing and the export of technology services

Despite the difficult circumstances of the transition period ushered in by the revolution of January 2011, which has had a major impact on the Egyptian economy, the ICT sector has continued to flourish, with its growth rate rising to 3% in the fourth quarter of 2011.

The sector has also continued to create jobs, with a 41% rise in the number of employees of international ICT companies in the Egyptian market in 2011 over the previous year and an 18% rise in those employed by local companies. In addition, and according to the Ministry of Planning, primary indicators for the third quarter of the fiscal year 2011/12 show that the ICT sector recorded an increase in real growth rates from 2.8% in the third quarter of 2010/11 to 8.9% in the third quarter of 2011/12. In November 2011, a report issued by Oxford Business Group noted the significant investments in the Egyptian ICT sector despite the disturbances following the revolution, and that the sector is expected to recover to levels seen prior to the revolution and the global financial crisis. In 2008/09, the sector attracted investment of LE 14 billion.



2 - Vision and Mission

Vision:

Towards digital citizenship and an advanced knowledge-based economy and support the transition to democracy

At the current stage, the ICT sector needs to keep pace with the democratic transition and to support the country in its quest to realize various political, social and economic objectives. This can be achieved by investing in Egyptians' positive view of ICT tools and systems, adapting and developing them to serve the needs of a democratic society. This will include the development of applications that support digital citizenship, social participation and integration, which contribute to enhancing the quality of life and protecting citizens' rights and social justice.

Mission:

To develop a democratic knowledge-based society that supports a strong Egyptian economy and is based on equitable access to information and communications services, guaranteeing the digital rights of citizens and the development of a national industry based on human talent and creativity

The objectives for the Egyptian ICT sector in the coming period are as follows:

- Amendment of existing legislation and/or enactment of new legislation appropriate to the country's transformation and securing a legislative environment conducive to domestic and foreign investments and which supports the application of e-commerce and e-payment systems.

- Expanding the scope of political participation and deepening the democratic practice at all levels using ICT tools and platforms, building on the key role these played in the 25 January Revolution.
- Availing information by the government to the public through appropriate channels to establish a relationship of trust based on transparency and interaction. These channels should include a forum for community dialogue allowing for an open discussion among citizens and between citizens and government concerning draft laws, decrees and national projects.
- Supporting the role civil society organizations active in the ICT sector, play in industry development through community exchange and coordination of efforts for the advancement of the sector. These efforts facilitate adoption and replication of best practices, reduce cost, maximize the return on efforts, and boost interaction between government institutions involved in or sponsoring efforts related to ICT systems.
- Developing a community vision for the ICT sector, based on the principle that development should occur not only in the public service sector but also in the managerial approach of the state and its institutions. Such a vision will facilitate the adaptation of ICT tools and systems to community needs, and will allow Egypt to move closer to achieving a digital society and digital citizenship.
- Continuation of the shift towards the export of high-value-added services, whereby the relevant authorities – MCIT, ITIDA and the General Authority for Investment and Free Zones (GAFI) – work together to promote high-value-added outsourcing services (including technical support and software development and localization), and to attract innovative companies able to motivate researchers to Egypt.
- Utilization of foreign skills and experience to expand high value added services, encouraging innovation, and boosting the local skills necessary for the development of the ICT sector.
- Utilization of the latest techniques and technologies, the most important of which include those related to 4G technology, Web 2.0, Internet Protocol version 6 (IPv6), high-speed broadband, next-generation networks, smart phones and related technologies, and environment-friendly ICTs, including smart grids and smart buildings.
- Developing the Egyptian software and ICT systems industry, and promoting of its exports, to establish a strong "Made in Egypt" brand.
- Developing the National Broadband Strategy to ensure universal internet access in Egypt and the introduction of applications in areas of growing importance, such as climate change adaptation, energy efficiency and sustainable development.

3 - Strategic Objectives and Quantitative Targets

3.1 Strategic Objectives

The National ICT Strategy for 2012-2017 aims to enable the ICT sector with all its resources to help achieve the objectives of the 25 January Revolution – freedom, democracy and social justice – supported by an open and competitive market. It also aims at raising the attractiveness of the Egyptian economy to investment, increasing revenues for the government and the private sector, and facilitating the necessary restructuring of the sector in line with global innovation in the field. The strategy targets not only building a strong national industry capable of raising exports and creating job opportunities for youth, but also helping to improve the level and quality of public services.

The realization of this vision requires a process of cumulative building on achievements in support of Egypt's continued development in the realm of ICT, with work on various strategic axes in line with the government objective of positioning Egypt as one of the most prominent knowledge-based economies.

In this context, Egypt's strategic ICT objectives are characterized by applicability and quantitative measurability, allowing for easy monitoring of progress.

The four main strategic objectives of the strategy are:

- Supporting the democratic transition
- Promoting digital citizenship and information society
- Promoting sustainable development
- Strengthening the national economy

First: Supporting the democratic transition

1- Building a knowledge-based society with universal access to information resources

This is served by the National Broadband Strategy to expand the geographic coverage of infrastructure providing high-speed internet and to increase internet penetration, particularly in marginalized and under privileged areas. The strategy aims to raise the number of subscribers to high-speed internet to 13 million by 2015, through the expansion of the broadband network, especially last mile links and fiber-optic cables for telephone exchanges. The strategy also seeks to raise the proportion of Egyptian households using personal computers to 40%, to provide a national network of 1,000 Technology Homes and 2,000 IT Clubs, to connect all schools and educational institutions to high-speed internet, to expand e-commerce by 20%, to increase the number of secured Egyptian websites by 810% to increase the proportion of banking customers using online or mobile banking to 30%, and to increase use of e-signature applications by government bodies.

2- Digital identity management

A large number of digital identity management solutions have been developed in recent years as part of efforts to build public confidence in online transactions and encourage the use of electronic services. These ongoing efforts involve developing suitable technological tools and systems; promoting greater use of e-commerce, e-health and e-government services; and developing cyber security systems to prevent identity theft and protect user privacy.

3- Maintaining a legislative environment conducive to ICT sector growth and investment

The strategy involves the amendment of a number of existing laws. The Telecommunications Law No. 10 of 2003, for example, contains certain articles that require amendment in line with Egypt's democratic transition that will promote political openness and protect freedom of expression. Additionally, a number of new laws and regulations will be prepared, drafted and activated covering areas including freedom of information, cybersecurity and e-commerce. There are also plans to develop labor laws related to working at home and part-time and temporary employment for university students, which will increase the number of people working in outsourcing.

Second: Promoting digital citizenship and information society

1- Using ICTs to empower the elderly and people with disabilities, and serve marginalized and remote communities

This will be achieved through developing mail services, introducing new services that contribute to solving community problems, raising the proportion of households with personal computers to 40%, and providing a national network of 1,000 Technology Homes and 2,000 IT Clubs. These services give priority to people with disabilities, including those who sustained serious injuries during the 25 January Revolution. Programs have also been established to raise the ICT skill levels of women, particularly those who act as the sole breadwinners of their households.

2- Internet-related issues, information exchange and access, and freedom of expression

The strategy focuses on various internet-related issues, including the right of citizens to unrestricted communication, an open internet, strong social networks, internet privacy, public radio frequencies, public websites, public digital services, freedom of movement and association in cyberspace, freedom of expression, unrestricted access to information, the right of education and access to information technology that could be used indiscriminately and protection of intellectual property.

3- Developing people's ability to communicate and connect with their environment

This will be achieved using information and communication cables and networks to guarantee citizens their right to personal communication and participation, open access to means of communication and unrestricted access to information.

4- Developing network security systems

The strategy includes development of network security systems, to support the banking sector and online payment systems in particular. The increased use of online payment systems will promote development of the banking system and raise its efficiency.

5- Online safety and privacy

Successful promotion of online safety requires cooperation between concerned government authorities, the private sector and civil society focusing on raising public awareness and empowerment. The aim is to enable people to protect themselves and their children online, particularly on social networks, and in their use of mobile phones.

Third: Promoting sustainable development

1- Improving basic services in the fields of education, healthcare, environment and ensuring the delivery of subsidy to people who deserve it

The success of initiatives targeting integrated development depends largely on the availability of easy-to-access high-quality basic services and the readiness of local communities to evaluate and guarantee the quality of these services. In this context, the following three basic targets have been identified:

- Poverty reduction and the raising of living standards in identified local communities through empowerment, facilitating market access, improving education and training services, and developing basic infrastructure networks
- Ensuring local communities' ownership of the services received through their involvement in evaluating the quality of these services
- Building a relationship of trust between the government and local communities. Indeed, the improvement of the quality and scope of basic services reflects the government's commitment to respect, meet and safeguard citizens' rights and to save natural resources in the interest of future generations

In support of these objectives, the strategy aims to support and develop the key sectors of education and healthcare through the use of ICTs. In education, this includes the use of computers and high-speed internet in educational institutions across the country and the development of ICT-based education programs and materials, especially for university students. This will allow Egyptian graduates to compete in the global market and

enable Egypt to produce and develop ICT tools and software to international standards.

In healthcare, the strategy targets improvement of services, particularly for marginalized and remote communities, as well as improving support systems, enhancing management and use of state resources, and reducing expenditure. In this context, the development of ICT infrastructure for government bodies that supports digital identity systems will provide citizens with more secure, better and faster services and support the transition to a knowledge-based society.

The strategy also aims to promote the development of mobile services, expansion of mobile coverage in underserved areas, adherence to global standards in environmental and health protection related to mobile stations, development of mobile internet access services, use of geo data bases and similar systems, and use of ICTs to monitor and facilitate adaptation to climate change.

2- Using ICTs to develop legislative, judicial and executive institutions

The integration of ICTs will raise the efficiency of state institutions, developing their performance, increasing productivity, improving response time, facilitating community participation and boosting transparency. These efforts include measures to promote the use of e-signature applications by government institutions and to develop key sectors through ICTs' integration, including industry, commerce, transport, justice and tourism. Development of the legislative structure is essential to maintain an environment conducive to the further spread of ICT use.

Fourth: Strengthening the national economy

1- Increasing the ICT sector’s contribution to GDP to 5%

This can be achieved through realization of growth rates of 710% for the sector for the next five years, a 20% increase in investment to LE 55 billion, IT service outsourcing exports of \$2.5 billion, intellectual property revenues of \$1 billion, the growth of Egypt Post as a primary savings facility by an annual average of about 15%, and the development of a strong Egyptian ICT industry that excels in software development and component manufacturing and assembly.

2- Enhancing Egypt’s position as a leading global outsourcing destination

Efforts to enhance Egypt’s position as a global leader in outsourcing aim at increasing annual export revenues from IT service outsourcing to \$2.5 billion and intellectual property to \$1 billion. Measures to achieve these goals include: establishing a national network of 20 technology parks; diversification of target markets for Egyptian outsourcing exports; promoting greater participation from small and medium enterprises (SMEs) in IT service outsourcing; increasing the number of outsourcing professionals, with the aim of creating 75,000 direct job opportunities and 220,000 indirect job opportunities by the end of 2017; attracting more foreign investment through global promotional campaigns; and maintaining a strong Egyptian presence in regional and international fairs, trade missions and efforts to protect intellectual property rights and personal data.

3- Creating an environment conducive to technology innovation and entrepreneurship

Efforts to create an environment conducive to innovation and entrepreneurship include promoting the use of innovative technologies to solve development challenges, attracting more foreign investment in innovation and entrepreneurship, and supporting the establishment of local companies capable of innovation. The strategy, which aims at creating 10,000 job opportunities in the field of innovation, will boost and accelerate development and help position Egypt as a regional innovation center.

4- Supporting the digital content industry

The strategy seeks to develop Egypt’s digital content industry to promote and preserve Egypt’s culture and heritage, and the wider Arab identity, and to maintain Egypt’s position as a regional leader in this field. The industry will provide important opportunities for the creation of both employment and exports, while enriching Arabic content on the internet.

The strategy aims to increase the competitiveness of the Egyptian digital content industry by encouraging the private sector to produce and develop Arabic digital content; promoting development of the skills required by the digital content industry; and supporting universities, research centers, centers of excellence and companies in developing research and tools to enhance digital content, particularly for mobile applications.

5- Strengthening Egypt’s role as a communications hub

The strategy aims to strengthen Egypt’s role as a hub for communication cables and transit traffic by building on the country’s various competitive advantages in the field, which include its location at the meeting point of Europe, Africa and the Middle East, and a large pool of young, multilingual and technically proficient human resources.

6- Raising the competitiveness of Egyptian youth in ICT

This will be achieved through various initiatives that aim at providing vocational training for young people and equipping them with the skills required by the ICT sector, especially in the fields of outsourcing and technology innovation. These initiatives include the establishment of Technology Homes as the first stage in the creation of the Technology Corridor of Egypt – a virtual corridor that will extend across all governorates. Such efforts promote the role of young people in development and attract them to the ICT sector.

7- Supporting and developing MSMEs working in ICT

Efforts to develop the role of micro, small and medium enterprises in the field of ICT are focused on increasing companies’ competitiveness, opening new markets and opportunities for production, and improving the performance of small and micro enterprises outside of Egypt’s main cities in order to contribute in creating job opportunities and reducing unemployment.

8- Enhancing Egypt’s position in ICT in the regional and international arenas

MCIT, in cooperation with the Ministry of Foreign Affairs, aims at raising Egypt’s performance in regional and international ICT indicators. Efforts in this regard include strengthening cooperation between Egypt and the international community in the field of ICT, with priority given to cooperation with the Nile Basin countries through a technical support program and joint ventures targeting the establishment of a knowledge-based society in the region. MCIT also seeks to expand efforts in human capacity building with both the Nile Basin and Arab countries through specialized training programs, to boost Egypt’s role in international dialogue on ICT and related issues, and to expand partnerships between Egypt and countries around the world. These efforts will enable Egypt to attract more foreign investment, thereby increasing ICT sector growth and creating employment opportunities for young people.

