



Arab Republic of Egypt
Ministry of Communications
and Information Technology

Digital Arabic Content National Strategy

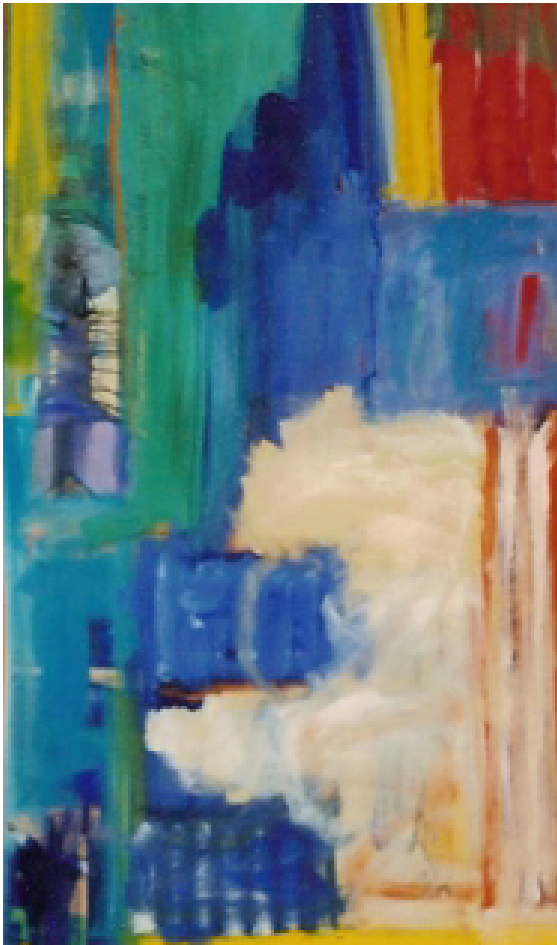


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Statement from the Minister of Communications and Information Technology

The positive role played by the ICT tools in the life of nations lies in bringing about a comprehensive, fundamental change in lifestyle at all levels; a change that aspires to achieve a digital society model in light of the knowledge economy, with all the particulars of democratic transition and promotion of transparency. While the broadband today, with its high-speed internet services, is considered a catalyst for social, economic and political developments, the digital content is the indispensable fuel for such development.

In fact, the online Arabic content is remarkably poor as it ranges, according to most estimates, between 2-3 % of the world's content. This is due to a number of reasons, the most important of which are the lack of a national strategic vision for digital content; weakness of infrastructure and technological structure; lack of legislative and regulatory framework adequate for the protection and development of digital content; underinvestment in research and development; and weakness of incentives for the production of creative content.

Despite the challenges and difficulties faced by Egypt through the past years, today we have a historic opportunity to create an enabling environment for the digital Arabic content and for the development of its production in Egypt, especially with the political situation that witnesses a great deal of stability, supported by articles in the 2014 constitution, which stipulate that the State shall maintain the Egyptian cultural identity with its diversified branches of civilization. The State institutions shall also protect, and secure official documents against loss or damage, as well as restore and digitize them, using all modern means and tools; and that the State shall protect all types of intellectual property rights in all fields, and establish a specialized agency to uphold such rights and their legal protection.

In the same context, our vision for the digital content should not be limited to the use of ICTs in the documentation of heritage, aiming to preserve the Arabic cultural identity, despite the significance of this goal. Our vision should be more comprehensive and broader to include the other side that maintains the required balance; that is innovation, which is considered the passport for digital content, in addition to what it provides of the promotion of industry, investment opportunities, and thus job opportunities. Accordingly, we are committed, through this strategy, to adopting serious actions to create an integrated system for the technical standards required for the production of digital Arabic content and to make a number of national pilot programs in the early stages of implementation, in order to raise the awareness and initiate the promotion, production and development of digital content and making it accessible in all its forms: printed, audio and visual. Moreover, this involves a gradual transformation into a digital government content provided to citizens, with the availability of a space for efficiency and creativity in the area of content production, allowing our Arab societies to be in the digital arena as befitting its position, history and present.

Finally, the national strategy for digital Arabic content is regarded as one of the pillars of knowledge society in Egypt, and a major initiative in the strategy of the Ministry of Communications and Information Technology (MCIT) that aims at expanding the scope of digital content, promoting the Arabic cultural identity, and motivating individuals and small and medium enterprises to produce creative content through laws that protect the ideas of innovators and develop policies and mechanisms that unleash the creative production of this content.

Today, we present this document that was drafted with the participation of different relevant parties and bodies from the MCIT and its affiliated entities, several governmental bodies, members of the National Committee of Digital Arabic Content, as well as civil society organizations, active in this area, and representatives of the private sector who exerted a tremendous effort in developing the general framework of the strategy by holding several sessions that discussed the different points of view. They also sought to reach appropriate solutions that are reflected in the current version of the strategy, which aims to achieve the common interest and advance the promising Egyptian ICT sector. For that, I would like, on this occasion, to extend my sincere thanks and appreciation to all of them, hoping that this document will form a concrete step towards the achievement of these goals.

Minister of Communications and Information Technology

1. National Vision for Digital Arabic Content in Egypt

1.1. Executive Summary

The digital Arabic content is the Arabic printed information in digital format, so that it can be published online and in any private or public digital information network, whether this content is in the form of Arabic text, or audio or video material. To be regarded as Arabic content, this information is not required to be published to the public, whereas only internet browsers can benefit from it, yet, the digital Arabic content can also vary between particular and general content as well as government and non-government content. However, there are required standards to consider certain content as digital Arabic content. Despite the disparity in quantity and availability between digital Arabic content and other sorts of contents, which affected its proliferation and use, the rapid progress, openness and globalization contributed to the emergence of a great need for the presence of digital Arabic content on the global map, with economic and developmental outcomes.

The vision of the national strategy for digital Arabic content looks forward to creating creative digital Arabic content that preserves our Egyptian identity and serves the sustainable development and transformation to knowledge economy by enabling and promoting the digital Arabic content to become a bridge of communications between the different civilizations and cultures, in light of the challenges of globalization era and the trend towards the achievement of knowledge society economies, taking into consideration the dependence on our human resources and capacities to advance our societies and industries towards global competitiveness.

The strategy aims to create an enabling environment that promotes the different sorts of digital Arabic content according to the international standards. This strategic goal includes a number of other strategic objectives, the most important of which are: the preservation of the Egyptian identity and the promotion of the Arabic culture by preserving and digitizing the Arab heritage content and making it available with its huge cultural capital that contributes to increasing the accessible digital Arabic content compared to other languages; the development of a robust industry for digital content that contributes to increasing the gross domestic product and pushes towards the promotion of investments in both the Egyptian and Arab markets; providing job opportunities in order to ensure sustainability; ensuring effective access to a strong digital government content to achieve transparency and create a climate of trust between citizens and the government, and to promote political participation and improve Egypt's international indicators; enabling the production of creative, competitive and rich digital Arabic content by advancing research and innovation and promoting creativity and entrepreneurship through a set of policies and mechanisms that promote the creative environment; and developing a public culture that help enrich the digital Arabic content and interact with different cultures and civilizations through it.

The implementation of these goals requires five major pillars: ensuring the availability of an integrated system for the infrastructure that adopts the standards and policies supporting the production and use of digital Arabic content and developing this system as part of the comprehensive ICT strategy; developing, implementing and expanding the educational and training activities to build institutional capacities and human resources in the area of digital content; Promoting the production and use of digital Arabic content and enabling and activating it generally and particularly in governmental bodies; ensuring appropriate, sufficient and continuous financing mechanisms and empowering the small and medium enterprises in the area of digital content development; and following up all activities and programs through cooperation with the civil society and international community to enhance the use of digital Arabic content and its various applications.

The strategy presents the expected implementation challenges and specific quantitative targets and indicators to measure the extent to which the above-mentioned overall objectives are achieved. The strategy as well includes a framework and instructions to review the strategic and quantitative targets and update them annually.

1.2. Digital Arabic Content between Past and Present

Indeed, Egypt's historical and cultural legacy would not have endured for seven thousand years without three vital components: first, the brilliance of ancient Egyptians who produced creative ideas, arts and sciences; second, their documentation of this inspired heritage, which would not have been implemented without inventing hieroglyphs and knowing the principles of writing; and third, the language that forms a fundamental pillar in the cultural structure of any nation. Thus, the integration of these three components together produced what we define today as content, specifically the production of creative content and its documentation by the language of this era and its tools. This is in addition to the flexibility of the Egyptian mind that absorbed and embraced the historical eras of Pharaonic, Greco-Roman, Coptic, Islamic and modern civilizations, with all their various languages and cultures that produced, in the end, a rich, diverse content.

As a result of the enormous and rapid development in the use of internet, being one of the most important ICT tools, distances became shorter and the world turned into a small village. In light of updated terms, such as knowledge society and internet economy, there are big chances of integration and fusion of different civilizations with their cultural and social heritage. Therefore, the fear for identity was brought to the fore front again as well as justifications for preserving it. All of these factors encouraged communities and nations to look for policies and mechanisms that keep the balance between the protection of their cultural characteristics and the integration and connection with other cultures.

In that regard, Egypt seeks, by virtue of its vital role at the Arab, regional and international levels, to preserve, digitize and avail to its rich Arab heritage, according to the global competitiveness standards. At the same time, Egypt seeks to develop a strong industry for creative digital content. For that, there is an urgent need to develop a national strategy for digital Arabic content that presents a vision for priority actions in the next phase to achieve quantum leaps towards the development and promotion of digital Arabic content.

1.2.1. Digital Arabic Content and its Role in the Development of Knowledge Society

Several studies emphasized the close relation between development and knowledge and that the success of development processes is linked to the ability of states to build a knowledge society. The digital content is one of the most important and effective factors to achieve a quantum leap in the traditional structures of knowledge industry and business models. This fact encouraged several states to develop separate strategies for the development of digital content due to its economic importance. The economic dimension is just as important as the goals of "preserving identity and culture" and "building a knowledge society", as the knowledge-based economy is the economy that its productivity is increased, not only because of its capital, but also because of the dynamism of knowledge creation, processing and dissemination. This requires the demolition of "knowledge barriers" as a fundamental condition for the prosperity of this sort of economy and it also requires the reformation of legislative frameworks that develop its working rules.

Accordingly, it is evidently important to promote the digital Arabic content, whether online or in other information networks, in order to react towards the increased demand for this type of content at the individual and community levels. As well, we cannot ignore the growing demand in Egypt for the use of more ICT tools and applications. At the same time, the development of this content represents a good opportunity for growth, since most of it, if not all, will be locally produced to serve the Egyptian and global markets. Thus, the expansion of "digital content industry" won't only contribute to reducing the current gap between the digital Arabic content and English or French or other contents, but it will also provide job and export opportunities. Most importantly, it will effectively contribute to achieving the strategic vision, that is the preservation of our Arab identity and culture.

1.2.2. Role of Information Technology to Enrich and Promote the DAC

In light of the growth of ICT sector, ICT tools play an important role to create a knowledge society by promoting and developing a high-quality and low-cost digital Arabic content for all.

The following list shows some aspects of this promotion:

- Considering the national strategy for the DAC content as a fundamental pillar in the ICT strategy
- Stimulating the principle of transparency by providing online government information and services in cooperation with the governmental and civil society organizations and the private sector companies
- Providing programs and initiatives to encourage the use of ICTs in the production of digital Arabic content
- Improving infrastructure efficiency to ensure speed and simplicity of access to information and data
- Developing economic models that conform with the requirements of digital Arabic content industry
- Attracting young people by encouraging them to take part in the production of competitive, creative and extraordinary digital Arabic content, as user-generated-content represents a significant percentage of the world's digital content
- Supporting small enterprises and entrepreneurs to develop a market for digital Arabic content – supply and demand:
 - Demand: increasing the use of internet and providing basic data
 - Supply: promoting the production of digital applications and services

Accordingly, the current Situation of digital content in Egypt requires the adoption of a national strategy to support and promote the digital content. This strategy should include implementation mechanisms and plans as well as evaluation indicators in a political, economic and social framework adopted and supported by decision-makers and -takers.

