MOSAIC

Cooperation with Mediterranean Partners to build Opportunities around ICT and Societal And Industrial Challenges of Horizon 2020

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Abstract	This document is the analysis of the ICT sector for Algeria.

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Versioning and Contribution History

Version	Date	Modification reason	Modified by
v.0.1	31/12/2014	First version	Nesrina Hamaici (CNI)
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Section 1 - Introduction

1.1 Purpose

This document compiles the analysis of the ICT sector in Algeria.

The objective is to identify in Algeria the critical mass per specific Information and Communication Technology where it is suitable to create Working Groups within the future Technology Platform of Maghreb.

1.2 Scope of the document

This document is produced as part of WP2 - Information and data intelligence analysis and identification of MED key stakeholders.

This document is produced as an outcome of:

- Task 2.1 Definition of methodology for the study and interviews
- Task 2.2 Collection of country information and analysis of collected data
- Task 2.3 Consolidation and harmonisation of the analysis

1.3 Structure of the document

The document is stcrutures as follows:

- Overview of the ICT Sector in the country.
- Analysis per Technologies following the ETP model.
- List of contributors / stakeholders.

Section 2 - Algeria

2.1 Situation for ICT

2.1.1 General overview

At the time of major changes that the world faces in the field of ICT, Algeria is likely to evolve with these changes to be in tune with the demands of these new technologies and ICT as a powerful tool in the service of economic development.

During the Council of Ministers held in December 2012 and dedicated to the democratization of access to postal services, telecommunications and new technologies of information and communication technologies (ICT), the President called Government to continue efforts "to align the country to a new economy based on the increased use of information technology and communication." This dynamic will be based specifically on the promotion of access to broadband internet and high-speed for the benefit of citizens and economic entities and achieve the objectives set in the context of the e-strategy Algeria.

This strategy calls for a coherent and vigorous plan, to enhance the performance of the national economy, companies and administration, to improve the capacity of education, research and innovation, the emergence of ICT clusters, to increase the attractiveness of the country and to improve the life of citizens by promoting the diffusion and use of ICT.

The main objective of this program is to generalize ICT in several application areas such as Education and Research (Telecommunication, Information Technology, Microelectronics, Space Technology, Physics, Mathematics) Virtual Library, Web Technologies, Electronic mail, It also aims, to long term, the establishment of a national network of production of value-added software and the use of ICT application to Tele Medicine and Tele education to contribute to the opening up of arid and semi-arid areas.
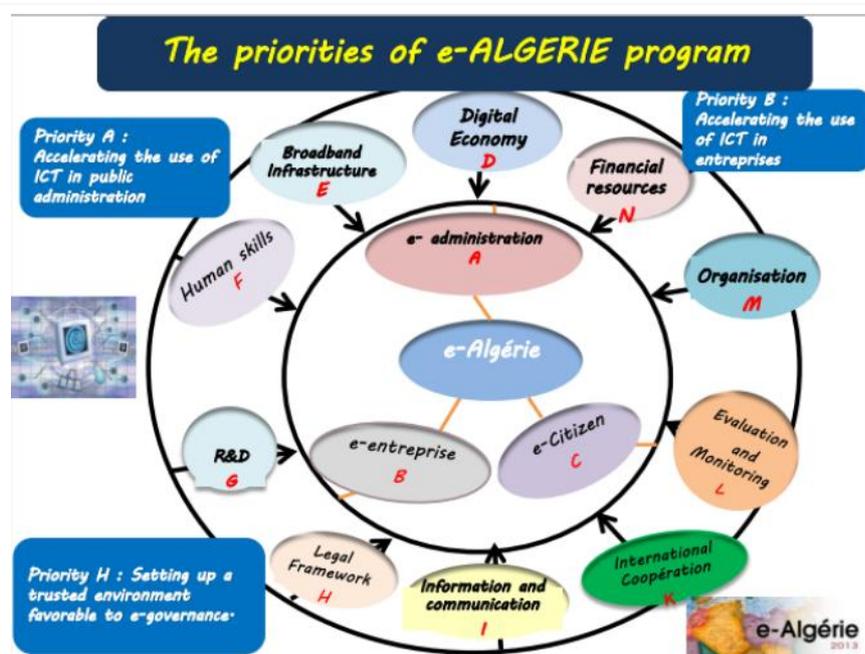
Within the framework of the completion of the e-Algeria program, still not achieved, with regard to the extent of the Algerian market, the market recorded significant needs in terms of:

- Computer equipment, servers and devices;
- Microelectronics and components;
- Telecommunications and computer networks;
- Multimedia;
- Computer and software;
- Electronic commerce and electronic media.

There are three main entities in charge of regulation of the ICT sector in Algeria: Autorité de Régulation de la Poste et des Télécommunications (ARPT), Agence nationale des Fréquences (ANF) and Ministère de la Poste et des Technologies de l'Information et de la Communication (MPTIC). ARPT is in charge of regulating both the post and telecommunication markets. It was established in 2000, and commenced its operations in August 2001. ARPT is the sole government entity to issue telecom licenses, introduce access networks (through offering access network licenses), and impose obligations (such as quality of services obligations) on telecommunication service providers. ANF was established in 2002, and is responsible for managing the frequency spectrum. MPTIC is a governmental department which was formed as a result of the post and telecommunications reform of 2000. It is responsible for policy initiatives related to the ICT sector in Algeria. The national regulator responsible of Arabic digital content is CERIST (Research Center on Scientific and Technical Information), a public scientific and technological research center focused on the Internet market.

In terms of digital broadcasting, the national regulator is TDA (L'établissement public de Télédiffusion d'Algérie), which is responsible for managing the terrestrial and satellite transmission and distribution of radio and TV programmes.

Position in the world ranking:

The Information and Communication Technology (ICT) sector in Algeria has witnessed a giant leap in terms of development and expansion. Algeria ranks seventh in the Arab world for the affordability of ICT services, in 2012, like internet provision, and 71st globally.

Situation of the country in terms in ICT

Several key initiatives have been launched to enhance access to online information itself:

- Ousratic: The Ousratic initiative, with its slogan of "a computer for every family", aims to increase the penetration of computers in households by offering people loans for their purchase. The government has also lowered the value added tax (VAT) on computers .

- Academic Research Network (ARN): This is an education project that aims to interconnect academic and research institutions all over Algeria. The network offers high-speed internet access, and currently connects more than 75 institutions.

- Virtual Library for Human and Social Sciences: This initiative involves 30 Algerian university libraries offering access to specialised information related to human and social sciences.

- Internet for All initiative: For an average cost of USD 1 per hour for internet connectivity, the goal of this initiative is to popularise the use of the internet by the general public through cybercafés. Recently an old building in Sétif was transformed into a modern cybercafé with 200 terminals and a virtual link to the Mediathèque de Paris library.

- Cyber Park: This initiative involves the creation of cyber parks as IT nodes with high employment potential and the capacity to provide technological support andexpertise to the industrial sector. Recently a cyber park project was launched in the Sidi Abdellah region.

- Wikaya Net: This is a portal dedicated to the spread of information related to cyber security. Amongst other things, it offers alerts about viruses and worms.

- Web Review: This initiative is being developed by the Information Science Division of CERIST. It offers access in full text or abstract mode to scientific articles from different fields

Broadband access network projects in Algeria

- **e-Algérie 2013:**

The e-Algérie strategy is based on several goals: boosting the use of ICTs in public administration and businesses; developing incentive mechanisms and measures to give citizens access to ICT equipment and networks; stimulating the development of the digital economy; strengthening high and very high speed telecommunication infrastructure; developing human competences and capacities; strengthening research, development and innovation; upgrading the national legal framework (legislation and regulation); recognizing the value of international cooperation; and establishing e-monitoring and evaluation mechanisms.

- **FTTH project**:

Algérie Télécom launched the FTTH project in 2007 which is still under process. The project targets four major provinces in Algeria: Alger, Constantine, Oran and Setif. Algérie Télécom has commissioned an FTTx platform of more than 50'000 connections in Algerie and Oran, and another 250'000 connections in other major cities (Constantine, Setif and Medea) in 2010. Algérie Télécom's target is to reach 1 million subscriptions by 2013.[1]

In September 2011, ARPT started a tender process for the provision of 3G cellular services in Algeria. ARPT expects 3G to be commercially launched during the first quarter of 2012.