3.2 Quantitative Targets

First: ICT Sector Development

Table 3.1: Quantitative Targets in ICT Sector Development

Aims		Activities / Indicators
Table 3.1: Quantitative Targets in ICT Sector Development	Promoting digital citizenship and information society	■ Increasing the number of subscribers to Broadband to 13 million by 2015
		■ Increasing the proportion of households with personal computers to 40% over the next five years
		■ Increasing the number of Technology Homes across Egypt to 1,000
		■ Maintaining a national network of 2,000 IT Clubs
		■ Linking 10% of telephone exchanges with fiber-optic cables
		■ Legislative amendments (Labor law, Telecom Law, Freedom of Information law)
	Promoting sustainable development	■ Linking all schools and educational institutions to Broadband
		■ Promoting use of e-signature applications in government agencies to provide government-to-government (G2G) and government-to-citizen (G2C) services
		■ Increasing the volume of e-commerce by 20%
		■ Increasing the proportion of banking customers using online or mobile banking to 30%
■ Building a knowledge-based society in the Nile Basin region		
■ Establishing a regional training center for the Nile Basin countries and Central Africa		
■ Digitizing primary-level educational materials by 2015		
■ Conducting an assessment of the size of e-waste in Greater Cairo as a step towards establishing a sustainable model for e-waste management		
Strengthening the national economy	■ Achieving ICT sector growth rates of 710%- over the next five years	
	■ Increasing the ICT sector's contribution to GDP to 5%, and boosting annual exports of outsourced IT services to \$2.5 billion and intellectual property revenues to \$1 billion	
	■ Increasing investment by 20% to LE 55 billion	
	■ Increasing savings held with Egypt Post by an annual average of 15%	
	■ Increasing the number of outsourcing professionals, to create 75,000 job opportunities, and 30,000 in IT and 10,000 in the field of innovation	
	■ Establishing a national network of 20 technology parks	
	■ Increasing the number of secured Egyptian websites by 810%-	
	■ Increasing exports of software and embedded software to \$500 million within two years	

Second: The National Broadband Strategy

Table 3.2: Quantitative Targets of the National Broadband Strategy

Area		Short-term Aims (2015)	Long-term Aims (2021)	
Table 3.2: Quantitative Targets of the National Broadband Strategy	Availability targets	Fixed	75% of households have access to Broadband (2 Mbps)	90% of households have access to Broadband (25 Mbps)
		Mobile	98% of population with 3G coverage	90% of population with 4G/LTE coverage
	Penetration targets	Fixed	4.5 million (22%) households subscribed to broadband services	9 million (40%) households subscribed to broadband services
		Mobile	8 million (10%) citizens subscribed to mobile broadband services	14 million (15%) citizens subscribed to mobile broadband services
Social/national targets			50% of public service authorities connected to the internet at 25 Mbps	100% of public service authorities connected to the internet at 25 Mbps
			50% of third-level Egyptian administrative localities (Sheyakha and village) served by at least one public internet access point at 25 Mbps	All third-level Egyptian administrative localities served (Sheyakha and village) by at least one public internet access point at 25 Mbps

4 - Developing Relevant Legislation

There is no doubt that a supportive legislative environment for the ICT sector is fundamental to its success and its ability to attract local and foreign investment.

Egypt has issued various laws relating to the ICT sector over the last 10 years, covering areas including regulation of telecommunications, e-signatures and protection of intellectual property. However, due to the growth of the sector, as well as the fast pace of change in ICT, new or amended legislation is required to ensure that the rights of investors, employees and the public are fully protected by the law. Furthermore, since the ICT sector has since its inception been a pillar of the national economy, it is important in light of Egypt's current democratic transition to maintain a legislative environment that boosts the sector's ability to grow and to support other sectors of the economy.

In the final quarter of 2011, MCIT formed a committee of legal and technical experts to formulate a set of new regulations for the coming phase, and to propose modifications, where appropriate, to existing regulations.

Telecommunications Law No. 10 of 2003 has since been amended, and the committee is soon to present its proposed amendments to E-Signature Law No. 15 of 2004. The committee has also begun work to formulate draft laws relating to freedom of information, cybersecurity and e-commerce.

When drafting bills, the committee first examines relevant legislation from other countries and reviews reports and opinions from civil society organizations and specialists. Committee members then discuss and formulate the draft law, which passes through several rounds of review before presentation to parliament.

4.1 Telecommunications Law No. 10 of 2003

Telecommunications Law No. 10 of 2003 was one of the laws most in need of amendment due to its political dimensions. During the 25 January Revolution, the governing authorities found legal justification in Articles 65 and 67 of this law to disconnect various means of communication, even though this action restricted the basic right of freedom of expression.

After the revolution, MCIT, in response to public demand, initiated a community dialogue concerning necessary amendments to the law. The ministry then formed a committee charged with reviewing existing legislation and drafting new laws, in consultation with experts and representatives from the ICT sector and concerned civil society organizations and taking into consideration the views raised through the community dialogue also opened a dialogue and discussion with the National Telecommunications Regulatory Authority on this law.

The committee proposed the amendment of about 55 articles, divided into five groups, and the addition of articles, as follows:

Group 1:

Amendments to definitions applied in the law and items concerning the formation of the National Telecommunication Regulatory Authority board of directors

- Article 1: Definitions (telecommunications, broadcasting, national security and state media)
- Article 12: Formation and membership of the NTRA board of directors

- Article 13: Work of the NTRA board of directors, licensing rules pertaining to infrastructure establishment, and regulations relating to penalties
- Article 15: Term of office of the executive president of the NTRA

Article 25: Licensing obligations

Group 2:

Amendments to items concerning regulation of the relationship between telecommunications companies

- Article 28: Linkage between companies
- Articles 33 and 34: Implementation of the resolution until a final ruling is passed
- Article 40: Regulation of the relationship between the licensee and the holder of the usufruct

Group 3:

Amendments to items concerning technological progress

- Article 54 : Spectrum division after the switchover from analog to digital
- Article 64 : Addition of technologies and software to equipment used for encryption

Group 4:

Amendments to items concerning the authority to disconnect communications

The most important amendments to the law involved Articles 65 and 67, which stipulated that in the case of general mobilization the prime minister should determine the competent state authority to manage all telecommunications services, networks, operators and service providers. The conditions for such a general mobilization included natural and environmental disasters and national security threats.

Article 65, original:

The National Telecommunication Regulatory Authority shall, in cooperation with the Armed Forces and the concerned state entities, prepare a prior plan for the operation of telecommunications networks, to be implemented during natural or environmental disasters and periods of general mobilization according to the provisions of Law No. 87 of 1960 concerning general mobilization and any other circumstances related to national security. The plan shall be updated periodically in order to secure national defense and security. Telecommunications operators and service providers shall be obliged to implement the plan.

Article 65, amended:

The National Telecommunication Regulatory Authority shall, in cooperation with the Ministry of Defense and the concerned state entities, prepare a detailed prior plan for the operation of telecommunications networks, to be implemented during periods of general mobilization, according to the provisions of Law No. 87 of 1960 concerning general mobilization, that shall be limited to tension in international relations, the threat of war, actual war, natural or environmental disasters, or crises threatening national security. The plan shall include the determination of the authority to which some or all telecommunications services, networks, operators and service providers, as well as those working in the operation and maintenance of these services and networks, are subject. The plan shall be updated periodically in order to secure national defense and security. Telecommunications operators and service providers shall be obliged to implement the plan.

Article 67, original:

The competent state authorities shall have the power to subject to their administration the telecommunications services and networks of any operator or service provider, and those working in the operation and maintenance of these services and networks, in case of natural or environmental disaster or during periods of declared general mobilization in accordance with the provisions of Law No. 87 of 1960 concerning these and other cases related to national security.

Article 67, amended:

In the case of a declaration of general mobilization as provided for in Article 65, the Cabinet shall issue a resolution activating the plan referred to in Article 65. The resolution shall define when implementation of the plan is to begin and the duration of its application.

In all cases, it shall be prohibited to disconnect telecommunications services or to stop their operation entirely or partially, except in the case that a written decision has been issued by the President of the Republic following a proposal to do so by the Cabinet. In this case, the President of the Republic shall, within 15 days of issuing such a decision, submit a detailed report to the People's Assembly explaining the reasons for adoption of the measure. In the event that the People's Assembly is not in session, the submission shall be made in the first session held. In all cases, it shall not be permissible to disrupt or stop relief and emergency services.

Group 5:

Amendments to items concerning penalties for crimes including disclosure of information, jamming

of communications, use of encrypted devices and provision of telecommunications services without license in Articles 72, 76, 79, 81, 82, 84, 85 and 87.

Group 6:

Addition of articles: Article 27-bis, concerning the share of Egyptian ownership in telecommunications companies; and Articles 63-bis and 63-bis (a), concerning state media and content licenses.

4.2 Freedom of Information Draft Law

In light of the wide information space in which we live today, and in support of Egypt's democratic transition, the Freedom of Information Law will fulfill certain important aspirations of the Egyptian people, enshrining in law their right to access data and information, and serving to stabilize democratic practice.

This freedom, along with many others prevalent in democratic practice, provides an indication of political maturity, as with it comes responsibility. For this reason, the new law relies on specific measures and mechanisms to maintain the right balance between freedom of access to information and preventing misuse of this freedom. The basis of this law, therefore, is that access to information is the norm, and prevention the exception, but in a manner that does not infringe on the right to personal privacy or pose a risk to national security. The talk about the availability of information could harm national security of Egypt or the exposure of relations with other countries at risk under the banner of freedom is not acceptable, so this law sought to bring about the desired balance between the considerations of freedom as a fundamental human rights and privacy considerations and national security.

Around the world there are about 85 countries with legislation in this field and two main approaches. The European approach is based on the formation of specialized entities to uphold the law and to review complaints and disputes, while the American approach favors the settling of disputes by the judiciary.

The Laws and Regulations Committee, favoring the adoption of the European approach, formed the Supreme Council for Data and Information to proceed with the drafting of the Freedom of Information Law.

This law covers regulation of access to data and information; the measures to be taken when access is withdrawn to information that should be readily available or if this information is manipulated; protection of information with the potential to affect national and public security; and protection of personal information and criminalization of its use for purposes other than that for which it was provided.

The law prohibits disclosure of data and information that may result in: harming the interests of the country; betrayal of trust; direct damage to the economic interests of others; endangering relations with a foreign country or a regional or international organization; or facilitating crime or obstructing its discovery. It also protects against failure to disclose information that should be in the public sphere; intentional destruction of data and information records and registries; disclosure of falsified, incorrect or deficient data and information; and disclosure of private information belonging to others.

The Supreme Council for Data and Information is mandated to regulate the disclosure, circulation and correction of data and information. This

council is granted immunity similar to that of judicial authorities, and its decisions are binding unless superseded by a decision from the Administrative Court.

The duties of the council include establishing the necessary security classifications for data and information; monitoring provision of data and information; promoting a culture of disclosure of information; and cooperating with national, regional and international authorities concerned with freedom of information.

The council includes seven experienced full-time members chosen by the Shoura Council from nominations provided by the prime minister, the first deputy of the head of the Cassation Court, the first deputy of the head of the State Council, and one representative from each of the Ministry of Defense, the Ministry of Interior and the General Intelligence Agency. These full-time members cannot be employees of the state's administrative system and are prohibited from engaging in politics.

Outcome:

A comprehensive law was drafted in seven chapters, containing 50 articles. It represents the biggest response possible to the requirements of civil society, taking into consideration national security dimensions, and corresponding with the most recent legislation of its kind in the world.

4.3 Cybersecurity Draft Law

The three main axes of the Cybersecurity Draft Law relate to:

- Protecting cyberspace and its contents from any external violation
- Agencies' obligations towards protecting their information space, and the data and

information included therein, particularly personal information

- Creating a national authority responsible for monitoring all cybersecurity activities and issuing licenses to operate within this domain

The law defines the obligations of those controlling data and information and establishes rules to ensure they secure their information space as well as the data, systems, programs and networks contained therein. It also establishes a system to manage the operation of information resources, and means of securing information operation sites and accessing information and networks. Additionally, the law aims to combat crime related to information systems and networks in order to help maintain national security, preserve the rights of legitimate users of computers and information networks, and protect the public interest.

The draft law includes definitions of various terms contained therein, including both tools of operation and forms of criminal activity, such as piracy, hacking, malware and infiltration.

The law establishes the National Authority for Information Security, whose authorities and powers include establishing an information security strategy, promoting a culture of information security, and registration and licensing of information security service providers. Also define obligations on the controller of information, and to develop a system to manage the operation of IT resources, and how to secure sites and how to access information and networks, also singled out a special chapter for experts, and stressed may not engage in any act of experience in the field of information security only after enrollment in the register national experts at the national authority for information security.

The law stiffens penalties for those committing information crimes, with imprisonment for not less than six months and/or a fine of between LE 20,000 and LE 50,000. It also doubles the minimum and maximum penalties in certain situations, such as for crimes committed with intent to damage the public interest or an individual public authority, or the creation, duplication or possession with the aim of distribution, publication or sale of materials violating public decency, particularly if they involve children. It also provides for imprisonment and fining in case of re-offense.

In preparing and formulating the draft law, the Laws and Regulations Committee relied on various reference materials. These included: International Telecommunication Union (ITU) recommendations regarding cybersecurity; relevant Indian law; the Legislation Management Draft Law of the Ministry of Justice; the Decision Support Center Draft Law; the Convention on Cybercrime (Budapest Agreement) of the Council of Europe; and "Cybercrime," by information security expert Ahmed El-Sobky.

