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

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Abstract

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Disclaimer

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Section 1 - Background

1.1 Situation for ICT

1.1.1 General overview

In the Maghreb region, the ICT is among the most dynamic sectors and has a promising potential of growth. The multiple success stories justify this and show the existence of a software industry able to innovate and export its know-how. At this level, the Maghreb countries have competencies that are internationally approved as well as active on the ICT world market. Maghreb has several professional associations representing the sector's branches of activities.

1.1.2 Situation of research and innovation

The system is the same at the different countries of the Maghreb region. The analysis of the Maghreb system of the research-development and innovation in the ICT field shows that this sector remains dominated by the public actions through dedicated institutes or universities and management training establishments. It is characterized by an asserted political will, an acknowledged human capital and a constituted (corporate) network.

This system shows, however certain weaknesses in connection to a too reduced private financial support and a limited relationship with the productive world: hence, moderate innovation capabilities.

The environmental analysis carried out has identified the ICT sector as a priority for the Maghreb countries. It is one of the most dynamic sectors and among those whose growth rate is the highest. Its direct contribution to the wealth creation and employment is increased by the leverage effect which it exerts on the other economy sectors into which it is introduced. This situation results from a diagnosis and a compared analysis of the situation of Maghreb countries. It has led to the development of a vision translated into precise objectives. For example, the developed strategy e-Morocco is based on several Areas: training, research, infrastructures, inciting measures, governance, promotion, etc. The strategy was declined in plans and programs specifying the actions to be realized, pilots, budgets required objectives and deadlines.

The progression of the Maghreb countries classification on the international scale for some ICT indicators and the recorded statistics consolidate the positioning and the choices operated in particular for telecommunications and the offshoring. These branches have been through spectacular developments. The priority domains are confirmed and are also able to be preserved for the future. Obviously the tendencies will be maintained by the anticipation and by taking into consideration the constant evolution of the economy and the ICT sector. Thus the protection of the individual data constitutes a requirement for maintaining competitive advantages of Maghreb countries for the offshoring activities. The regulation improvement of the telecommunication sector reinforces the attraction of the branch and the involvement of new actors. This stimulates innovation, offers diversification and reinforces its development.

Finally, a budding segment that has grown and seems to be promising for the future is the e-learning. Indeed companies, administrations as well as universities could all benefit from e-learning, considered as the suitable solution for the development of competencies. The necessary conditions for the implementation are laid out. Some projects are already launched in various sectors in different countries of the Maghreb region.

The environmental analysis as well as the expert's opinions and analysis carried out affirm that the ICT sector occupies a relevant primary role in the Maghreb region economy. In addition to generating employment, the incomes and the currencies, the introduction of ICT into other economy branches has a lasting effect on development. Their contributions in the effectiveness of management can be pointed out as well as, the commercial transactions easiness and the competitiveness improvement.

1.1.3 Situation of industry and academia

All Maghreb countries are aware of the strategic interest of ICT by providing them a central place in government programs. For example, in Morocco, the Strategy "Maroc Numérique 2013" reflects the vision of government for the promotion of the sector. However, a line of development is nestled in the research and development programs and our countries could benefit from cooperation agreements with the preferred strategic partner represented by the EU. This is the same conclusion in the different Maghreb countries including Algeria, Tunisia and Libya.

1.2 Situation for ICT (Morocco as an example)

The Moroccan kingdom has initiated a development policy in order to access the emergence in 2020. This revival began with the identification of the key areas and the launch of the major Project. The principal areas concerned are:

- Industry :

Signing the national pact for industrial emergence (PNEI) covering the 2009 2015 period and to build a strong industrial sector, also, to create a virtuous circle of growth.

- Solar energy:

The launch of the Moroccan project of solar energy vision to have in 2020 a capacity to produce electric energy from the solar energy which capacity is 2000 MW.

- Wind energy :

Increase the share of wind energy in the total electric capacity of 14% in 2020.

- Tourism :

Moroccan economy pillar, the new sectorial strategy, vision 2020, aims to strengthen the tourism's role as engine of economic development, social and cultural in Morocco, and to hire morocco among the world's top 20 tourist destinations, in 2020.