2.1.2 Situation of research and innovation

Algerian e-government strategy[2]

The Algerian action plan is organized around thirteen major axes, for each axis a portfolio was developed followed by a definition of specific and key objectives list to achieve by the year 2013 in this section we will present the axes briefly basing on the e-commission report (E-Algeria, 2008).

The first axis is the acceleration of the use of ICTs in publicadministration

This axis is devoted to the involvement of the ICTs, the enhancement of their use in the public administration and to make important transformations in its work and of its organizational modes. These transformations will help the public administration rethink its organization and operating modes with what serves the citizen appropriately, including the put online of its various services. In this context, specific sub objectives and occasionally mutual were set for each ministry department of the government. They concern the following aspects:

• The accomplishment of networks and systems in both intranets and LANs levels.

• The establishment of an integrated information system.

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[1] Source: Algérie Télécom, MPTIC, ARPT

[2] INTERNATIONAL JOURNAL OF eBUSINESS AND eGOVERNMENT STUDIES Vol 5, No 1, 2013 ISSN: 2146-0744 (Online)

- The deployment of industry-specific applications.

- Increasing human skills and knowledge.

- The development of online services for citizens, the businesses, employees and other government departments.

The second axis is the acceleration of the use of ICTs in enterprises

The use of ICTs has become necessary to increase the performance and business competitiveness and to benefit from the opportunities offered by a wider and highly dynamic market. Hence, a major goal has been defined, namely the integration of ICTs in the economy and support the appropriation of ICTs by businesses. This induces the following three specific sub objectives:

- Supporting the ownership of ICTs by small and medium-sized enterprises.

- Developing applications for the Improvement of business performance.

- Developing and expanding the provision of services online by enterprises.

The third axis is the development of mechanisms and encouragement measures for citizens' access to equipment and ICTs networks

The process of generalizing access to the Internet which is the major objective has three specific sub objectives:

- Revive OUSRATIC the project that aims to provide each family with a personal computer through the provision of individual microcomputers and broadband lines, providing training on and making available specific contents that suit each segment of the population.

- Significantly increase the number of public community spaces: cybercafés, techno parks, science houses, culture houses, etc...

- Extend the universal access to the internet service.

The fourth axis boosting the development of the digital economy

The digital economy is based on three major components: software, services and equipment. A little encouragement may lead to boost the entrepreneurship and the production of local content, which is a driver domain of innovation.

The main objective assigned to this axis is the creation of the appropriate conditions for the intensive development of the ICTs industry. This important goal
can be divided into four specific sub objectives:

- Continue the national government-business dialogue initiated for the development process of the e-strategy Algeria.

- Provide all conditions to enhance the national scientific and technique abilities when it comes to the production of programs and providing services and equipment.

- Direct economic activities in the information and communication technology towards exportation.

The fifth axis is to enable the telecommunications infrastructure in high and very high speed

Broadband and high speed telecommunication network should be able to provide the requirements across the country, with high quality and security standards. The main objective assigned to this

axis is to make a broadband and high speed telecommunication infrastructure with high and very high speed, secure, and provide high quality of services.

This major objective has four specific sub objectives:

- Supporting the ownership of ICTs by small and medium-sized enterprises.
- Upgrade the national telecommunication infrastructure.
- Network security.
- Quality of Services in networks.
- Effective management of the domain name ". dz".

The sixth axis is the improvement of human skills

Strengthening infrastructure and widespread access to ICTs must be accompanied by substantial measures for training and development of human skills to generalize the use of ICTs and ensure ownership at all levels.

To achieve this major objective, two specific sub objectives are targeted:

- Integrating the high education and the professional formation domains with the information and communication technology field.
- Training the information and communication technology to all socialslices.

The seventh axis is the reinforcement of research development and innovation:

Knowledge based economy requires good interaction between research development and economic world. It is indeed the innovation that guarantees the development of valuable products and services in the field of ICTs. With this the main objective of this axis is the development of valuable products and services in the ICTs domain, by the intensification and innovation of research development
activities.

To achieve this axis the following sub objectives are targeted:

- The organization, programming and the enhancement of the research results.
- The ability mobility as well as transmitting the technology and knowledge.

The eighth axis is starting up a national legal frame

The study of the Algerian legislation tells that the existing low do not cover the issues arouse by the use of ICTs, because of that it is necessary to start up a legal frame suitable to the international practice and the needs of the information society. Thus the main objective is to make up a trustful environment suitable to the electronic governance by defining a legal frame and suitable regulations.

The ninth axis is information and communication

The main objective behind this axis is to demonstrate the importance of ICTs in the enhancement of the quality of life of citizens and contribution in the development of the socio economy of the country, in the same purpose the following sub objective were defined:

- Elaborating and realizing a communication plan on the Algerian information society.
- Creating an associative fabric that will work as a continuation of the governmental efforts.

The tenth axis is valorisation of international cooperation

The international cooperation, with other countries in the field of ICTs can be characterized by the important number of projects particularly with the European Union in the frame of MEDA II. The major objective of the international cooperation is to develop and upgrade the Algerian technology and knowledge as well as to emit and give out the country's image.

This objective has two sub objectives:

- Actively participate in the international initiative and dialog.
- Make strategic friendships to improve and promote the technology and knowledge.

The eleventh axis is providing mechanisms of evaluation

The main objective of this axis is the definition of a notification, tracking and evaluation system that allows measuring the impact of ICTs on the economic and social development form a side, and to constantly evaluates the state of the plan e- Algeria 2013 from another.

This objective can be achieved by attaining two sub objectives:

- The elaboration of conceptual frame of a quality indication system.
- The elaboration of a list of relevant pointers.

The twelfth axis is organizational measures

The prime objective of this axis is the creation of a coherent intuitional organization basing on three levels: the direction, coordination among sectors and execution, this organization will guarantee an effective execution of the ambitious plan e-Algeria 2013. In this context some specific objectives will be destined:

- Empowering the coordination in the national level and among sectors.
- Enhancing the intervention abilities in the sectors level and in the specialized institutions level.

The thirteenth axis is financiers and planning means

The elaboration of the strategy e-Algeria 2013 requests important financier resources so it is necessary to use it wisely. An important budget of the strategy e- Algeria 2013 is elaborated every year basing on the level of progress of the plan, providing this budget will continue till the end of the year 2013.

2.1.3 Situation of industry and academia

Algeria invests in education and training to realise highly qualified human resources. Amgeria has made sustained efforts to improve its competencies and devotes nearly 16% of the state budget to education. There are 48 public universities, 10 university centers, more than 1300 research laboratories; The University of Continuing Education (*Université de la Formation Continue* – UFC), which was created by decree in 1990, enables those who did not obtain the *baccalauréat* at school to enter higher education through 50 continuing-education centres distributed throughout the national territory.

