

E-GOVERNMENT READINESS IN TUNISIA

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Abstract

One of the many challenges facing the Tunisian State today is preparing society and government for globalization and the information and communication revolution. Policy-makers, business executives, academics, and ordinary citizens are increasingly concerned with the need to make Tunisian society competitive in the emergent information economy.

The Head of the Tunisian State consequently called for boosting the modernization and reengineering of administrative services with a view not only to improve their efficiency and effectiveness but also to adapt the Tunisian administration to the requirements of globalization. This strategic choice materialized among many other things into the setting up of an adequate national IT infrastructure along with a policy framework aimed at generalizing the use of e-government throughout the country. Its most visible features are an increased government presence on-line, various incentive schemes for the uptake of e-government services, and the development of a legal framework for digital government services. This paper assesses the readiness level of Tunisia for further developments in e-government.

Keywords: Tunisia, ICT, e-government, online services, e-readiness.

1 INTRODUCTION

Tunisia occupies a leading position among developing countries with respect to its development of information and communication technologies (ICTs). According to recently published economic indicators for the years 2007-2008, Tunisia ranks 35th among 122 countries in the Networked Readiness Index (NRI) including a first position in Africa. It also ranks fourth over 115 countries in Government's success in ICT promotion including the highest ranking in Africa and in the Arab world, and is allegedly ahead of several European countries (UN, 2008.). Its commitment to promoting ICT as a global means of economic and human development was behind the UN decision to hold the second phase of the World Summit on the Information Society (WSIS) in Tunis in the fall of 2005. The national five-year plan for economic and social development embodies the country's e-strategy including ICT policies, core programs and key infrastructures. E-Government is a cornerstone of this e-strategy and one of its main programs. This paper gives a general overview of the Tunisian e-government strategy within a set of readiness factors.

In view of modernizing the country's public administration system, the government of Tunisia initiated several actions and projects inscribed within a general e-government strategy. The declared objectives of such strategy are the following:

- Simplification and transparency of administrative procedures;
- Universality and standardization of services;
- Development of a service economy;
- Improvement of the general productivity in the administrative and economic environment;
- Improvement of the efficiency of administrative services;
- Reinforcement of the relationships between public service and citizens;

- Enhancement of citizen participation in the functioning of government;
- Promotion of the knowledge society.

As can be seen, the objectives are very general allowing for multiple modes of implementation. Core e-government related programs and infrastructural projects are detailed below.

2 ICT INFRASTRUCTURE IN TUNISIA

2.1 Telecom Operators

The Tunisian telecommunication network is considered to be modern and is made up of seven nodes; equipped with high flow multi-service commutators, including phone traffic, internet and multimedia. The current telecommunications operators in Tunisia are the following:

- Tunisie-Telecom (TT): It was established in the first of January 1996, as a public limited liability corporation. Its current shareholders are the government of Tunisia (65%) and Dubai Holding through its TECOM subsidiary (35%). TT provides fixed lines, 2G cellular telephony services, and data transmission services (ADSL, Frame Relay, ISDN, Leased Lines, VSAT, WiMax)
- ORASCOM Telecom-Tunisie (TUNISIANA): It availed of the second mobile telephony license in the country in December 2002 and rose to compete ferociously with TT. It only offers 2G cellular telephony services and boasts over 3.6 million subscribers on its network with a market share of 47.7% as of December 2007.
- DIVONA Telecom: It is the first and only telecommunication operator in Tunisia that offers Satellite telephony along with WiMax services. Created in 2004, its client base is restricted to corporations which seek telecommunication infrastructure services; solutions for call centres, WAN services and Internet Telephony.

The fierce competition between TT and TUNISIANA has revolutionized the sector accustomed to TT's monopoly before 2002.

2.2 ICT System of Innovation

El Ghazala Pole for Communication Technologies is a technology park that was created to fulfil the following objectives (cf. <http://www.elgazalacom.nat.tn/en/explorer/presentation.htm>):

- Host innovating companies in the field of communication technologies;
- Develop the synergy between Industry, Research and Higher Education;
- Promote innovatory ideas;
- Animate the Technological City of Communications;
- Establish an international cooperation network.

The park has been relatively successful in attracting a large number of professionals and researchers and is considered as the core element for research and development in Tunisia's ICT sector. Moreover, ICT literacy has been made compulsory in all fields of study, and Internet has become an infrastructural requirement in all secondary schools as well as universities. According to the Ministry of Higher Education, 46% of students in Tunisia pursue studies in science and technology; 12.6% of whom specialize in ICT fields (MES, 2008). Furthermore the number of higher education institutions that specialize or offer ICT programs has been in constant rise, especially with the ongoing reform of

higher education modelled after the European Bologna process (cf. Sahraoui, 2007). A key competitive advantage of the Tunisian ICT sector is the low cost of highly qualified personnel.