1.2.3. Digital Arabic Content ... Continuous Efforts

The development and expansion of digital Arabic content and the identification of its challenges were among the priorities of MCIT's strategy (2007-2010) as well as among the plans of relevant ministries and governmental entities, in order to catch the 'knowledge train' by developing a rich and value-added digital Arabic content. The MCIT, together with a number of relevant ministries and governmental entities, in the past ten years, has adopted a number of projects and initiatives that can be included, when classified, under national program that aims to enrich the digital Arabic content. (Annex 1)

1.3. National Vision for Digital Arabic Content Strategy

In light of Egypt's efforts to promote the DAC, advance its production and use, and recognize its value, it was necessary to develop a comprehensive national strategy that sets the required policies and activates the existing mechanisms to create this content in all its types and forms to become one of the most important pillars of the national economy and to ensure a strong industry that utilizes the latest ICT tools. This aims to improve access to a high-quality and affordable digital Arabic content for all and to support the development of various applications of digital content online and via mobile applications.

1.3.1. Vision

"Towards a digital Arabic content that preserves the Egyptian identity and promotes innovation, maintaining sustainable development and transformation into a knowledge economy"

1.3.2. Mission

"Promoting digital Arabic content to preserve the Egyptian identity with its diversified sources and ensure its connection with different civilizations and cultures in light of the globalization challenges, based on our rich Arab heritage, human resources, capabilities and wealth, to achieve our ambitious vision towards a knowledge economy"

1.4. Strategic Goals

1. To preserve the Egyptian identity and promote the Arab culture through: enriching the Arabic content in all its forms on the internet and promoting our digital cultural assets; ensuring the preservation of our content, and the heritage content in particular; and increasing the available DAC relevant to other languages
2. To develop a strong digital content industry that ensures sustainability, increases the local product and serves the Arab market through maximizing the benefits resulting from partnership with the ICT sector. To open unconventional markets to disseminate the Arabic knowledge and increase the local, regional and international demand for the DAC, aiming at increasing the national income, promoting investments and providing job opportunities
3. To create an enabling environment to promote the DAC through developing the necessary technological structure; paying attention to the development of translation and arabization industry; developing human resources; and promoting the regulatory frameworks that encourage competitiveness and improve commercial transactions over the internet
4. To ensure citizens' effective and efficient access to the digital government content to guarantee their involvement in the decision-making process that promotes the political participation and improves Egypt's international indicators
5. To support the production of a competitive, creative and rich digital Arabic content through developing research and creativity and encouraging innovation and entrepreneurship as a real investment for the future
6. To develop a community culture which enrich the digital Arabic content and interact and communicate with different cultures and civilizations through it

1.5. Analysis of the Current Situation

According to the current situation and analytical study, it is obvious that the DAC is remarkably poor as it forms a percentage that ranges between 2-3 % of the world's content. Thus, it is extremely necessary to promote the Arabic content, not only in the field of preservation, digitization and availability of heritage, but in all other

fields of culture, education, translation, scientific research, etc. This will contribute to building a knowledge society and promoting a knowledge-based economy and will meet the urgent need to bridge the gap between the Arab and Western worlds.

Below is a summary of the strategic activities resulting from the analysis of the current situation internally and externally, noting that a special annex was developed to analyze the situation, and its strengths and weaknesses as well as the opportunities and challenges at the external level – (Annex 2) – to shed some light on the results of analytical efforts in detail.

1. Capitalizing on strengths and addressing weaknesses to maximize the benefits of opportunities

- Adoption of policies and mechanisms to activate access to the digital Arabic content in all its forms over the internet
- Government support to training and institutionalized capacity building to develop qualified calibers
- Government support for institutions and mechanisms of creative content production
- Promotion of cooperation with the Arab countries and international and regional organizations
- Programs of user skills development for user generated content
- Development of digital content industry
- Set of policies and mechanisms that motivate and develop creative content production skills

2. Capitalizing on strengths and addressing weaknesses to face risks and challenges

- Developing technical standards that allow the creation and management of digital content
- Providing solutions and middleware for security
- Suggesting a set of standards and policies to protect the digital property rights
- Exploiting broadband to provide more digital content
- Promoting e-payment mechanisms and proposing policies that encourage the development of innovative economic models
- Raising awareness of the culture, applications and use of digital content
- Creating a coordinating authority that develops the technical standards for the processes of digitization/archiving/indexing/availability
- Coordinating with the policy and legislation initiative to support the issuance of relevant laws
- Developing policies that work on building trust between publishers and content users
- Developing policies that aim to improve commercial transactions over the internet

2. Strategic Pillars and Executive Programs

First Pillar: Providing an Integrated System for the Infrastructure

Program (1): Coordinating Authority for the DAC

Program (2): Providing a System for Building Digital Repositories

Program (3): Electronic Archiving

Program (4): Providing a System for the Activation of Digital Object Identifier

Program (5): Providing a System for Born Digital Content

Program (6): Regulatory and Legislative Structure

Second Pillar: Developing Human Resources and Institutional Capacities

Program (7): Building Institutional Capacities

Program (8): Developing Human Resources

Third Pillar: Developing Government Content

Program (9): Digitizing and Providing Access to Open Data Government Content

Program (10): Digitizing and Providing Access to Real Time Government Content

Egypt Government Open Data Pilot Project

Fourth Pillar: Developing Arabic Content

Program (11): Digitizing and Providing Access to Arabic Content

Program (12): Developing the Digital Arabic Content Industry

Program (13): Producing and Enriching Creative Content

Fifth Pillar: Ensuring Sustainability

Program (14): Providing Economic Models for Business Development

Program (15): Promoting Arab and International Cooperation

Program (16): Social Development

2.1. First Pillar: Providing an Integrated System for the Infrastructure

The infrastructure is considered the key pillar in achieving the strategic objectives according to the presented vision that aims to digitize the Arabic content that preserves our Arab identity and that is characterized by quality, efficiency and competitiveness. The strategy's first pillar, which is devoted to the development of infrastructure, is basically based on the comprehensive consideration of the digital content that includes the diversity of nature, resources and uses of digital content. The challenge here is how to collect the digital content of different nature to deal with them. Therefore, the clarification and explanation of the different programs, relevant to providing an integrated system for the infrastructure, will show the need to a unified umbrella that could deal with and link all concerned parties of digital content owners and producers, ensuring performance's consistency, efficiency and effectiveness.

2.1.1. Program (1): Coordinating Authority for the Digital Arabic Content

There are several diverse contexts of uses for the digital content that vary between government and non-government applications for culture, entertainment, business, agriculture, industry, scientific research, education, and other applications, whose numbers cannot be estimated due to the continuous change emerging from the globalization and ongoing progress. The lack of a unified system that controls the production, development and management processes of the digital content according to the authorized international standards, leads to the scattering of the digitization efforts in Egypt among the different entities and this had a bad effect on its impact and the achievement of its desired goals on the local and Arab levels.

Definitely, the key to digital content management lies in the development of a digital environment that is restricted to general standards and rules, which regulate the workflow, including the construction of digital repositories; coordination of uses of digital content and clarification of how it could be accessed and archived; and standards for e-archiving and digital deposit processes and attribution of the Digital Object Identifier (DOI). To achieve this goal and to provide the infrastructure foundations to produce a digital Arabic content that conforms with the set strategic objectives and pillars, this should be conducted through a central management system for the digital content. This central system develops the rules and standards relevant to the production and circulation of digital content between the country's different sectors to ensure transparency and participation. This central system should also be responsible for setting basics for digital content governance to ensure consistency in performance and optimal benefit of serving the country's different sectors to achieve real and sustainable development.

The context of the strategic and executive planning of all programs of the digitization strategy of Arabic content confirms the frequent and continuous need to follow the standardized and technical rules and criteria. To achieve this goal, the program aims to create a supreme coordinating authority that takes the responsibility of developing the rules, standards and indicators that should be taken into considered and followed. The existence of measuring indicators that monitor the general procedure, based on international standardized indicators from relevant international authorities, enables us to participate and interact at the regional and Arab levels.

2.1.2. Program (2): Providing a System for Building Digital Repositories

This program aims to set the standardized criteria relevant to the construction of digital repositories to serve as a center for the production of digital content. The digital repository is built through a methodology that ensures conformity with international standards and thus inclusiveness and efficiency in retrieving digital data, having access to them and linking between them. The importance of constructing the digital repositories according to the unified standards and regulatory rules lies in the possibility of focusing all exerted efforts of digitization in content production and development processes that should be committed to by all.

These rules are developed by the supreme coordinating authority that develops the various forms of collecting, processing and managing content in the digital repositories and publishing and providing access to it to ensure consistency in methodology that leads to consistency and coherence of digital content at the national level. This can be achieved when each entity establishes its own digital repository (whether established on their own or in cooperation with an executive body). There is also a possibility to deal with the concept or model of "public digital repository", whereas all share its use and several entities can offer this service, whether due to lack of capacities or technical or financial resources, or due to low demand and modest use of the repository's capacities efficiently and effectively.

Generally, the standards of constructing the digital repository are as follows:

1. Methodology for designing and constructing digital repositories according to international standards that identifies the general frameworks and prepares the software and system applications used in its construction
2. Digital content production criteria in terms of forms and formulation of digital material, so that it could be included in the digital repository
3. Steps and rules of the digitization process and quality assurance criteria, including course of action and necessary technical tools
4. Rules of optical character encoding techniques and searching engines with the focus on research techniques in Arabic and the associated challenges as well as the mechanism to develop and apply
5. Standards within the digital repository that deal with the components of digital content, such as the standards related to metadata and its forms
6. International systems for the design of databases that manage the interrelationship between the content within the digital repository
7. Standards of the identification of forms and protocols of preserving and retrieving digital material
8. Standards of the identification of forms of publishing and availing the content
9. Technical frameworks of publishing the digital content that can be linked to its global equivalents

The consistency and application of the above mentioned standards, when constructing digital repositories, ensure the consistency and ease of circulation of digital content and create a consistent digital content that can be benefited from in several contexts.

2.1.3. Program (3): Electronic Archiving

In line with the objectives of the development of digital repositories, a parallel system should be created to manage the preservation and retrieval process of digital output. This can be carried out by creating a system for electronic archiving. This system is considered an integral part of the digital content infrastructure, in terms of function, importance and its role in supporting the digital content backup, collected and preserved.

To ensure the construction of this system in a manner appropriate with the principle of inclusiveness of digital content, the content management coordinating authority should develop a methodology that should be followed to develop a system of electronic archiving that includes the following:

1. Designing a preliminary model for archiving systems and their construction at a reasonable cost
2. Developing software and applications for the archiving process and supporting the use of open source software
3. Developing standards for archiving practices, such as issuing standards of digital material and other procedures of archiving operations
4. Taking actions that ensure the preservation and retrieval of digital material in light of the constantly changing technological forms, which constitute a fundamental challenge that should be dealt with in a way that ensures the efficiency of digital preservation
5. Developing standards for the construction of mirror sites and identifying the data transfer protocols and synchronization between sites and technical specifications for data distribution and reproduction

2.1.4. Program (4): Providing a System for the Activation of Digital Object Identifier (DOI)

The digital publishing requires technical and technological tools to manage the content, especially in light of the accompanying changes of electronic publishing that faces the difficulty of tracking the original source of material, and thus losing the information property rights and multiplicity of publishing sites. Therefore, there must be a fixed digital content identifier to serve as a national ID for each material that is produced and included in the digital repository, whether it was of digital origin or not. The digital material identifier contains a code that includes the original source of material and the site to which it is related as well as its identification number.

The inclusion of the DOI comes in line with the concept of consistency of digital material under one umbrella and contributes to the facilitation of information retrieval process, when needed, while progressively preserving the identity of digital material in spite of the multiplicity of its publishing links, based on time and place. The importance of the DOI lies in their ability to distinguish between materials and highlight their sources and owners, which helps avoid confusion of similar materials and placement of each digital material to its source. On the other hand, the digital material identification system allows us to create a linked information environment that helps users to identify and explore the relevant material.

The digital material identifier should be used with all diverse digital content components as it can be used and dealt with in different local and global contexts. This should be assigned to a certain entity – agreed-upon – that takes the responsibility of issuing a DOI for all digitally available content such as books, scientific articles, technical material and others. As well, the digital material identifier can be attributed to the digital content in all databases of entities of different links such as the Egyptian National Library and Archives, Commercial Register, Real Estate Office, etc.

