



Strengthening the Strategic Cooperation between the EU and
Western Balkan Region in the field of ICT Research

The ICT Research environment in ALBANIA



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ABSTRACT

The present report was firstly developed in March 2007 in the context of the EC funded project SCORE “*Strengthening the Strategic Cooperation between the EU and Western Balkan Region in the field of ICT research*”, and served for supporting ICT expert during the first consultation phase (May-June 2007) on the identification of relevant ICT research priorities in each WB country for the period 2007 – 2013. After the first consultation phase, the document was finally updated and optimised in September 2007.

The report provides a brief overview of the ICT research environment in Albania.

The Government of the Republic of Albania considers the development of the information society and the use and deployment of ICT in the country as one of the highest priorities in achieving higher living standards and economic growth. The goals of the National ICT Strategy are to exploit the potential of ICT in order to promote human development in the country, to support growth and sustainable development and to increase living standards for the whole population.

The ICT sector in Albanian has had considerable growth these last years. It’s notable to mention the number of the ICT companies created and active in the last five years. In the last three years, the liberalization of the Telecommunication market has been followed by the foundation of several Telecom Operators.

Scientific research activities in Albania are very limited, primarily due to the lack of infrastructure and the insufficiency of financial resources. A considerable number of qualified specialists have left scientific research institutions and most of them have emigrated abroad. Specialized ICT departments in particular have suffered considerably from “brain drain.”

Nevertheless, in the context of integrating Euro-Atlantic processes, the academic community has been involved in some important regional projects funded by the European Commission. The country’s participation in the European Commission’s Framework Program 7, as an important activity that encourages European integration, is supported through participation in SEE-ERA and IDEALIST projects.

Main projects in ICT research in the country both in national and international level are focuses mainly in e-government, e-health, e-learning and e-infrastructure. Main ICT research capacities of research organisations in Albania includes: ICT supporting businesses and industry; ICT meeting societal challenges for governments; Software, grids, security and dependability; ICT for content, creativity and personal development; ICT meeting societal challenges for health; etc.

During 2007, the Council of Ministers has approved Albania status as associated to FP7. In order to associate the country to the FP7 Program, the government approved a draft for financing 200.000 Euro.

ICT should be used to create employment, to improve working conditions, and to motivate highly educated individuals to stay in Albania. National and local needs and circumstances will be an important factor to be considered for the development of the Information Society in Albania.

1 THE ALBANIAN ICT POLICY FRAMEWORK

1.1 The overall ICT policy framework

The Albanian National ICT Strategy¹ was created from a project co-financed by the Open Society Institute, the UN Department of Economic and Social Affairs, and UNDP Albania. Its aim has been to facilitate efforts by the Government of Albania, in cooperation with other national and international stakeholders, to develop a National ICT Strategy that identifies mechanisms and legal and fiscal frameworks needed to implement e-government, e-education and e-commerce initiatives, and the continued development of ICT infrastructure. This Strategy has been developed within the context of the overall National Strategy for Socio-economic Development, the European Stabilization and Association Agreement, and sub-regional activities under the EU Stability Pact. The Government of the Republic of Albania has committed itself to the “ESE Europe Agenda for the Development of the Information Society”. This agenda includes action items and a timetable for the development of an Information Society, which are in line with the actions and the roadmap defined in this National ICT Strategy, representing part of the regional process.

The Strategy builds on the many individual and sectoral e-initiatives already being implemented by other development organizations, such as the e-governance activities led by the Italian Government, World Bank, European Union, DFID and USAID, e-vocational and e-education and information activities led by the Open Society Institute and GTZ, as well as many other cross-cutting ICT activities supported by these and other donors.

The Government of the Republic of Albania considers the development of the information society and the use and deployment of ICT in the country as one of the highest priorities in achieving higher living standards and economic growth.

This Strategy document describes the general goals of the Strategy and defines a number of strategic actions that serve to achieve these general goals. For this purpose, the strategy is subdivided into five sections, and fourteen individual goals. The sections describe the major strategic areas to be addressed, and are directed to different target groups in the country:

Section I: Government as Promoter, Legislator and User of ICT, is directed at the government, and addresses the needs for suitable ICT institutional structures, policy definitions and introduction of e-government services.

Section II: Use of ICT for Education, Research, Health and Social Services, aims at deploying ICT for the direct benefit of citizens.