There are 12 research units. DGRSDT (Direction Générale de la Recherche Scientifique et du Développement Technologique) created 6 thematic research agencies in different sectors. Each agency is a public administrative institution, responsible for contributing to the implementation and achievement of national research program,

- ATRST - Thematic Agency for Research in Science and Technology
- ANDRS DZ -NATIONAL AGENCY FOR THE DEVELOPMENT OF HEALTH RESEARCH
- ANVREDET - National Agency Results Valuation of Research and Technological Development
- ARTHHS - Thematic Agency for Research in Social and Human Sciences
- ATRSNV - Agency Research topic in Natural Sciences and Life
- ATRBSA - Thematic Agency for Research in Biotechnology and Agri Sciences

Today, Algeria research that has "gone beyond the establishment of a sustainable basis must now provide a scientific product quality that meets international valuation standards. The purpose of scientific research development plan project for the 2015-2019 five-year plan is to make a "qualitative jump" in scientific research in Algeria to place a high level of international competitiveness,
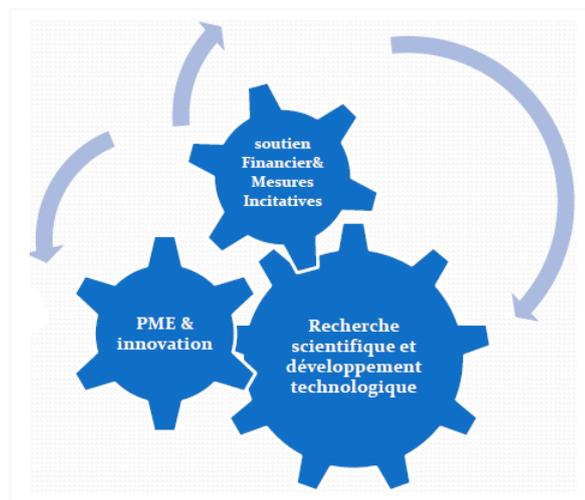
PROMOTION OF INNOVATION - INTERSECTORAL COLLABORATION

- R & D is structured in National Research Programmes (NRPs) covering all socio-economic sectors
- Creation of several technology parks for 2015
- Creation of the National Centre for Development of Subcontracting
- Creation of the National Observatory of SMEs

2.2   Sectorial analysis and indicators

2.2.1   Software & Services

Algeria's software

Algeria's software products are mainly supplied by key international companies like Cisco, IBM and Microsoft, with ICT technologies supplied by global leaders like ZTE, Huawei, Nokia Siemens and Ericsson. The majority of these products are imported from abroad, with ICT goods (excluding software) comprising 2.96% of total imports in 2010, according to a 2012 World Bank report.

Open-source software

The National School of Computer Science (l'Ecole Nationale Superieure d'Informatique) launched the Open ESI initiative. Open ESI hosts several open-source projects and encourages researchers

and students to participate and contribute ideas. Another initiative is the "Miftaah" memory stick, which was initiated by the UNESCO Office in Rabat (Morocco), in co-operation with UNDP/ ICTDAR. The initiative, which started in June 2009, targeted Algeria, Libya, Morocco and Tunisia. The "Miftaah" memory stick provides uses with access to free and open-source software (FOSS). It offers a customized and user-friendly interface, ensuring accessibility in Arabic, English and French.

Nº	Indicator - Political Support	Indicator	Results
1	National or State Policies	PO-01	No
2	Funding mechanisms to support ICT research	PO-02	yes
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	Is foreseen
4	Support to MED-TPs	PO-04	
Nº	**Indicator - Industrial support**	**Indicator**	**Results**
5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	Low
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	Low
7	Involvement in European funded projects	IN-03 (1-5)	Low
8	Independence of local industry	IN-04 (1-5)	NO
9	Foreign Direct Investment (FDI) and presence of development centres	IN-05 (1-5)	Medium low
10	Market Demand	IN-06	No
11	Number of Patents	IN-07 (1-5)	Low
12	Support to MED-TPs	IN-08	YES
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	Low
Nº	**Indicator - Academic support**	**Indicator**	**Results**
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	Medium low
15	Researchers operating in the targeted field	AC-02 (1-5)	Medium low
16	Number of yearly scientific publications	AC-03 (1-5)	Low
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	Low 2
18	Existing cooperation with EU countries	AC-05	YES
19	Support to MED-TPs	AC-06	YES
Nº	**Indicator - General**	**Indicator**	**Results**
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	Low
21	Innovation policy and/or initiative	GE-02	YES

2.2.2 Electronics Media and Contents

In terms of digital media, the market is still a government monopoly, where all digital media providers are state-owned. All digital content providers are state-owned, though Algerian nationals can access content provided by regional service providers headquartered in other countries, although DTH/Satellite. Table 9 presents the responsible entities for the five relevant topics identified under the ITU WTDC-10 Regional Initiatives for the Arab region: broadband access networks, digital broadcasting, open-source software, Arabic digital content, and cybersecurity.

Table 1. Algerian entities per regional initiative

	National entity responsible
Broadband access networks	ARPT
Open-source software	MPCIT
Cybersecurity	MPCIT
Broadband access networks	ARPT
Digital broadcasting	ARPT, TDA
Arabic digital content	CERIST

Source: ITU, Arab Advisors Group Analysis

Digital broadcasting

By end 2011, all terrestrial and DTH satellite TV channels were state-owned. Algeria has three DTH satellite state-owned channels.27 In September 2011, the Algerian Government allowed the licensing of private FM and TV stations.28 With regard to digital terrestrial TV, the termination of analog television and full transition to digital transmission is scheduled to take place in 2015. Télédiffusion d'Algérie (TDA) is following a three-phased action plan. The first phase will cover three main centers: Chréa, Tessala and Kef Lakehel with high power DTT of 1.5 kW. The second phase will cover five other centers with highpower transmitters of 1.5 kW, Méchria, Ain N'sour, Bordj El Bahri, Megriss and M'Cid. The final phase will extend the coverage with the implementation of 93 large – and medium – power DTT stations, between 50W and 1.5 kW. TDA announced that it has begun implementing the first phase of the project. Digital broadcasting is expected to be operational by the end of the first quarter of 2012.IPTV has been operational in the Algerian market since February 2010. The service is offered by Algérie Télécom Group.

Arabic digital content

The e-Government portal (www.elmouwatin.dz) is part of the e-Algerie project by the Algerian Government, which is expected to be ready by end 2013. During May 2010, the Government officially launched the beta version of "The Citizen's Portal". The portal is presented in both Arabic and French and is solely dedicated to serving the citizens of Algeria. The website offers several features, such as a link to the official newspaper of Algeria, weather forecasts for major cities, the arrivals and departures of Algerian Airlines, job opportunities and polls. After the introduction of Internationalized Domain Names (IDNs), Algeria submitted its application to the "IDN Fast Track" process in August 2010 to have the string " الجزائر ", Arabic for Algeria, recognized as representing the country. This request was reviewed by the IDN Fast Track DNS Stability Panel, and approved in October 2010.

In December 2011, ICANN received a request to delegate the . الجزائر domain as a country-code toplevel domain to CERIST, which is responsible for the management of Algeria's ".DZ" top-level domain, since it was first delegated in 1995.

Table below presents the top twenty most visited online web portals by Internet users in Algeria. The table's source is Alexa, a Web information company. Alexa collects its data from Internet users who download Alexa's toolbar. The toolbar collects data on browsing behaviour and transmits the data back to Alexa. As shown in the table, the adoption of Arabic online content in the Arab region remains behind the adoption of content offered by global portals, such as Google, Facebook and Youtube. The pioneer local portal is an online news website, which is the seventh most visited site by Algerian Internet users.

Table : Rank of most visited websites in Algeria, December 2011

Rank	Website	Target users	Default language*	Description
1	google.com	Global	English	Global web search portal
2	Facebook.com	Global	English	Online social networking
3	Youtube.com	Global	English	Video sharing and broadcasting portal
4	google.fr	Global	French	Global web search portal
5	yahoo.com	Global	English	Miscellaneous online services
6	live.com	Global	English	E-mail portal
7	echoroukonline.com	Local	Arabic	Online news portal
8	babylon.com	Global	English	Translation software
9	blogspot.com	Global	English	Online blogging service
10	wikipedia.org	Global	English	Online Encyclopaedia
11	startimes.com	Regional	English	Miscellaneous online entertainment services
12	elkhabar.com	Local	Arabic	Online news portal
13	Djelfa.info	Local	Arabic	Online news portal
14	Elheddaf.com	Local	Arabic	Sports
15	google.dz	Global	French	Web search portal
16	msn.com	Global	English	Miscellaneous online services
17	ouedkniss.com	Local	French	Online advertising
18	Kooora.com	Regional	Arabic	Sports
19	Maktoob.com	Regional	Arabic	Miscellaneous online services
20	xnxx.com	Global	English	Adult content

Note: *The default language is the language that appears when first visiting the website