Digital Deposit:

In the framework of the digital content strategy, we should consider the development of legal deposit system that requires the deposit of a copy of the published work based on paper to be recorded and preserved, in order to be transformed into a “digital deposit” that includes the electronic outputs, whether it is a digitized or originally digital content. Today, The global trend towards digital deposit emerges to include the audio-visual material and documentation of websites together with books, papers, newspapers and other digital text materials. The importance of this digital deposit lies in the assurance of historical record of different materials and preservation of Arab intellectual and creative output throughout the ages for the future generations.

Looking at the global practices in this area, we find that the majority of states basically depend on a legal tool to build the national digital content. These legal tools can be laws endorsed especially to regulate the digital deposit or to be included in intellectual property protection laws. In some practices – as in the Netherlands – the digital deposit is willingly done by content publishers and owners through agreements between the publisher and depositary. This requires raising of public awareness of the importance of digital deposit to increase the rate of national participation.

The German model is one of the international digital deposit practices, where the legal deposit is conducted at the German National Library according to a state law, issued in 2006 and modified in 2008, to include mechanisms to deal with the digital deposit and laws associated with digital content, including books, periodicals, multimedia, newspapers and other materials at the public or commercial levels.

It should be noted here that it is important to have an entity or official body to manage and supervise the digital deposit according to agreed-upon standards and rules developed by the coordinating authority. The identification of this entity or its allocation is not sufficient, as this also requires the development of a legal, legislative, regulatory and executive framework to advance the digital deposit process and apply it along with the similar deposits of non-digital published content – a copy of the deposit required by law for published content.

2.1.5. Program (5): Providing a System for Born Digital Content

This program aims to foster the concept of having a born digital content including its processing, legalization and capacities as this basically reduces the effort exerted and time devoted in the digital production process. Therefore, the coordinating authority should develop standards to include the born digital content and ensure its consistency with its similar non-digital content in the repository. It is worth mentioning that there is a number of institutions that already started the production and use of born digital content with the public or the clients, or even internally through the institutional operations. Today, the production of digital material and initiatives became a usual and routine practice, except for that it lacks the necessary regulatory framework to produce the content in an inclusive manner that achieves maximum benefit. On the other hand, the program also aims to set mechanisms concerned with electronic publishing to ensure a digital content that meets the conditions and standards.

2.1.6. Program (6): Developing a Legislative and Regulatory Structure

Since the middle of last century, Egypt has sought to issue a set of laws and policies to regulate the preservation mechanism of digital content, such as: Law no. 356 of 1954 of the establishment of the Egyptian National Library and Archives and its role to collect and preserve the Egyptian historical documents and facilitate its study and publishing, and law no. 121 of 1975 concerning the preservation and publishing of the state’s official documents relevant to the state’s supreme policies and national security, which the constitution or law does not provide for publishing them once issued or approved; the protection of intellectual property rights law; and finally the cabinet’s decision of May 2011 to include the official documents of the ministries and governmental authorities to the Egyptian National Library and Archives.

In light of MCIT’s efforts to create a committee of experts from different legal and technical disciplines to develop a set of new laws required for the next phase, including a set of laws and legislations relevant to digital content, such as:

1. Draft law on the freedom of access to data and information
2. Draft law on cyberspace security

This program aims to coordinate with the committee on laws and regulations to endorse and activate the above mentioned laws, especially that the last two laws are supported by the 2014 Egyptian Constitution: as article (68) mentions that "Information, data, statistics and official documents are the property of the People and the disclosure thereof from their various sources is a right guaranteed by the State for all citizens. The State is committed to provide and make them available to citizens in a transparent manner. The Law shall regulate the rules for obtaining them and terms for their availability and confidentiality; the rules for their deposit and storage; and the rules for and filing complaints against the refusal to provide them. The Law shall also impose penalties for withholding information or deliberately providing wrong information". As well, article (31) considers the security of cyberspace an integral part of the economic system and national security.

The program also aims to coordinate with the committee to develop laws and policies that regulate the recent updates in the area of digital content, including "creative commons", through which the copyright owners can give some of their rights to the public through various groups of licensing programs. This will help increase the digital content and thus maximize the benefit from the knowledge published online. Although this tool is well-known and used all over the world since 2001 and regulated within international agreements, it is unknown in Egypt and the developing countries in general due to the lack of awareness of intellectual property rights. This forms a permanent barrier to access knowledge without searching for solutions. Moreover, several legislators are not aware of the flexibility provided by these international agreements for the developing countries in general, and the laws of intellectual property rights do not focus on them. The intellectual property law requires development, as there are promising capacities to use the creative commons for research, entertainment, music and arts. This will be more attractive for the young generation that always looks forward to legal access to the rich internet world.

2.2. Second Pillar: Developing Human Resources and Institutional Capacities

Creativity and innovation are the essence of the knowledge society that can only be achieved through a system and a strategy for science and knowledge with capacity building as its master key, and the consolidation of the concept of learning to acquire necessary skills and values to build the knowledge society and advance creativity and innovation in the area of Arabic content. Moreover, the term "capacity building" became the principal concern of all institutions, particularly in the developing countries, in order to improve their employees' skills constantly because of the positive impact that it creates in the development of societies at all levels.

In order to achieve the national strategy for Arabic digital content in an appropriate manner that ensures efficiency and effectiveness, the strategy should include programs and mechanisms to build the capacities for the cadres responsible for the establishment of the digital content infrastructure and training them on how to deal with, produce and develop digital content according to the latest technologies and conforming to international standards to ensure sustainability.

2.2.1. Program (7): Building Institutional Capacities

This program aims to build the institutional capacities to produce digital content for the institutions and avail to it at both the technical and administrative levels as well as to provide consultative services. The program also includes the preparation of necessary cadres to achieve this objective through the processes of training and efficiency improvements. The program deals with the individuals affiliated to institutions through a framework for the institution and training provider. These cadres are divided into two major groups:

- Specialized group: cadres trained to deal with the content in terms of the selection of appropriate content, digital content production, indexing, archiving, accessibility and availability
- Technical group: cadres trained to deal with the development and management of the infrastructure according to the approved standards

2.2.2. Program (8): Developing Human Resources

This program aims to provide an environment that allows the establishment of specialized academies and centers of excellence to design and implement training programs. These programs mainly target the latest technologies relevant to digital and interactive content through MCIT's affiliated entities or through the private sector companies working in the training field. The program deals with individuals through two paths:

- First path: training of public customers
- Second path: training of students in schools and universities

This program also aims to include this training to become a separate subject at relevant schools or faculties. The program is considered as a model for cooperation between a number of ministries (MCIT and Ministries of Education and Higher Education) to create an integrated system that trains university students, improves their skills and prepares them for the labor market associated with the digital content and its arts, skills and industry. There is also a possibility of supporting a number of activities, including encouraging the establishment of annual exhibitions for primary and secondary students on how to use new technological programs in creating interactive presentations for various themes.

2.3. Third Pillar: Developing Government Content

The public sector data and information are defined as all information relevant to products or services

that were created, assembled, processed, preserved, restored or published by the public sector. These data and information are of special nature, associated with the governmental entity or institution. The recommendations of the international organizations and authorities, which have recently defined this type of content, aim to increase the economic and social benefits of this content by providing availability, better accessibility and more inclusive and efficient use of it. They aim as well to reuse this information and allow companies to develop and implement applications to maximize its economic, social and political benefits for the citizens and the society in general.

The accessibility of the government content is one of the most important indicators, which are used to evaluate the transparency of governments, depending on the culture of openness and frankness and against the withholding of information. In fact, the government content is the state's raw material that can not only be used by citizens, but also reused by the industry and specialized companies to develop applications and services that can deal with the various types of government content. Therefore, this strategy devoted a separate pillar for the digitization of government content and the availability of all its various types and its diverse applications that directly target the improvement of institutional efficiency as well as the data, information and services provided to citizens. This will be achieved through a number of programs that differ according to the type of government content, and thus services and applications that are based upon it.

The implementation of this pillar requires dealing with the governmental entities to construct digital repositories according to the standards set by the supreme coordinating authority and passing through all technical and technological phases to have a digital government content. This content will be studied to see how to avail and provide access to it and use its applications. Below is a simplified presentation for the programs based on the various types of government content:

- Open Data Government Content
- Real Time Government Content

2.3.1. Program (9): Digitizing and Providing Access to Open Data Government (ODG) Content

This program aims to digitize the open data of the public sector and avail to it according to the Egyptian constitution, for example but not limited to: the laws and legislations, the official statistics like census and the number of births and deaths, and companies' commercial records. The program also aims to set standards for the accessibility and availability of this type of content through the plans of the governmental entities and ministries to demonstrate the data that will be digitized and preserved and other data that will be digitized and availed. This would require, in some cases, partial or full reconstruction of the work cycle, particularly the processes concerned with the born digital content and its associated electronic signature of the governmental entities owning the access rights to ensure the official consideration for digital material. The program also seeks to achieve the concept of transparency in the relation between the citizens and government.

2.3.2. Program (10): Digitizing and Providing Access to Real Time Government Content

This program aims to develop the use of real time government content and provide access to it. The program also seeks to develop specified applications and programs that deal with the public sector information changed and updated continuously, such as metrological data, geographic data and commercial and traffic statistics. This information should be directly developed by the public sector or affiliated entities. This type of content is mostly provided to the industry in order to create a value- added knowledge for the citizens and users in their various daily life themes (this information can be modified whether in its presentation form or by conducting more analytical and statistical operations). This program is considered a successful model of the public private partnership.

Among the most important outcomes of the program is the assistance of researchers in different fields to conduct analytical studies that could monitor positive patterns to be promoted, or monitor negative aspects that the government seeks to avoid. Moreover, the government content, the services and applications based upon it are of great economic importance as it is an essential component of the knowledge economy, particularly with the increasing use of the internet and mobile phones in economic and commercial activities.

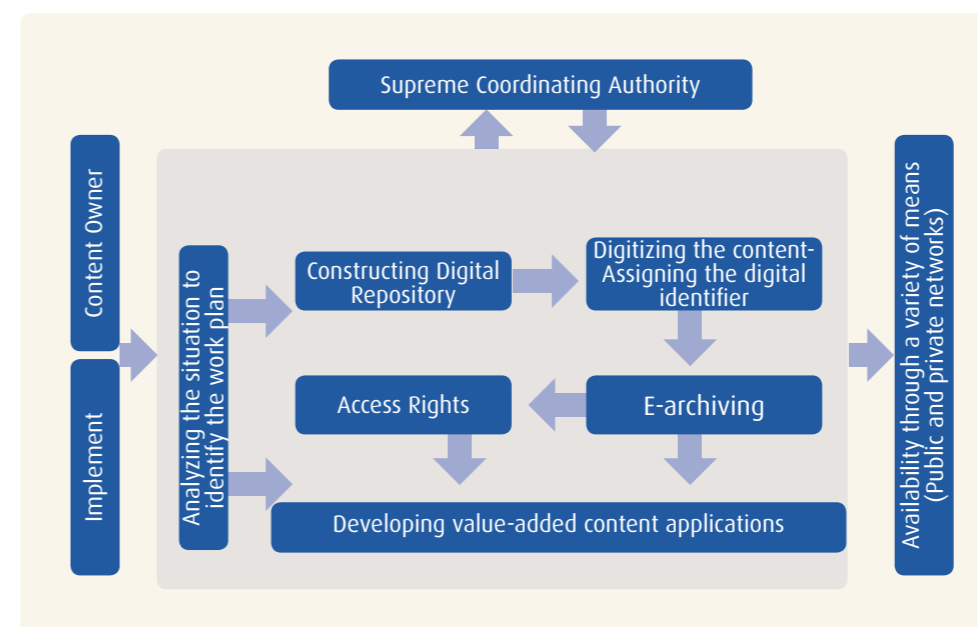
2.3.3. Egypt Government Open Data Pilot Model

This initiative aims to implement a pilot model for the system "digitization and accessibility of open data government content". The start will be by providing access to the laws and legislations issued by the various governmental entities, which deal with the daily life of the Egyptian citizens. A notable example of this type of open data government content is what is being published in Al-Waqaea al-Masriya newspaper, the official newspapers, companies' newspapers, the parliament's minutes, and the cabinet's decisions. This initiative also aims to create a service-government website, through which these publications are digitized and electronically availed according to the standards approved by the coordinating authority, to allow searching, retrieving and reading or circulating this content.

Accordingly, the digital government content - before being printed - will also be directly published on the website and all necessary technological measures will be taken to secure this content. Thus, dealing with born digital documents requires the activation of electronic signature to commensurate with the nature of the digital government content. It is also important to put into consideration the nature of the institutional operations and work cycle of documents or digital content of each institution or entity separately, as it might need rethinking and thus partial or full reconstruction.