Section III: Building Infrastructure needed for an Open Information Society, addresses the need to deliver the infrastructure necessary for the information society.

Section IV: Generating Economic Growth in the Private Sector addresses the need to promote the private sector to embrace the tools of the information society.

Section V: Ensuring Relevance of ICT Strategy within a Regional and European Context focuses on the need to ensure ICT policy cooperation on a supranational level.

¹ <http://www.ictd.org.al> - Information and Communication Technologies Strategy project - co-financed by the Open Society Institute, the UN Department of Economic and Social Affairs, and UNDP Albania

Each Section is subdivided into several goals, which constitute the lowest level of detail in this strategy document. The following table describes the sections and the key goals of the Albanian National Information and Communication Technology policy.

Section	Goals
I. Government as Promoter, Legislator and User of ICT	1. Pro-Active, Well-Coordinated National ICT Policies
	2. Creation of ICT-Supportive Legislative Environment
	3. More effective, transparent, responsive government and public services: <ul style="list-style-type: none"> • Sub-goal 3.1: E-government services of government institutions at central level • Sub-goal 3.2: E-government services of administrations at regional and local levels
II. Use of ICT for Education, Research, Health and Social Services	4. Promoting basic computer literacy – ICT Education for all.
	5. Creating a cadre of advanced ICT specialists – Education and Research in the ICT Domain.
	6. ICT in Health and Social Services
	7. Supporting development of locally relevant content and applications
III. Building Infrastructure needed for an Open Information Society	8. Creation of a competitive, liberalized telecommunications sector.
	9. Development of inexpensive, fast and secure ICT infrastructure throughout Albania.
IV. Accelerating Economic Growth in the Private Sector	10. Development of the ICT Sector as a Production Sector.
	11. Supporting Electronic Business.
V. Ensuring Relevance of ICT Strategy within a Regional and European Context	12. Active participation in SEE regional Initiatives.
	13. Active participation in EU Initiatives.
	14. Monitoring of Albanian ICT Developments in Regional and European Context.

During 2006, the Government of Albania, with support from UNDP, undertook the initiative to revise and adapt the ICT strategy. The consultation process that took place during 2006 concluded with a draft document “Draft proposal for the ICT and telecommunications cross cutting strategy”, which is still a draft and not official for the public².

Besides all these efforts, Albania still lacks a real official ICT structure.

One of the measures taken recently from the Albanian Council of Ministers is the creation of the "National Agency of Information Society and Electronic Government" (AKSHI), which will prepare a strategic policy, coordinate and supervise the implementation of the programs and projects for Information Society. Its structure and organics will be approved by the Prime Minister.

² UNDP, Albania June, 2007

Main object of the Agency are:

- a) Compiling and implementation of the policies, strategies, official law acts for the development of the Information Society sector.
- b) Coordination of the policies and programs in the Information Society field.
- c) Promotion of investment in the field of Information Society.
- d) Promotion of new technologies in the field of Information Society.
- e) Education and fostering ICT use from the public.

Some other duties that will be performed from the agency are 1) Developing an internal ICT net for the public administration including a government net (GovNet), coordination for computerizing of the different sectors and other important institutions, creating online services. 2) To support and coordinate the project for the digitalization of law acts, archives, libraries. 3) To solicit and support ICT for public schools, including computerizing and Internet access. 4) To solicit and support development of e-business. 5) To solicit and support online services, internet and computer usage from the citizens 6) Collaboration with other national and international institutions, civil society and private sector in the field of Information Society.

1.2 The elements of ICT research policy making

Scientific research activities in Albania are very limited, primarily due to the lack of infrastructure and the insufficiency of financial resources. A considerable number of qualified specialists have left scientific research institutions and most of them have emigrated abroad. Specialized ICT departments in particular have suffered considerably from “brain drain.” For the same reason, public institutions encounter major difficulties to find the specialists necessary for the daily maintenance of ICT infrastructure and systems. The academic community has been ignored and, as a result, has not been involved in important ICT projects. This not only penalizes such projects by not involving independent specialists from academic circles, but it also penalizes specialists themselves by driving them toward emigration. ICT specialists are demotivated by low salaries, which undermine the entire public scientific research work system in Albania. This leads to serious, albeit hidden, consequences for the system of scientific research institutions, bearing long-term negative effects.³