Outcome:

A comprehensive law was drafted containing over 70 articles. It represents the biggest response possible to the requirements of civil society, taking into consideration the national security dimension, and corresponding with the most recent legislation of its kind in the world.

4.4 E-Commerce Draft Law

The Laws and Regulations Committee will, during the coming period, work on the preparation and drafting of the E-Commerce Draft Law.

4.5 E-Signature Draft Law

The Laws and Regulations Committee will, during the coming period, work on the preparation and drafting of amendments to E-Signature Law No. 15 of 2004.

5 - General and Targeted Strategic Policies

In light of the rapid and ongoing growth of the ICT sector, developing policies and regulations related to modern technologies is a strategic national priority. The importance of determining and adopting the right policies stems from the need to establish the foundations, mechanisms and procedures through which strategies can be successfully implemented, with close attention to protecting the interests of individuals and society, and identifying users' duties and responsibilities.

The policies adopted in previous strategic plans were successful in ensuring the ICT sector's ability to meet increasing demand. From October 2010 to October 2011, the number of internet users increased by 20.36% from 23.06 million to 27.75 million, while the number of mobile internet subscribers grew by 15.7%.

MCIT therefore established various work programs to develop and determine policies in light of strategic planning aims, research and analytical studies. These programs aim at:

- Drafting and updating policies and guiding principles concerning ICT use in local development
- Contributing to the development of legislative and regulatory frameworks related to the ICT sector
- Supporting the development of strategies to increase the spread and use of ICTs and maximize their benefit to users and society
- Monitoring developments in technology

Table 5.1: Work Programs to Develop ICT Sector Strategies and Policies

Main Program	Executive Programs	Aims	
Table 5.1: Work Programs to Develop ICT Sector Strategies and Policies	Policy, Research and Strategic Planning Development Program	ICT and Postal Sector Policy Development Program	<ul style="list-style-type: none"> Following up on the latest developments in general and targeted policies on the regional and international levels Ensuring Egypt's effective participation in decision making forums and work groups concerned with policy, standards and recommendations in the ICT field on the regional and international levels Developing existing ICT and postal sector policies and practices at the national level through analysis of relevant international experience Monitoring developments in the ICT environment to ensure ICT general policy and national strategy conform to the needs of the sector. And to deploy these policies and introduce them to all levels locally
		Analytical Studies and Research Program	<ul style="list-style-type: none"> Determining areas for ICT research and studies, in cooperation with concerned entities, particularly techno-social research and comparative studies indicating political and social trends and their relation to ICT. The output will be of use to decision makers and provide reliable material on Egypt and its ICT sector for international studies. It will also facilitate monitoring of the progress of the sector in the field of sustainable development
		Strategic Planning Program	<ul style="list-style-type: none"> Determining and analyzing ICT sector challenges Determining future strategic goals for the ICT sector in cooperation with concerned departments Establishing a mechanism to monitor and evaluate the work program and preparing periodic progress reports Drafting relevant sub-strategies

The National ICT Strategy for 2012-2017 was formulated with special attention to the following considerations:

- Drafting policies with the greatest flexibility to respond to the increasing demand for communications services through continuous development of ICT infrastructure. This can be facilitated by market studies determining the priority needs of consumers and the business sector and at the same time be aware of the challenges faced by the consuming sectors for this kind of service
- Drafting the most comprehensive policies possible, enabling Egypt to excel in using ICTs for development. This can be achieved by providing ICT infrastructure in marginalized areas, encouraging inter-company use of ICTs, increasing ICT access for Arabic speakers, and providing support for SMEs, which can play an important role in ICT service exports and the production of Arabic digital content
- Drafting policies that have quantifiable objectives and whose progress is easy to monitor

MCIT will review the policies of the strategy and make modifications as and when required, in accordance with government policies and priorities, in response to relevant developments in the ICT field.

The policies contained in the strategy are divided into two types, as follows:

General Policies:

These policies apply to all projects and programs for the ICT sector due to their importance both to Egypt and the international community. They relate to issues that have a clear and direct impact on the success and effectiveness of ICT sector activities. These policies cover:

- Digital identity management
- Green ICT
- Empowerment of people with disabilities
- Access to information
- Mobile applications for development

Targeted Policies:

These policies apply to a limited number of programs in certain fields. They relate to areas of particular importance at the current time that will also help boost future development of the ICT sector. These policies cover:

- Arabic digital content
- Cloud computing
- e-Commerce
- Manufacturing of tablet computers
- Open-source software

6 - Strategic Pillars and Executive Work Programs

The National ICT Strategy for 2012-2017 comprises seven main work pillars that represent the executive tracks for programs and projects related to the ICT sector in the next five years. These pillars reflect the objectives of the strategic plan, with each pillar aiming to achieve one or more objectives. The pillars are: the Telecom and postal services infrastructure, Government ICT infrastructure and digital services, national capacity building, digital citizenship, IT industry development, ICT innovation and entrepreneurship and international cooperation.

6.1 Telecommunications and Postal Service Infrastructure

In light of the global communications revolution and in support of Egypt's democratic transition, MCIT and the ICT sector will proceed in developing the national ICT infrastructure to serve the growing needs of government, business and individuals. International experience shows that advanced ICT infrastructure is a major driver of economic activity across all sectors.

This pillar is concerned with: implementation of the National Broadband Strategy through the National Initiative for Broadband; modernization of the postal network and diversification of postal services; and Cybersecurity and safety.

The primary strategic objectives of this pillar are:

Implementation of the National Broadband Strategy:

- Network coverage for fixed high-speed internet to reach 75% of Egyptian households at 2 Mbps by 2015
- Availability of 3G services for 98% of the population by 2015
- 4.5 million households subscribing to high-speed internet by 2015 (equivalent to 22% of the Egyptian families in 2015)
- 8 million subscribers to mobile high-speed internet by 2015 (equivalent to 10% of the population)
- 50% of public service authorities connected to the internet at 25 Mbps by 2015
- 50% of third-level Egyptian administrative localities served by at least one public internet access point at 25 Mbps

Development of the postal sector:

- Improving postal processes and raising the efficiency of the postal network so the sector can continue to fulfill market and customer needs while boosting economic growth
- Encouraging innovation, greater use of communications technologies in the postal sector in order to simplify operations, reduce cost and facilitate the introduction of more services
- Supporting sustainable development and efficiency in the postal sector
- Utilizing the national postal services network for delivery of e-government, e-health, e-education and other services
- Researching the private funding options available for modernizing and diversifying postal products and services in addition to the support provided by the state
- Raising competitiveness in the local market
- Supporting the growth of postal markets and services through international alliances

Cybersecurity:

- Developing an appropriate legislative framework for cybersecurity, with the participation of the private sector and civil society and guided by relevant international expertise, experience and initiatives
- Developing an appropriate regulatory framework for cybersecurity, drawing on international experience to establish a national cybersecurity system and computer emergency response teams
- Establishing the infrastructure necessary to ensure confidence in electronic transactions and protect digital identity, such as public key infrastructure and credit bureaus, with the participation of the private sector
- Developing and implementing programs to build the necessary human capacity for activation of an e-services system across all sectors, in cooperation with the private sector, universities and NGOs
- Cooperating with other countries and relevant international organizations in the fields of cybersecurity and e-service provision
- Raising public awareness of the benefits of electronic services for individuals, businesses and institutions, and the importance of cybersecurity

Table 6.1: Telecom and Postal Service Infrastructure – Primary Programs

	Main Programs	Executive Programs	Description
Table 6.1: Telecom and Postal Service Infrastructure – Primary Programs	Egyptian National Post Organization Development Program	Postal Network Development Program	<ul style="list-style-type: none"> ■ Developing the postal network through the use of ICTs to automate operations, establish electronic networks and information systems, and improve logistics
		Environmental Protection and Sustainable Growth Program	<ul style="list-style-type: none"> ■ Assessing the impact of postal service provision on the environment
		Postal Products and Services Development Program	<ul style="list-style-type: none"> ■ Providing new services that increase revenue and serve customer needs ■ Developing and automating service provision, particularly for social and financial services, to ensure the financial sustainability of Egypt Post ■ Establishing postal infrastructure that supports poverty reduction programs
		Postal Sector Stakeholders Cooperation Program	<ul style="list-style-type: none"> ■ Developing dialogue between the Egyptian National Post Organization, private postal companies and the Independent Union of Postal Workers to raise understanding of the needs of sector employees and customers through a project to develop the postal sector and study the establishment of regional communication centers in Egypt for express mail companies
		International Alliances Enhancement Program	<ul style="list-style-type: none"> ■ Enhancing Egypt's participation in international dialogue and activities related to the postal sector, allowing Egypt to present the views of developing countries
	The National Broadband Initiative	The National Broadband Initiative	<ul style="list-style-type: none"> ■ Expanding the coverage of high-speed internet infrastructure, particularly in marginalized regions, and increasing use of and subscription to high-speed internet services, thereby promoting sustainable growth for the Egyptian internet market ■ Provide integrated information map for high-speed Internet that includes all geographical points of the high-speed Internet access the network's coverage.
Cybersecurity Program	Cybersecurity Program	<ul style="list-style-type: none"> ■ Establishing infrastructure that ensures confidence in electronic transactions and digital identity protection ■ Implementing programs to build human capacity for activation of an e-services system covering all sectors ■ Cooperating with other countries and relevant international organizations in the fields of cybersecurity and e-service provision 	

6.2 Government ICT Infrastructure and Digital Services

This pillar aims at developing the performance of government entities and raising the quality and efficiency of the e- services they provide to the public.

The primary strategic objectives of this pillar are:
Development and maintenance of the IT infrastructure for government:

- Providing the main technological infrastructure for government ministries and authorities, such as PCs, data centers, local area networks and secure connection lines
- Providing the main information infrastructure, such as licenses, software and applications for all units of the state's administrative system

Improvement of the work environment and support for decision making:

- Developing information systems and databases
- Providing access to public services in all governorates
- Supporting senior management in decision making

Finding solutions to issues of concern to the community:

- Implementing a set of programs addressing national priorities in cooperation and coordination with concerned parties from strategic sectors such as education, healthcare, finance, transport, internal trade, energy and petroleum

Table 6.2: Government ICT Infrastructure and Digital Services – Primary Programs

Executive Programs		Aims
Table 6.2: Government ICT Infrastructure and Digital Services – Primary Programs	Healthcare Services Development Program	<ul style="list-style-type: none"> ■ Developing healthcare services to be provided by the government nationwide ■ Raising IT awareness among employees of relevant agencies nationwide through basic computer training, and ensuring the availability in all areas of the country of staff trained to manage advanced IT systems ■ Establishing databases on healthcare facilities and those using them ■ Drawing a health map of the country to support scientific research and decision-making in the healthcare sector
	Education Services Development Program	<ul style="list-style-type: none"> ■ Developing education services to be provided by the government in various governorates ■ Raising IT awareness among employees of relevant agencies through basic computer training, and ensuring the availability in areas covered by the program of staff trained to manage advanced IT systems
	Higher Education System Development Program	<ul style="list-style-type: none"> ■ Supporting the scientific and educational structure of Egyptian universities, and the transfer of academic expertise in the field of education and scientific projects to universities ■ Encouraging cooperation between universities in Egypt and around the world in higher education and scientific research through joint projects ■ Increasing the number of universities so as to have a university in each governorate ■ Raising the entry level for faculty staff ■ Promoting a culture of respect for human rights in university education and supporting democratic practices within the university community
	Agricultural Services Development Program	<ul style="list-style-type: none"> ■ Developing agricultural services to be provided by the government in various governorates ■ Raising IT awareness among employees of relevant agencies through basic computer training, and ensuring the availability in areas covered by the program of staff trained to manage advanced IT systems ■ Raising the quality of agricultural registration services through the use of geographic information systems (GIS) ■ Increasing IT awareness with a view to raising service efficiency in the country

Table 6.2: Government ICT Infrastructure and Digital Services – Primary Programs

Executive Programs	Aims
Commercial Sector Development Program	<ul style="list-style-type: none"> Supporting the efficient management of governmental and private trade activities, thereby helping to increase investment Promoting a culture of transparency in Egyptian chambers of commerce, and developing the relationship between chambers of commerce and merchants Improving the services provided by Egyptian chambers of commerce to their members and employees Promoting cooperation between chambers of commerce in Egypt and abroad Developing the capacity of staff at Egyptian chambers of commerce and the Federation of Egyptian Chambers of Commerce
Financial Sector Development Program	<ul style="list-style-type: none"> Creating an empowering legislative and regulatory environment to facilitate the growth of e-commerce on the business-to-business (B2B), business-to-government (B2G) and business-to-consumer (B2C) levels both nationally and internationally Maintaining a legal and regulatory framework that promotes development of the logistics infrastructure necessary to support growth in e-commerce on the national, regional and international levels Preparing the human resources necessary to boost e-commerce through the development of relevant applications, particularly payment and clearing systems
Government Administrative Operations Development Program	<ul style="list-style-type: none"> Raising productivity and efficiency in ministries and government authorities through the use of ICTs, including cloud computing technologies, and providing employees with relevant training
Legislative Services Development Program	<ul style="list-style-type: none"> Developing services provided by the Ministry of Justice and affiliated entities, including the Public Prosecution Office and the Real Estate Registry and Authentication Office Improving the technology infrastructure of the Ministry of Justice and affiliated entities by developing work systems and modernizing document storage and retrieval methods Raising IT awareness among employees of relevant entities through basic computer training, and ensuring the availability at these entities of staff trained to manage advanced IT systems Establishing channels of communication between citizens and various entities affiliated to the Ministry of Justice to facilitate the receipt of and response to complaints and the monitoring of workflow