Nº	Indicator - Political Support	Indicator	Results
1	National or State Policies	PO-01	No
2	Funding mechanisms to support ICT research	PO-02	No
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	Is foreseen
4	Support to MED-TPs	PO-04	YES
Nº	**Indicator - Industrial support**	**Indicator**	**Results**
5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	Low
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	Low
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10	Market Demand	IN-06	No
11	Number of Patents	IN-07 (1-5)	Low
12	Support to MED-TPs	IN-08	YES
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	Low medium
Nº	**Indicator - Academic support**	**Indicator**	**Results**
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	Medium
15	Researchers operating in the targeted field	AC-02 (1-5)	Low
16	Number of yearly scientific publications	AC-03 (1-5)	Low
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	Low
18	Existing cooperation with EU countries	AC-05	YES

Nº	Indicator - General	Indicator	Results
19	Support to MED-TPs	AC-06	YES
Nº	Indicator - General	Indicator	Results
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	Low
21	Innovation policy and/or initiative	GE-02	YES

2.2.3 Telecommunications

Fixed-telephone market

Algérie Télécom Group is currently the only fixed operator after its competitor, Lacom, stopped business in late 2008. Algérie Télécom (AT) was created in August 2001 as a joint-stock company to take over the operation of fixed-line services and of the Global System for Mobile communication (GSM) network from MPCIT. Algérie Télécom officially started its activities – in its new legal structure – in January 2003.20 Algérie Télécom operates a WLL/CDMA network, which was launched in October 2004. By end 2010, there were almost 3 million fixed-telephone subscriptions, translating into a penetration rate of 37.31 per cent.

In 2010, the fixed telephony operator is present on the national territory through 171 commercial agencies, 110 commercial divisions, 4425 taxi phones and 212,040 lines Multiservice Kiosk (KMS)

Mobile-cellular market

Strong competition exists between the three GSM operators (Djezzy, Mobilis and Nedjma) in the Algerian mobile-cellular market. Algérie Télécom Mobile (Mobilis), the first mobile-cellular operator, served the market as the monopolist cellular operator (and as a subsidiary of the incumbent Algérie Télécom) until 2001. In December 2004, Mobilis launched the first 3G trial network based on the W-CDMA standard.

Mobilis's monopoly ended in July 2001, when the ARPT granted Orascom Telecom Algérie SPA (Djezzy) a license to provide cellular services. In April 2004, Djezzy succeeded in securing a VSAT license in addition to the GSM license.22 Currently, there are some negotiations going on regarding the sale of Djezzy, and the Algerian government has expressed its interest in buying Djezzy. The third GSM license was granted to Wataniya Telecom Algérie (Nedjma) in December 2003. The announced the launch of its GSM network under the commercial name "Nedjma" in August 2004. By end 2010, the total market's mobile-cellular subscriptions amounted to 32.78 million, translating into a penetration rate of 92.4 per cent. By the end of June 2011, Algeria's total number of mobile-cellular subscriptions stood at an estimated 33.737 million lines, translating into a penetration rate of 94.4 per cent.

Broadband Internet market

Algérie Télécom Group is the only DSL broadband Internet provider in Algeria. By end 2010, total fixed (wired)-broadband Internet subscriptions reached some 900'000. Mobile-broadband has not yet been launched in the country, since the regulator has not awarded 3G licenses to mobile operators.

Broadband access networks

Currently there are a total of three commercial broadband access technologies in the Algerian market: DSL, FTTx and WiMAX. Algérie Télécom is the sole provider of DSL and FTTx services. As for WiMAX, there are four operators providing the service, Algérie Télécom, Anwar Net/ Max Net, Icosnet, and Smart Link Com. Recent broadband projects in the country include the deployment of FTTx fixed-broadband technology.

3G spectrum licenses to bolster mobile broadband services in coming years[3]

With a fixed-line penetration of around 8% and mobile penetration close to 100%, Algeria has one of the highest teledensities in Africa. The country's relatively well developed infrastructure includes a national fibre backbone and one of Africa's first FttP deployments. Oil and gas reserves have made the nation one of the wealthiest on the continent.

Competition in the fixed-line sector received a setback in 2008 when the second operator, Lacom (a joint venture between Egypt's Orascom Telecom and Telecom Egypt) exited the market after three years of operations, citing regulatory barriers that made it impossible to compete with Algerie Telecom. Shortly afterwards the delayed privatisation of Algerie Telecom was called off and the licensing of third generation mobile spectrum was again put back. The number of fixed lines in service fell by 16% the following year but has since then recovered.

To provide fixed connections, Algerie Telecom has made extensive use of CDMA wireless technology which supports broadband and full mobility. In parallel with the access networks, the national and international fibre optic backbone is being upgraded to an IP-based next-generation network. The government has announced investments of €100 million into national fibre infrastructure to 2014.

The licensing of 3G spectrum to the three mobile network operators in late 2013 will provide a strong stimulus to the development of mobile broadband services in coming years. In addition, commercial services based on LTE technology are expected to be available in early 2014. At the same time, Algerie Telecom has invested in expanding and upgrading its ADSL and WiMAX networks. ADSL prices are already among the lowest in Africa. This infrastructure is complemented by WiMAX wireless broadband infrastructure put in place by several ISPs. The liberalisation of the market for VoIP services has also enabled ISPs to become players in the sector, which is placing greater pressure on fixed-line voice services. Algerie Telecom is investing in the expansion of its national fibre infrastructure, while the operator has also become a major shareholder in a four-company national fibre project.

The report contains an overview of Algeria's internet and broadband market, providing key statistics, profiles of the major players, and scenario forecasts for the internet market to 2016.

At close to 100% penetration, subscriber growth in Algeria's mobile market has begun to slow. Given the intensifying price competition between the three MNOs, Algerie Telecom's Mobilis, Orascom's Djezzy, and Wataniya's Nedjma, their focus has shifted to developing ARPU and investing in mobile data services.

The overall market has been affected by the recent social and political unrest, while investor confidence has been dented by recent moves from the government to take control of the country's leading mobile operator. Nevertheless, with the advent of 3G licences, the MNOs have the chance to transform themselves into converged service providers and to take a share of the broadband market. As such, the country's mobile market still has enormous potential for growth.

Nº	Indicator - Political Support	Indicator	Results
1	National or State Policies	PO-01	No
2	Funding mechanisms to support ICT research	PO-02	Yes
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	Foreseen
4	Support to MED-TPs	PO-04	YES
Nº	Indicator - Industrial support	Indicator	Results

[3] http://www.budde.com.au/Research/2013-Algeria-Telecoms-Mobile-Broadband-and Forecasts.html#sthash.HrTLwGPe.dpuf

5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	Low
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	Low
7	Involvement in European funded projects	IN-03 (1-5)	Low
8	Independence of local industry	IN-04 (1-5)	NO
9	Foreign Direct Investment (FDI) and presence of development centres	IN-05 (1-5)	Low medium
10	Market Demand	IN-06	No
11	Number of Patents	IN-07 (1-5)	Low
12	Support to MED-TPs	IN-08	YES
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	Low
Nº	**Indicator - Academic support**	**Indicator**	**Results**
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	Low medium
15	Researchers operating in the targeted field	AC-02 (1-5)	Low
16	Number of yearly scientific publications	AC-03 (1-5)	Low
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	Low
18	Existing cooperation with EU countries	AC-05	YES
19	Support to MED-TPs	AC-06	YES
Nº	**Indicator - General**	**Indicator**	**Results**
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	Low
21	Innovation policy and/or initiative	GE-02	YES

2.2.4 High Performance Computing

A national programme, coordinated by the Directorate of Research and Technological Development under the Ministry of Higher Education and Scientific Research, will equip several universities with high-performance computing (HPC) systems, providing researchers with the resources they need to answer complex questions in science, engineering and mathematics. Supercomputers are used for a wide range of scientific tasks that require high computing power such as weather forecasting, climate research, molecular modelling and analysis of structures and properties of chemical compounds, as well as physical simulations such as in the field of aerodynamics, material strength calculations, etc.

- As first of 19 Algerian academic institutions, Dr. Yahia Fares University of Médéa has been (in 11 February 2013) provisioned with powerful supercomputers, reflecting the country's strategic quest to boost scientific research. A national programme, coordinated by the Directorate of Research and Technological Development under the Ministry of Higher Education and Scientific Research, will equip several universities with high-performance computing (HPC) systems, providing researchers with the resources they need to answer complex questions in science, engineering and mathematics.