- Agriculture :

The agricultural sector contributes about 19% of the national GDP, shared between agriculture (15%) and agribusiness (4%). This sector employs more than 4 million of people including 100 000 in agribusiness. The new agricultural strategy, Green morocco plan (PMV) set up by the agricultural ministry and Fisheries aims to consolidate the achievements and successes and to resist to the new challenges of morocco in terms of competitiveness and open market

- The logistic :

The national strategy for the development of the logistics competitiveness which was subject of 2010 – 2015 program contracts, plans to reduce logistics costs by 20 to 15% of the gross domestic product (GDP).

Including on the completion of 70 logistics centers in several cities (2,080 ha) by 2015. The new logistics strategy of the Kingdom, aims to accelerate economic growth by 0.5 percentage point of GDP per year, or 5 percentage points of GDP in 10 years.

It aims to optimally manage the increasing flow of goods both import and export. It is considered therefore as an essential part of all sectoral strategies and their keystone in order to serve directly the interests of economic operators and enhance their competitiveness.

- The ICT

The program "Maroc Numérique 2013" or "Digital Morocco 2013" was built around a clear ambitions and vision for Morocco, aimed at positioning it among dynamic emerging countries in the Information and Communication Technologies.

- Trade and Distribution

Domestic trade contributes of 11% of GDP and employs around 1.2 million people or 12.8% of the Moroccan workforce. The Department of Trade and Industry has developed the plan entitled Rawaj vision 2020 for the development of trade and distribution sector.

- Big Data

Partnership between companies specializing in the sector and Moroccan institutions. We have for example the IBM MEAUniversity project which aims to train specialists for free in the area of big data to meet the market needs.

- Telecommunication

ANRT (National Agency of Telecommunications Regulation) in collaboration with the ministries and other government entities are working on projects to provide access to high speed internet connection. Add to that the publications and research conducted in different laboratories.

- Intelligent Transportation System

Several laboratories are working on ITS. It is an area of research that holds great promise particularly since Morocco knows the emergence of smart-cities projects.

- Education

Given the reforms maintained at the National Education and efforts to computerize this latter, as the Masar program (computerization of public institutions information system) and INJAZ program (allow easy access to computer skills to all students of engineering schools, Master and PhD in offering their computers and tablets as well as a connection to very low prices).

- E-government¹

Given the efforts that Morocco leads in the direction of information and communication technologies, the e-administration ... It was logical that the United Nations (UN) puts Morocco in 82nd rank in the world, and this in its report on e-government established by the United Nations

¹ Source : Moroccan ICT News

Economic and Social Affairs (UNDESA), a rank that has seen a marked improvement in 38 points compared to the 2012 edition.

All these sectors impact or are expected to impact in the near future on the Moroccan economy. In a global context where information and communication technology dominate in sectors subject to fierce competition from industrialized countries, it seems more than necessary as the revitalization of research areas mentioned above must be based on ICT methods.

Thus, the use of Information Technology and Communication (ICT) is an essential factor for the emergence of the knowledge society and can actively contribute to human development, improving social cohesion and growth of the national economy. Also the stake for Morocco in the ICT sector in the coming years will be to not only sustain the progress already made, but especially to allow Morocco's integration into the global knowledge economy, through integration amplified and widely distributed of information technology at all actors in society: state administrations, businesses and citizens.

As mentioned above, the program "Digital Morocco 2013", a showcase of the unwavering commitment of the Moroccan authorities, was launched in 2009. Figure 1 illustrates the objectives of the project.