However, in the context of integrating Euro-Atlantic processes, the academic community has been involved in some important regional projects funded by the European Commission. These projects represent an outreach of European development scientific research in the Balkans and the countries around it. Typical examples are the SEEREN and SEEREN2 projects for the connection of national educational research networks of the Balkan countries with the pan-European educational research network GEANT; as well as SEE_GRID and SEE-GRID2, which aim at the transfer and development in the Southeastern Europe region of European project results on GRID technologies, as an important component of the European Research Area (ERA). GRID technologies enable the exploitation of resources in the pan-European education research network through participation in European virtual research organizations. The project funded by the Italian government for the establishment of the

³ Republic of Albania, Electronic evaluation- Report for the ICT status in Albania, 2002-2005

national academic (education research) network in the country is expected to be of particular significance.⁴

Beside the development of new technologies and applications, FP7 envisions the continuation of the multi-year GEANT project that realizes the connection of national academic networks into a pan-European super network, as well as with networks of other continents.

The current national program for research and development in the ICT during 2007-2009, relying on achieved results, current international development trends, and government objectives, seeks to encourage new ICT developments and their use.

The country's participation in the European Commission's Framework Program 7, as an important activity that encourages European integration, is supported through participation in SEE-ERA and IDEALIST projects. SEE-ERA aims at enhancing ties between regional institutions for the encouragement of joint activities; IDEALIST aims at the circulation of information on different FP7 project proposals and participation therein is encouraged. The main objectives of the national research and development project are:

- Improving education for specialists on ICT knowledge and development.
- Developing computer networks to serve education and research.
- Developing integrating technological solutions and shared applications.
- Creating databases and increasing network security.
- Knowing and implementing new technologies in ICT education and research.
- Developing national and international promoting activities on ICT.⁵

During 2007⁶, the Council of Ministers has approved Albania status as associated to FP7. In order to associate the country to the FP7 Program, the government approved a draft for financing 200.000 Euro. The other part of funds will be collected from the European Union. According to the Ministry of Education and Science this initiative constitutes the greatest financial contribute given these last 15 years in favour of scientific research and it's the main step of the country integration in ERA. Minister of Education and Science, Mr. Pollo said that from this project could benefit all scientific research institutions, universities, private companies, public entities and central agencies, as well as individuals who can submit while building consortiums with their colleagues from the EU Member States.

2 OVERVIEW OF ICT ACTIVITIES

2.1 ICT research projects

As mentioned in the previous chapter research in ICT in Albania has not been a main focus. Nevertheless, there are some projects with the focus in ICT research in national and

⁴ Ministry of Education and Science: ICT Systems, National Program for Research and Development, 2007–2009, Tirana, 04.06.2007

⁵ Ministry of Education and Science: Information Systems and Technology, PKKZH 2007–2009, Tirana, 04.06.2007

⁶ "Shekulli Newspaper"- "The Albanian Government invests 200 thousand Euros to be associated member of FP7", 8th of September 2007

international level. The following table gives an overview of ICT research projects (national and international) carried out in the last 5 years in the country. The data are collected during the SCORE project activities. Some of the projects especially those in national levels do not represent direct research activities, but more development such as provision of infrastructure to create the suitable environment for future research activities.

ICT Research Area	National-funded Projects	International-funded Projects	Approximate level of funding in given area
e-government	<ul style="list-style-type: none"> To build the LAN infrastructure in the High School of Police in Tirana, and their use in updating administrative information, didactic- scientific and library based information. 	1.SWEB 2.Gov Net 3. Support to pilot e-government services for Government of Albania	181,215 Euro (there are not included the budgets for GovNet and Support to...)
e-health	<ul style="list-style-type: none"> Development of information system and the administration of databases in Public health sector. 		75,585 Euro
e-learning e-science e-infrastructure	<ul style="list-style-type: none"> Establishment of infrastructure network for the Sport Education Academia in Tirana and its use in circulation of didactic and scientific information based on the hyper textual technologies. 	1.SEEREN 2	75,618 Euro
e-Infrastructure e-science	<ul style="list-style-type: none"> A computerisation application for the school secretary activity and the administration of information in the teaching process. 	1.SEE-GRID, 2.SEE-GRID2	180,220 Euro
Digital libraries	<ul style="list-style-type: none"> The computer language application: automatic summary and textual search. 		23,252 Euro
e-Procurement		ELLECTRA-WeB	
e-Custom		RAC-WEB	71,160 Euro

ICT research policy formulation		1.SCORE	100,000 Euro
ICT research awareness and training		1.SEEFIRE in 2006 2.IS2WEB, 3.SEE-Innovation	149, 650 Euro
Promoting environmental protection and resource management.		ISOTEIA http://www.isoteia.org/	0
e-learning for improving access to Information Society for SMEs in the SEE Area		ELISA continuing http://www.elisa-project.net/	0

2.2 Key competencies in ICT research fields

Based on the data collected within the framework of IS2WEB and SEE INNOVATION FP6 projects the following areas represents main ICT research capacities and competences of research organisations in Albania.