2.3 Digital culture

A key challenge with regard to developing the Tunisian information society is the low individual usage and adoption of ICTs. Government initiatives, such as “family PC”, were supposed to increase the number of people using computers at home. Internet access is also concerned with these initiatives.

2.3.1 Family PC

The “family PC” program comes as a manifestation of Tunisian State’s political will to enable all social strata to adhere to the information society, thereby concretizing the presidential “Tunisia of Tomorrow” program, which involves enabling 1 million families to acquire their personal computer at home by the end of 2009. In its latest edition, the program has selected 9 providers of PC units (including portable ones) among 28 candidates. The operation took place already, with prices not exceeding 700 TD for a PC and 1200 TD for a portable computer or laptop (US\$600 and 1000 respectively).

One of the innovations in the latest edition of the program is the explicit provision that the list of computer providers and machine configurations shall be reviewed every three months so as to avail beneficiaries of latest IT developments and preempt the program from becoming a dumping ground of old and obsolete technologies for vendors. The sale of laptop computers at competitive prices is primarily targeting the youth, especially students and pupils, in line with the government strategy to bring about the information society. A major incentive of the program other than its competitive pricing consists in the provision of loans and other modes of deferred payment at low interest rates offered through the Tunisian Bank of Solidarity (BTS). Finally, public and private enterprises are encouraged to finance the acquisition by their employees of computers through corporate social funds.

2.3.2 Internet for all

In addition to the “family PC” program, the Government initiated actions to enhance Internet access for all citizens; the main objectives of these actions being (MTC, 2008.):

- The generalization of Internet access all over the country including in rural and remote areas;
- Increasing fivefold the current bandwidth to the International Internet network during the next five years.
- Gradual generalization of broadband Internet through ADSL by providing enhanced services for ADSL Internet subscribers; gradually decreasing the monthly subscription fee with a premium for families and individuals, and attractive packages for corporations.
- Securing a 50% access rate to ordinary Internet service for regular citizens, above and beyond corporate and other official access such as through schools, libraries, etc.

According to the Tunisian Internet Agency (ATI), the number of Internet users is currently hovering around 1.750.000 users (ref.); which is roughly 17.5% of the total population (cf. figure 1 & figure 2). There are also 12 Internet service providers (ISPs) in the country; seven of them are public and five private.

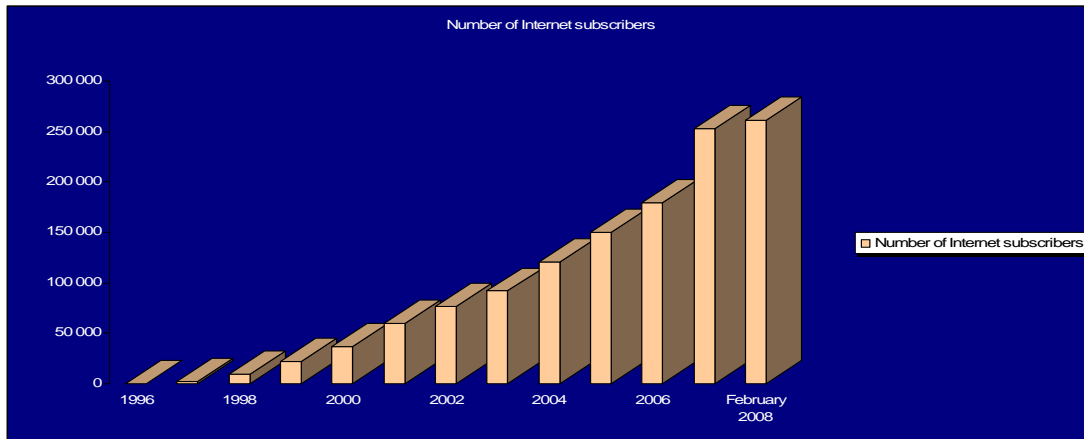


Figure 1. Evolution of number of Internet subscribers (Source: Ministry of Communication Technologies)