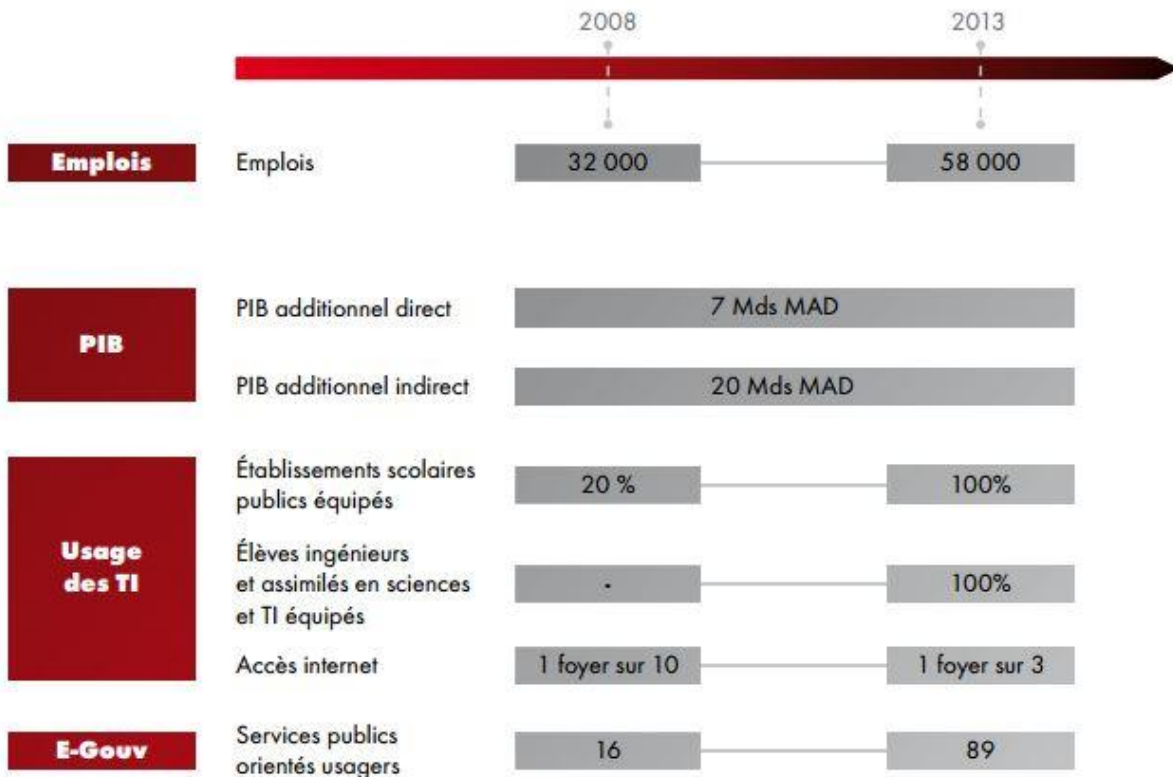


Figure 1: objectives of program "Digital Morocco 2013" ²

² Source : <http://www.egov.ma/sites/default/files/Maroc%20Numeric%202013.pdf>

Section 2 - Observations

We are convinced that the MOSAIC project responds to the need for more regional-oriented thinking, perspectives and opinions on global issues that impact and influence ICT sector and ICT for transport, health, wellbeing, energy, agricultural and by extension, human health and development in the Mediterranean region. This initiative is important for a production of extensive literature on key topics and relates the issues of development interest to the region. It will also provide an additional and alternative platform and work groups for regional professionals to support a wider range of topics for a necessary development.

All reports recognized the limitations of Maghreb countries acting alone in addressing the challenges posed by the current ICT sector and ICT for transport, wellbeing, energy, agriculture, food and health scenarios and for greater regional collaboration in order to achieve success.

Developing research to expand on the ideas for use by all those interested in understanding the complex interrelationships among ICT sector and ICT for transport, wellbeing, energy, agriculture, food and health and the difficulties involved in designing policies and programmes to generate desirable development outcomes is the major impact. The help for installing technological platforms and working groups is a first step.