2.4. Fourth Pillar: Advancing Arabic Content

This program aims to classify the different types of Arabic content of sciences, arts and diverse creative works of our culture in order to be digitized, preserved and availed. This also includes the design and plan of necessary programs and projects to cooperate with the concerned entities that own this content. The program also pays attention to enriching the DAC in terms of quality and quantity. Ensuring and supporting its continuity, we plan to build a strong industry that ensures the success of this strategy with all what it offers to all parties of general benefit and common interest. The following diagram shows the general framework of the content digitization and accessibility processes in its different phases, starting with the agreement between the content owning entity or the copyrights owner, then the analysis of the current situation to assess the content condition and identify the final goal. Accordingly, the executive plan is developed, passing through all analysis and technical development processes, which were tackled in the first pillar "the infrastructure system", then through the phase of identifying the copyrights and accessibility, and finally developing value-added programs and services to maximize the benefit of the available content to be accessed online.



2.4.1. Program (11): Digitizing and Availing the DAC

The Arabic content has several forms, such as texts, photos, audios, videos, and maps, and uses several applications, such as communications, news, networking, employment, entertainment, electronic commerce, research, web services, education, training and others. With the global trend towards digitization, the digital content also penetrates the areas of broadcasting, television, books, music and cinema. Therefore, the digital content should be regarded in terms of the mechanisms of its production, preservation, delivery, presentation and display.

This program aims to collect the different types of content to be documented, digitized, archived and availed. This content include, for example and not limited to, the cultural, scientific, educational, informative, environmental, touristic, athletic, economic, political contents, etc. This is achieved through the close cooperation between the concerned entities and authorities and owners of property and disposal rights. This program also involves developing a national plan with all concerned parties that have the property and disposal rights of the DAC, through which all types of available Arabic content will be presented and the accepted access and copyrights. There will be a separate implementation plan to digitize each content and provide access to it in cooperation with the copyrights owners. Such a program could be realized through massive national projects with huge budget, in which all efforts are focused to achieve the ultimate goal.

In the framework of this strategy, we will only give examples of four national projects to document, digitize and avail different types of the Arabic content. These projects pass through the phases illustrated in the general framework of the digitization and accessibility of Arabic content:

- Digitizing and Availing the Heritage Content
- Digitizing and Availing the Cultural Content
- Digitizing and Availing the Media Content
- Digitizing and Availing the Educational Content

2.4.1.1. Digitizing and Availing the Heritage Content

The project aims to secure a trusted knowledge source of the Egyptian life, culture, and traditions and to document, preserve, digitize and avail all material associated with the Egyptian heritage. This project also aims to raise the awareness of the digitization of the cultural heritage of the Egyptian society and publishing it online to enhance the connection between the Egyptian civilization and other human civilizations. Moreover, the project pays attention to create websites for libraries, museums and centers, working in the field of documentation and archiving, to document its old historical books and ancient manuscripts.

The importance of this massive national project comes from the concept of preserving the heritage memory and promoting electronic documentation of the Egyptian heritage. Among the faced challenges are the multiplicity of the entities that own this type of content, as Egypt possesses a huge wealth of heritage that is distributed in many governmental and non-governmental entities. Therefore, this project seeks to establish specialized centers for electronic documentation that cooperate with each other, based on one methodology to document our rich heritage. This project is implemented in these entities through the construction of digital repositories that conform to the international standards to be able to communicate and compete globally. There is also a coordination between the entities and repositories in the context of the agreed-upon project that aims to unify efforts to ensure sustainability and consistency.

Main activities:

- Listing all efforts exerted in the framework of the documentation of the Egyptian heritage
- Identifying priorities of the different entities for heritage documentation
- Identifying access priorities for digitized heritage and different models of display and accessibility
- Setting an implementation time plan according to the provided priorities

2.4.1.2. Digitizing and Availing the Cultural Content

Egypt is famous, over its history, for its innovators in all fields; one of the most important of which is the production and publication of the Arab culture that attracts global attention as it is the mirror of Arab communities. The Egyptian culture includes various themes, for example and not limited to, books, movies, theatre plays, opera arts, and arts in general, such as figurative and abstract arts, etc.

Due to the technological development in the area of IT associated with the production and publishing of digital content, it is necessary to digitize all the important cultural material that its widespread online is considered one of the most important methods to raise the cultural awareness of the Egyptian society in particular and the Arab society in general.

The Egyptian cultural content owned by the different Egyptian institutions can be divided into:

- Thousands of Arabic books, audios, and tales in libraries
- Thousands of hours of movies, series, and theatre plays
- Rich production of the Opera House, including opera shows, musicals and concerts
- Literature and art galleries

Therefore, in line with the preservation of the Egyptian cultural identity, the culture content digitization project is considered as a magazine or repository of a huge quantity of human cultural and creative contents, whereas we will benefit from the latest ICT tools to document, preserve and avail them for the humanity as well as to create an environment that enables interested people, students and cultured people to access a set of the most important sources of the Arabic culture.

Main activities:

- Listing all efforts exerted in the framework of the documentation of Egyptian cultural content
- Identifying priorities of the different entities for cultural content documentation
- Identifying access priorities for digitized cultural content and different models of display and accessibility
- Setting an implementation time plan for the digitization and accessibility of cultural content according to the provided priorities

2.4.1.3. Digitizing and Availing the Media Content

Egypt possess a remarkable and rich media content as it has media institutions that are more than 100 years old, such as Dar El-Hilal and Al-Ahram institutions. Egypt is also considered a leading country in the fields of radio and television. Therefore, the Arabic media content, whether press or audiovisual contents, has no equivalent in the world. The media content owned by the different Egyptian institutions includes:

- Millions of pages from the different newspapers that document Egypt in 140 years; since the British occupation until today
- Millions of photos (black and white/color), whether prints or negatives
- Thousands of pages from various magazines that contain different themes (politics, sports, women and children, etc.)
- Thousands of articles of famous Egyptian and Arab writers
- Thousands of news themes collected from articles, photos and news
- Thousands of hours of recorded radio programs
- Thousands of hours of television programs, whether talk shows, news programs or other various television programs

This project comes in line with the preservation of our significant media memory that documents several walks of life in Egypt and the Middle East. The importance of this project lies in the construction of a repository (or repositories) for the huge quantity of media content and its development to benefit from it, based on the latest ICT tools.

Main Activities:

- Listing all efforts exerted in the framework of the documentation of Egyptian media content through the various press and media institutions
- Identifying priorities of the different entities for media content documentation
- Identifying access priorities for digitized media content and different models of display and accessibility
- Setting an implementation time plan for the digitization and accessibility of media content (main activities, executive entity, time frame, budget, performance measurement indicators)

2.4.1.4. Digitizing and Availing the Educational Content

The digital information revolution had an enormous impact on education, which was reflected in the shift from the traditional educational teacher-based model to the learner's needs-based model. Accordingly, a great attention must be paid to the importance of benefiting from the significant technological progress and exploiting it in the development of teaching, learning process and the enhancement of its outputs. It is necessary to develop the digital Arabic educational content and avail it due to the increasing content on the web in all languages, while the Arabic educational content as well as the contribution of the Arabic educational content companies is diminishing. Thus, the quality of the produced educational content becomes low and this negatively affects the teaching and learning process.

This program aims to digitize and avail the educational content and involve the private sector, publishers, learners and teachers in its enrichment, and pay attention to publishing it online. The program also aims to develop lesson plans, curriculum design models and develop electronic systems to generate it and transform the courses into electronic images, like the drama-based, 3D, deep-detailed, and interaction-based contents, augmented reality, virtual experiments and labs, interactive books, scientific encyclopedias, educational games, etc. This type of content is also based on the social participation and communication to create an environment of dialogue on digital content in its read , audio-visual forms and its enrichment.

The program seeks to contribute to the development of special standards for the evaluation and endorsement of electronic educational contents, in terms of necessary regulatory rules and mechanisms to produce and provide access to them in coordination with the coordinating authority. This also cares for providing opportunities to the Egyptian companies operating in the field of educational content production and to the society to contribute to the development and enhancement of the educational content and to study the possibility to establish an online store that takes into account the intellectual property rights and promotes an educational content industry in a competitive manner and encourage and motivate the production of applications for the digital educational contents.

Main Activities:

- Listing all efforts exerted in the framework of the development of Arabic educational content
- Developing and endorsing the standards of the digital educational content
- Establishing an online store for the educational content and its accessibility
- Promoting and providing applications for the production of educational content as well as adequate economic models
- Identifying access priorities for digitized educational content and different models of display and accessibility
- Setting an implementation time plan for the digitization and accessibility of educational content according to the provided priorities (main activities, executive entity, time frame, budget, performance measurement indicators)

2.4.2. Program (12): Developing the DAC Industry

This is one of the crucial and fundamental programs to ensure continuance and sustainability for the strategy, as it guarantees the implementation of a number of initiatives and projects concerned with the development of companies' business in the digital content industry. These initiatives and programs aim to stimulate the companies and remove the obstacles that face them, whether financial or market orientation-related, to improve the final product quality and advance it to the level of competitiveness. This also involves the submission of new projects, increasing the local demand, to produce an advanced digital content and raise the social awareness of the importance of transforming into the DAC and its strong emergence on the world map.

The program also aims to promote the business environment and encourage the development of innovative business models, particularly with the strong emergence of user-generated content together with the provided and produced content for mobile phones in particular and for tablets in general. It also aims to provide incentives to develop and publish digital content and secure transactions online and through mobile phones, including payment mechanisms, electronic signature and documentation.

2.4.3. Program (13): Enriching User-generated Content

This program aims to provide the adequate environment of innovation for content producers to contribute to their works in the enrichment of the DAC and expand the use of ICTs. It also aims to motivate young people and university students and graduates who have creative ideas in the area of content to support their ideas and works and transform them into creative true products and outputs.

The program stimulates the creative works in the area of digital content to select and promote the best works and advance them to their final phases to enrich the digital content industry. The program also creates specialized portals, in which the content deals with the society's problems and challenges and is based on the individuals' participation and interaction that can be described as user-generated content.

In the context of the focus on the development and innovation in content production, standards and frameworks should be developed to enable the production of creative content adequately. To achieve

this goal, all efforts of the private sector and government should be combined to support innovation and promote the optimal use of content and internet development tools as well as to provide sufficient promotion to stimulate companies to support creative content and attract innovators from different areas to enrich the Arabic content. Among the presented mechanisms to motivate young people and entrepreneurs and encourage them to produce and present creative digital content are:

1. Technological Incubators

The main goal of these incubators is to alleviate the suffering of entrepreneurs and innovators to help them start implementing their works. Sometimes, this includes assistance by providing consulting services in the project's feasibility phase or the idea to be implemented.

2. Competitions

These competitions come in line with the promotion of innovation and creativity culture of distinctive ideas in the technological fields that are among the strategic orientation of the Egyptian government. This is achieved in cooperation with the global technology producing companies and the MCIT's affiliated entities. These competitions aim to contribute to the dissemination and promotion of companies' distinctive ideas that can be developed into a more mature stage.

3. Initiatives

These initiatives seek to encourage small and medium-sized companies as well as young graduates all over Egypt to develop Arabic applications on the internet and mobile phones in order to increase the Arabic content online and develop more services and applications that serve a selected group of Arabic content users.

All these mechanisms aim at developing human capacities and stimulating individuals and companies to produce creative content through competitions and technological incubators provided by local and international organizations and authorities.

2.5. Fifth Pillar: Ensuring Sustainability

2.5.1. Program (14): Providing Economic Models for Business development

This program aims to pay attention to the economic dimension, as the lack of clear economic models is one of the major obstacles faced by the producers and providers of digital content in Egypt. This is carried out by defining and identifying these economic models that regulate the relationship between all parties including producers, consumers, service providers and their rights and duties, taking into consideration all stakeholders and their interests in order to ensure continuance and sustainability of the DAC strategy. Since we witness intense activities on the internet and increasing growth of users of social networks, the economic models of Arabic content should vary in terms of its tools and applications. The program also seeks to provide innovative economic models that conform with the latest updates on the international arena, taking into account the importance of dealing with existing fears and challenges to stimulate the production of DAC and promote its use.