Table 6.2: Government ICT Infrastructure and Digital Services – Primary Programs

Executive Programs	Aims
Housing Sector Development Program	<ul style="list-style-type: none"> Creating an integrated system using IT to ensure the efficient performance of new city authorities, through mechanisms allowing for accurate real-time monitoring of performance and the compilation of up-to-date reports and statistics on land and land allocations Improving the technology infrastructure of city authorities by developing internal networks linked to the New Urban Communities Authority that support the e-marketing of land and real estate to investors
People's Assembly and Shoura Council Operations Development Program	<ul style="list-style-type: none"> Promoting transparency in the activities of the People's Assembly and the Shoura Council Reducing costs related to the activities of the People's Assembly and the Shoura Council Improving means of communication with members of the People's Assembly and the Shoura Council Developing parliamentary work systems Supporting regular provision of news from the People's Assembly and the Shoura Council, as well as documentation of their activities
Transport System Development Program	<ul style="list-style-type: none"> Improving technology services in the transport sector Promoting trade movement in Egyptian ports and boosting Egypt's role as a regional commercial hub Formulating frameworks for the development of ports in coordination with the Ministry of Finance and the Ministry of Investment
National Security System Development Program	<ul style="list-style-type: none"> Guaranteeing security for citizens in all fields Maintaining public order, security and morality Protecting people's lives, property and wealth, particularly through crime prevention and control
Tourism System Development Program	<ul style="list-style-type: none"> Boosting incoming tourism, which is an important source of hard currency and national income Improving technology services in the tourism sector to increase satisfaction and interest in Egypt as a tourist destination
Infrastructure Development for Marginalized Regions Program	<ul style="list-style-type: none"> Raising the profile of marginalized areas with a view to encouraging their development and reducing unemployment, while at the same time increasing Egypt's digital readiness, supporting the economy and encouraging mobile service providers to expand their 3G networks in areas not served by land networks

6.3 Human Capacity Building

Through this pillar, the ICT sector and MCIT seek to foster digital citizenship by empowering members of society, especially youth, through ownership of the tools and skills needed to develop and live in a knowledge-based society. This axis includes various training programs implemented by MCIT, affiliated entities and training companies, as well as the Technology Homes program, which aims to equip people for a knowledge-based society.

The primary strategic objectives of this axis are:

- Developing the capacity of human resources to support the national economy, in collaboration with stakeholders in various sectors, including education and healthcare
- Creating job opportunities for graduates and raising the value of knowledge and creativity
- Promoting specialization and the acquisition of specialist skills in the various fields of ICT through internationally accredited programs
- Equipping future generations with the ability to apply ICTs in all sectors to boost national development, productivity and competitiveness

Table 6.3: Human Capacity Building – Primary Programs

Executive Programs		Aims
Table 6.3: Human Capacity Building – Primary Programs	Education Development Program for Egyptian Universities (EDUEgypt)	<ul style="list-style-type: none"> ■ Bridging the gap between student skills and the competencies required by the job market, particularly in the field of outsourcing
	Training of IT Trainers Program	<ul style="list-style-type: none"> ■ Equipping young people across the country to become IT trainers responsible for promoting IT skills and human development and technically supervising training centers to raise the efficiency of management systems to International Quality Certificate level ■ Enhancing IT trainers' technical and personal skills, knowledge and professionalism
	ICT Centers of Excellence Program	<ul style="list-style-type: none"> ■ Establishing centers of excellence to promote technology innovation and develop a knowledge-based society ■ Establishing a concept for centers of excellence in accordance with global trends through the incorporation and integration of training, scientific research and innovation in these centers
	Outsourcing and IT Services Training Program	<ul style="list-style-type: none"> ■ Implementation of an integrated plan by the Institute of Information Technology supporting partnerships between regional institutions to promote innovation and entrepreneurship in IT, and to facilitate the transfer of Egyptian experience, knowledge and skills in human resource development in the IT field in the Arab region
	Regional Cooperation Program for Africa	Implementation of an Information Technology Institute program promoting IT use in health and educational research and outsourcing through the provision of opportunities in education and scientific research for individuals and institutions across Africa

6.4 Digital Citizenship

MCIT seeks to promote the principles of digital citizenship in Egypt and to define the rights and responsibilities of citizens in cyberspace. This axis is concerned with establishing and affirming the right of all citizens to use ICTs without discrimination, with particular focus on the inclusion of marginalized and vulnerable groups, people with disabilities and children.

The primary strategic objectives of this axis are:

- Integrating people with disabilities in the knowledge-based society
- Empowering women, particularly sole or primary earners, through IT skills
- Making information and data available to all in a transparent manner
- Promoting acquisition of digital skills in marginalized and remote areas
- Supporting civil society capabilities through use of ICTs
- Enabling citizens in general, and the elderly in particular, to access digital services
- Protecting the identity and privacy of individuals on the internet, thereby promoting use of digital services and facilities

Internet safety:

- Developing content related to internet safety in line with the latest developments in the field, paying particular attention to policies and programs related to children
- Adopting IT governance concepts as a mechanism to protect privacy and information security
- Developing internet safety measures in line with developments in ICT
- Increasing the availability of protection systems for use with the internet and mobile phones
- Drafting legislation and amending current laws related to violation of privacy and information security on the internet as appropriate
- Activating the role of the state in legal control over illegal internet cafes and connections
- Carrying out research into online family protection
- Strengthening international cooperation to promote internet safety in Egypt
- Promoting Arab cooperation and experience exchange in the field of online safety, particularly for youth
- Supporting online protection for children while respecting their creativity, and studying the provision of online family protection mechanisms that respect human rights and freedom of expression
- Encouraging internet and mobile service providers to run public awareness campaigns and provide protection mechanisms

Table 6.4: Digital Citizenship – Primary Programs

Executive Programs		Aims
Table 6.4: Digital Citizenship – Primary Programs	Digital Identity Management Program	<ul style="list-style-type: none"> ■ Developing infrastructure, technologies and policies to define, manage and coordinate the ownership, use and protection of personal information ■ Creating a sound framework for digital identity management, supporting electronic provision of public services, efficient management of state resources and government transparency
	Technology Homes Program	<ul style="list-style-type: none"> ■ Boosting levels of IT knowledge and skills nationwide through training programs, including for people with disabilities, and also providing access to e-government services and services for families, women and children
	ICTs for Community Integration Program	<ul style="list-style-type: none"> ■ Empowering rural and marginalized communities through development projects and raising awareness of the benefits of ICTs in cooperation with civil society organizations ■ Promoting development in rural and marginalized areas through application of technology solutions to establish an integrated sustainable development model ■ Empowering women through illiteracy eradication programs ■ Improving services in education, healthcare and in support of small businesses through use of ICTs
	ICTs for People with Disabilities Initiative	<ul style="list-style-type: none"> ■ Improving quality of life and social integration for people with disabilities through use of ICTs ■ Promoting and supporting a productive and interactive disabled community ■ Raising the capacity of organizations working with people with disabilities ■ Raising awareness of the potential of ICTs to support people with disabilities
	ICTs for Civil Society Program	<ul style="list-style-type: none"> ■ Raising the capacity of civil society organizations working in development (including NGOs and IT Clubs) and empowering target groups (in particular young people and women) by building capacity through use of ICTs ■ Empowering target groups to play a greater role in society through the adoption of a rights-based approach to development, incorporating social entrepreneurship, networking and knowledge sharing
	Postal Service Access Enhancement Program	<ul style="list-style-type: none"> ■ Using ICTs to improve and expand postal services, including mobile services, to facilitate communication and trade, thereby promoting economic and social development
	Internet Safety Program	<ul style="list-style-type: none"> ■ Preparing and implementing a number of projects promoting the protection, education and empowerment of families on the internet, with special focus on the protection and empowerment of children through the growing number of protection systems available for internet and mobile use

6.5 ICT Industry Development

MCIT seeks to boost Egypt’s global ICT competitiveness by developing the outsourcing services industry, raising IT service exports and attracting foreign investment, thereby promoting sector growth and creating new job opportunities.

The primary strategic objectives of this axis are:

- Increasing annual revenues from outsourcing exports from \$1.3 billion to \$2.5 billion, and from intellectual property to \$1 billion
- Attracting more foreign investment through marketing and promotion of Egyptian ICT activities and exports, participation in regional and international exhibitions, and organization of trade missions
- Increasing the number of outsourcing professionals, with the aim of creating 75,000 direct job opportunities and 220,000 indirect job opportunities. As well as contributing by 80% of the training cost of Egyptian university graduates on Soft Skills programs
- Establishing technology parks in various governorates, especially those where the key elements of industry are available
- Raising the ability of Egyptian companies to develop the IT industry through the implementation of capacity-building programs and the provision of necessary infrastructure

Support of MSMEs:

- Raising the performance and competitiveness of MSMEs by helping them identify new marketing and production opportunities, and supporting MSMEs outside of Egypt’s main cities with the aim of creating job opportunities in these communities
- Expanding the range of training programs available to Egyptian companies with the aim of raising competitiveness in software and IT services, improving management and marketing practices, and promoting adherence to internationally recognized quality standards
- Promoting the use of global consultancy firms by Egyptian companies seeking to enter foreign markets
- Developing and supporting MSMEs working in the fields of software, value-added services and internet economy, making use of Egypt’s technical experience in these fields

Table 6.5: ICT Industry Development – Primary Programs

	Main Programs	Executive Programs	Aims
Table 6.5: ICT Industry Development – Primary Programs	Outsourcing Industry Development Program	IT Export Promotion Program	A group of nine projects designed to increase Egyptian ICT exports by: <ul style="list-style-type: none"> ■ Promoting the ICT exports of Egyptian companies ■ Enhancing call center services ■ Promoting foreign direct investment ■ Supporting Egyptian participation in international exhibitions ■ Supporting the participation of Individual companies in exhibitions and events ■ Using foreign consultancy firms to assist in the execution of the strategy up to 2020 ■ Branding Egypt ■ Establishing a photo library for ITIDA in cooperation with Smart Villages Company ■ Subsidizing business trips for ICT companies
		Technology Zone Development Program	<ul style="list-style-type: none"> ■ Creating a supportive environment for the development of the national ICT industry and Egypt’s international reputation in ICT services through a public-private partnership
	ICT Company Development Program	ICT Industry Capacity Building Program	<ul style="list-style-type: none"> ■ Raising ICT industry capacity by developing the skills of university students and those employed in the industry, and creating a favorable climate for investment ■ Providing training, consultation and evaluation to achieve international quality standards ■ Developing a world-class ICT industry that drives national economic growth
		ICTs for MSMEs Program	<ul style="list-style-type: none"> ■ Supporting MSME development and capacity building through the use of ICT tools and applications and the creation of an environment conducive to their growth

6.6 ICT Innovation and Entrepreneurship

MCIT seeks to promote research and development, innovation and entrepreneurship in the field of ICT in order to drive sector growth, support sustainable national development and set Egypt on course to become a regional innovation hub by 2020. This will be achieved through a number of programs, the most important of which cover: establishment of ICT centers of excellence in universities and local and international ICT companies; and provision of financial and marketing support for innovative entrepreneurs.

The primary strategic objectives of this axis are:

- Positioning Egypt as a regional innovation hub
- Accelerating development and economic growth in Egypt through development of the ICT sector, with emphasis on creativity
- Supporting industry in the creation of high-level job opportunities for professionals and graduates in various specialized fields of ICT
- Attracting foreign investment to boost innovation and entrepreneurship in the ICT sector
- Establishment of companies able to innovate in the field of information and communication technology
- Developing the ICT sector by engaging stakeholders in the introduction, funding and support of innovative ideas
- Creating an environment that encourages creativity and entrepreneurship
- Promoting creativity and innovation in ICT to address development challenges

Table 6.6: ICT Innovation and Entrepreneurship – Primary Programs

Executive Programs		Aims
Table 6.6: ICT Innovation and Entrepreneurship – Primary Programs	ICT Centers of Excellence Program	<ul style="list-style-type: none"> ■ Equipping universities with laboratories to foster an environment supportive of innovation to the benefit of both individuals and companies ■ Encouraging international companies to establish research and development centers in Egypt ■ Promoting joint research projects between Egyptian ICT companies and ICT centers of excellence to facilitate the development of innovative products and services ■ Encouraging the establishment of new companies and the development of solutions serving vital sectors of the economy, such as agriculture, education and tourism, through competitions run by ICT centers of excellence ■ Promoting new technologies and helping companies create innovative solutions and services through Technology Days organized by ICT centers of excellence
	Entrepreneurship Support Program	<ul style="list-style-type: none"> ■ Supporting the development of innovative ideas whose creators qualify for sponsorship, including the winning of competitions, by providing them space, tools, use of laboratories and access to services shared with incubator companies, as well as expertise relating to financing, marketing and approaching investors ■ Organizing periodic workshops providing training for incubator and emerging companies
	e-Learning Program	<ul style="list-style-type: none"> ■ Establishing a national network of e-learning centers by upgrading Technology Homes to function as community service centers offering e-learning services, promoting community development and raising the skill levels of young people

6.7 International Cooperation

MCIT seeks to enhance cooperation in the field of ICT with other countries and international organizations- on the bilateral, regional and international levels- including through exchange of expertise and experience, and joint ventures promoting growth and development.