Algeria has upgraded the international connectivity available for its scientists and academicians to 622Mbps through its participation in EUMEDCONNECT3, the regional high-capacity Internet network serving the research and education (R&E) communities across Northern Africa and the Middle East. Algeria is a long-term partner in the EC-funded EUMEDCONNECT project and has seen its research network ARN capacity increase by a factor of 15 - from an initial 45Mbps in 2004 to the current 622Mbps to meet researchers' growing demands for high-speed international connectivity, including geographically distributed HPC activities.

- **DZ e-Science GRID** is an initiative funded by the Algerian Ministry for Higher Education and Scientific Research and has been operated since 2006 by the Networks Division at the Research Centre on Scientific and Technical Information (CERIST). The main objective is to set up a Grid infrastructure and Grid computing services for scientific communities with high computing and data storage requirements. The certification authority DZ e-Science CA was launched in 2011 and is fully operational with accreditation from the European organisation EugridPMA which coordinates the trust fabric for e-Science authentication in Europe and collaborates with the regional peers APGridPMA for Asia-Pacific and the Americas GRID PMA in the International Grid Trust Federation. DZ e-Science GRID is part of the Algerian Research Network ARN services and participates in EUMEDGRID and EPIKH EC/FP7 projects.

Nº	Indicator - Political Support	Indicator	Results
1	National or State Policies	PO-01	Is foreseen
2	Funding mechanisms to support ICT research	PO-02	Yes
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	Is foreseen
4	Support to MED-TPs	PO-04	YES
Nº	Indicator - Industrial support	Indicator	Results
5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	Low
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	Low
7	Involvement in European funded projects	IN-03 (1-5)	Low
8	Independence of local industry	IN-04 (1-5)	No
9	Foreign Direct Investment (FDI) and presence of development centres	IN-05 (1-5)	Medium low
10	Market Demand	IN-06	Is foreseen
11	Number of Patents	IN-07 (1-5)	Low
12	Support to MED-TPs	IN-08	YES
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	2
Nº	Indicator - Academic support	Indicator	Results
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	Medium low
15	Researchers operating in the targeted field	AC-02 (1-5)	Low
16	Number of yearly scientific publications	AC-03 (1-5)	Low
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	Low
18	Existing cooperation with EU countries	AC-05	YES
19	Support to MED-TPs	AC-06	YES
Nº	Indicator - General	Indicator	Results
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	Low
21	Innovation policy and/or initiative	GE-02	Yes

2.2.5 Photonics

Algeria will organize **The Optical and Photonics Algerian Society**, in collaboration with the Algerian Photonics Network *NOUR 21 and the University USTHB*. This event is delighted to announce the organization of the international conference OPAL (Optics and Photonics Algeria) 2015 at Algiers from the 3rd to the 8th of October 2015. This conference coincides with the celebration of the **International Year of Light IYL 2015** under the auspices of the UNESCO Many universities offer courses for students of graduation and post graduation (USTHB, ..). The divison

'Ionized Media and Laser' CDTA(Centre de Développement des Technologies Avancées)' involved in design, fabrication, and optical characterization of integrated photonics devices. research interests include Glass Integrated Optics and Micro-photonics, Sol-Gel material, Rare Earth Doped Waveguide Amplifiers and Lasers, Bragg Gratings, Software Design, and Numerical Techniques.

Nº	Indicator - Political Support	Indicator	Results
1	National or State Policies	PO-01	YES
2	Funding mechanisms to support ICT research	PO-02	YES
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	YES
4	Support to MED-TPs	PO-04	YES
Nº	Indicator - Industrial support	Indicator	Results
5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	3
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	3
7	Involvement in European funded projects	IN-03 (1-5)	1
8	Independence of local industry	IN-04 (1-5)	IS FORESEEN
9	Foreign Direct Investment (FDI) and presence of development centres	IN-05 (1-5)	1
10	Market Demand	IN-06	IS FORESEEN
11	Number of Patents	IN-07 (1-5)	3
12	Support to MED-TPs	IN-08	1
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	1
Nº	Indicator - Academic support	Indicator	Results
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	4
15	Researchers operating in the targeted field	AC-02 (1-5)	10
16	Number of yearly scientific publications	AC-03 (1-5)	6
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	1
18	Existing cooperation with EU countries	AC-05	YES
19	Support to MED-TPs	AC-06	YES
Nº	Indicator - General	Indicator	Results
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	1
21	Innovation policy and/or initiative	GE-02	IS FORESEEN

2.2.6 Nanoelectronics

Under the leadership of the Directorate General of Scientific Research and Technological Development (DGRSDT), the Network "Micro-Nanoelectronics and ''Micro-Nanosystems" has main mission promoting of high-quality education, research and the development of applications in the fields of micro-nano and micro-nanosystems for socio-economic needs of the country.

The Network's role will be to bring together the expertise and to pool resources to carry out projects of interest in the fields of micro-nano and micro-nanosystems.

The Network is open to research laboratories of higher education and training institutions and research centers. This network currently consists of 25 research laboratories, founding members

specialized in the above themes, spread throughout Algeria, and within 13 universities, 2 high schools and Advanced Technology Development Center.

The first International Conference on Nanoelectronics, Communications and Renewable Energy (ICNCRE'13) was held on September 22-23, 2013 at the house of culture, Jijel, Algeria. The main objective of ICNCRE'13 is to provide a platform for researchers, PhD students, and industrial to present their research results in the fields of nanoelectronics, communication and renewable energy.

Nº	Indicator - Political Support	Indicator	Results
1	National or State Policies	PO-01	Is foreseen
2	Funding mechanisms to support ICT research	PO-02	Yes
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	Is foreseen
4	Support to MED-TPs	PO-04	Yes
Nº	Indicator - Industrial support	Indicator	Results
5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	Low
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	Low
7	Involvement in European funded projects	IN-03 (1-5)	Low
8	Independence of local industry	IN-04 (1-5)	No
9	Foreign Direct Investment (FDI) and presence of development centres	IN-05 (1-5)	Medium low
10	Market Demand	IN-06	IS FORESEEN
11	Number of Patents	IN-07 (1-5)	Low
12	Support to MED-TPs	IN-08	YES
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	Low
Nº	Indicator - Academic support	Indicator	Results
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	High
15	Researchers operating in the targeted field	AC-02 (1-5)	Medium
16	Number of yearly scientific publications	AC-03 (1-5)	Medium
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	Low
18	Existing cooperation with EU countries	AC-05	YES
19	Support to MED-TPs	AC-06	YES
Nº	Indicator - General	Indicator	Results
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	Low
21	Innovation policy and/or initiative	GE-02	IS FORESEEN

2.2.7 Smart System integration

This industry is shy in Algeria in terms of its volume of operations and market size. Despite the availability and affordability of microelectronic devices, implementation is rare unless for manufacturing companies and few appliances. Demand for this industry, as well as the research on such topic, remains low.

Nº	Indicator - Political Support	Indicator	Results
1	National or State Policies	PO-01	No
2	Funding mechanisms to support ICT	PO-02	Yes

Nº		Indicator	Results
	research		
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	IS FORESEEN
4	Support to MED-TPs	PO-04	YES
Nº	**Indicator - Industrial support**	**Indicator**	**Results**
5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	Low
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	Low
7	Involvement in European funded projects	IN-03 (1-5)	Low
8	Independence of local industry	IN-04 (1-5)	No
9	Foreign Direct Investment (FDI) and presence of development centres	IN-05 (1-5)	Low
10	Market Demand	IN-06	IS FORESEEN
11	Number of Patents	IN-07 (1-5)	Low
12	Support to MED-TPs	IN-08	YES
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	Medium Low
Nº	**Indicator - Academic support**	**Indicator**	**Results**
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	Medium
15	Researchers operating in the targeted field	AC-02 (1-5)	Medium low
16	Number of yearly scientific publications	AC-03 (1-5)	Low
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	Low
18	Existing cooperation with EU countries	AC-05	YES
19	Support to MED-TPs	AC-06	YES
Nº	**Indicator - General**	**Indicator**	**Results**
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	Low
21	Innovation policy and/or initiative	GE-02	Yes

2.2.8 Embedded Intelligance and Systems

Several university laboratories and research centers are involved in the field. Note that Algerian universities take into account the need to train skills in this area. Applications concern the health, aerospace, energy, ...