There is a number of considerations that should be taken into account when providing and discussing the economic models:

- Consumer purchasing behavior on the internet
- Raising awareness and developing community culture
- Enabling, activating and promoting e-payment transactions
- Providing secured practical payment models adequate with the nature of Egyptian consumers to encourage them to purchase online
- Enabling environment for the digital content industry that leads the shift from production to sales, and from idea to funding

The program also includes the study of the provided and used economic models to maximize the benefits and thus ensure sustainability, based on the mutual benefit. The preservation of financial and intellectual rights of the innovators is also taken into account as well as those of the content providers to encourage and motivate many of those unwilling to participate for fear of losing their material and moral rights. Below is a proposal of some economic models:

■ Advertising Model

The internet has become the best tool to disseminate the content on websites whose economic models mainly depend on ads. The online ad spending has increasingly expanded at the global level with the expansion of this service. The internet has added two crucial developments: increasing advertising interactivity and providing consumers with better definition of the ad content. For that reason, many publishing companies have turned to use the tools of identifying the consumers in a better way and the possibility of changing the advertising message according to the characteristics of the consumer that is known today as “narrowcasting”. The IT techniques have also contributed in better dealing with databases to learn about specific characteristics for each consumer separately and produce a summary on their special nature, requirements, purchasing models and interests. This has contributed in developing the advertising message in particular and the marketing one in general.

This progress is of crucial importance that while the ads were paid to be published for a certain amount of money and period of time, known as cost per mile, and with the lack of interactivity, the ads on radio, television and newspapers are similar to this model, now the payment method has transformed into “pay per click” for more information about the ads.

■ Subscription Model

The business model through subscriptions is to make the subscriber pay a sum of money in advance to get the information. This model seems to be misplaced as the internet was basically launched to offer the information for free, however this model has a strong presence and proves effectiveness in some types of businesses. Among the outstanding examples for this model are the scientific magazines and specialized research sites, in addition to newspapers, scientific periodicals and specialized magazines such as stock market magazines.

■ Contractual Model

Among the advantages of the interactive nature of internet is that it is not only a tool for publishing, advertising and marketing, but also a tool for distribution and sales via a virtual market, accessible and at fixed cost. This was developed to an extent of emergence of new types of specialized sites that electronically compare rates of offering companies, so that the client can buy the less expensive product. And the company that provides this service takes the value of its revenues from the company that sells the product as a share of the price. One of the most well-known economic contractual models is the “revenue sharing model”, as this model is based on the prior agreement between the two parties (content owner and marketing site owner) to share the profits. This business model has recently increased and it is expected to become more popular with digital content industry due to its adequateness and effectiveness.

■ Non-profit Models

One of the most important models in the digital content industry in general is the non-profit model that helps a lot in the development of the digital content, such as Wikipedia which is based on the MediaWiki techniques of participatory production and content management. These projects contributed to the increase of content in different languages and at low cost, as members’ participation rely on the adding and enriching of digital content and this is part of what is known as “user-generated content”.

2.5.2. Program (15): Promoting Arab and International Cooperation

Egypt believes in the importance of the continuous cooperation and coordination and ongoing communication with the Arab countries in the area of the DAC to advance the Arabic content online without duplication of efforts. Egypt is also keen to make this cooperation a model for the promotion of joint Arab action and preservation of the Arab identity by building a strong and solid industry for the different types of Arabic content, including printed, audio and visual contents, online to be one of the most important pillars of Arab economy in general and the IT industry in particular. Based on that, Egypt is committed to supporting the digital Arabic content initiative that was approved by the World Telecommunication Development Conference in Hyderabad in 2010 and adopted by the International Telecommunication Union, aiming at promoting the development of the DAC by: supporting the studies relevant to the use of Arabic domain names; providing websites for Arabic content that promotes the economic and social development in the Arab region; promoting the digitization of the Arab heritage and facilitating the access process to it; and setting adequate procedures to transform the preserved Arabic documents from analogue to digital system.

Accordingly, this program aims to promote cooperation and create joint projects with the Arab countries and international and regional organizations through MOUs and protocols of cooperation to exchange expertise. It also aims to host various events relevant to digital content in Egypt and take part in the international and Arab events. The program also includes the contribution to the relevant studies and researches developed by the international and regional organizations to benefit from their experience in promoting the digital content policies and mechanisms and stimulating individuals and companies to produce creative content by taking advantage of the competitions and technological incubators provided by international and regional organizations.

2.5.3. Program (16): Social Development

This program aims to create a digital content culture in Egypt and provide the citizens with it through the simplest concepts and principles. This is done by encouraging the civil society organizations and the social development departments in the private sector and government to raise awareness of the concept of digital content and promote its culture.

Today, the social development has become of great importance, as the governmental bodies devoted initiatives, projects and programs to support it, and occasionally created special sectors to take care of it. Also, most of the private sector big companies and institutions devote part of their budget for social development as it has a direct and indirect returns on development in general. The social development programs and its projects in general aim to empower all the segments of the society – especially the marginalized one – to access all services and information provided by the country’s various entities, sectors and authorities.

For that reason, this social development program aims to disseminate the community culture that leads to the communication and handling through the DAC, especially for the marginalized groups of people with disabilities, women in general and housewives in particular, children, young people, oldsters, etc., especially in remote areas. Through this communication, this strategy can achieve a social goal that is not only of MCIT or ICT sector goals, but also of the state’s goals in this stage, namely the social justice.

The program mechanisms lie in encouraging the creation of specialized portals and social networks and promoting communication through them for specialized people, users and interested individuals and institutions to enrich the content. They also lie in taking advantage of social networks that are based on user-generated content, now occupying an advanced position at the international level among other types of contents, in terms of diversity and quantity in addition to innovation and creativity. The program recommends to conduct informative and consultative seminars and workshops all over the country through IT centers and clubs, which are geographically widespread, in order to promote the principle of social justice on the one hand, and on the other hand that the program succeeds to raise cultural awareness of digital content by providing the citizens with necessary skills and knowledge to achieve the maximum benefit from the digital content available online and use it for general and special needs. This also conforms with the global trend with regard to raise informational awareness as it is very important for achieving success and benefits from the digital content projects.

3. Executive program

3.1. Action Plan

The transformation of the DAC strategy into a concrete one requires the development of a clear action plan with executive programs; each program should have its own time frame, basic requirements, and performance measurement indicators, in addition to the risks it could face to be regularly reviewed for continuous follow up and evaluation.

Timetable of Executive Programs

Pillar/Program	2014	2015	2016	2017	2018	2019	2020
First Pillar: Providing an Integrated System for the Infrastructure							
Program (1): Coordinating Authority for the Digital Arabic Content	✓	✓	✓	✓	✓	✓	✓
Program (2): Providing a System for Building Digital Repositories	✓	✓	✓	✓	✓	✓	✓
Program (3): Electronic Archiving	✓	✓	✓	✓	✓	✓	✓
Program (4): Providing a System for the Activation of Digital Material Identifier	✓	✓	✓	✓	✓	✓	✓
Program (5): Providing a System for Born Digital Content	✓	✓	✓	✓	✓	✓	✓
Program (6): Regulatory and Legislative Structure	✓	✓	✓	✓	✓	✓	✓
Second Pillar: Developing Human Resources and Institutional Capacities							
Program (7): Building Institutional Capacities	✓	✓	✓	✓	✓	✓	✓
Program (8): Developing Human Resources	✓	✓	✓	✓	✓	✓	✓
Third Pillar: Advancing Government Content							
Program (9): Digitizing and Providing Access to Open Data Government Content	✓	✓	✓	✓	✓	✓	✓
Program (10): Digitizing and Providing Access to Real Time Government Content	✓	✓	✓	✓	✓	✓	✓
Egypt Government Open Data Pilot Project	✓	✓	✓				
Fourth Pillar: Advancing Arabic Content							
Program (11): Digitizing and Providing Access to Arabic Content	✓	✓	✓	✓	✓	✓	✓
Program (12): Developing the Digital Arabic Content Industry	✓	✓	✓	✓	✓	✓	✓
Program (13): Producing and Enriching Creative Content	✓	✓	✓	✓	✓	✓	✓
Fifth Pillar: Ensuring Sustainability							
Program (14): Providing Economic Models for Business Development	✓	✓	✓	✓	✓	✓	✓
Program (15): Promoting Arab and International Cooperation	✓	✓	✓	✓	✓	✓	✓
Program (16): Social Development	✓	✓	✓	✓	✓	✓	✓

Executive Pillars and Programs:

Executive Pillars and Programs	Basic Requirements	Performance Indicators	Risks
First Pillar: Providing an Integrated System for the Infrastructure Program (1): Coordinating Authority for the Digital Arabic Content Program (2): Providing a System for Building Digital Repositories Program (3): Electronic Archiving Program (4): Providing a System for the Activation of Digital Material Identifier Program (5): Providing a System for Born Digital Content Program (6): Regulatory and Legislative Structure	a. Cabinet’s decision to form the coordinating authority b. Developing a preliminary vision for repository construction standards and presenting it to the concerned governmental entities c. Coordinating with the legislation and policy initiative concerning the requirements of this pillar in terms of legislative and regulatory structure	a. Decision to create the coordinating authority b. Issuing standards for the system of digital repository construction c. Issuing standards for electronic archiving d. Issuing activation standards for the digital material identifier e. Issuing standards for born digital content management f. Issuing laws and policies that help this pillar achieve its goals and their returns on the protection and promotion of digital content	a. Non-issuance of a decision to form the coordinating authority b. Lack of necessary funding
Second Pillar: Developing Human Resources and Institutional Capacities Program (7): Building Institutional Capacities Program (8): Developing Human Resources	a. Existence of competitive centers to implement training programs on the latest technologies of interactive content development b. Studying cooperation with the Ministry of Higher Education to provide training programs for university students	a. Number of trained institutions b. Number of trained individuals and their categories c. Number of competitive centers and their training level d. Training curriculum e. Training quality and trained groups (technical – specialized) f. Number of trained university students	a. Lack of necessary funding b. Weak response of concerned governmental entities and the private sector to establish necessary training competitive centers c. Lack of awareness and sufficient community knowledge of the program
Third Pillar: Advancing Government Content Program (9): Digitizing and Providing Access to Open Data Government Content Program (10): Digitizing and Providing Access to Real Time Government Content Egypt Government Open Data Pilot Project	a. Raising awareness of digital government content at the ministries b. Developing classification standards for the content provided by governmental entities c. Coordinating with the governmental entities willing to participate in the pilot model initiative	a. Plans of different ministries showing the data to be digitized and the data to be made accessible b. Target quantity of government content to be digitized and made accessible annually c. Number of cooperating governmental entities in the digitization and accessibility of government content	a. Late issuance of the freedom of access to information law b. Lack of necessary political will to digitize and provide access to government content c. Conflict between the considerations of public interest and national security on the government contents to be made accessible d. Lack of cooperation of governmental entities in the pilot model initiative e. Bureaucracy and red tape
Fourth Pillar: Advancing Arabic Content Program (11): Digitizing and Providing Access to Arabic Content Program (12): Developing the Digital Arabic Content Industry Program (13): Producing and Enriching Creative Content	a. Suggesting projects for collection, documentation, digitization, archiving and accessibility of content (cultural, heritage, media, educational) b. Identifying the priorities of different entities in the digitization of different contents c. Identifying the priorities of access to digitized content d. Developing an implementation time plan according to priorities e. Policy package to develop the content industry and another one to enrich the creative digital content f. Program for technological incubators	a. Number of proposed projects and initiatives for digitization and accessibility b. Number of incubators in the area of digital content and number of companies offering new job opportunities c. Number of specialized conferences / exhibitions attended by Egyptian companies d. Number and quality of competitions e. Number of successful projects	a. Lack of cooperation of concerned governmental entities b. Necessary immense funding for implementation, especially that the Egyptian non-digitized content is enormous c. Lack of sufficient awareness and knowledge of the program

<p>Fifth Pillar: Ensuring Sustainability</p> <p>Program (14): Providing Economic Models for Business Development Program (15): Promoting Arab and International Cooperation Program (16): Social Development</p>	<p>a. Existence of an affiliated directorate or entity responsible for social development b. Competition program for entrepreneurs and university graduates and another program for school students c. Existence of a good system for international and regional relations</p>	<p>a. Number of events (conferences, seminars, workshops, etc.) b. Number of events attended by civil society organizations c. Number of attendees of events and their classifications d. Number of expert speakers in events (locally and internationally) and their classifications e. Provided economic models according to scientific standards similar to international models</p>	<p>a. Lack of necessary funding b. Lack of sufficient media coverage for the mentioned events c. Lack of political stability that may affect hosting Arab and international events on digital content d. Weak response of individuals and civil society organizations to effective participation</p>
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3.2. Challenges and Indicators of Success

Egypt faces a number of challenges concerning the implementation of the strategy, especially in the preliminary development phases. These pressing challenges can be summarized in the factors of community awareness, industry, market, education, training, and professional knowledge of digitization applications and its standards. This is in addition to the challenges of cooperation and integration of governmental entities and authorities with regard to government content.