The primary strategic objectives of this axis are:

- Identifying opportunities for cooperation with other countries, and participation in ICT-related decision-making forums of UN bodies and other regional and international organizations, to present the views and protect the interests of Egypt and the region
- Attracting foreign investment to increase ICT sector growth and create job opportunities for youth
- Strengthening Egypt’s role in the Arab and African regions through the implementation of joint ventures
- Maximizing use of ICTs to improve the level and quality of public services and promote a knowledge-based society
- Developing ICT policies in line with international trends, local needs, and related research and studies
- Expanding the scope of Egypt’s partnerships with other countries to help consolidate relations and to facilitate access to international expertise promoting ICT sector growth
- Raising Egypt’s global competitiveness in ICT
- Enhancing ICT cooperation between Egypt and the international community to support the growth and development of the ICT sector

Table 6.7: International Cooperation – Primary Programs

	Main Programs	Executive Programs	Aims
Table 6.7: International Cooperation – Primary Programs	Bilateral, regional and international cooperation programs	Bilateral Cooperation Program	<ul style="list-style-type: none"> ■ Expanding Egypt’s cooperation with other countries and international organizations – on the bilateral, regional and international levels – with the aim of promoting national development ■ Strengthening cooperation with the countries of Africa through the Back to Africa initiative, which includes the Nile ICT Corridor Initiative, targeting capacity building and development in the Nile Basin region; a project to boost Egypt’s bilateral relations with the countries of Africa; and support of the New Partnership for Africa’s Development (NEPAD)
Cooperation with International Organizations Program			
Regional Cooperation Program			
Strategic Development Partners Program			

7 - Targeted Strategic Initiatives

The targeted initiatives of the National ICT Strategy for 2012-2017 aim to enhance Egypt's global position in the field of ICT globally and to increase the contribution of the sector to the GDP. There is a general agreement among the ICT community that the targeted initiatives identified below have a priority in implementation and address specific challenges and needs that are high on the national agenda. The initiatives will also play an important role in empowering the Egyptian society and in contributing to the sustainable development goals by offering higher quality services at lower cost to the Egyptian citizen.

The targeted strategic initiatives include:

- Digital Identity Management Initiative
- Arabic Digital Content Initiative
- Educational Reform Initiative using ICTs, Cloud Computing and the Tablet Computer
- Back to Africa Initiative
- ICT for Empowering People with Disabilities Initiative (PWDs)
- Green ICT Initiative

In addition, the Broadband Initiative was launched in September 2011 and is considered a key milestone in the ICT sector plan. The initiative aims at promoting the high-speed Internet industry in Egypt with its three elements: networks, services and users, establishing the leading position of Egypt in the region in this field in light of the changes experienced by the country and the massive demand on

the internet speed and the quality of services provided, in addition to the increased desire of users for accessing the visual content, news and multimedia services. The national plan of the Broadband Initiative (eMisr) was launched and comprises two phases:

The objectives of the initiative are summarized as follows:

- Egypt to reach a leading position in the digital communication field
- Stimulating economic growth nationwide and enhancing social cohesion
- Increasing job opportunities
- Coordinating with other Egyptian government sectors and improving the standard of living and the quality of life for all citizens
- Bridging the digital gap in Egypt

These objectives were identified for their relevance to the current priorities of Egypt and the major world economies. Egypt's previous national ICT strategies supported the establishment of solid telecommunications infrastructure, development of a vibrant ICT sector, growth in access to and use of ICTs, empowerment and capacity building. Looking forward, the current strategy, while building on and developing these efforts, also aims to unlock the latent potential of ICTs to promote and support advancement not only for the sector, but for the wider economy and society as a whole.

7.1 Digital Identity Management Initiative

Digital identity management has become of great importance in the internet economy. In the mid-nineties, the ability to access information via internet was considered a revolutionary transition. Very quickly, the internet changed from a one side posting tool to a two way platform providing personal services, e-commerce, e-government services and other various and different interactive such as e-health, e-education and social networks. Increasingly providing and spreading services online in daily life has radically changed our economies and societies, making the provision of these services a must for building the internet economy.

On the other hand, the Egyptian government has been increasingly concerned with enhancing resources, encouraging investments, rationalizing expenditures and distributing the basic resources in an equitable and fair manner. ICT networks play a basic role in this context, since communication networks and the internet are part of the country's economic infrastructure, especially in banking services, e-commerce, trading and financing system. Communication networks and IT also play, on the political, economic and social levels, a major role affecting citizens' daily life through different applications such as e-government, e-voting, education and health services, etc...

Hence, a pressing need appeared for developing a national project for managing the digital identity based on a clear and integrated strategy. Indeed, the management of the digital

identity with its various levels is considered one of the most important processes for securing and organizing transactions electronically. This initiative involves developing the infrastructure, technologies and policies required to create, identify, manage and coordinate the ownership, use and protection of personal information, including a framework to define digital identity data for government information systems and individuals and entities executing transactions via the internet.

Description:

Digital identity management, at its different levels, is considered one of the most important operations for regulating and securing cyberspace transactions. Digital identity consists of all credentials and attributes related to an individual on the internet, such as the computer IP address, the email address, passwords, user name or nickname used in chatting rooms and forums, electronic account on websites that require a registered account for participation and activities. It also includes bank account numbers authorizing the person to deal with his/her bank account electronically through the bank's website on the Internet, transfer of funds, services and billing. It also includes e-commerce, where users can purchase via the internet using credit cards, voting, health information and data. All these are considered examples of electronic identity whose importance has increased with the penetration and expansion of internet access. Digital identity management

for facilities, banking sector, individuals and private sector, is considered one of the most important mechanisms required for regulating transactions, rationalizing consumption, and increasing the efficiency of availing services which require careful coordination at the national level.

The primary objectives of this initiative are:

- Applying the highest level of security in the collection, use and storage of documents containing personal data, ensuring that unnecessary documents are removed from storage in an appropriate manner and that information retrieval is fast and efficient
- Providing citizens with electronic cards, containing accurate personal and biometric information, including electronic signature, to facilitate and secure transactions with government authorities
- Increasing the ease and speed of checking user data to raise performance in the provision of government services
- Improving the quality of services provided to citizens through shared use of digital identity applications and records by various institutions
- Improving and integrating operations systems for various government service providers to ensure efficient use of resources, eliminate repetition of routine procedures, and focus on raising service quality

- Helping organizations control and secure the flow of information with partners and customers, and to cooperate with each other, thereby promoting economic growth
- Promoting use of digital identity applications to facilitate the provision and use of local, regional and international services by institutions and individuals, saving time, effort and money
- Reducing threats to data security and privacy by limiting the amount of data circulated between institutions to that which is essential
- Facilitating the collection of accurate statistics and the formulation of plans for all sectors of the economy
- Supporting all sectors of the economy through the exchange and updating of information via a central source
- Encouraging innovation in the market, the creation of new job opportunities and increasing foreign trade
- Facilitating an effective response and the ability to adapt to internet threats by increasing security on the internet, reducing cybercrime, improving the safety of networks and systems, raising overall safety levels for consumers and promoting confidence in the internet

Table 7.1: Digital Identity Management Initiative – Primary Programs

	Output	Activities	Programs
Table 7.1: Digital Identity Management Initiative – Primary Programs	Digital Identity Management Strategy Development Program	<ul style="list-style-type: none"> Establishment of the National Committee for Digital Identity Management Creation of an administrative and legal framework for digital identity management through amendment of current policies and laws Identification of the responsibilities of government and the private sector in digital identity management and protection Analysis of digital identity management systems and procedures in automated government systems Drafting of an executive plan for digital identity management 	<ul style="list-style-type: none"> Legal framework and policies for digital identity management Analysis of current digital identity management systems Executive plan for digital identity management National strategy for digital identity management
	Incorporation of Digital Identity Data in the National Identity Number Database	<ul style="list-style-type: none"> Upgrading of the national identity number database through inclusion of biometric data to facilitate and secure citizens' transactions with government authorities 	<ul style="list-style-type: none"> Enhanced national identity number database
	Linking of National Databases to the National Identity Number Database	<ul style="list-style-type: none"> Inclusion of national identity numbers in national database entries, and linking of national databases to the national identity number database, facilitating verification and auditing of data 	<ul style="list-style-type: none"> Information systems supporting subsidy provision National database integrity
	Government Efficiency Enhancement Program	<ul style="list-style-type: none"> Use of information systems to raise efficiency in the distribution of subsidized items, in priority products, including diesel, gasoline and energy distribution Automation of the tax collection cycle, covering registration, collection, complaints and follow-up Simplification of the tax collection process through provision of multiple payment methods, including in person or via the internet Simplification of the system to determine real estate taxes through the establishment of an inventory of housing units and their tax value based on monthly and annual electricity consumption 	<ul style="list-style-type: none"> Information systems supporting subsidy provision Information systems that reduce government spending and allow for more efficient collection of various taxes

7.2 Arabic Digital Content Initiative

MCIT and the ICT sector in Egypt consider the support of Arabic digital content on the internet, a top priority that allows the internet to reach more Arabic-speaking communities around the world, and hence preserving and promoting Arab heritage and identity for coming generations. These efforts are of great importance given that Arabic online content is estimated to constitute only about 1% to 1.5% of the global totals. The Arabic content industry includes hardcopy and soft copy outputs, all forms of media, culture, service and communication products such as books, musical recordings, databases, newspapers and magazines, heritage documents, multimedia, software, governmental documents, scientific publishing, radio and personal programs, product catalogues, business activity documents, photo banks, patents, etc. Hence it is an integrated industrial process, information building industry and a structuring of its investment as per user needs. MCIT works to develop the Arabic digital content industry in Egypt in cooperation with local, regional and international organizations such as the Arab League, ESCWA, UNESCO, the International Telecommunication Union in addition to stakeholders from the private sector, government and civil society.

Description:

The Arabic Digital Content Initiative aims at enhancing Arabic digital content production and promoting its use in order to support human and social development, facilitate Egypt's transition to a knowledge-based society, and preserve and promote Arab and Islamic heritage and identity. This requires

the establishment of a strong digital content industry, providing content in written, audio and visual formats accessible through various channels, and the development and enrichment of creative Arabic digital content. The initiative involves cooperation between Arab countries to integrate efforts in the development of Arabic digital content, share resources, experience and expertise, and avoid duplication of efforts.

The primary objectives of this initiative are:

- Establishing a national strategy with a clear vision and objectives to enrich and digitize Arabic content, promote creativity in the Arabic digital content industry, and develop indicators to monitor and evaluate progress
- Promoting the creation and dissemination of public sector information/ open government data
- Promoting the digitization industry and developing an easily replicable model for content creation
- Providing a suitable legislative and regulatory environment to protect Arabic content
- Promoting research and development in the field of Arabic language technology
- Promoting the development of tools to enrich Arabic content and the improvement of infrastructure through use of advanced technologies
- Promoting translation into Arabic of scientific and technological content from developed countries in order to increase access to knowledge, expertise and experience

7.2.1 Primary Aims of the Programs of Arabic Digital Content Initiative

- Supporting SMEs working in the content industry
- Implementing training and capacity-building programs to ensure the availability of human resources qualified to work in the content industry at more developed levels than mere data entry
- Enhancing Arab cooperation in the field of Arabic digital content through implementation of joint projects and exchange of expertise
- Promoting the export of Arabic digital content and related technologies that will create job opportunities
- Raising awareness of the importance of Arabic digital content and its development
- Encouraging companies to develop and market innovative technologies to protect electronic products at suitable prices
- Raising awareness in the business community of intellectual property rights
- Developing specialized courses for universities, and accredited training courses to follow, to prepare students for work in the digital content field
- Promoting a culture of e-purchasing for digital content
- Providing suitable guarantees and protection to attract investment in e-publishing
- Opening new avenues for Arabic digital content in Egypt through partnerships with international organizations

1- Documentation of Arab Heritage Program:

- Promoting the digitization of Arabic heritage materials
- Promoting use of IT to preserve and promote heritage
- Developing digital heritage materials for use in the education process
- Boosting Egyptian cooperation with African countries, using digital heritage materials to promote Egyptian and Arab heritage
- Building human capacity in the field of heritage in the Nile Basin region

2- Production and Provision of Government Content Program:

- Facilitating the production of service-oriented government content through the provision of appropriate technology infrastructure – including computers, data centers, local networks and secure connection lines – software, applications and licenses
- Establishing information systems and databases allowing citizens to access government services in all governorates
- Reusing government data in studies and research to provide feedback on government services and facilitate their improvement

3- Capacity Building for National Companies Program:

- Encouraging national companies to produce and develop Arabic digital content with the aim of raising the competitiveness of national industries

- Supporting the digitization industry
- Promoting investment in the hosting of digital content in all formats
- Creating a supportive environment for small and medium start-up companies through provision of loans, tax exemptions or export-related facilities for appropriate periods
- Supporting development of the human resources required for the digital content industry, with the aim of creating job opportunities and increasing global demand for digital content

4- Creativity and Innovation in Arabic Digital Content Program:

- Creating a supportive environment for creativity and innovation
- Developing the necessary human resources for the production of creative and innovative content
- Developing specialized courses for universities in order to prepare students for work in the digital content field
- Supporting research centers, centers of excellence and companies in enhancing research and development in the field of digital content, particularly for mobile devices

5- Community Enrichment of Arabic Digital Content Program:

- Promoting the use of Arabic digital content in social and human development, supporting the transition to a knowledge-based society and raising living standards by closing the digital gap. Targeted areas include agriculture,

animal production, small and medium-size projects, family development, and education and training content

- Providing individuals, groups and organizations with access to electronic publishing tools (a free website creation service, training materials, and technical and information support)
- Promoting a culture of knowledge management
- Establishing knowledge networks for development comprising websites and portals created by the community

6- Research and Development in Arabic Digital Content Program:

- Developing relevant technology infrastructure
- Employing systems to protect Arabic digital content
- Promoting the use and Arabization of open-source software to support the needs of Arabic digital content users in areas including search engines, deep processing, linguistic and grammatical revision, word processing, machine translation and indexing systems

Table 7.2: Arabic Digital Content Initiative – Primary Programs

Output	Activities	Programs
Formulation of the Executive Plan of the Arabic Digital Content Initiative	<ul style="list-style-type: none"> ■ Establishment of the National Committee for the Preservation and Documentation of Heritage by concerned ministries ■ Formulation of a detailed strategy for Arabic digital content ■ Determination of the responsibilities of government and the private sector in implementing the strategy ■ Drafting of the executive plan of the strategy 	<ul style="list-style-type: none"> ■ Analysis of similar strategies ■ Arabic digital content strategy on the national and regional levels ■ Executive plan
Documentation of Arab Heritage Program	<ul style="list-style-type: none"> ■ Determination of the efforts to be made by various ministries in the documentation of Egyptian/Arab heritage ■ Determination of the priorities of various authorities in heritage documentation ■ Determination of priorities with regard to promoting access to digital heritage materials ■ Setting a time plan for implementation of the program ■ Implementation of projects by concerned parties 	<ul style="list-style-type: none"> ■ Egyptian heritage preservation manual ■ Executive plan of the heritage documentation program ■ Preparation of materials to be digitized ■ Provision of digitized content
Production and Provision of Government Content Program	<ul style="list-style-type: none"> ■ Setting the criteria to be used in the selection of data to be made available by the government ■ Identification of digitized and accessible government data that can be published on the internet ■ Determination of ministries' priorities in the digitization and publishing of data ■ Formulation of plans for each ministry to digitize and publish data on the internet in the period 2012-2017 ■ Implementation of digitization projects in each ministry 	<ul style="list-style-type: none"> ■ Guide to digitized government data, indicating what is availed ■ Individual ministry plans, indicating which data is to be digitized and which will be availed ■ Publication of digitized content
Capacity Building for National Companies Program	<ul style="list-style-type: none"> ■ Implementation of an integrated training program in interactive content development, in cooperation with specialized local and international authorities ■ Establishment of a competence center for innovation in Arabic digital content to be used by companies for training on modern technologies 	<ul style="list-style-type: none"> ■ No. of companies to receive training ■ Competence center for innovation in Arabic digital content
Creativity and Innovation in Arabic Digital Content Program	<ul style="list-style-type: none"> ■ Implementation of a group of initiatives to encourage SMEs to produce Arabic digital content ■ Establishment of an incubator program for start-ups in the field of Arabic digital content ■ Implementation of projects promoting and supporting the production of advanced digital content ■ Cooperation between the Technology Innovation and Entrepreneurship Center (TIEC) and regional and international centers working in the field of digital content 	<ul style="list-style-type: none"> ■ No. of projects and initiatives implemented ■ No. of digital content incubators ■ Participation of national companies in specialized conferences and exhibitions
Community Enrichment of Arabic Digital Content Program	<ul style="list-style-type: none"> ■ Promoting the establishment of specialized portals dependent on user-generated content by NGOs and research institutions ■ Promoting the establishment of social networks that contribute to the creation of specialized content ■ Enhancement of the social development portals established by the Egyptian Program for IT Development to ensure their sustainability and expand the sectors they cover 	<ul style="list-style-type: none"> ■ No. of websites ■ No. of social networks ■ No. of pages and articles generated by users
Research and Development in Arabic Digital Content Program	<ul style="list-style-type: none"> ■ Promotion of scientific research in Arabic in the field of Arabic digital content technologies to cover areas including search engines, deep processing, linguistic and grammatical revision, word processing, machine translation and indexing systems 	<ul style="list-style-type: none"> ■ No. of research papers ■ No. of research projects

Table 7.2: Arabic Digital Content Initiative – Primary Programs

7.3 Educational Reform Initiative based on ICTs, Cloud Computing and the Tablet Computer

Development of Egypt's education system is a national priority given the importance of education to development and progress in all fields. MCIT in cooperation with the Ministry of Education, the Ministry of Higher Education, the Ministry of Scientific Research and other stakeholders has adopted various strategies and initiatives over the years supporting education development. Through public-private partnerships, MCIT has succeeded in integrating ICTs in the education system, developing the capabilities of teaching staff and students, and expanding the role of educational institutions in their communities.

Looking forward, cloud-computing technologies offer great potential in the field of education. As teaching materials and resources are stored on central databases, they are accessible anywhere, at any time, via the internet. This reduces costs for educational institutions as they can access content on a pay-per-use basis rather than having to purchase various software packages and licenses and maintain equipment with sufficient processing power and memory to store and use them. As this system can be accessed anywhere with an internet connection, the space occupied by static computer labs can be developed for other uses. Cloud computing also supports the work of scientists and researchers, and promotes economic growth by reducing education expenditure and promoting local production of digital education materials, cloud computing software and tablet computers.

The primary objectives of the Initiative are:

- Strengthening the national commitment to building a model of educational reform that can be replicated in other Arab and African countries
- Promoting research and development and supporting scientific research in the field of ICT for education
- Establishing a culture of e-learning among public and private educational institutions and developing e-courses for use in state education
- Developing regulations and mechanisms covering the production and use of e-learning materials by educational institutions, and determining standards for the evaluation of such materials
- Boosting the internet economy and creating new job opportunities
- Providing Egyptian producers of digital content and applications with new opportunities to reach large numbers of learners at low cost
- Raising the contribution of the electronics industry in the GDP
- Developing the technology skills of university teaching staff and students
- Developing the skills of engineers and technicians for work in the electronics industry (Tablet Computer) to support national growth
- Establishing a plan for sustainable environmental protection and management of natural resources, energy and e-waste.

The anticipated results of the Initiative include:

- Reduction of government spending on ICTs in education
- Expanding public-private enterprises and increasing resources and efficiency
- Development of the Arabic educational content industry
- Development of the local electronics and computer industries
- Development of the local cloud-computing software industry
- Maximizing the use of ICTs in education and development of related computing systems and applications, including data banks and mobile applications
- Development of business models and mechanisms promoting continued capacity building in technological and educational innovation for the production of e-learning materials
- Growth in use of open technologies and open-source software

7.3.1 Primary Aims of the Programs of Arabic Digital Content Initiative

1-Tablet Computer Program:

- Increasing computer and broadband penetration, and facilitating access to the internet at affordable prices, with the aim of making learning available anywhere
- Developing policies and procedures to promote the electronics industry in Egypt
- Establishing an Egyptian tablet computer industry within five years
- Promoting the production of Egyptian Tablet Computer at competitive prices
- Manufacturing about 20 million tablet computers for students and the learning community

Tablet Computer for Students Project:

- Establishing a general framework for the development of the local tablet computer industry based on analyzing successful experiences in this area
- Empowering local companies to enter this promising industry through the development of a set of policies and strategies
- Building an integrated ecosystem promoting growth of the Tablet Computer industry
- Promoting the local Tablet Computer industry in local and regional markets

Tablet Computer Applications Project:

- Encouraging producers of software and applications to develop service-oriented architecture (SOA) applications, and educational and recreational games, for tablet computers
- Building an integrated system supporting the Tablet Computer industry and related industries in marketing and exportation

2-Cloud Computing for Educational Reform Program:

Cloud Computing Project:

- Building a cloud computing system serving the educational process – by drawing on relevant international experience, building human capacity and developing an integrated framework for the development of industries involved in cloud computing

3-Educational Cloud Computing Systems and Applications Program:

Developing, implementing and disseminating e-learning application systems:

- Developing e-learning and content management systems for the internet
- Developing multi-track e-learning packages for different learner levels, tailorable to individual needs
- Establishing social networks using cloud computing that enable the education community to open channels of dialogue and create a virtual community that promotes the exchange of information and enriches Arabic scientific content
- Supporting effective classroom management through the development of dynamic Arabic educational content, appropriate tools and a supportive learning environment
- Providing 2G internet technology
- Developing and promoting the use of simulation software and applications for educational use to provide users with an enhanced learning experience
- Establishing student achievement profiles
- Developing programs and applications to raise the capacity of teaching staff and administrators

Adaptive e-Learning Project:

- Providing an e-learning program customizable to the educational level of learners, promoting continuous learning based on adaptive and personalized learning techniques, and which allows teaching and learning anytime and anywhere

21st Century Skills Development Project:

- Providing a range of general services to the education community through 2G internet technologies, enabling communication and networking between all involved in the education process, participation-based learning and enrichment of the learning process

Cloud Computing Systems Development Project:

- Enhancing the teaching and learning process through the development of systems, software and applications, including simulation packages, designed to develop users' knowledge, practical skills and experience

Open-source Technologies Development Project:

- Developing the open-source software industry
- Promoting the use of open-source technologies in the educational process, which will contribute to reducing technology related spending of educational institutions, and facilitate the development of software and applications targeting the needs of the local educational community

Educational Institutions Automation Project:

- Providing educational institutions with software to develop and automate processes related to management of finances, inventory and procurement, assets and resources, libraries, human resources, student information, etc.

4- Arabic Educational Content Development Program:

- Promoting online Arabic content by improving protection of intellectual property rights, enforcing legislation and stimulating creation of content in Arabic rather than English
- Building an information society that supports the Arabic scientific content industry both locally and internationally
- Creating a competitive environment that supports the Arabic scientific content industry in Egypt

Online Education Channels Project:

- Posting series of recorded lectures and lessons, as well as educational films, on online education channels, and encouraging the local community to contribute

Community Education Portal Project:

- Establishing a web portal promoting the generation of culturally relevant open-source online educational content by the community that can be accessed in a variety of formats

Curriculum Digitization Project:

- Developing and digitizing curriculum materials
- Adapting e-courses for use on tablet computers
- Enabling local companies to work in curriculum digitization
- Building human capacity in curriculum digitization

5- Human Capacity Building for ICT in the Educational Reform Program:

- Preparing the necessary human resources to manage and operate cloud computing activities

- Preparing the necessary human resources to work in the production of Tablet Computer, interactive Arabic digital content and cloud computing software

Cloud Computing Management Skills Development Project:

- Adopting an integrated training program to qualify work teams to manage cloud computing activities, also to be available at universities

Electronics Industry Human Resource Development Project:

- Implementing a training program to enable graduates with relevant specializations to work in developing the electronics industry
- Establishing units specializing in appliance design and development
- Preparing qualification programs to develop human capacity for the electronics industry

Digital Content Industry Human Resource Development Project:

- Implementing a training program to develop skills and provide qualifications for employees of local companies working in the production of digital content
- Implementing a training program for university students and graduates interested in working in the digital content industry
- Providing the educational community with the tools and software necessary to develop digital educational content

Table 7.3: The Educational Reform Initiative – Primary Programs

	Programs	Activities	Output
Table 7.3: The Educational Reform Initiative – Primary Programs	Tablet Computer Program	<ul style="list-style-type: none"> ■ Implementation of a pilot project to manufacture 10,000 Tablet Computer for university students ■ Implementation of a project to manufacture educational tablets in cooperation with the Ministry of Education ■ Development of applications and games for Tablet Computer ■ Formulation of an executive plan in cooperation with the Ministry of Education and the Ministry of Higher Education 	<ul style="list-style-type: none"> ■ 10,000 Tablet Computer for university students ■ The National Project Executive Plan
	Cloud Computing for Education Program	<ul style="list-style-type: none"> ■ Setting of standards for educational cloud computing, covering systems, applications and protection measures ■ Use of cloud computing technologies in education, making use of the available infrastructure at Assiut University and services offered by the data centers of the Supreme Council of Universities and the Ministry of Education 	<ul style="list-style-type: none"> ■ Standards relating to use of cloud computing in education ■ Implementation of the first phase of the educational cloud computing project in Assiut ■ Implementation of the second phase of the educational cloud computing project in cooperation with the data centers of the Ministry of Education and the Ministry of Higher Education
	Educational Cloud Computing Systems and Applications Program	<ul style="list-style-type: none"> ■ Development of an interactive e-learning system ■ Provision of 2G social networks, related tools and e-mail services for students ■ Provision of open-source educational simulation systems and software ■ Provision of school/university management systems using cloud computing technologies 	<ul style="list-style-type: none"> ■ Loading of systems and applications on the educational cloud to be used in the pilot project to provide 10,000 university students with e-tablets
	Arabic Educational Content Development Program	<ul style="list-style-type: none"> ■ Establishing a digital library for open-source educational content generated in partnership with the community ■ Conversion of digital curriculum materials available at the Ministry of Education and the Ministry of Higher Education to a more interactive format for posting on the educational cloud ■ Involvement of national companies in the development of digital curriculum materials 	<ul style="list-style-type: none"> ■ No. of courses ■ No. of educational modules produced or posted on the educational cloud
	Human Capacity Building for ICT and Cloud Computing in Education Program	<ul style="list-style-type: none"> ■ Qualification of human resources to manage and operate cloud computing activities ■ Qualification of human resources to work in the electronics industry ■ Qualification of human resources to work in the field of interactive Arabic digital content ■ Qualification of human resources to work in the field of cloud computing software 	<ul style="list-style-type: none"> ■ No. of trainees

7 - Targeted Strategic Initiatives

7.4 Back to Africa Initiative

Egypt enjoys strong historical and cultural ties with the Africa continent. These ties are particularly strong with the Nile Basin countries. The Egyptian government seeks to build on its long-standing relations in Africa in all fields, and since the 25 January Revolution this goal has been designated a national priority.

In this context, the Back to Africa Initiative seeks to use Egypt's progress in the ICT sector, in terms of infrastructure, policies and human resources, to further strengthen its ties throughout the continent on the bilateral and regional levels, while promoting sustainable human and social development and establishing a strong ICT infrastructure, that would contribute to bridging the digital divide in Africa.