Section 3 - Proposed Course of Action

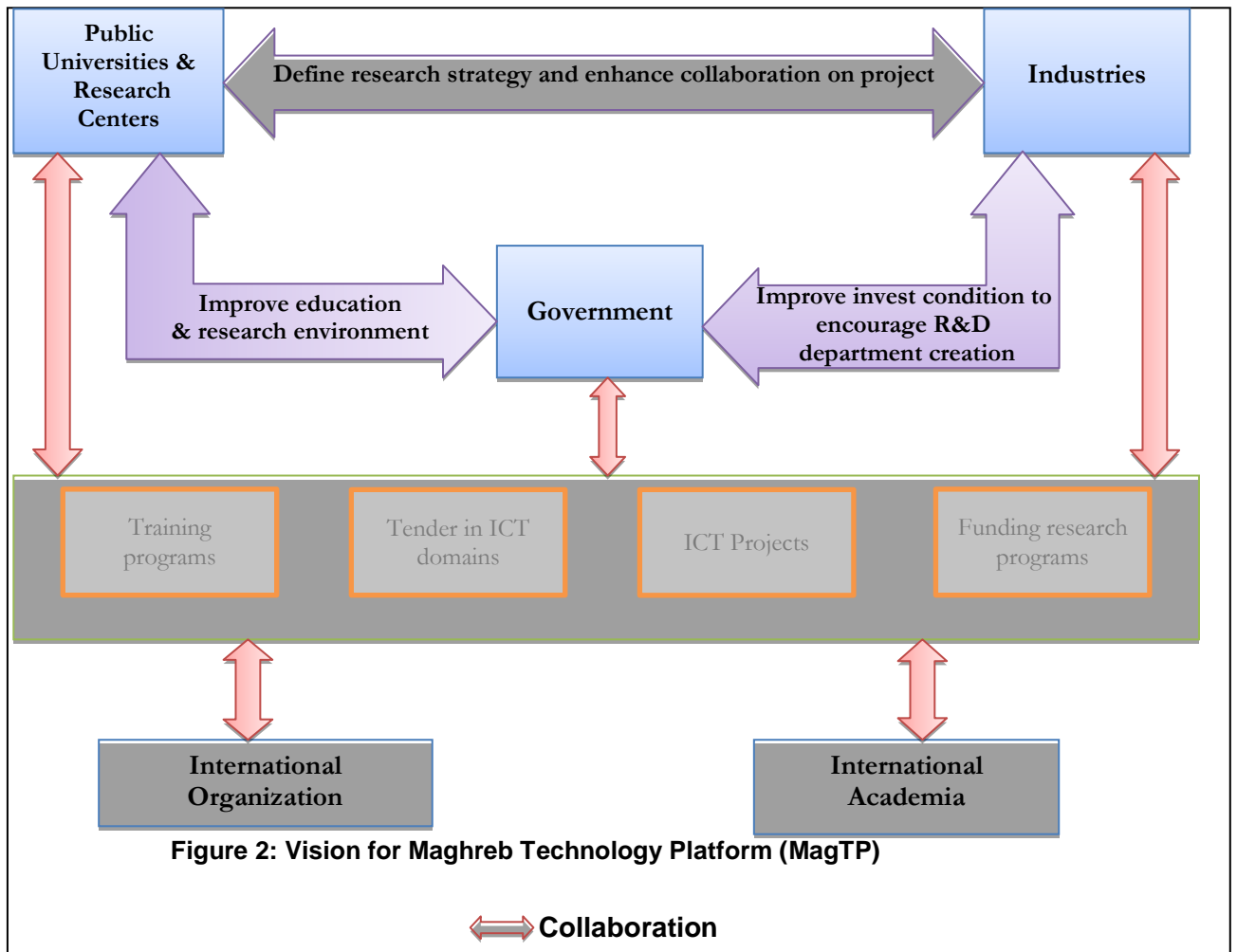
As said in the beginning, in the Maghreb region, the ICT is among the most dynamic sectors and has a promising potential of growth. However, the analysis of the Maghreb system of the research-development and innovation in the ICT field shows that this sector remains dominated by the public actions through dedicated institutes or universities and management training establishments. It is characterized by an asserted political will, an acknowledged human capital and a constituted (corporate) network.

This system shows, however certain weaknesses in connection to a too reduced private financial support and a limited relationship with the productive world: hence, moderate innovation capabilities. Thus, our vision for Technology Platform of the Maghreb region called (MagTP) would be:

- To create initially an educational policy for the establishment of a partnership between public institutions and the corporate world.
- To serve as a liaison between the provider (the world of research) and consumers (clients). This connection allows companies to be able to identify the different problems and propose solutions to address them using Universities potential. In addition, this partnership will exponentially boost the research areas, particularly since it will be partly funded by the corporate world. The most important point is that the data for testing exist, are new, and the products will no longer need to be adapted as opposed to imported solutions.
- To intensify North-South cooperation in order to capitalize on the experiments conducted in industrialized countries. The companies of the European countries have a great experience in terms of cooperation between academia and business.
- To encourage innovation by funding innovative projects in the field of ICT. For example, in Morocco, at present 68 innovative businesses creation projects among 123 submitted projects were selected by the selection committee and Evaluation (CSE). However, given these statistics, less than 1% of Morocco's GDP is used to fund research and development and more than 73% of funding comes from the public, many things remains to be done. The situation is similar in other Maghreb countries as Algeria, Tunisia or Libya. This is very little in comparison with those of Spain (1.3% of GDP in 2012) and France (2.26% GDP in 2012). More resources should be put at their disposal to help finance their projects of advantages.
- To encourage the creation of center of research and development in the private sector (institutions and/or companies).
- To create a strategic ICT Industry in the Maghreb region.
- To create a steering committee whose main function is to guide the deployment of knowledge, promotion of research through innovation, adherence to regulations, and the provisioning of secure sustainable funding for key ICT disciplines.
- To create a marketing and sales strategy and to explore international market statuses, via slick market intelligence, and pursue collaborative activities with similar platforms.
- To create working groups for each of the identified areas.