1. Community Awareness

The lack of community awareness of digital content constitutes a major challenge for implementing the DAC strategy in Egypt, not only as a choice that conforms with the content system in Egypt and the whole world, but also as a necessary path for modernization, development and coexistence. There are several ways to face this issue that were included in an integrated strategic program within the ensuring stability pillar. One of the most prominent ways is to launch community awareness campaigns that target various groups of the community to highlight the advantages of this type of content and easy access to it among the different other available contents, not only on the national level, but also on the regional and international levels. Moreover, this ensures the inclusion of digital content methods and techniques in the curricula prescribed in the different educational phases to be accommodated by future generations. Finally, this challenge can be faced by creating strong links between governmental entities, companies and universities specialized in information technology, or even the unspecialized ones, and the civil society to ensure the achievement of a highest level of awareness building by creating networks, applications and portals.

2. Industry and Market

One of the challenges facing the DAC strategy, also considered among its indicators of success, is the existence of a strong industry supported by the existence of a promising market. Since the digital content in Egypt is still in its preliminary implementation phases and the majority of companies operating in this area are of small and medium projects, and sometimes of micro projects, there is a need to motivate the companies, operating in this area, in the form of some positive actions (preferential treatment). For example, when it comes to procurements, exhibitions and etc., these companies could benefit from incentives and other advantages, such as tax cuts and low cost packages. This provides the developing sector with the opportunity to proceed with next phases and helps companies overcome the challenges they face with regard to cost, human capital and marketing, which are considered major challenges for small and medium enterprises.

3. Human Capital

The limited number of efficient and skillful producers and developers of digital content, especially creative content, forms another obstacle to the implementation of the strategy. This is in addition to the lack of distinguished specialized training centers that use latest technologies and offer specialized and diverse training programs for capacity building in the area of digital content.

Moreover, we suffer from the lack of sufficient specialized academic studies in universities to teach the industries relevant to digital content; lack of link between education and scientific research and market needs and national development plans; lack of modern labs in universities and institutes to train young people on the industries relevant to digital content; and lack of appropriate environment to encourage startups and SMEs and motivate them to work in the area of digital content.

There is still a lack of required standards skills matrix to perform the necessary activities and main tasks of the digitization and accessibility processes. It is worth mentioning that the required skills and capacities are not all of technical skills specialized in digitization and accessibility, but as mentioned, in the program of developing human resources and capacity building. There is a side that cares about the process management itself and another side that cares about the reengineering in the case of institutions. If this can be largely included in the administrative aspects, it is necessary, however, in some cases, and even a major demand for the start and continuation of digitization and accessibility processes, particularly with regard to government content.

Thus, the challenge here lies in the lack of skills as a whole: the low quality of education and the huge numbers of graduates who have not received practical training and have never worked on developing digital content. Even after being graduated, they still need training on basic and necessary skills to be qualified for the labor market (Employability Gap). Meeting this challenge will help promote the presence of DAC developers and will help overcome the problems experienced by the labor market. Also, expanding the cycle of use of digital content and developing it by non-specialists in information technology in the companies that depend on it will contribute in increasing the capacity building, whereas users learn about new tools and applications that help in raising productivity and efficiency in the business cycle.

4. Resistance to Change

The challenges facing the entities, authorities and institutions, and even individuals, are represented in three items: transformation cost, psychological barriers to change, and infrastructure challenges;

all relate to the transition to use the system. There is actually a preliminary cost to move from one system to another. As for the digital content, this cost accompanies the transformation into a digital form, and thus the training of individuals, employees and users on the various digitization processes (mentioned in the infrastructure pillar).

There is also another psychological barrier to implement a new type of software, as this phenomenon appeared in several countries (like Australia), and this was also noted in Egypt that really suffers from a low quality of knowledge of information technology within the companies.

5. Legislative and Regulatory Structure

The legislative and regulatory structure, adequate to protect and develop the digital Arabic content, suffered severe weakness, starting with the lack of laws that regulate data and information accessibility and circulation, or that regulate e-commerce, and ending with the lack of activation of existing laws, such as intellectual property protection law, which led to instability in content protection systems in general.

6. Arabic Language Tools and Techniques

Language is the main vessel for humans to communicate and share knowledge, views and information. With the remarkable increasing amount of information on the internet, whether written texts or multimedia, there is an urgent need to have techniques and tools that facilitate access to knowledge and translate it into the native language.

The development of human language technologies (HLT) and online tools has extensively increased worldwide on both the research and commercial levels. This development appeared through different forms of electronic computing, such as computers, personal digital assistant (PDA) and mobile phones, and also through online applications that do not require various skills to use them in publishing written texts, lectures or audio-visual records. This could well contribute to the promotion of DAC.

It is noted that there is an underinvestment in the areas of research, development and applications with regard to the tools and techniques of Arabic language. This resulted in the low level of electronic services sectors and the government content they provide citizens with; the incapability of bibliographic databases; the existence of e-publishing departments in some publishing houses without understanding what multimedia technology means to the publishing industry; the lack of sufficient studies and researches to develop software and information systems adequate to the uses of Arabic language; and the lack of Arabic language tools and techniques, such as Arabic digitization repositories, search engines, unified Arabic index, Arabic subject heading, authority files, data mining system, and optical character recognition (OCR).

There are great opportunities in the area of tools and techniques, as market needs continue to grow, and there are funding opportunities locally, regionally or internationally. If we add to these opportunities the above-mentioned strengths of human capital and appropriate environment for research activities, these components together could increase the opportunities for Egypt in the area of Arabic language researches and language resources techniques and applications. Thus, we should concentrate on the development of Arabic language techniques in various areas of teaching and learning, legislation, and development of required applications according to the current requirements.

7. Economic Models

There is a lack in developing economic models that compromise between the companies that provide internet services and content due to the weakness or lack of economic environment that motivates the development of DAC industry. This includes the lack of study of local and Arab market needs and the expensive cost of electronic product protection to some extent. Also, the companies specialized in the area of protection are insufficient and the prices of devices used in reading the digital content are still expensive for the broad cross section of the Egyptian people. Moreover, there is a lack of e-purchasing culture of any digital content and a lack of confidence of publishers in the distribution points which results in low investment returns. There is also a lack in presenting special small and medium enterprises in the area of content industry and this requires the creation of governmental initiatives and projects to support these companies.

8. Government Content

The challenges vary and differ in degree, from simple ones that can be overcome to difficult ones that require the intervention of the decision-maker, as well as dealing with the governmental institution culture that is often characterized by bureaucracy.

These challenges can be summarized as follows:

- Lack of government content in digital form and lack of a priority to document the government content and make it electronically accessible
- Lack of sufficient awareness of the available government content nature to be accessed and reused, and lack of transparent conditions to reuse the government content
- Lack of a binding law to governmental entities to publish government data and avail to it on the internet
- Lack of respect for intellectual property rights due to the lack of appropriate assurances that protect the government content from unauthorized modification
- Pricing: If the government content is not available free of charge, it should be transparently priced
- Competitiveness: ensuring that the pricing strategies should take into account the competitiveness considerations between the companies that work on the re-use of government content
- Preventing access to certain government data for specific considerations such as national security
- Lack of a partnership system between the public and private sectors that finds creative ways to fund the digitization costs and increase the opportunities of reusing the government content by a third party
- Lack of standards that ensure systematic data collection to enhance the quality
- Taking no advantage of the best practices

Annex I

Monitoring of Previous National Efforts in Digital Arabic Content

First: Heritage Content

Serial no.	Content Type	Project Title	Project Description	Project Goals	Project Outcomes	Entity
1	Books	Digital Arabic Content Initiative to digitize a selection of heritage books	Electronic documentation of 50,000 heritage books and providing access to more than 300,000 titles on the portal of the Digital Arabic Content Initiative	1. Emphasizing Egypt's leading role as a source of culture and civilization 2. Scanning, archiving and providing access to heritage books	- Bibliographic database of the books (15,000 books) - "fekr-rama" website (in process of publication) www.fekr-rama.com	Ministry of Culture
2	E-content	Eternal Egypt	Supported by the MCIT and the grant of IBM and in cooperation with the Supreme Council of Antiquities, Eternal Egypt is an encyclopedia that documents the treasures of Egypt's cultural heritage. It presents to the international audience a selection of artifacts, historical figures and events, and archaeological sites. The website is available in five languages: Arabic, English, French, Spanish and Italian	Preserving and documenting the Egyptian heritage and informing the world of it through the latest information technologies	www.eternalegypt.org The website currently includes description of: - 3500 artifacts - 444 historical figures - 345 archaeological sites - 298 articles - High resolution photos for all artifacts and archaeological sites - 3D models, panoramic photos, virtual tours for a number of archaeological sites	Bibliotheca Alexandrina
3	E-content	Digital Archive of the Egyptian Stamps since 1866	Establishing a digital archive for the Egyptian stamps that contains normal postage stamps, governmental post, airmail, or commemorative stamps, which cover a number of significant events in the history of Egypt and the Arab world	Documentation, digitization, and access to stamps archive as part of Egypt's history and its significant events	www.stamps.bibalex.org documentation of more than 2300 postage stamps from 1866 until now. The website allows the user to search by date or occasion of issuance	