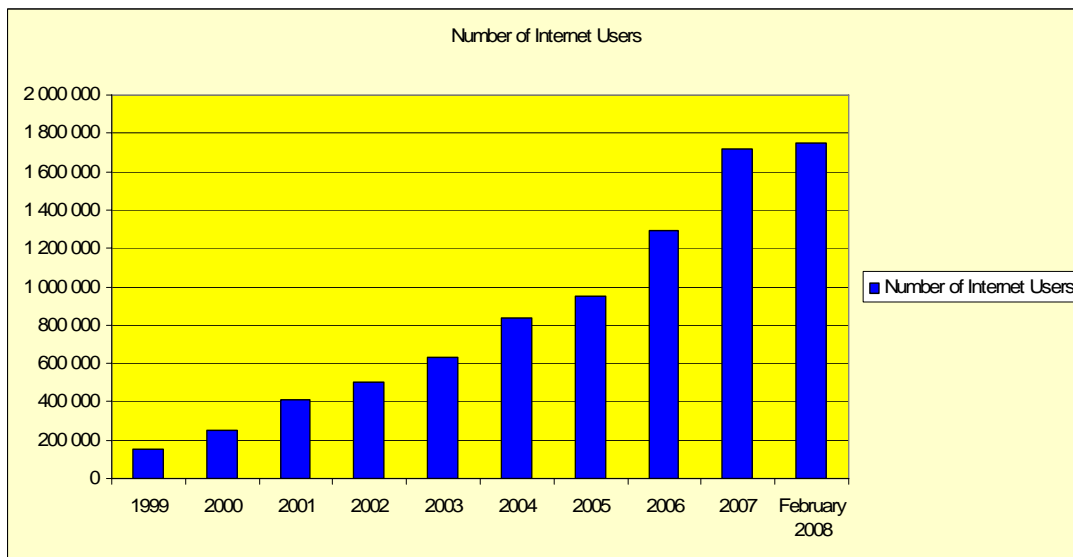


Figure 2. Evolution of number of Internet users (Ministry of Communication Technologies)

2.4 ICT Business Sector

The IT sector in Tunisia is enhanced not only by general-scope incentives but also by a series of specific measures in favour of its development:

- Attractive incentives for IT SMEs
 - Specific legislation for stock options in favour of IT enterprises
 - Exemption from VAT with regard to ICT training provided by specialized enterprises
 - Provision by the State of 70% of certification costs up to an annual amount of 20,000 (Tunisian Dinars) per enterprise
 - Cancellation of the quota for overseas travel costs deductible from the payroll, subject to social security contribution
- Advantages granted to investment

- 50% tax break for IT investors
- A ten-year exemption from income tax for totally exporting enterprises
- Exemption from corporate income tax proportionally to the export turnover of partially exporting enterprises
- Payment by the State, for five years, on behalf of employers, of employee social security, whenever the latter are higher education graduates taking up their first employment
- Investment allowance up to 6% of the investment amount for young entrepreneurs.
- Subsidy of 10 to 20% for material investment and up to 70% for non-material investment (exp. software services)
- Subsidy for marketing in foreign markets (15 to 50% of cost) through funds such as FAMEX, FOPRODEX, etc.
- Special incentives for Venture Capital Investment Companies (SICARs) to fund ICT ventures.
- Adequate legal framework
 - Law on e-commerce and digital signature (August 2000)
 - Protection of copyright and intellectual property (February 1994)
 - Personal data protection guaranteed by the Constitution (as amended in 2002).

In view of the various advantages it offers, Tunisia has been selected by several international firms, as a privileged destination in terms of setting up their foreign operations, and the outsourcing of their customer services (exp. Call centres). Since the promulgation of the new ICT framework in the country, several global operators have developed significant operations in the country; to name a few: *Microsoft, Alcatel-Lucent, Ericsson, Siemens, SAGEM, ST Microelectronics, Huwaei, StoneSoft, HP, CISCO, HR-Access*, etc.

3 GOVERNANCE STRUCTURES FOR E-GOVERNMENT IN TUNISIA

Parallel to the policy of creating a pervasive ICT infrastructure, Tunisia followed the stage model of e-government, wherein it is gradually moving from a mere on-line presence of government services to a highly interactive presence. In the United Nations Global e-Government Readiness Reports, the stages of e-government presence on-line range from a first stage of emergent presence or basic site, to a second stage of enhanced presence or e-publishing, a third stage of interactive presence and a fourth stage of transactional and networked or holistic presence. Many e-services in Tunisia are currently offered in a transactional format, hence reaching the fourth stage. A detailed description of each stage is provided in Appendix A.