Establishment of a technology platform dedicated to aeronautics and the prototype in the system of the composites industry and embedded systems "

Nº	Indicator - Political Support	Indicator	Results
Nº	**Indicator - Political Support**	**Indicator**	**Results**
1	National or State Policies	PO-01	Is foreseen
2	Funding mechanisms to support ICT research	PO-02	YES
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	YES
4	Support to MED-TPs	PO-04	YES
Nº	**Indicator - Industrial support**	**Indicator**	**Results**
5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	Low
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	Medium low
7	Involvement in European funded projects	IN-03 (1-5)	Low

Nº		Indicator	Results
8	Independence of local industry	IN-04 (1-5)	NO
9	Foreign Direct Investment (FDI) and presence of development centres	IN-05 (1-5)	Low
10	Market Demand	IN-06	IS FORESEEN
11	Number of Patents	IN-07 (1-5)	Low
12	Support to MED-TPs	IN-08	YES
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	Low
Nº	**Indicator - Academic support**	**Indicator**	**Results**
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	Medium low
15	Researchers operating in the targeted field	AC-02 (1-5)	Medium low
16	Number of yearly scientific publications	AC-03 (1-5)	Low
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	Low
18	Existing cooperation with EU countries	AC-05	YES
19	Support to MED-TPs	AC-06	YES
Nº	**Indicator - General**	**Indicator**	**Results**
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	Low
21	Innovation policy and/or initiative	GE-02	YES

2.2.9 Robotics

Research in the field of robotics is clear evolution in Algeria. All business sectors are investing in this area. The solar production factory is now fully automated .. The scientific interest projects are underway with the Department of National Defence (DND) and the National Gendarmerie. Robotics clubs exist within several universities (Blida Batna, ..). They participate annually in européeenes competitions such as Eurobot.

Created in 1998, Eurobot is a international amateur robotics contest open to teams of young people, organised either in student projects or in independent clubs.

Nº	Indicator - Political Support	Indicator	Results
1	National or State Policies	PO-01	Is foreseen
2	Funding mechanisms to support ICT research	PO-02	YES
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	YES
4	Support to MED-TPs	PO-04	YES
Nº	**Indicator - Industrial support**	**Indicator**	**Results**
5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	Medium low
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	Medium
7	Involvement in European funded projects	IN-03 (1-5)	Low
8	Independence of local industry	IN-04 (1-5)	YES
9	Foreign Direct Investment (FDI) and presence of development centres	IN-05 (1-5)	2
10	Market Demand	IN-06	Is foreseen
11	Number of Patents	IN-07 (1-5)	Low
12	Support to MED-TPs	IN-08	YES
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	Low

Nº	Indicator - Academic support	Indicator	Results
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	Medium
15	Researchers operating in the targeted field	AC-02 (1-5)	Medium
16	Number of yearly scientific publications	AC-03 (1-5)	Medium low
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	Medium low
18	Existing cooperation with EU countries	AC-05	YES
19	Support to MED-TPs	AC-06	YES
Nº	Indicator - General	Indicator	Results
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	Medium low
21	Innovation policy and/or initiative	GE-02	Is foreseen

2.2.10 ICT for Energy

Algeria has created a green momentum by launching an ambitious program to develop renewable energies (REn) and promote energy efficiency. This program leans on a strategy focussed on developing and expanding the use of inexhaustible resources, such as solar energy in order to diversify energy sources and prepares Algeria of tomorrow. Through combining initiatives and the acquisition of knowledge, Algeria is engaged in a new age of sustainable energy use.

The program consists of installing up to 22 000 MW of power generating capacity from renewable sources between 2011 and 2030, of which 12 000 MW will be intended to meet the domestic electricity demand and 10 000 MW destined for export. This last option depends on the availability of a demand that is ensured on the long term by reliable partners as well as on attractive external funding.

In this program, renewable energies are at the heart of Algeria's energy and economic policies : It is expected that about 40% of electricity produced for domestic consumption will be from renewable energy sources by 2030. Algeria is indeed aiming to be a major actor in the production of electricity from solar photovoltaic and solar power, which will be drivers of sustainable economic development to promote a new model of growth.

The national potential for renewable energy is strongly dominated by solar energy. Algeria considers this source of energy as an opportunity and a lever for economic and social development, particularly through the establishment of wealth and job-creating industries. The potential for wind, biomass, geothermal and hydropower energies is comparatively very small. This does not, however, preclude the launch of several wind farm development projects and the implementation of experimental projects in biomass and geothermal energy.

The renewable energy and energy efficiency program is organized in five chapters :
  ▸ Capacities to install by field of energy activity,
  ▸ Energy efficiency program,
  ▸ Industrial capacities to build in order to back up the program,
  ▸ Research and development,
  ▸ Incentives and regulatory measures.

The program provides for the development by 2020 of about sixty solar photovoltaic and concentrating solar power plants, wind farms as well as hybrid power plants.

The projects for the domestic production of electricity from renewable energy sources will be carried out in three phases :

▶ The first phase, between 2011 and 2013, will be devoted to the achievement of pilot projects to test the different available technologies,

▶ The second phase (2014 – 2015) will mark the beginning of the deployment of the program,

▶ The last phase, between 2016 and 2020, will be devoted to the large-scale deployment of the program.

These phases are a part of Algeria's strategy, which is aimed at developing a genuine solar industry along with a training and capitalization program that will ultimately enable the use of local engineering and establish efficient know-how, including in the fields of engineering and project management. The renewable energy program to meet domestic needs in electricity will generate several thousand of direct and indirect jobs.

The energy efficiency program consists mainly in the achievement of the following :

▶ Improving heat insulation of buildings ;

▶ Developing solar water heating ;

▶ Spreading the use of low energy consumption lamps ;

▶ Substituting all mercury lamps by sodium lamps ;

▶ Promoting LPG and NG fuels ;

▶ Promoting co-generation ;

▶ Conversing simple cycle power plants to combined cycle power plants, wherever possible ;

▶ Developing solar cooling systems

▶ Desalinating brackish water using renewable energy.

The renewable energy development program has a national character affecting the majority of sectors. Its implementation, under the aegis of the Ministry of Energy and Mines, is opened to both public and private operators.

Nº	Indicator - Political Support	Indicator	Results
1	National or State Policies	PO-01	YES
2	Funding mechanisms to support ICT research	PO-02	Is foreseen
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	Is foreseen
4	Support to MED-TPs	PO-04	YES
Nº	Indicator - Industrial support	Indicator	Results
5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	2
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	2
7	Involvement in European funded projects	IN-03 (1-5)	2
8	Independence of local industry	IN-04 (1-5)	NO
9	Foreign Direct Investment (FDI) and presence of development centres	IN-05 (1-5)	Medium
10	Market Demand	IN-06	Is foreseen
11	Number of Patents	IN-07 (1-5)	2
12	Support to MED-TPs	IN-08	YES

Nº	Indicator - Academic support	Indicator	Results
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	Medium
Nº	**Indicator - Academic support**	**Indicator**	**Results**
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	3
15	Researchers operating in the targeted field	AC-02 (1-5)	3
16	Number of yearly scientific publications	AC-03 (1-5)	3
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	1
18	Existing cooperation with EU countries	AC-05	Is foreseen
19	Support to MED-TPs	AC-06	YES
Nº	**Indicator - General**	**Indicator**	**Results**
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	1
21	Innovation policy and/or initiative	GE-02	Is foreseen

2.2.11 ICT for Health

Creation of a National Healthcare System

During 2005, the (Caisse Nationale des Assurances Sociales des Travailleurs Salariés) CNAS made the decision to implement a nationwide healthcare system based on a strong IT infrastructure. The basic aim was to upgrade the system from manual to electronic in order to provide better health services to their citizens. This new infrastructure fell under the guiding scope of the CNAS Increasing the overall security of the system was the key driver in this decision. However, dematerialization was also an important factor as it will facilitate claim processing, automate prescriptions and create a compensation system between health professionals, Insurance companies and Algerian citizens.