4	Books	Digital Arabic Library	The largest digital Arabic library on the internet, containing more than 184,000 Arabic books in different fields that are accessible for free. The library is provided with research and browsing tools that enable the reader to achieve optimal use of the content. The digital library provides full access to all books that are not subject to intellectual property rights	Increasing the digital Arabic content	The digital Arabic library includes the following contents (the project is in process)	Bibliotheca Alexandrina																
					<table border="1"> <tr><td>Arts</td><td>5.085</td></tr> <tr><td>Computer & information sciences & general business</td><td>8.968</td></tr> <tr><td>History, geography & autobiographies</td><td>21.543</td></tr> <tr><td>Language</td><td>5.834</td></tr> <tr><td>Literature</td><td>31.267</td></tr> <tr><td>Philosophy & psychology</td><td>6.738</td></tr> <tr><td>Religion</td><td>39.081</td></tr> <tr><td>Science (+ mathematics)</td><td>18.030</td></tr> <tr><td>Social science</td><td>52.130</td></tr> <tr><td>Technology & applied science</td><td>30.546</td></tr> <tr><td>Others</td><td>82.425</td></tr> </table>		Arts	5.085	Computer & information sciences & general business	8.968	History, geography & autobiographies	21.543	Language	5.834	Literature	31.267	Philosophy & psychology	6.738	Religion	39.081	Science (+ mathematics)	18.030
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5		Digital Archive of the Memory of Modern Egypt	This archive is the largest digital library of material related to the history of Modern Egypt from the reign of Mohammad Ali in 1805 until the end of the reign of President Sadat in 1981. It is worth mentioning that the project won Al Kindi prize as the best Arabic website on the internet in 2009	Preserving the history of Modern Egypt with its cultural, social, and historical components by using the latest technologies	www.modernegypt.bibalex.org	Bibliotheca Alexandrina																
					<table border="1"> <tr><td>Photos</td><td>55142</td></tr> <tr><td>Documents</td><td>21312</td></tr> <tr><td>Videos</td><td>1952</td></tr> <tr><td>Audios</td><td>1127</td></tr> <tr><td>Speeches</td><td>1770</td></tr> <tr><td>Press</td><td>21083</td></tr> <tr><td>Introductions</td><td>5352</td></tr> <tr><td>Stamps</td><td>1061</td></tr> <tr><td>Covers</td><td>1570</td></tr> <tr><td>Ads</td><td>942</td></tr> </table>		Photos	55142	Documents	21312	Videos	1952	Audios	1127	Speeches	1770	Press	21083	Introductions	5352	Stamps	1061
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6	Digital Archives	Gamal Abdel Nasser Digital Archive	A digital archive that contains thousands of documents, videos, speeches and other material that commemorate the life of the late president Gamal Abdel Nasser and his achievements during his presidency	Preserving and documenting the modern history of Egypt as well as the significant political and economic events of this era by using the latest technologies,	www.nasser.bibalex.org	Bibliotheca Alexandrina																
					<table border="1"> <tr><td>Photographs</td><td>90.670</td></tr> <tr><td>Audios</td><td>2.256</td></tr> <tr><td>Documentary films</td><td>1,294</td></tr> <tr><td>British documents</td><td>1.158</td></tr> <tr><td>US documents</td><td>7.965</td></tr> <tr><td>Manuscripts</td><td>152</td></tr> <tr><td>Patriotic poetry</td><td>138</td></tr> <tr><td>Decisions of the Revolution Command Council</td><td>41</td></tr> <tr><td>Minutes of cabinet's meetings</td><td>21 records (1,120 pages)</td></tr> </table>		Photographs	90.670	Audios	2.256	Documentary films	1,294	British documents	1.158	US documents	7.965	Manuscripts	152	Patriotic poetry	138	Decisions of the Revolution Command Council	41
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7		Sadat Digital Archive	A digital archive that contains collections of material that commemorate the life of the late president Mohammad Anwar el- Sadat during his presidency, which reflects a significant period of the history of Modern Egypt	Preserving and documenting the modern history of Egypt as well as the significant political and economic events of this era by using the latest technologies,	www.sadat.bibalex.org	Bibliotheca Alexandrina						
		<table border="1"> <tr><td>Speeches</td><td>1116</td></tr> <tr><td>Photos</td><td>12505</td></tr> <tr><td>Documentary films</td><td>61 hours</td></tr> <tr><td>Documents</td><td>+ 184</td></tr> <tr><td>Articles</td><td>5237</td></tr> <tr><td>Covers of Arabic and foreign books and magazines</td><td>154</td></tr> </table>	Speeches	1116	Photos		12505	Documentary films	61 hours	Documents	+ 184	Articles
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Photos	12505											
Documentary films	61 hours											
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Articles	5237											
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8	Digital Archives	Digital Archive of Al-Hilal Magazine	Al-Hilal Magazine is the oldest cultural magazine in the Arab World and the only magazine that has been regularly issued for more than a hundred years. A digital version was developed for Al-Hilal Magazine issues since its inception in 1892 and until 2007, where the issues of each ten years were collected and published in a CD with research and browsing tools	<ul style="list-style-type: none"> - Preserving the huge press heritage of the Al-Hilal Magazine - Providing access to valuable material for researchers, historians and the public on an important period of the history of Modern Egypt 	12 CDs containing more than 176,000 pages that document 115 years of Al- Hilal Magazines issues	Bibliotheca Alexandrina						
		Wellcome Arabic Medical Manuscripts Library	The Wellcome Arabic Manuscript Library is a unique online resource that includes hundreds of well-known medical texts by famous practitioners such as Avicenna, Ibn al- Quff, and Ibn an-Nafis, lesser-known works by anonymous physicians and rare or unique copies such as Averroes' commentaries on Avicenna's medical poetry. The Arabic manuscripts collection of the Wellcome Library (London) comprises around 1000 manuscript books and fragments relating to the history of medicine	Preserving the Arabic medical heritage and providing access to it for researchers	wamcp.bibalex.org 500 complete Arabic manuscripts with tools and techniques that enable the user to explore the content and further narrow down through pages for more precise results							
10	Digital Archives	Digital Content for the Documentation of the Egyptian Heritage	Digital initiatives launched by Bibliotheca Alexandrina to create a number of historic digital archives that represent Egypt and the significant events in its history. The content is presented in its original language (French and others)	Presenting a complete documentation of the world heritage works that represent Egypt and its aspects of life	Different historical masterpieces of Egypt are available for free in a high quality digital format online with various research and browsing tools	Bibliotheca Alexandrina						

11		The Suez Canal Digital Archive	Rare collection of documents, photos, videos, and maps to commemorate the history of the Suez Canal, donated by the Association of the Friends of Ferdinand de Lesseps. The collection is presented in a digital format to display this huge content of material on the canal's history, inauguration, excavations, restoration and renovations as well as documents of marine navigation and vessel traffic in the Suez Canal from 1869 till 1956	Preserving the history of the Suez Canal and providing access to it for researchers	suezcanal.bibalex.org a website that consistently displays the content with research and browsing tools <table border="1"> <tr> <td>Document</td> <td>66185</td> </tr> <tr> <td>Books</td> <td>4</td> </tr> <tr> <td>Photos</td> <td>333</td> </tr> <tr> <td>Videos</td> <td>13</td> </tr> <tr> <td>Maps</td> <td>113</td> </tr> </table>	Document	66185	Books	4	Photos	333	Videos	13	Maps	113	
Document	66185															
Books	4															
Photos	333															
Videos	13															
Maps	113															
12		Digital Version of Description de l'Egypte	A digital version of Description de l'Egypte as a huge historical and cultural achievement through the ages. It was issued in 1798 during the campaign of Napoleon Bonaparte to Egypt. The digital version of Description de l'Egypte was nominated for the Stockholm Challenge Award in 2006	Preserving Description de l'Egypte, which contains a large part of the Egyptian heritage	descegy.bibalex.org About 9,000 pages of 9 text volumes and 11 plate volumes represent the Egyptian civilization with its various aspects. The book is available online and on a DVD for sale.											
13	Digital Archives	Digital Version of L'Art Arabe	A digital version of L'Art Arabe by the orientalist Prisse d'Avennes. It is considered one of the most important books about the Islamic monuments of Egypt that was published in 1877 in four volumes. This digital version allows users to browse the four volumes of the book and to search its texts and photos.	Preserving the Arabic art heritage and providing access to it	lartarabe.bibalex.org An e-publication of the book, consisting of 3 plate volumes (222 plates) and a text volume (384 pages) with the possibility of linking the text to the photo to enable the user to better understand the plates	Bibliotheca Alexandrina										
14		Digital Library of Inscriptions & Calligraphies	A digital library with more than 3000 monuments that represents the inscriptions of different languages and calligraphies that have passed inside and outside Egypt. The Digital Library of Inscriptions is considered a digital record of all inscriptions existing on ancient buildings and monuments throughout the ages. The user can obtain a detailed description of the inscription, with its images and a transcription, beside transliteration and translation of these inscriptions into Arabic and English.	Preserving the cultural heritage and providing access to it	inscriptionslibrary.bibalex.org <table border="1"> <tr> <td>Ancient Egyptian Inscriptions</td> <td>1.111</td> </tr> <tr> <td>Arabic Inscriptions</td> <td>1.419</td> </tr> <tr> <td>Persian Inscriptions</td> <td>46</td> </tr> <tr> <td>Turkish Inscriptions</td> <td>57</td> </tr> <tr> <td>Greek Inscriptions</td> <td>401</td> </tr> </table>	Ancient Egyptian Inscriptions	1.111	Arabic Inscriptions	1.419	Persian Inscriptions	46	Turkish Inscriptions	57	Greek Inscriptions	401	
Ancient Egyptian Inscriptions	1.111															
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15	Digital Archives	World Digital Library	Based on the partnership between Bibliotheca Alexandrina and the U.S. Library of Congress in 2007, Bibliotheca Alexandrina contributed to the technical infrastructure of the World Digital Library that provides diverse cultural material. In addition, Bibliotheca Alexandrina made a contribution of the digitized version of Description de l'Egypte as well as 48 books of Arabic classics.	The World Digital Library was established to bridge the world cultures and promote intercultural understanding between countries through knowledge networking online	www.wdl.org A digital forum with international cultural material available in seven languages	Bibliotheca Alexandrina
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Second: News Content

Serial no.	Content Type	Project Title	Project Description	Project Goals	Project Outcomes	Entity		
1	Newspapers	Historical Issues of Al-Ahram Newspaper	A presentation of Al- Ahram Newspaper since 1876 until today. The complete collection of Al- Ahram Newspapers issues was digitized, since its first issue on 5 August 1876 and until today. Also, the microfilm format was converted into a digital one and the latest techniques of Microsoft (Silverlight) were used to make these issues accessible for readers.	<ul style="list-style-type: none"> - Providing access to the complete collection of issues of Al- Ahram Newspaper through more than 137 years to enable the future generations of the Egyptian and Arab young people to be aware of the history of the world and Arab region through the newspaper - Enriching the Arabic content by including more than half a million of Al-Ahram Newspaper pages for the Arab readers that constitute the memory of Egypt and the Arab World 	The website of Al-Ahram historical issues digital.ahram.org.eg/youmy/	Al-Ahram Newspaper		
2	Articles	Articles of Al-Ahram Newspaper	Collection of all articles and news that were published in Al-Ahram Newspaper since 1/9/2009 until today as well as what is published in more than daily, weekly and monthly 26 publications of Al-Ahram and special publications to be accessible by readers in the form of a text	<ul style="list-style-type: none"> - Providing access to all articles and publications of Al-Ahram on a single website that enables the reader to explore the various themes from different points of view - Enriching the Arabic content online 	The website of Al-Ahram Digital digital.ahram.org.eg/			
3	Texts Images Videos	Online Portal of the Radio & Television Union	live broadcast for a number of radio stations in an interactive manner	<ol style="list-style-type: none"> 1. Live broadcast for 7 radio stations 2. Interaction of viewers with the website 	www.ertu.org <table border="1"> <tr> <td>Radio Stations</td> <td>7</td> </tr> </table>	Radio Stations	7	Ministry of Information
Radio Stations	7							

4	Text Images Videos	Portal of the Specialized Nile Channels Sector	live broadcast for a number of Nile TV channels in an interactive manner	1. Broadcasting Nile TV channels 2. Participation and interaction of viewers 3. Display of the daily program of channels 4. Providing access to the content	www.niletc.tv Videos Size 0,135 GB	Ministry of Information
5	E-Portal	Website of the Egyptian Radio & Television Union	The MCIT, in cooperation with the news sector of the Egyptian Radio & Television Union, created a news portal (egynews). The portal presents the latest international, regional and local news on various aspects of life, such as politics, economy, science, sports, arts and others.	Providing instant access to the Egyptian news content	- Live broadcast and indepth detailed reports, desktop alerts, temperature display, and market reports. The website operates according to user's preference - There are about 50,000 records/news on the website	Ministry of Information in cooperation with the MCIT

Third: Religious Content

Serial no.	Content Type	Project Title	Project Description	Project Goals	Project Outcomes	Entity
1	Manuscripts	Sheikh Mohammed Bin Rashed Project to preserve Al-Azhar Library Manuscripts	Digitizing Al-Azhar Library manuscripts (8 million papers, dating back to the 4 th century) to be published online	1. Preserving Al-Azhar Library manuscripts 2. Launching Al-Azhar website online 3. Providing workflow for manuscripts to be tracked	www.alazharlibrary.gov.eg - 8 million records - 16,000 manuscripts with 2.5 million pages	Al-Azhar

Fourth: Educational Content

Serial no.	Content Type	Project Title	Project Description	Project Goals	Project Outcomes	Entity
1	Educational e-content	Production of interactive educational multimedia software for preuniversity education	Developing interactive educational digital content for various school courses and making it accessible on CDs and online	Making the teaching and learning process more interactive	106 educational software accessible on CDs and the portal of education curricula on the website of the Ministry of Education manhag.moe.gov.eg	Ministry of Education