- To respond to the researchers, innovators, inventors, and entrepreneurs, in the respective fields of operation in addition to ICT researchers whose main task/s would be the formulation of uniquely innovative solutions for targeted problems.
- To select the researchers from various academic institutions, SMEs and the ICT industries involved.
- To ensure that the marketing and sales strategy shall include local companies from the private sector as well as international partners. The cooperation between the government, the academy and the private sector is essential for the success of the creation of a significant ICT and ICT based industry.
- To show the importance of research and development in the development through the creation of a platform for exchange and communication, but also favorable to the creation of more R&D centers in the private sector.
- To allow organization of global Mediterranean workshops/meetings on standards to be taken for each topic.
- To allow organization of a Master degree for different topics with transversal educational program.
- To allow organization of local/regional meetings for strategic/technological collaboration programs.

The following figure gives an overall picture of our vision for the Maghreb Technology Platform (MagTP).



Section 4 - Benefits for the members of the Maghreb Technology Platform

Maghreb region could benefit from the opportunities offered by this project to creating ICT technology platforms and improve the cooperation with European ICT industry. The transfer of European best practices in this area is one of the benefits of this collaboration to accelerate the process of creation, expansion and efficiency.

The Platforms for specific needs will give visibility to researchers and their institutions. The European platforms will also benefit from the identification of national resources to meet their needs and expand the scope of their networks. These spaces are also the place for defining a rational policy for collaborative research projects involving public, semi public and private.

Operators and manufacturers participating will find a monitoring tool to capture and position themselves on ways and opportunities bearing for near future and the future. They will make their voices heard to define a strategic vision ought to lead to programs to promote their activity sectors.

Governments whom are key players in promoting research will find a framework for establishing public/private partnership that will give it relevance of programs to the country needs and the necessary efficiency through the pooling of resources between major players in the search. They thus promote the consistent implementation of programs and the definition of research agenda around strategic challenges involving large-scale research and stretching over the long term.

By participating in these platforms, the other contributors (users, civil society ...) would strengthen the legitimacy of policy and programs pursued through the shared vision they have participated in defining. Taking into account social concerns, societal and ethical would reinforce the perception of the sustainability of policy research in this field. Thus could be promoted for example the development and use of free software and open source to improve accessibility and use of ICT and contribute towards to achieve the goal of a knowledge society. The development of new architectures of services and software could help provide government services online to citizens and strengthening the competitiveness and innovation in the economy. The European consortium Nessi for example has experience in such perspectives. This model and others known could be a reference for programs to be implemented in Maghreb region.

As per the MED-TP of Mashriq the MED-TP of Maghreb could serve to foster research and innovation collaboration with Europe on different programmes. The following programmes have been identified:

- Horizon 2020: <http://ec.europa.eu/programmes/horizon2020/>
- EUREKA (ITEA3 cluster for Software and Services): <https://itea3.org/>
- ERANET-MED: www.eranetmed.eu/

MED-TP could be the catalyzers of several European initiatives in the Maghreb region as shown in Figure 3.

- FI-WARE.
- Living Labs.