Under the general slogan of the 'communicative administration' or *l'administration communicante* as it is referred to in French in the official discourse, the Tunisian government launched a plan of action to enhance and modernize the public administrative system by subjecting it to requirements of ROI for its IT investments, revising legislative texts, enacting administrative reforms with professional management of change, a subsequent change of work methods and standards, and foremost reforms aimed at improving the relationship between citizens and public service.

3.1 Legal framework of e-government

Every e-government project must meet specific legal requirements as follows:

- Identification of intervening parties

- Security of transactions
- Protecting privacy
- Information disclosure

The Prime Ministry, which is the overall authority for e-government policy development and oversight in the country, has set up a special unit in charge of developing an e-administration policy and other governance structures responsible for managerial and design aspects of e-administration.

3.1.1 Governance Structures within the Prime Ministry

A dedicated governance body called “State Secretariat on behalf of the Prime Ministry in charge of Computers and the Internet” is responsible for the planning and design of the government policy for computerization, the implementation of national programs and ensuring their global coherence within the framework of the national policy basic options.

The main tasks of the State Secretariat for Computers are:

- The planning, design and follow up of the national strategy in the field of computers, including monitoring the computerization of State institutions;
- The development of a synergy between the different Ministry departments and enhancement of innovative computer projects;
- The promotion of new information technologies.

To this end, three specific governance structures that come under the umbrella of the *State Secretariat* have been set up:

- Ministerial committee for ‘communicative administration’ or *l’administration communicante* (decree n° 2003-1083 dated 13 Mai 2003) in charge of monitoring the implementation of general orientations in the field of e-government.
- Technical committee for ‘communicative administration’ (decree n° 2003-1083 dated 13 Mai 2003) in charge of examining projects and questions related to e-government
- Electronic administration unit (decree n° 2005-1894 dated 5 July 2005) created to coordinate the different government bodies and facilitate the overall integration of national e-government.

Figure 3 below illustrates the relationships and prerogatives of each of the above governance structures.

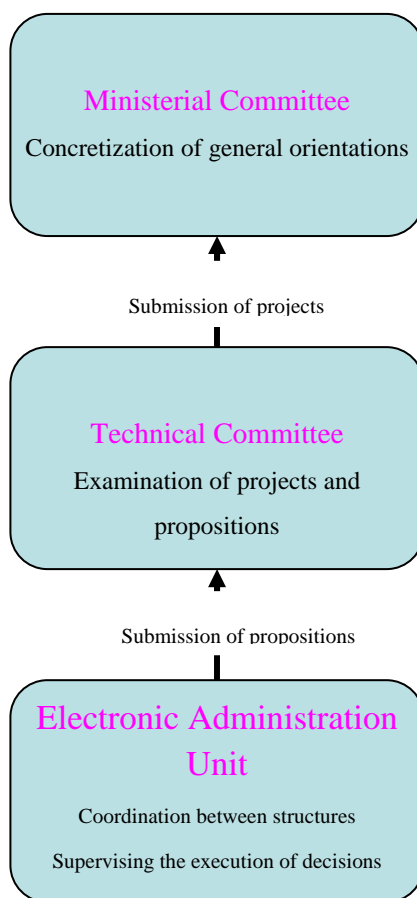


Figure 3. e-Government Governance Structures at the Prime Ministry (Source: Prime Ministry)

3.1.2 National Digital Certification Agency

The National Digital Certification Agency (ANCE, Agence Nationale de Certification Electronique) is the digital certification authority in Tunisia. It represents the highest level of 'trust' in the field of digital certification and security of electronic transactions and exchanges. It was created by Legal Act no. 2000-83 of 9 August 2000 governing electronic exchanges and commerce. It aims at fostering a climate of confidence and trade security on the Internet. It affects various fields such as e-commerce, on-line administration (e-government), Internet banking services (e-banking), and many other modes of electronic transactions. The agency's basic mission has been spelled out as follows (ANCE, 2008):

- Securing the electronic transactions and exchanges like e-government, e-commerce, e-banking, e-finance or e-health projects;
- Establishing cross-certification and mutual recognition with foreign Certification Authorities;
- Managing digital certificates: generation, revocation, publication and storage of certificates;
- Granting licences for digital certification service providers;
- Evaluating cryptography tools (Decree no. 2001-2727 of 20 November 2001)

- Providing security solutions based on digital certification for networks and for Internet and Intranet services
- Training in digital signature, encoding techniques and public key infrastructure.