Classification of ICT research capacities	Number of research organisations in sample
ICT supporting businesses and industry: business processes, work organization	18
ICT meeting societal challenges for governments	16
Software, grids, security and dependability	12
Personal environments	10
ICT for content, creativity and personal development: new media	10
ICT for content, creativity and personal development: technology enhanced learning	9
Home environments	8
ICT meeting societal challenges for health	7
ICT meeting societal challenges for mobility	7
Embedded systems, computing and control	6
Knowledge, cognitive and learning systems	6
ICT for content, creativity and personal development: cultural resources	6
ICT supporting businesses and industry: manufacturing	6
ICT meeting societal challenges to improve inclusion	5
ICT meeting societal challenges in support of environment	5
Simulation, visualisation, interaction and mixed realities	4
New perspectives in ICT drawing on other science and technology disciplines	4
Intelligent infrastructure	4
ICT for trust and confidence	4

Future and emerging Technologies	4
Robotics systems	1

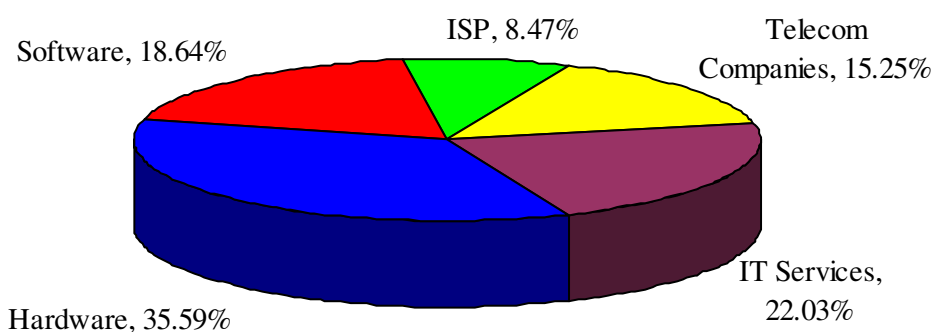
3 KEY DRIVERS OF ICT RESEARCH

3.1 Main ICT sector trends in ALBANIA

The ICT sector in Albanian has had considerable growth these last years. It's notable to mention the number of the ICT companies created and active in the last five years. In the last three years, the liberalization of the Telecommunication market has been followed by the foundation of several Telecom Operators (www.ert.gov.al).

The following chart gives a better view of the revenue of ICT Sectors by Segments⁷.

Revenue of the ICT Sectors by Segments



The majority of products are imported from abroad. However, there is a strong tendency and increase in the ICT sector to adapt products to local needs. Some programs have been adapted to the local language. There is a variety of choices with regard to equipment and programs, which are accessible and affordable for the majority of small and medium enterprises as well as for many individuals. The average annual investment in ICT is about 2.5-3 million USD (or 2.2 million Euro) and all ICT revenues total about 20 million USD (or 15 million Euro)⁸.

In spite of achievements that the Albanian ICT Sector has made in recent years, technological needs remain at a considerable level. There is the need for countrywide Internet coverage. There is a need for a fast and reliable network infrastructure.

3.1.1 Computer Hardware

The number of PCs in country is estimated at 85,000⁹ with 40-50% of these used by businesses and the public administration. The number of personal PCs per 1000 inhabitants is approximately 12¹⁰ from 8 in 2000.

⁷ Statistics published by the Chamber of Commerce of Tirana and Albania, <http://www.cci.gov.al>.