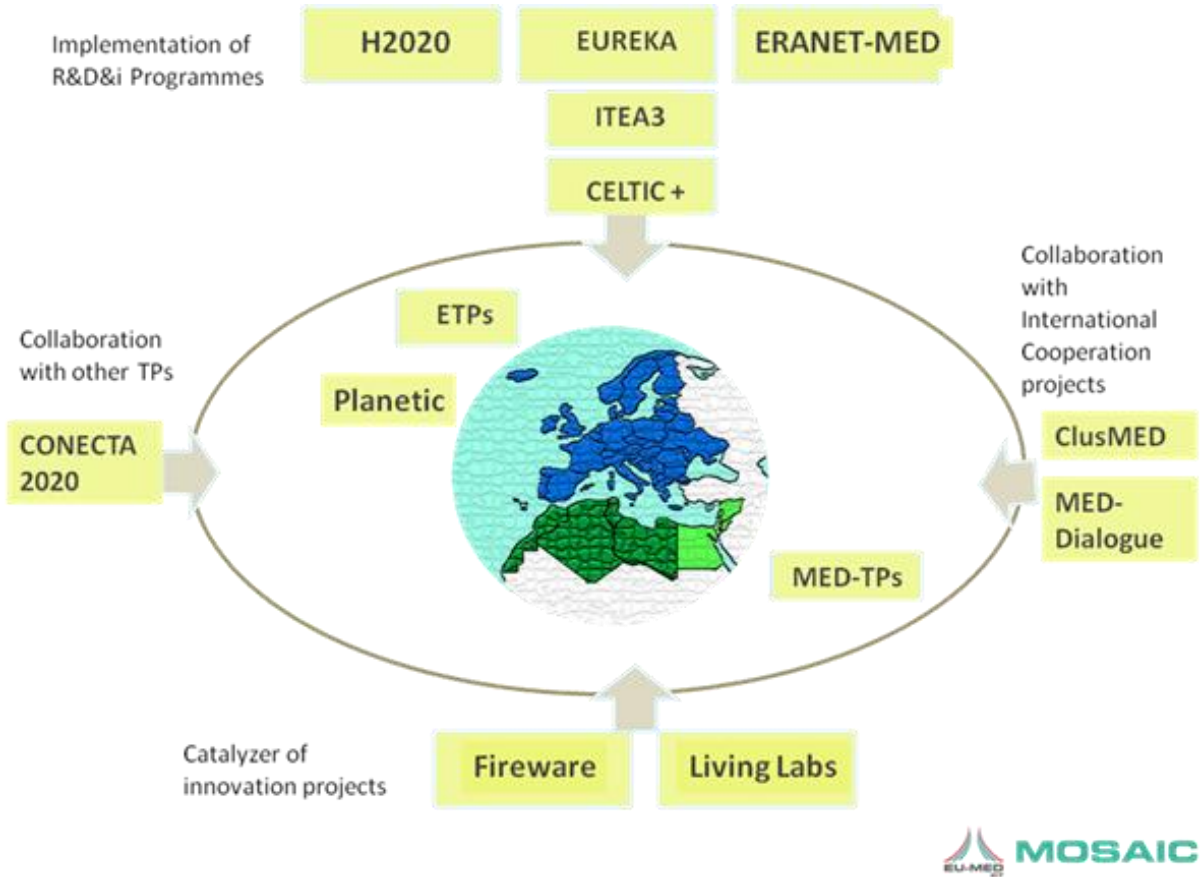


Figure 3: Catalyzer of Innovation Projects

Section 5 - Recommendations

European and Maghreb researchers and innovators can collaborate in several programmes including:

- Software & Services
- Cloud Computing
- Big Data
- Intelligent Transportation System
- Constraint Optimization
- Modelling and resolution
- 5G networks
- Networked Electronic Media (Contents)
- Telecommunications
- High Performance Computing
- Photonics
- Smart Systems Integration
- Embedded Intelligence and Systems
- Robotics
- Industrial Biotechnology Platform
- ICT for Health
- ICT for Transport: Waterborne, Road, Rail, Aviation
- ICT for Logistics
- ICT for Environment
- ICT for Water Supply and Sanitation
- ICT for Food and Plants
- ICT for Energy (ICT for wind energy, Renewable energy, Solar Energy, Biomass, Biogas, Hydro Power, Other renewable Sources, ICT for Photovoltaic energy, ICT for Electricity energy, ICT for Biofuels, ICT for Zero Emission Fossil Fuel Power Plants, ICT for Renewable Heating & Cooling, etc.)
- Etc.

Annex I - Acronyms

Term expression /	Description
ETP	European Technology Platform
ICT	Information and Communication Technology
SRIA	Strategic Research and Innovation Agenda
TP	Technology Platform
Maghreb	Morocco, Algeria, Tunisia, Libya, Mauritania