The primary objectives of this initiative are:

Enhancing Egypt's role in Africa:

- Participating in ICT-related activities of various African organizations, including the African Union, the Common Market for Eastern and Southern Africa (COMESA), the African Telecommunications Union (ATU), the Pan-African Postal Union (PAPU), the African Network Operators Group (AfNOG), the African Network Information Center (AfriNIC), the AfriNIC Government Working Group (AfGWG), the United Nations Economic Commission for Africa (UNECA) and the African Development Bank (ADB)
- Nominating Egyptians for leading positions in African organizations working in ICT-related fields
- Hosting events in Egypt for African organizations working in ICT-related fields
- Hosting entities created by African organizations working in ICT-related fields

- Proposing and implementing regional ICT-related projects through membership of African organizations
- Continuing to follow up on projects resulting from cooperation between African, Asian and European countries

Promoting African ICT development:

- Building human capacity in the ICT sector
- Promoting the creation of an environment conducive to ICT investment
- Exploring communication resources, including spectrum usage, and how best to use them
- Developing the regulatory and administrative structure of telecommunications regulation bodies
- Promoting the digitization of heritage and culture, thereby encouraging future investment in these areas
- Promoting and developing ICT use in marginalized regions

7.4.1 Back to Africa Initiative; Core Programs First: Nile ICT Corridor Initiative

The Nile ICT Corridor Initiative aims to promote cooperation and integration in support of development and the formation of information societies and knowledge-based economies in the Nile Basin region – which comprises Burundi, Democratic Republic of the Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania and Uganda. This involves strengthening the role of ICT in social development, expanding and improving ICT infrastructure, establishing a supportive legislative and regulatory environment for ICT sector growth, and building the human capacity

necessary for ICT integration across all sectors.

Within the framework of this initiative, Egypt will be able to transfer experience and best practices – in areas including telecommunications regulation and the establishment of technology parks. Progress in these fields and related one in the Nile Basin region is expected to open new markets for Egyptian companies.

The initiative includes the establishment of a high level committee on the ministerial level, that will determine relevant public policies and oversee the work of the following proposed committees:

- **Nile Technological Committee for Community Development:** Comprising an expert in ICT applications for community and sustainable development from each member country, the committee shall supervise the implementation of activities related to the development of technological skills, e-learning, e-content, telemedicine, e-government, democracy and governance, as well as projects related to women and children and empowerment of people with disabilities.
- **Nile Technological Committee for ICT Infrastructure and Policies:** Comprising an expert in the field of infrastructure and ICT policy from each member country, the committee shall supervise the implementation of activities relating to ICT

infrastructure, connectivity and accessibility in partnership with the private sector. Activities will include the establishment of national computer emergency response (CERT) teams, human capacity building in the field of spectrum management, and the development of legislative and regulatory frameworks for telecommunications.

- **Nile Technological Committee for Business Development:** Comprising an ICT expert from each member country, the committee shall supervise the implementation of activities relating to the formation of partnerships between African institutions in areas including research, promotion of entrepreneurship, and the development of indicators and market studies.

Primary objectives:

- Promoting cooperation with and among Nile Basin countries to help them establish information societies and knowledge-based economies
- Supporting integration and cooperation among the countries of the Nile Basin to facilitate the solving of common developmental challenges
- Establishing an ongoing dialogue with the countries of the Nile Basin on technical issues of concern
- Promoting a shared vision to address developmental challenges through ICTs

Table 7.4.1: Nile ICT Corridor Initiative

	Programs	Activities	Output
Table 7.4.1: Nile ICT Corridor Initiative	Community Development Program	<ul style="list-style-type: none"> Establishment of a web portal for the Nile ICT Corridor, introducing citizens and officials of member countries to the project, and providing a channel of communication and access to services Establishment of Nile ICT Houses for eradication of technological illiteracy providing IT skills training, e-clinics, local e-government services, regional distance learning center units, and documentation units for human, natural and cultural heritage Establishment of an e-learning center for Nile Basin countries, facilitating ICT-related research, and offering specialized programs in different fields of technology and diploma courses in computer use from the Information Technology Institute (ITI) and Egyptian universities Documentation of human, natural and cultural heritage e-Government: transfer of Egyptian e-government expertise to Nile Basin countries and provision of training for government employees 	<ul style="list-style-type: none"> No of hits for the Nile ICT Corridor web portal; A geographic information system for service centers; and videoconferencing, e-mail and other virtual communication services Technology centers in the Nile Basin countries acting as contact center between the Technology Corridor and recipient countries. The regional center and an information center No. of Nile ICT Houses Regional e-learning center Cultural and natural heritage documentation centers Documentation of the human, natural and cultural history of the Nile Basin Transfer of expertise
	Information Infrastructure and Policy Program	<ul style="list-style-type: none"> Creation of a knowledge partnerships in the field of technology park establishment Development of human resources in the field of regulation and telecommunications 	<ul style="list-style-type: none"> Smart buildings; smaller models of the Smart Village Establishment of national computer emergency response (CERT) teams No. of trainees Contribution to the development of legislative and regulatory frameworks for telecommunications and spectrum management
	Business Development Program	<ul style="list-style-type: none"> Support and development of ICT entrepreneurship Establishment of an ICT business forum for the Nile Basin region 	<ul style="list-style-type: none"> Training programs to develop entrepreneurial skills Hosting and incubation of a number of emerging companies in Nile ICT Houses Semi-annual ICT business forums to be held in each of the Nile Basin countries in rotation

Second: Bilateral and Regional Cooperation Programs

These programs aim at strengthening Egypt's bilateral relations with the continent, boosting Egyptian investment in infrastructure projects in African countries, and supporting development through the sharing of Egyptian experience and training of human resources.

Egyptian African cooperation axes are divided into two pillars: bilateral and regional cooperation

A- Bilateral Cooperation

Aiming at strengthening bilateral relations between Egypt and African countries; strengthening the role of the Egyptian private sector by boosting Egyptian investments in infrastructure projects, where Egyptian companies enjoy a relatively large experience, and supporting development projects through human capacity building programs

B- Regional Cooperation

By re activating Egypt's involvement in relevant regional organizations. This role enhances Egypt's position in the continent and ensures many economic benefits. The ICT sector plays an important role in regional cooperation

through knowledge transfer. Egypt is member in a number of African regional organizations, including: The African Union (AU) - The COMESA - The African Telecommunications Union (ATU) and The Pan-African Postal Union(PAPU).

Primary objectives:

- Strengthening Egypt's regional role in Africa
- Strengthening Egypt's role in regional organizations
- Developing ICT related cooperation frameworks on the governmental level
- Encouraging the Egyptian private sector to invest in African markets, especially at the SME level
- Transferring Egyptian expertise to African countries through bilateral and regional cooperation
- Establishing initiatives for the implementation of regional projects
- Developing mechanisms for tripartite cooperation between Egypt and European or Arab country(ies) to implement projects in Africa

Table 7.4.2: Bilateral Cooperation Program

	Programs	Activities	Output
Table 7.4.2: Bilateral Cooperation Program	Cooperation with South Africa	<ul style="list-style-type: none"> Infrastructure projects ICT policy Outsourcing and call center services Use of ICTs in development Living labs 	<ul style="list-style-type: none"> Greater investment between Egypt and South Africa Increased cooperation between Egypt and South Africa in the field of ICT Transfer of experience in the field of living labs Coordination of regional and international positions
	Cooperation with Mauritius	<ul style="list-style-type: none"> Human capacity building Cooperation in the field of call centers 	<ul style="list-style-type: none"> No. of trainees

Third: NEPAD

The New Partnership for Africa’s Development, an African Union strategic framework for pan-African socioeconomic development, is both a vision and a policy framework for Africa, aimed at addressing critical challenges facing the continent: poverty, development and Africa’s marginalization internationally.

NEPAD provides opportunities for African countries to take full control of their development agenda, to work more closely together, and to cooperate more effectively with international partners.

NEPAD manages a number of programs and projects in six thematic areas:

- Agriculture and food security
- Climate change and national resource management
- Regional integration and infrastructure
- Human development
- Economic and corporate governance
- Cross-cutting issues, including gender, capacity development and ICT

The ICT track includes the e-Africa program, created to develop policies, strategies and projects at the continent’s . The program aims to pursue cross-sector initiatives to entrench ICT in all sectors, develop e-services and raise Africa’s digital competitiveness.

7.5 ICT for Empowering People with Disabilities Initiative

Ensuring communication with all segments of the Egyptian society and providing ICT for development services are two of the most important objectives of the ministry. In order to achieve these objectives, the ministry has worked since its inception to build a strong information society. However, and despite all effort, the needs of PWD remains a major challenge.

MCIT is paying a special attention to people with disabilities in the 2012- 2017 sector strategy. The ministry is currently working on a long-term strategy with the participation of representatives of this group that focuses on integrating people with disabilities in the Egyptian society, rehabilitating and empowering them through information and communications technology in order to ensure their participation in the development process.

Current status assessment:

Egypt is a signatory to the UN Convention on the Rights of Persons with Disabilities in 2007, supporting the efforts of the United Nations to change attitudes and approaches to people with disabilities, and to ensure they are able to enjoy their full rights, make decisions for their lives based on their free and informed consent, and function as active members of society.

In the same year, Egypt held the First Arab Regional Forum on Sharing Experience on Best Practices in ICT Services for Persons with Disabilities. The resulting Cairo Declaration on Supporting Access to Information and Communications Technology Services for Persons with Disabilities emphasized the need to develop and use ICTs as assistive tools to

provide services to people with disabilities, and identify the roles of government entities, research centers, universities, civil society and the private sector in providing such services. The declaration also covered legislation and regulations, collection of accurate information and statistics, means to increase opportunities for employment, and provision of access to high-quality ICT devices and services at affordable prices.

Description:

The ICT for Empowering People with Disabilities Initiative, is a long-term strategy, involving the participation of people with disabilities and organizations representing their interests. The Initiative focuses on integrating people with disabilities in the Egyptian society, and empowering them through ICTs. It aims at removing barriers and facilitating opportunities for people with disabilities – using ICTs to develop their abilities and potential – and enabling them to enjoy their rights, fulfill their responsibilities, and participate fully in developing their communities and society.

The primary objectives of this initiative are:

Promoting access to information and knowledge and strengthening personal interaction and communication:

- Launching a web portal covering issues of concern to people with disabilities, and ensuring provision of internet services at reduced cost, with the aim of facilitating their access to information and knowledge, protecting their right to freedom of expression and raising awareness about assistive devices

- Collaborating with relevant government agencies and local and international companies to provide computers for persons with disabilities
- Providing specialized software and relevant training for people with disabilities through the national network of Technology Homes
- Providing courses in sign language and audio programs to facilitate correct pronunciation of letters

Improving the quality and accessibility of services:

- Facilitating access to and use of the physical environment by persons with disabilities through the development of public facilities and services – including enhancement of e-government services, adaptation of post offices and telephone exchanges, and facilitation of access to online financial and banking services
- Implementing disability assistance programs, such as telemedicine services and free audio book libraries
- Launching a hotline to serve people with disabilities, with the aim of establishing a direct link with the community and collecting information in order to serve them better-Hotline services will include directories of inclusive schools and centers, as well as useful medical and legal information

Promoting equal opportunities in education:

- Supporting the integration of students with disabilities in state schools and higher education institutions through the use of ICTs
- Developing e-learning programs and techniques to serve people with disabilities
- Providing training for teachers – an essential pillar in the education process for people with disabilities – in the use of ICTs to enhance integration
- Developing the mental abilities of people with intellectual disabilities and the sight impaired through development of non-formal education

Enhancing opportunities for employment:

- Ensuring equal employment opportunities for people with disabilities according to their academic and vocational levels
- Empowering people with disabilities to maximize their independence and improve their quality of life
- Opening the labor market to people with disabilities and raising their employability through basic IT training
- Providing training and work opportunities in cooperation with call centers and major ICT companies

Building information infrastructure for people with disabilities:

- Establishing a national disabilities observatory to develop and maintain databases related to persons with disabilities, covering: types and causes of disabilities; geographic distribution; qualifications and skill levels; training required by people with disabilities and those involved in their teaching and training; and details of the official and non-governmental entities serving and representing people with disabilities
- Establishing a national network of vocational rehabilitation centers for people with disabilities
- Raising awareness about specialized software that facilitates communication for people with disabilities

Promoting research, development and innovation in ICTs for people with disabilities:

- Promoting research and development in technologies for people with disabilities, giving priority to low-cost technologies available in Arabic
- Implementing a project in cooperation with the Ministry of Scientific Research to promote research in the field of integration of people with disabilities through ICTs

Supporting international cooperation in the field of ICTs for people with disabilities:

- Participating actively in regional and international conferences and forums concerned with ICTs for people with disabilities
- Preparing periodic reports on activities related to ICTs for people with disabilities
- Holding an annual conference on ICTs for people with disabilities

Table 7.5: ICT for Empowering People with Disabilities Initiative, PWDs – Primary Programs