⁸ Republic of Albania, Electronic Assessment – Report on the status of information technology and communications in Albania, 2002-2005

⁹ Commerce Canada (2004-2005), commercecan.ic.gc.ca

3.1.2 Telecommunications Services

The liberalization of the Telecommunication market has brought the creation of several achievements of the ICT Sector in Albania where we can mention the creation of several telecom operators and licensed subjects¹¹, such as:

- Operators with individual First Class licenses (Albtelecom sh.a, Albanian Mobile Communications sh.a., Vodafone Albania sh.a., and Eagle Mobile sh.a.).
- Public Telecommunications Operators in rural areas (51 operators).
- Subjects licensed to provide internet services – ISP (25 subjects)
- Subjects licensed to provide “Data Transmission” services (6 subjects)
- Telecommunications Services Providers (22 such providers).

3.1.3 Voice Telephony

The number of subscribers in telecommunications in the end of March, 2007 has been 259,134, from which 240,440 are families¹².

The main player in this market segment is Albtelecom, until mid-2007 a state owned company. Albtelecom was finally privatized (76% of the shares) on June 19, 2007, by Turkish consortium "Calik" for 120 million USD¹³.

3.1.4 Mobile Telephony

Mobile services are another area that experienced astonishing growth during the last 8 years. Two main operators dominate the market. The first is Albanian Mobile Communication (AMC), a state owned company that was sold in 1999 to a joint-venture partnership between COSMOTE (Greece) and TELENOR (Norway). The second license was granted in 2001 to a consortium of Vodafone (UK) and Panafon (Greece). A third mobile license was granted in March 2004 to Albtelecom.

In 1996, only 2,300 subscribers had mobile service. By the end of 2004, the two mobile operators had over 1.5 million¹⁴ clients altogether. From a World Bank Report (ICT at a Glance) in 2005 indicate 405 subscribers (per 1000 people) from a base of 10 subscribers in year 2000.

AMC and Vodafone dominate the market. Currently, around 80%¹⁵ of the Albanian territory is covered with GSM services. This corresponds to 90% of the total population. However, mobile tariffs in Albania are still high compared to other European rates. Additional investments in this area will lower tariffs and improve service quality.

In March 2004, the Telecommunications Regulatory Entity provided the individual First Class license to Eagle Mobile sh.a. to offer mobile, terrestrial service, GSM standard, in the Republic of Albania. Eagle Mobile is the third mobile telephony operators in Albania that will

¹⁰ World bank ICT at a Glance, 2005

¹¹ Telecommunications Regulatory Entity, www.ert.gov.al/ert_eng/static_down/Lista%20e%20ISP_Anglisht.pdf

¹² INSTAT – Quarterly Statistical Buletin, no.1, 2007

¹³ Minister Ruli signs the sale contract for Albtelekom, June 2007, <http://www.eaglemobile.al/content/view/9/1/>

¹⁴ Bugs, Bytes and Glitches - Information and Communications Technology Team US Department of Commerce Eastern Europe Telecommunications Markets, Summer 2006
http://www.emich.edu/ict_usa/Telecom/E%20Europe%20Telecom%20-%20A-K%20-%20Summer06.pdf

¹⁵ Bugs, Bytes and Glitches - Information and Communications Technology Team US Department of Commerce Eastern Europe Telecommunications Markets, Summer 2006
http://www.emich.edu/ict_usa/Telecom/E%20Europe%20Telecom%20-%20A-K%20-%20Summer06.pdf

enter the market soon offering competing tariffs and a large coverage area. Albtelecom sh.a possessed 100% of its shares. The new company, as a mobile operator, was part of the sale package of Albtelecom sh.a.

3.1.5 Rural Telecommunication

The market for rural telecommunication was liberalized in 2000. Since then, the Telecommunications Regulatory Entity (TRE) has approved approximately 51¹⁶ licenses to rural operators.

The Government's rural telecom plan is mainly based on a private sector approach. The number of inhabitants living in rural areas is approximately 1.7 million while the number of inhabitants in the rural areas that currently have a telephone line at home is around 25,000¹⁷. Private rural operators lack the necessary capital, technology and interconnectivity to fully service this market segment.

3.1.6 Internet Service Providers (ISPs)

The law governing operations of ISPs came into effect in 1997 and the first license was issued that year. Currently, there are 25 licensed ISP providers¹⁸.

The number of Internet users at present is estimated at around 75,000 (2005 est.) and the number of Internet hosts is 430 (2006 est.)¹⁹.

3.2 Main socio-economic challenges in ALBANIA

The last CCA²⁰ carried out in Albania in 2004 has identified four interrelated factors that influence the implementation of national development strategies. They are: (i) the decentralization of institutions charged with providing basic social services and with increasing local participation in the formulation of development strategies; (ii) institutional reform aimed at increasing the efficiency, transparency and inclusiveness of government institutions; (iii) the access of interest-groups to information, decision-making processes, and the distribution of assets, (iv) the quality of analysis designed to monitor and guide development.