At the same time, the system needed to cover both the administrative and care sides of healthcare, including objectives, functionality, conditions for success, limitations, cost, and security. This system itself is a central repository for information, which is gathered, stored, treated, and shared in order to ease management of health services, including evaluation of cases and planning.

This repository provides a powerful tool in which the CNAS, health professionals, and patients can benefit from a greater visibility of the service, health needs across the population, and it provides useful indicators for use. The wider advantages of this system range from the simple creation of the software environment, to the implementation of a communications architecture between the different hierarchies of the healthcare system. Information stored can be communicated in real time to care givers, managers, the state and others deemed appropriate in order to take timely and relevant decisions and manage expenses, whether on local, regional or national level. It also enables a thorough analysis which enables, as an example, adjusting the number of healthcare professionals (doctors, pharmacies, care centers, etc) to a given population in a given place.

Introducing a card based healthcare project is part of a series of social security reforms designed to update the entire Algerian information system.

Nº	Indicator - Political Support	Indicator	Results
1	National or State Policies	PO-01	Is foreseen
2	Funding mechanisms to support ICT research	PO-02	Is foreseen
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	Is foreseen
4	Support to MED-TPs	PO-04	YES

Nº	Indicator - Industrial support	Indicator	Results
5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	Low
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	Low
7	Involvement in European funded projects	IN-03 (1-5)	Low
8	Independence of local industry	IN-04 (1-5)	NO
9	Foreign Direct Investment (FDI) and presence of development centres	IN-05 (1-5)	Medium
10	Market Demand	IN-06	Is foreseen
11	Number of Patents	IN-07 (1-5)	Low
12	Support to MED-TPs	IN-08	YES
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	Medium low
Nº	Indicator - Academic support	Indicator	Results
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	3
15	Researchers operating in the targeted field	AC-02 (1-5)	Medium
16	Number of yearly scientific publications	AC-03 (1-5)	Medium
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	Low
18	Existing cooperation with EU countries	AC-05	Is foreseen
19	Support to MED-TPs	AC-06	YES
Nº	Indicator - General	Indicator	Results
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	Low
21	Innovation policy and/or initiative	GE-02	YES

2.2.12 ICT for Transport

Transport is one of the fundamental pillars of sustainable development and prosperity of any country. Efficient transport systems and modern networks are a necessity for economic development, social welfare, the large-scale production, and environmental protection.In Algeria, the transport sector is experiencing a real change. A large number of projects were carried out, or are in course of realization, in order to make the sector more efficient and effective in its contribution to the economic development of the country.

Road network

The Algerian road network remains one of the densest of the African continent, its length is estimated at 112,696 km of roads, 29 280 km of which are highways and more than 4910 big structures (bridges, tunnels etc…). This network should be complemented by a large stretch of 1216 km, which is underway, which should eventually link the city of Annaba in the extrem East to the city of Tlemcen in the extreme West.

The Algerian road network is booming thanks to the modernization program of highways. We include the completion of the East-West Highway totalling 1216 km and the upcoming launch of construction works of the highway in the highlands of 1020 km.

There is also the Trans-Saharan Highway (north-south), which was promoted by the government in order to increase trade between the six countries along this road (Algeria, Mali, Niger, Nigeria, Chad and Tunisia).

Railway network

The railway network of Algeria is of 2,150 km, it has recently experienced electrification at some sections, which should lead, shortly, the installation of high-speed trains that would connect the major cities of the country. The railway network is managed by the National Rail Transport (SNTF).

The network has more than 200 stations covering mainly the North of the country:
- 299 km of electrified
- 305 km of doubles ways and 1 085 km of narrow gauge.

Among railway projects that are underway, are included namely the electrification of 1,000 km of railways and the construction of 3,000 km of railways. By 2014, the length of the rail network will be of 10 515 km.

Air transport

Algeria has developed its air transport sector in order to make it a genuine vehicle for integration at regional and international levels. A budget of 60 billion dinars (600 million) will be devoted to renew the fleet of "Air Algerie" during the period 2013-2017. The national airline will soon acquire three new aircraft with a capacity of 150 seats and renew its three Boeing 767 currently in service. It is also expected the purchase of two cargo planes to transport goods. During the summer season, "Air Algerie" has recorded a growth rate of its total traffic of about 15%. In 2011, "Air Algerie" revenues were 56 billion dinars. Closer cooperation will empower Arab airlines to face strong competition that marks the global air transport.

Algeria has 35 airports, including 13 international ones. The most important is Algiers Airport with a capacity of more than 6 million passengers per year. Air Algérie is the national airline; it dominates the air transport market that counts, since its opening to competition, eight other private companies. It serves several lines to the Europe, Africa, Canada, China, the Middle East. Several foreign airlines have flights to Algeria namely: Tunis Air, Royal Air Morocco Air France, Air Italy, Aigle Azur, Lufthansa, Turkish Airlines, British Airways.

Maritime transport

The Algerian National Navigation Company (CNAN) and the National Shipping Company of travellers are involved in maritime transport in Algeria. Several ferry (ferry boat) liaise passengers to European shores as well as the transport of goods around the world.

The almost all of international trade is carried by sea, through eleven commercial ports as follows:Algiers, Oran, Annaba, Skikda, Arzew / Bethioua, Bejaia, Mostaganem, Ghazni, Jijel, Ténès and Dellys.

With the exception of oil and gas terminals, there was very little development works of port infrastructure facilities

Urban transport - **Sectorial strategy**

The sectorial strategy aims to increase the supply of transport to:

- Meet the mobility needs of people and goods;

- Improve the quality of service by reducing travel time;

- Meet the logistical needs of economic operators;

- Ensure sustainable development while promoting inter-modality and interconnection of different transport modes.

It is in this perspective that the Algerian state has defined programs in the transport sector for different periods (1999-2004, 2005-2009, 2010-2014).

In this respect a budget of $ 40 billion has been reserved for the transport sector within the five year program for 2010-2014:

- Modernizing and expanding railway: 30 billion dollars;
- Improving urban transport including the implementation of tramways across 14 cities;
- Modernizing the airport sector.

ICT for transport and logistics

The University of Blida-1 holds with the scientific support of Laval University, the 1st International Symposium on Logistics and Transportation in Algeria.

This first Algerian-Canadian Symposium on interconnected and open logistics of transportation, production and supply chain challenges the scientific community, industry and government to think on the establishment of a national logistics and transportation strategy related to the critical development of these sectors

The international event has bring together prominent personalities of the industrial, institutional (governments, agencies) and academic communities. The goal has been to create a multidisciplinary synergy around engaged professionals well-diversified and highly competent - researchers, administrators, industrialists, politicians, environmentalists, computer scientists and geomaticians, economists, architects and urban planners, lawyers, management and marketing specialists - in order to build new foundations and to progress towards efficient and sustainable interconnected Logistics.

The growing international policy momentum on issues such as economic efficiency, new regulations, natural resources shortage, as well as issues related to security, safety, health and environmental (climate change) brings forth some major challenges that human societies will increasingly face in the coming years.

In Algeria, where the infrastructure of the logistics and transportation network is under construction, the development and the gradual deployment of interconnected and sustainable logistics platforms are an excellent opportunity to boost the country to position itself in the future. This can be achieved through the creation of a center of excellence which should coordinate the initiative and be at the lead of the development of concepts, models, standards and protocols related to the transportation and logistics sector. Moreover, the center of excellence must be firmly rooted in the regional, national and international reality to make a tangible contribution to the prosperity, sustainability, attractiveness and the national and international reputation of Algeria.