	Programs	Activities	Output
Table 7.5: ICT for Empowering People with Disabilities Initiative, PWDs – Primary Programs	Information and Knowledge Access Support Program	<ul style="list-style-type: none"> ■ Establishment of an accessible web portal covering issues of concern to people with disabilities ■ Provision of specialized software in Technology Homes and establishment of e-libraries ■ Harmonizing information systems in accordance with global standards ■ Provision of courses in sign language and audio programs to facilitate correct pronunciation of letters for the hearing and sight impaired 	<ul style="list-style-type: none"> ■ Web portal ■ 100 Technology Homes equipped with specialized software ■ Development of an Egyptian information directory ■ Development of the Unified Egyptian Sign Language Program ■ Development of audio programs
	Service and Access Development Program	<ul style="list-style-type: none"> ■ Provision of low-cost video calls for persons with hearing impairments ■ Facilitation of access to online financial and banking services ■ Enhancement of e-government services ■ Establishment of a hotline for people with disabilities ■ Adaptation of post offices, telephone exchanges and other public service outlets ■ Provision of telemedicine services for people with disabilities ■ Provision of free access to audio book libraries 	<ul style="list-style-type: none"> ■ Provision of low-cost video calls for people with hearing impairments through at least one mobile service provider ■ Hotline serving people with disabilities ■ Adaptation of 50% of post offices and telephone exchanges ■ Provision of telemedicine services in 10 governorates
	Equality in Education Program	<ul style="list-style-type: none"> ■ Supporting the integration of students with disabilities in state schools and higher education institutions ■ Development of e-learning programs to serve people with disabilities ■ Training of teachers disabilities ■ Development of non-formal education 	<ul style="list-style-type: none"> ■ Provision of the technology needs of 150 inclusive schools ■ Training of 300 teachers
	Employability Enhancement Program	<ul style="list-style-type: none"> ■ Provision of job opportunities for people with disabilities through call centers ■ Provision of training for employment ■ Provision of basic IT skills training ■ Cooperation with major ICT companies to promote employment opportunities for people with disabilities 	<ul style="list-style-type: none"> ■ Provision of jobs for 200 persons with disabilities ■ Provision of basic IT skills training for 100,000 persons with disabilities ■ Cooperation with 50% of ICT companies to promote employment opportunities for people with disabilities

Table 7.5: ICT for Empowering People with Disabilities Initiative, PWDs – Primary Programs

	Programs	Activities	Output
Table 7.5: ICT for Empowering People with Disabilities Initiative, PWDs – Primary Programs	Information Infrastructure for People with Disabilities Program	<ul style="list-style-type: none"> Establishment of a national disabilities observatory to develop and maintain databases for people with disabilities, types of disabilities based on geographic distribution, qualifications and skill levels, and training required for them and their teachers and trainers Establishment of a national network of vocational rehabilitation centers for people with disabilities Raising awareness of specialized software that facilitates communication for people with disabilities 	<ul style="list-style-type: none"> National disabilities observatory and databases
	Research, Development and Innovation in ICTs for People with Disabilities Program	<ul style="list-style-type: none"> Establishment of a competition to promote development of ICT applications for people with disabilities Issuance of an invitation for research proposals in the field of integration of people with disabilities through ICTs in cooperation with the Ministry of Scientific Research 	<ul style="list-style-type: none"> 50 prizes allocated to winners of the competition to develop ICT applications for people with disabilities
	International Cooperation in ICTs for People with Disabilities Program	<ul style="list-style-type: none"> Representation of people with disabilities in international organizations and institutions Exchange of experience through regional and international conferences Holding of an annual conference on ICTs for people with disabilities 	<ul style="list-style-type: none"> 10 awards for people with disabilities to attend relevant conferences and training courses Participation in four regional/international conferences annually Annual conference

7.6 Green ICT Initiative

In line with Egypt’s aim to reduce greenhouse gas emissions and play an active role in international efforts to promote sustainable development both locally and internationally, programs have been adopted in a number of sectors to reduce emissions and protect the environment.

In this context, the ICT sector has a special role to play in reducing emissions and limiting the environmental impact not only of its own activities but across all sectors, thereby supporting sustainable economic and social development. On a global level, the sector has the potential to significantly reduce emissions in other sectors for only a low increase in its own emissions.

MCIT’s efforts in the field of green ICT – in cooperation with governmental and non-governmental organizations, international organizations and the private sector – include programs in the following areas of focus:

Sustainable management and development of the ICT sector:

- Establishing a framework for the Green ICT Strategy for 2012-2015
- Coordinating green ICT at the national level
- Sustainable management of e-waste
- Recycling of e-waste
- Policies and legislation
- Exchange of experience and knowledge
- Research
- Raising community awareness

ICT sector support of environment-friendly sustainable development in other sectors

The primary objectives of this initiative are:

- Supporting sustainable development on the national level
- Accelerating economic growth by encouraging investment in green ICT
- Setting national policies for green ICT
- Raising public awareness of ICTs and their relation to the environment
- Building human capacity in green ICT
- Promoting the adoption of smart and energy-saving ICT solutions
- Promoting research in the field of green ICT
- Promoting use of green ICTs in all sectors
- Promoting sustainable management of ICT equipment from procurement to recycling
- Formulating policies that promote reuse and recycling of ICT equipment

7.6.1 Primary Programs of the Green ICT Initiative

First: ICT Sector Sustainable Management and Development Program

This program aims to reduce the negative environmental impact of ICTs resulting from energy consumption and e-waste through two main tracks: sustainable ICT procurement and sustainable e-waste management.

Primary Objectives:

- Raising public awareness of the importance of sustainable e-waste management
- Building human capacity in sustainable ICT procurement and e-waste management
- Supporting sustainable environment-friendly development of the ICT sector
- Accelerating economic growth by promoting investment in green ICT
- Creating new industries and job opportunities in the field of e-waste recycling

Table 7.6.1: ICT Sector Sustainable Management and Development Program

Programs	Activities	Output	
Table 7.6.1: ICT Sector Sustainable Management and Development Program	Green ICT and e-Waste Management Awareness Program	<ul style="list-style-type: none"> ■ Organization of workshops, seminars, conferences, etc. on green ICT and e-waste management ■ Preparation of printed materials promoting green ICT and e-waste management ■ Establishment of a web portal about green ICT ■ Promotion of collective efforts to protect the environment via online social networks 	<ul style="list-style-type: none"> ■ No. of workshops, seminars, conferences, etc. ■ No. of printed materials ■ Web portal
	e-Waste Management Policy and Legislation Development Program	<ul style="list-style-type: none"> ■ Introduction of regulations concerning green ICT procurement ■ Amendment of legislation to support sustainable e-waste management in cooperation with the Ministry of Trade and Industry ■ Establishment of an accreditation system for companies working in the field of recycling in cooperation with the Ministry of Trade and Industry 	<ul style="list-style-type: none"> ■ Policies ■ Laws ■ Accreditation system for recycling companies
	Human Capacity Building in Sustainable ICT Procurement and e-Waste Management Program	<ul style="list-style-type: none"> ■ Preparation of training courses and diploma programs in sustainable ICT procurement and e-waste management 	<ul style="list-style-type: none"> ■ Training courses ■ Diploma programs ■ No. of trainees
	Sustainable e-Waste Management Investment Promotion Program	<ul style="list-style-type: none"> ■ Assessment of current e-waste management practices in Egypt ■ Preparation of a proposal to implement an e-waste take-back system 	<ul style="list-style-type: none"> ■ Analysis of current e-waste management practices in Egypt ■ Proposal for an e-waste take-back system ■ Report on economic incentives relating to e-waste management

Second: ICTs for Sustainable Development Across all Sectors Program

This program aims at applying green ICT solutions to limit greenhouse gas emissions produced by other sectors and supporting environment-friendly sustainable economic development, particularly in the energy, transport and housing sectors.

Primary objectives:

- Supporting environment-friendly sustainable national development
- Contributing to efforts to reduce the causes and minimize the impact of climate change

Table 7.6.2: ICTs for Sustainable Development Across All Sectors Program

Programs	Activities	Output	
Table 7.6.2: ICTs for Sustainable Development Across All Sectors Program	Maadi Call Center LEED Certification Program	<ul style="list-style-type: none"> ■ Modification of Maadi Call Center Building MB4 to meet the requirements for Leadership in Energy and Environmental Design (LEED) certification from the US Green Building Council (USGBC) in coordination with the project consultant 	<ul style="list-style-type: none"> ■ LEED certification of Maadi Call Center ■ Reduced use of energy and resources ■ Lower operating costs
	MCIT Lighting System Enhancement Program	<ul style="list-style-type: none"> ■ Installation of energy-saving lighting systems at MCIT premises in Smart Village and Mohandessin 	<ul style="list-style-type: none"> ■ Reduced use of energy ■ Lower operating costs
	Intelligent Transport System Pilot Project	<ul style="list-style-type: none"> ■ Establishment of a smart road management system ■ Improvement of transport and traffic management 	<ul style="list-style-type: none"> ■ Environment-friendly intelligent transport system ■ Improved traffic flow ■ Reduced use of energy ■ Reduced emissions of greenhouse gases
	Climate Change Adaptation through ICTs Handbook Program	<ul style="list-style-type: none"> ■ Implementation of an international survey to identify best practices in the field of climate change adaptation using ICTs ■ Preparation of a handbook on climate change adaptation through ICTs 	<ul style="list-style-type: none"> ■ International survey of best practices in climate change adaptation through ICTs ■ Handbook on the best ICT practices in climate change adaptation
	MCIT Carbon Footprint Assessment Program	<ul style="list-style-type: none"> ■ Review of carbon footprint measurement systems and selection of the most appropriate ■ Selection of company to perform the carbon footprint assessment 	<ul style="list-style-type: none"> ■ Periodic measuring of MCIT's carbon footprint as a pilot project for wider application

8 - Conclusion

8.1 Monitoring and Evaluation

Given the pivotal role of the ICT sector in the development and growth of all sectors of the economy, and the cross- sectoral nature of many of the programs and initiatives of the National ICT Strategy for 2012-2017, MCIT has adopted an integrated approach to monitoring and evaluating the implementation of activities related to the strategy.

This approach rests on three axes, as follows:

First: Executive Structure

The framework for decision-making, determination of priorities and monitoring work depends on three main pillars:

- Executive structure: Formation of an integrated group of committees to monitor programs/ initiatives at all levels, with the inclusion of a number of primary beneficiaries
- Human resources: Selection of committee members according to their areas of expertise
- Information: Preparation of periodic reports on programs/ initiatives to assist decision makers and committee members in monitoring progress and taking necessary action

Table 8.1: Executive Structure

	Program/ Initiative Level	Committees
Table 8.1: Executive Structure	ICT Sector	<ul style="list-style-type: none"> ■ Internal committee comprising representatives of MCIT and affiliated entities that reports to the Minister of Communications and Information Technology
	National Level	<ul style="list-style-type: none"> ■ Supreme committee comprising concerned ministers ■ National committee comprising representatives of MCIT, other ministries and government entities that reports to the supreme committee
	Regional Level	<ul style="list-style-type: none"> ■ Regional committee headed by a representative of MCIT ■ Internal committee comprising representatives of MCIT and affiliated entities
	International Level	<ul style="list-style-type: none"> ■ International committee including a representative of MCIT ■ Internal committee comprising representatives of MCIT and affiliated entities

Second: Monitoring and Evaluation Processes

Monitoring and evaluation of progress and performance in the various programs and initiatives of the strategy requires the collection of data during project implementation for periodic analysis in reference to project plans and agreed standards, after which an array of indicators are determined to assess outputs.

The evaluation strategy is based on three main axes, as follows:

1- Development of ICT sector performance indicators

2- Monitoring and Follow-up:

- Monitoring project inputs in order to improve operational frameworks
- Monitoring project activities and following up to achieve desired outcomes
- Monitoring factors that could affect project implementation with a view to developing solutions
- Evaluating project outputs using clear indicators to assess levels of achievement against initial targets
- Following up with project beneficiaries to gather perceptions, comments and complaints
- Financial follow-up of projects

3- Assessing Change in Target Categories

- Ongoing assessment of project outputs during the implementation phase followed by evaluation of outcomes in relation to initial plans
- Participatory approach to monitoring and evaluation where project partners cooperate in assessments

Third: Analysis of Project Outcomes

Project outcomes are to be evaluated based on efficiency, effectiveness and sustainability, providing valuable information for the expansion or replication of programs.

Table 8.2: ICT Indicators Development Program

	Main Program	Executive Programs	Aims
Table 8.2: ICT Indicators Development Program	ICT Indicators Development Program	ICT Indicators Standardization Program	<ul style="list-style-type: none"> ■ Providing accurate data and indicators on the ICT sector ■ Supporting the standardization of ICT indicators ■ Improving Egypt's regional and global image through effective cooperation with international organizations
		Analytical Studies Development Program	<ul style="list-style-type: none"> ■ Implementing an array of short- and long-term studies on the micro and macro performance of the ICT sector and its relationship to the national economy ■ Analyzing and measuring the ICT sector's impact on, and role in, the national economy and social and economic development
		Data Production and Dissemination Program	<ul style="list-style-type: none"> ■ Developing databases for ICT indicators and compiling indicators, reports and other materials for distribution to concerned parties
		ICT Sector Data Partnership Program	<ul style="list-style-type: none"> ■ Building a partnership with other ministries, agencies and companies operating in the ICT sector to collect data ■ Identifying the basic information and indicators required by companies operating in the ICT sector to support their operations and marketing strategies

8.2 Conclusion

The efforts of MCIT since its establishment in 1999 have led to the emergence of an ICT sector that has driven forward human, social and economic development on the national level, and earned a solid reputation both regionally and internationally. With the National ICT Strategy for 2012-2017, MCIT aims to promote the continued growth of Egypt's ICT sector, which has an important role to play in supporting the country's transition to democracy.

The initiatives and programs of the strategy, which cover a wide range of themes and sectors, are being implemented through public- private partnerships – involving cooperation between MCIT, other ministries and government entities, civil society organizations, regional and international organizations, and the private sector. MCIT favors this approach as the sharing of responsibilities and efforts, and the resulting successes, guarantees the active engagement of stakeholders in the future of the sector and society at large.

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