2	Educational Elements	The Egyptian Initiative for Education	Providing educational elements in cooperation with the MCIT in the framework of the Egyptian Initiative for Education	Providing educational elements in science and mathematics	More than 100 educational elements	Ministry of Education
3	Textbooks PDF	E-books	Uploading textbooks on the website of the Ministry of Education	Providing access to textbooks on the website of the Ministry of Education	94 books accessible on the portal of education curricula on the website of the Ministry of Education manahg.moe.gov.eg/	
4	Website	Educational Digital Scientific Initiatives for students and researchers	Providing the necessary tools for researchers and students in Egypt and the region. The library sponsored a number of scientific projects to serve school students, teachers and the academic community in general	Providing the necessary tools for researchers and students in general	Educational Digital Scientific Initiatives online for free for students and researchers	Bibliotheca Alexandrina
5	Website	La Main à la Pâte	The LAMAP Project – La Main à la Pâte – is a french educational website that aims to promote practical teaching of science in schools for the elementary education	1. Promoting practical teaching of science in schools for the elementary education 2. Science teaching renovation	lamap.bibalex.org - Arabic website for LAMAP - Translation and arabicization of the website content to suit the Egyptian education curriculum - 692 lessons in science	
6	Educational content	Educational Program for Entrepreneurship	Managing and implementing educational programs in entrepreneurship in partnership with global entities	Providing educational programs for Entrepreneurs	Digital educational content to acquire skills and capacities in entrepreneurship	
7	Vocational education content	Vocational Education Development Initiative	The initiative was launched by the MCIT in cooperation with the Ministry of Education	- Activating the role of ICT tools in the development of educational process in all its phases - Activating cooperation agreements between both ministries	- Launching the first channel for vocational education in Arabic on YouTube - Creating a social portal for vocational education to reduce the gap between education and the private sector - Converting 4 courses into electronic ones based on drama - Developing an educational game for the education of engines	MCIT
8	Educational content	E-content development and arabicization	Developing and arabicizing a wide range of e-learning content in various areas	Providing institutions and learners with necessary knowledge and skills to keep pace with development		

Fifth: Tourist Content

Serial no.	Content Type	Project Title	Project Description	Project Goals	Project Outcomes	Entity
1	E-portal	The website of the Tourism Promotion Authority	A website to promote tourism in Egypt, available in 14 languages	Providing tourists with information about Egypt and all tourist sites	www.egypt.travel live broadcast of tourist sites	Ministry of Tourism
2		Luxor EPortal	The MCIT, in cooperation with the Luxor Governorate, launched the Luxor e-portal project in light of Egypt's keenness to support and promote tourism. The eportal is the official website for tourism in Luxor	Providing tourists with up-to-date, comprehensive and effective information on Luxor in an attractive, interactive manner	www.luxoregypt.org A large photo gallery and a detailed GIS-based map of Luxor as well as detailed presentation of all archaeological sites and an up-to-date calendar of events	MCIT

Sixth: Environment Content

Serial no.	Content Type	Project Title	Project Description	Project Goals	Project Outcomes	Entity
1	Website	Website of the Ministry of Environment	Creating a website for the Ministry of Environment and the Environmental Affairs Agency	<ul style="list-style-type: none"> - Providing information services for specialists, researchers and service consumers in the area of environmental science (free services) - Publishing the services provided by the ministry to the citizens and investors online to ensure rapid and easy communication 	www.eeaa.gov.eg environment library – children pages	Ministry of State for Environmental Affairs
2	Electronic publications and newsletters	Cairo Roadmap "ICTS and Environmental Sustainability"	In November 2010, the MCIT hosted the 5th Forum of the International Telecommunication Union on "The role of ICTs with regard to climate change and the protection of the environment", which resulted in Cairo Roadmap "ICTs and Environmental Sustainability". The roadmap includes a group of recommendations to promote countries' capacities to use ICTs in the environment protection, such as raising awareness of the environment, supporting management and research in the field of environment and reduce and adapt the negative impact of climate change through smart buildings and systems, transportation, and energy generation and distribution.	Raising community awareness among governmental policy makers and all stakeholders of Green ICTs to impose broader understanding of the positive rôle this technology can play in the promotion of environmental sustainability	www.mcit.gov.eg/Ar/Publication/141/Publication_Summary	MCIT

Seventh: Scientific Content

Serial no.	Content Type	Project Title	Project Description	Project Goals	Project Outcomes	Entity
1	E-Portal	Encyclopedia of Life in Arabic	This project is a referential source and a database. It aims to collect information about all of the approximately 1.9 million species of plants, animals and microorganisms on earth and make it accessible for scientists, researchers, students, teachers and the public. The Bibliotheca Alexandrina is a close partner of the project, working on the internationalization of the system by providing the current version for English, Arabic and Spanish speakers. Bibliotheca Alexandrina is also endeavoring to create EOL in Arabic as a rich biodiversity resource for Arab scientists in the region.	Providing Arab scientists with necessary tools to add a new content to the Encyclopedia of Life, as a partner	www.eol.org More than 2,900 species of plants and animals of ancient and modern Egypt. So far, information about 626 species included in the Encyclopedia of Life has been translated into Arabic. Work is still in process to provide more scientific Arabic content.	Bibliotheca Alexandrina

Eighth: Community Development Content

Serial no.	Content Type	Project Title	Project Description	Project Goals	Project Outcomes	Entity
1	E-Portal	E-Portal for Community Development "Kenana Online"	The project was first launched in 2004 to serve as a community portal. Providing citizens with information and knowledge	The e-portals aim to develop the community and encourage the Egyptian citizens in rural and urban areas to improve their quality of living	www.kenanaonline.com The total number of pages published on websites and portals is more than one million pages, including sections, photos and links. There are also more than 400,000 articles.	MCIT
2		Arab Info Mall	The Arab Info Mall is an e-portal in Arabic, English and French that serves as center for non- governmental and civil society organizations to present and share information about their activities	The project comes in line with the Bibliotheca Alexandrina's mission to serve as a catalyst for reform and development in the region and a meeting point for	arabinfomall.bibalex.org An open e-forum for numerous civil society organizations	Bibliotheca Alexandrina

Annex II Strategic Analysis for the Environment

At the Political and Legislative Levels:

Positive Aspects:

1. A number of articles in the 2014 constitution emphasizes the importance of preserving the Egyptian cultural assets and the state's commitment towards the preservation of the Egyptian cultural identity with its diversified branches of civilization (articles 47 and 50). Also, article 68 states that the state institutions are committed to preserving and digitizing the official documents with all latest means and tools. In addition to, article 69 states the protection of intellectual property rights and creation of a specialized agency to preserve such rights.

2. A number of laws with regards to the digital Arabic content that are divided into two sections:

■ Laws related to accessibility, publishing and production of digital content:

- Intellectual Property Rights Protection Law no. 82 of 2002 – third book – copyrights and related rights, which regulates the intellectual property rights for digital content and how to publish and provide access to it
- Some articles of Telecommunications Regulatory Law no. 10 of 2003 related to accessibility of digital content through various means of communication
- Some articles of Universities Regulation Law no. 49 of 1972 related to accessibility and publishing of theses and researches

■ Laws regulating the preservation of digital content:

- Law no. 356 of 1954 of the establishment of the National Archives and its role to collect and preserve the Egyptian historical documents and facilitate its study and publishing
- Law no. 121 of 1975 concerning the preservation and publishing of the state's official documents relevant to the state's supreme policies and national security, which the constitution or law does not prescribe its publication once issued or approved
- Some articles of the Intellectual Property Rights Protection Law no. 82 of 2002
- Cabinet's decision of May 2011 to include the official documents of the ministries and governmental authorities to the National Archives

Negative Aspects:

1. Lack of a national vision to develop the digital content, as each entity works separately
2. Weakness of the digitization and accessibility of digital content in general
3. Lack of necessary legislative and regulatory structure to protect and develop the digital Arabic content

At the Economic Level:

1. Lack of economic models that encourage the buying and selling processes online
2. High prices of broadband

At the Social Level:

1. The quantum leap of the internet, as a result of technology Web 2.0, which enabled users to produce User-Generated-Content and, thus, provided them with three abilities:

- Ability to create their own content without significant cost
- Ability to express their opinions freely
- Ability to achieve interaction

This leap opened the door to a cyber space invaded by social networks, enriched by views, creations and all forms of digital content such as texts, photos and videos.

2. A number of initiatives have been emerged that maximized the opportunities of the existence of this type of content recently, which is not limited to social content, but extended to include educational, cultural and media contents
3. Government attempts to adopt initiatives in Egypt to enrich the digital content through the social participation, such as the Kenana Online initiative, launched by the MCIT

At the Technological Level:

Positive Aspects:

1. Availability of trained labor
2. Existence of institutions that present capacity building and human resources development programs in the area of digital content
3. Existence of institutions and mechanisms to support the production of creative content and develop applications and systems for the digital content industry in the presence of specialized cadres in the sector
4. Tendency to implement the Broadband Plan

Negative Aspects:

1. Weakness of the Arabic content online
2. Lack of clear and unified technical standards for all the phases, through which the content passes
3. Weakness of the technological infrastructure related to language technologies
4. Lack of funding dedicated to the development of language technologies
5. Lack of attention to develop strong applications in Arabic, which leads to further weakness of the language

Analysis of the Internal Environment:

Strengths:

1. The ICT sector's effective contribution to the gross national product, as it increased from 3.2 % in 2012 to 4.1 % in 2013
2. The MCIT's creation of the national committee of digital content in 2012 to monitor the efforts exerted in the area of digital Arabic content at the national level to evaluate the current situation and develop a future vision by developing a national strategy for digital content
3. The existence of an executive plan to activate the broadband strategy developed by the ICT sector in 2011, as there is a direct link between the deployment of broadband – which allows more accessibility to internet and thus reaching everyone, especially in marginalized areas – and the increase of digital content. the ICT sector aims to increase the broadband accessibility rates to reach 13 million subscribers in 2016; increase the proportion of households using computers to reach 40 % of the Egyptian households; link all schools and educational institutions to broadband; increase the volume of e-commerce to 20 %; increase the proportion of internet and mobile banking users to reach 30 %; and support and disseminate e-signature applications in the governmental organizations.
4. The existence of good history of the sector's cooperation in the area of digital content at the regional and international levels
5. The existence of affiliated institutions that provide capacity building and human resources development programs in the area of digital content
6. The existence of affiliated institutions and mechanisms to support the production of creative content and develop applications and systems for the digital content industry in the presence of specialized cadres in the sector

Weaknesses:

1. Lack of an integrated system that includes clear and unified technical standards for all processes of digital Arabic content, including digitization, archiving, indexing and accessibility
2. Lack of specialized programs for capacity building and human resources development in the area of digital content
3. Lack or weakness of specialized programs to promote the production of a creative content
4. Weakness of the necessary regulatory structure to protect and develop the digital Arabic content
5. Lack of economic models that encourage the buying and selling processes online
6. High prices of broadband

Analysis of the External Environment:

Opportunities:

1. Relevant articles of the 2014 constitution can be developed into legislations and policies for the digital content industry; these articles are:

- Article (47): The State shall maintain the Egyptian cultural identity with its diversified branches of civilization
- Article (50): Egypt's civilization and cultural heritage, whether physical or moral, including all diversities and principal milestones – namely Ancient Egyptian, Coptic, and Islamic – is a national and human wealth. The State shall preserve and maintain this heritage as well as the contemporary cultural wealth, whether architectural, literary or artistic, with all diversities. Aggression against any of the foregoing is a crime punished by Law. The State shall pay special attention to protecting components of cultural pluralism in Egypt
- Article (68): Information, data, statistics and official documents are the property of the People and the disclosure thereof from their various sources is a right guaranteed by the State for all citizens. The State is committed to provide and make them available to citizens in a transparent manner. The Law shall regulate the rules for obtaining them and terms for their availability and confidentiality; the rules for their deposit and storage; and the rules for and filing complaints against the refusal to provide them. The Law shall also impose penalties for withholding information or deliberately providing wrong information

The State institutions shall deposit official documents with the National Library and Archives once they are no longer in use. The State institutions shall also protect, and secure such documents against loss or damage, as well as restore and digitize them, using all modern means and instruments according to the Law.
- Article (69): The State shall protect all types of intellectual property rights in all fields, and establish a specialized agency to uphold such rights and their legal protection as regulated by Law

3. The magnitude of Arabic content – non-digital – in Egypt and the urgent need to digitize it
4. The existence of a large consumer market that attracts investments
5. Promising areas of digital content: e-learning, media content, e-culture, e-commerce and e-agriculture
6. An industry with a very high profit
7. The existence of the state's trend to build bridges of cooperation at the regional and international levels
8. Availability of human resources
9. The existence of promising young people able to develop their skills by themselves to deal with the ICT tools and, thus, feed the digital content

Challenges and Risks:

1. Weakness of the Arabic content on the internet
2. Lack of clear national vision to develop the digital content
3. Weakness of the technological infrastructure related to the integrated system for the digital content industry and its development and management
4. Weakness of adequate research environment
5. Lack of business models that support the accessibility processes of digital content
6. Lack of necessary legislative environment to protect and develop the digital content
7. Lack of specialized programs for capacity building and human resources development and the production of creative content by the other state institutions and the private sector
8. Lack of sufficient awareness of the culture of digital content and its uses