3.1.3 National Agency for Computer Security

The National Agency for Computer Security carries out general supervision over computer systems and networks of various public and private organizations and is specifically charged with the following (ANSI, 2008.):

- To insure the execution of national IT strategies within the confines of the general strategy for information systems and networks security;
- To keep up with the execution of plans and programs relative to computer security in the public sector (except for national security related applications as in Defence and Police Security), and ensure coordination between different plans;
- To foster technological development and state of the art solutions in computer security field;
- To establish computer security specific norms, elaborate technical guides and publish them;
- To encourage the development of local solutions in the field of computer security, and promote them to go hand in hand with the priorities and programs fixed by the Agency;
- To contribute to the consolidation of training and continuous education in the field of computer security;
- To insure the execution of rules related to the obligation of a periodical audit over the security of computer systems and networks in the public sector and other strategic activities.

3.2 Government Online Presence in Tunisia

The following data were compiled based on a thorough survey of both printed and on-line sources, as well as accessing, browsing, and analyzing 20 government Tunisian web sites (survey results summarized in Appendix B).

Currently around 60% of Tunisian cabinet ministries have online presence (Tunisian Government site www.ministeres.tn) namely 16 out of 26. We have visited the sites and browsed through the services they provide (*see Appendix B for details*). All the sites provide bilingual (Arabic/French) support, and some of them provide an English support, and are basically information sources on various requirements for transactions, policies and regulations; which is typical of “emergent presence or stage I” e-government in the stage model mentioned in Appendix A. Many sites also provide downloadable forms, as well as contact and other basic information; a feature of “enhanced presence or stage II e-government.”

E-tasrih is an Internet based portal, automating the process of tax declaration and paying different types of fiscal levies. A single stop shop for lodging indirect taxes, income tax, and property tax is accessible through the Internet, with a number of associated on-line services <http://www.impots.finances.gov.tn/>. This was developed in conjunction with the presidential program for modernizing public service and improving the Administration’s communication with citizens. *e-Tasrih* is the closest to a proper online transaction or stage IV e-government (*e-tasrih*, 2008).

Likewise, the Tunisian National Social Security Fund site (www.e-cnss.nat.tn) provides an «on-line salary declaration» service enabling independent contributors (non-salaried) and expatriate citizens to benefit from social security services at par with salaried employees. Employers are also able to make on-line declarations on behalf of all their employees. This site is also considered a stage IV service.

Some of the most developed e-services are offered by the Tunisian Post: *e-Dinar* enabling the Post to act as a national payment gateway for all electronic transactions in the country as well as offering e-cash services; *fatouranet* a bill payment service for public services such as utilities; registration in public universities, and a number of other e-services that are more e-commerce than e-government: exp. *e-fleurs*, *e-shop*, *CCPnet*, *e-telegram* etc. Every online postal service has an independent website however because of the heterogeneous nature of the services offered and the different clientele addressed. Most e-services of the Tunisian post are at stage IV of development.

In summary, the current online presence in Tunisia is between stages II and III with an increasing number of applications being at stage IV; most sites provide G2C as well as G2B services. Appendix B provides detailed information on the major sites we visited and evaluated.

3.3 Challenges

According to the UN e-government Survey of 2008 (UN, 2008.), Tunisia ranks 124th among 182 countries on the e-government Readiness Index with a score of 0.3458. This index is a composite index comprising a web measure index, a telecommunication infrastructure index and a human capital index. As the table below shows, Tunisia scores relatively low in the Web measure and infrastructure indexes. This is largely due to the slow progress of e-government development compared to the strides accomplished by other countries. Moreover, many important e-government applications such as *Madania I and II* (Civil services) remain non transparent to users who rely on the intermediation of public administration to obtain such services. This is very symptomatic of the development of e-government in Tunisia where the declared objectives of transparency and enhanced communication with citizens is matched by an even stronger conservative reflex by the national bureaucratic system not to let in 'intruders' onto its turf. As the developments above illustrate, Tunisia musters a comprehensive and exhaustive policy framework for the development of e-government. However implementation and execution of plans are a different panacea where resistance to change and die-hard bureaucratic cultures refuse to succumb to the tide of e-government.

<i>Country</i>	<i>Web Measure Index</i>	<i>Infrastructure Index</i>	<i>Human Capital Index</i>	<i>E-Government Readiness Index</i>
Tunisia	0.1304	0.1636	0.7498	0.3458

Table 1. *E-government Readiness Data 2008 (UN E-government Survey 2008).*

Other than implementation, it is evident from the figures above that the country's infrastructural readiness is yet insufficient to reach the desired objectives. The Internet is still beyond the reach of many and is considered relatively expensive when indexed on the income per capita. Other problems consist of the modest size of service providers (vendors and consultants) in the e-government field; the limited appreciation and uptake of the digital culture among the public and the corporate world; and the small number of mobilizing projects initiated by important national decision makers, and involving local competencies. E-Government in Tunisia is essentially a national project steered and controlled at the highest levels of government and ministries with little role devolved to local authorities.