Nº	Indicator - Political Support	Indicator	Results
1	National or State Policies	PO-01	Is foreseen
2	Funding mechanisms to support ICT research	PO-02	Yes
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	Is foreseen
4	Support to MED-TPs	PO-04	YES
Nº	Indicator - Industrial support	Indicator	Results
5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	Low
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	Low

Nº		Indicator	Results
7	Involvement in European funded projects	IN-03 (1-5)	Low
8	Independence of local industry	IN-04 (1-5)	NO
9	Foreign Direct Investment (FDI) and presence of development centres	IN-05 (1-5)	Medium low
10	Market Demand	IN-06	No
11	Number of Patents	IN-07 (1-5)	Low
12	Support to MED-TPs	IN-08	YES
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	Low
Nº	**Indicator - Academic support**	**Indicator**	**Results**
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	Medium low
15	Researchers operating in the targeted field	AC-02 (1-5)	Low
16	Number of yearly scientific publications	AC-03 (1-5)	Medium low
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	Low
18	Existing cooperation with EU countries	AC-05	YES
19	Support to MED-TPs	AC-06	YES
Nº	**Indicator - General**	**Indicator**	**Results**
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	Low
21	Innovation policy and/or initiative	GE-02	YES

2.2.13 ICT for Environment

The main environmental issues in Algeria concern air quality, management and quality of water resources, waste management, nature conservation, coastal and marine pollution and desertification. Algeria has developed a national strategy and action plan for the environment and sustainable development. A number of specific sectoral programmes have been adopted, in particular on desertification, waste management and the protection of coastal and marine areas.

e-waste managment specific regulations. Establishment of an information system for mapping Waste Management installations (PAPSE-Programme d'Appui à la Politique Sectorielle pour l'environnement)

Nº	Indicator - Political Support	Indicator	Results
1	National or State Policies	PO-01	NO
2	Funding mechanisms to support ICT research	PO-02	YES
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	Yes
4	Support to MED-TPs	PO-04	YES
Nº	**Indicator - Industrial support**	**Indicator**	**Results**
5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	Low
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	Low
7	Involvement in European funded projects	IN-03 (1-5)	Low
8	Independence of local industry	IN-04 (1-5)	NO
9	Foreign Direct Investment (FDI) and presence of development centres	IN-05 (1-5)	Medium low
10	Market Demand	IN-06	No
11	Number of Patents	IN-07 (1-5)	Low

12	Support to MED-TPs	IN-08	YES
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	Low
Nº	**Indicator - Academic support**	**Indicator**	**Results**
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	Medium low
15	Researchers operating in the targeted field	AC-02 (1-5)	Low
16	Number of yearly scientific publications	AC-03 (1-5)	Medium low
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	Low
18	Existing cooperation with EU countries	AC-05	YES
19	Support to MED-TPs	AC-06	YES
Nº	**Indicator - General**	**Indicator**	**Results**
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	Low
21	Innovation policy and/or initiative	GE-02	Yes

2.2.14 ICT for Foods and Plants

Nº	**Indicator - Political Support**	**Indicator**	**Results**
1	National or State Policies	PO-01	No
2	Funding mechanisms to support ICT research	PO-02	Yes
3	Future Plans, Priorities and Strategies in ICT R&D	PO-03	Yes
4	Support to MED-TPs	PO-04	Yes
Nº	**Indicator - Industrial support**	**Indicator**	**Results**
5	Presence of Large ICT Industry doing Research and Innovation	IN-01 (1-5)	Low
6	Presence of Research and Innovation Intensive SMEs	IN-02 (1-5)	Low
7	Involvement in European funded projects	IN-03 (1-5)	Low
8	Independence of local industry	IN-04 (1-5)	NO
9	Foreign Direct Investment (FDI) and presence of development centres	IN-05 (1-5)	Medium low
10	Market Demand	IN-06	No
11	Number of Patents	IN-07 (1-5)	Low
12	Support to MED-TPs	IN-08	YES
13	Already existing commercial cooperation with European industries	IN-09 (1-5)	Low
Nº	**Indicator - Academic support**	**Indicator**	**Results**
14	Number of Universities, Research Centres and Higher Education Institutions	AC-01 (1-5)	Medium low
15	Researchers operating in the targeted field	AC-02 (1-5)	Low
16	Number of yearly scientific publications	AC-03 (1-5)	Low
17	Previous participations in FP6-FP7 R&D projects in the ICT priority	AC-04 (1-5)	Low
18	Existing cooperation with EU countries	AC-05	YES
19	Support to MED-TPs	AC-06	YES
Nº	**Indicator - General**	**Indicator**	**Results**
20	Previous participations in FP6-FP7 R&D projects in the ICT priority	GE-01 (1-5)	Low

| 21 | Innovation policy and/or initiative | GE-02 | YES |

2.2.15 Other ICT domains

Cybersecurity

In May 2008, the government introduced a new cybercrime bill after reports stating that government websites receive about 4'000 hacking attempts per month and that websites of financial institutions criminalized online activities such as blackmailing, hacking, copyright infringement, stealing personal data, promoting terrorism and online crimes. In May 2009, the bill was followed by the creation of a new national security service which focused on cybercrime. The Cybercrime Bill establishes special rules for the prevention of crimes related to media technologies and communication.

Justice

Use of communication technologies and information (ICT) in the field of justice to improve the quality of services for the citizen. The modernization of justice sector will not occur without the modernization of management. The purpose of the bill is through "the development of a computer system that allows the improvement of the quality of services and the abandonment of some of the procedures which encumbered the citizen". Training programs are made for the benefit of judges and personnel administration in the use of ICT

2.3 List of contributors

The following table compiles the list of contributors to the analysis (data collected by interviews or by email campaign).

Nº	Name	Surname	Organization	Type (*)
1	Nadjia	Benblidia	Blida1 University	Academic
2	Saliha	Oukid	Blida1 University	Academic
3	Abdelouahab	Boukharrouba	PDG ELIT/Sonelgaz	SME
4	Abderrezak	Guessoum	Blida1 University	Academic
5	Hayet	Merouani	Badji Mokhtar University - Annaba	Academic
6	Menaouer	Boughedaoui	Blida1 University	Academic
7	Yazid	Boukhalfa	Sonelgaz	SME
8	Benina	Touaibia	National High School for Hydraulics (ENSH)	Academic
9	Djamel	Djenouri	CERIST	Academic
10	Hakim	Bendjenna	Larbi Tébessi University -Tébessa	Academic
11	Mourad	Haddadi	Ecole Nationale Polytechnique	Academic
12	ali	benatiallah	Universite d'Adrar	Academic
13	Ali	Kahlane	SATLINKER	SME
14	Nassira	Ghoualmi	Badji Mokhtar University - Annaba	Academic
15	Mohand Tahar	Belaroussi	CDTA	Academic
16	Abdelmalek	BELLAOUANE	Gérant	SME
17	Yacine	Zerrouki	ERICSSON ALGERIE	SME
18	Ahmed	Benali	USTHB	Academic
19	Nadjats	MALTI	Incubateur d'Oran	SME
20	F. Zohra	Reguieg	Université Blida1	Academic
21	Noufeyle	HADID	Université Alger 3	Academic
22	Sihem	KECHIDA	Université de Guelma	Academic
23	Abdelfetah	Hentout	CDTA	Academic
24	Ali	Gharsallah		
25	Abdelkrim	Meziane	CERIST	Academic
26	Mabrouk	CHERCHOUR	DG/NTIC Solutions	SME
27	Larbi	Oucherif		
28	Kamel	Boukhalfa	USTHB	Academic
29	Mehdi	ZAKARIA		
30	Amina	Chentir	Université Blida1	Academic
31	Rabah	FRAGA		
32	Omar	Boussaid	Lyon2	Academic
33	Karim	Khegar	SNTF	SME

(*) Industry (Large), Industry (SME), Academic, Government

Section 3 -   Conclusions

The critical mass in Algeria to create a Working Group in the future Technology Platform of Maghreb:
- Telecommunications
- Electronics Media & Contents
- Software & Services
- Robotics

There are also actors involved in areas such as:
- Embedded Intelligence and Systems
- ICT for Energy
- ICT for Health
- ICT for Environment

A reduced number of Algerian actors are involved in the following field
- High Performance Computing
- Photonics
- Nanoelectronics
- Smart Systems Integration
- ICT for Transport
- ICT for Food and Plants

Annex I - Acronyms

Term / expression	Description
ETP	European Technology Platform
ICT	Information and Communication Technology
LatAm	Latin America
LATP	Latin America Technology Platform
SRIA	Strategic Research and Innovation Agenda
TP	Technology Platform