Macroeconomic indicators show a positive growth rate for Albania in recent years. While performance has been impressive, however, there are concerns regarding the sustainability of high rates of economic growth. In particular, the Albanian government should note with caution important changes in the distribution of GDP according to economic activity. The government should allocate a greater share for investments in infrastructure, especially in the sectors of education, health and the environmental. Improvement in these areas will serve to increase the quality of human capital by improving life expectancies, living conditions and skill levels.

¹⁶ www.ert.gov.al

¹⁷ Bugs, Bytes and Glitches - Information and Communications Technology Team US Department of Commerce Eastern Europe Telecommunications Markets, Summer 2006
http://www.emich.edu/ict_usa/Telecom/E%20Europe%20Telecom%20-%20A-K%20-%20Summer06.pdf

¹⁸ www.ert.gov.al

¹⁹ International Market Research - World fact book - Albania, 2007, www.strategis.ic.gc.ca/epic/site/imr-ri.nsf/en/gr-05003e.html

²⁰ Common Country Assessment, UN Albania 2004

Special note is taken of the severe economic poverty that exists in the north and northeast of the country. The Albanian government must devote special attention toward improving public infrastructures, as they are necessary for raising the overall quality of life for the population. The analysis of key issues and their inter-connections suggests that greater investment is needed in transportation, energy, water and sewage infrastructures. Increasing accessibility in these areas will help reduce geographical disparities in the provision of essential services. Inefficient environmental management is often a sign of dysfunction in public institutions, which in turn hampers the success of the development strategies. More efforts are needed to create effective institutional structures for dealing with the interaction between civil servants and the public. Public officials must receive better training in order to ensure an effective enforcement of laws and regulations.

The CCA suggests that access to basic services, continuation of fundamental economic and social reforms, decentralization, improving public sector delivery capacity and data availability must be addressed adequately for the country to make substantial progress towards their attainment. The core governance challenges comprise observance of the rule of law and maintaining political stability and accountability.

The 2004 CCA has identified a set of key development challenges and opportunities. These include poverty reduction, growth that respects human rights, national education campaigns addressing discrimination and the violation of human rights, initiatives that bring young people into the development strategy, the encouragement of both local and global approaches to economic development, the improvement of data collection regarding social and economic inequalities, and the promotion of regional analyses in the MDGs' (Millennium Development Goals) monitoring process. The way forward is seen in terms of improved public-private partnerships, strengthened the modalities of international cooperation and greater involvement of stakeholders in decision-making.

Brain drain — or the flight of highly skilled human capital — is driven by aspirations for a better quality of life. However, outward migration of skilled human capital can impose significant economic and social costs on a country reducing the capacity of governments to deliver basic services and impacting their ability to achieve the Millennium Development Goals and other critical reforms. According to a recent survey conducted by the Centre for Social and Economic Studies, during the period 1991–2005, more than 50 percent of lecturers and researchers from Albanian universities and institutions emigrated. Significantly, more than 70 percent emigrated together with their families. It is believed that many of these Albanian intellectuals abroad do not work in their profession – hence, the phenomenon also involves a waste of intellectual potential, or “brain waste”.

In order to transform brain drain into brain gain, the Albanian Government has launched the Brain Gain Initiative. Key steps in the process are to examine who is migrating and why, to understand the economic and social impacts of outward migration, and to identify the domestic conditions and policies needed to encourage skilled people to remain in – or return to – Albania. In particular, both the ‘push’ and ‘pull’ factors of brain drain need to be carefully identified and addressed through appropriate policies.

The UNDP Brain Gain Programme aims to support the creation of the necessary incentives and national policy mechanisms to effectively engage the Albanian Diaspora in the scientific, administrative and economic development of the country. The programme will also look at remittances as part of a complex balance sheet that needs to be understood much better in order to assess the impact of migration on development.

In relation with the above-mentioned facts, the goals of the National ICT Strategy are to exploit the potential of ICT in order to promote human development in the country, to support growth and sustainable development and to increase living standards for the whole population. ICT should be used to create employment, to improve working conditions, and to motivate highly educated individuals to stay in the country. National and local needs and circumstances will be an important factor to be considered for the development of the Information Society in Albania.