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Appendix A

(Adapted from the United Nations Global E-Government Readiness Report 2008)

Web measure assessment model: stages of e-government evolution

Stage I - Emerging: A government's online presence is mainly comprised of a web page and/or an official website; links to ministries or departments of education, health, social welfare, labour and finance may/may not exist. Much of the information is static and there is little interaction with citizens.

Stage II - Enhanced: Governments provide more information on public policy and governance. They have created links to archived information that is easily accessible to citizens, as for instance, documents, forms, reports, laws and regulations, and newsletters.

Stage III - Interactive: Governments deliver online services such as downloadable forms for tax payments and applications for license renewals. In addition, the beginnings of an interactive portal or website with services to enhance the convenience of citizens are evident.

Stage IV - Transactional: Governments begin to transform themselves by introducing two-way interactions between 'citizen and government'. It includes options for paying taxes, applying for ID cards, birth certificates, passports and license renewals, as well as other similar G to C interactions, and allows the citizen to access these services online 24/7. All transactions are conducted online.

Stage V - Connected: Governments transform themselves into a connected entity that responds to the needs of its citizens by developing an integrated back office infrastructure. This is the most sophisticated level of online e-government initiatives and is characterized by:

1. Horizontal connections (among government agencies)
2. Vertical connections (central and local government agencies)
3. Infrastructure connections (interoperability issues)
4. Connections between governments and citizens
5. Connections among stakeholders (government, private sector, academic institutions, NGOs and civil society)

In addition, e-participation and citizen engagement are supported and encouraged by governments in the decision-making process.

Appendix B

(Online Survey Conducted on May 2008)

	Authority	I Emerging	II Enhanced	III Interactive	IV Transactional	English Version	Stage	URL
1	Ministry of Finance	yes	yes	yes	yes	Under construction	IV	www.portail.finances.gov.tn www.impots.finances.gov.tn
2	Ministry of communication Technologies	yes	yes	no	no	yes	II	www.infocom.tn
3	Ministry of women affairs, family, children and the elderly	yes	yes	no	no	under construction	II	www.femmes.tn www.enfants-tunisiens.tn
4	Tunisian Post	yes	yes	yes	yes	no	IV	www.e-dinar.poste.tn www.fatouranet.poste.tn
5	Ministry of Higher Education, scientific Research and Technology	yes	yes	yes	yes	yes	IV	www.inscription.tn
6	Industry Promotion Agency	yes	yes	yes	yes	under construction	IV	www.tunisieindustrie.nat.tn
7	Customs Administration	yes	yes	yes	no	under construction	II	www.douane.gov.tn
8	Tunisian National Tourism Office	yes	yes	no	no	yes	II	www.tourismtunisia.com
9	Tunisia Tradenet (Ministry of Finance)	yes	yes	yes	yes	yes	IV	www.tradenet.com.tn
10	Ministry of Commerce and Handicrafts	yes	yes	yes	no	under construction	III	www.commerce.gov.tn
11	Ministry of Religion Affairs	yes	yes	no	no	under construction	II	www.affaires-religieuses.tn
12	Ministry of Culture	yes	yes	no	no	under construction	II	www.culture.tn

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1 3	Ministry of Education and Training	yes	yes	yes	no	yes	III	www.education.tn www.edunet.tn www.fpnet.tn
1 4	Ministry of Public Health	yes	yes	no	no	under construction	II	www.santetunisie.rns.tn
1 5	Tunisian National Social Security Fund	yes	yes	yes	yes	no	IV	www.e-cnss.nat.tn
1 6	The National Pension and Providence Fund	yes	yes	yes	no	under construction	III	www.cnrps.nat.tn
1 7	National Solidarity Fund	yes	yes	yes	yes	yes	IV	www.26-26.org www.26-26.com
1 8	National Health Insurance Fund	yes	yes	yes	no	under construction	III	www.cnam.nat.tn
1 9	Tunis Stock Exchange	yes	yes	yes	no	yes	III	www.bvmt.com.tn
2 0	Virtual University of Tunisia	yes	yes	yes	no	yes	III	www.uvt.rnu.tn