

ICT-KOSEU

Supporting Dialogue and Cooperation Between Europe and Kosovo in Collaborative ICT R&D

FP 7 - Grant agreement 288097 Support Action

Deliverable D2.1: Kosovo ICT RTD Technological Audit Report

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|---------------------------|---|
| Deliverable due date: | 30/11/2012 |
| Status: | Final Deliverable |
| Version No.: | 2.8 |
| Version date: | 30/11/2012 |
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| Distribution: | Public |
| Document description: | Kosovo ICT RTD Technological Audit Report. |

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Executive Summary

The objective of this deliverable is to explore the existing potential of ICT research in Kosovo, with the long-term view of Kosovo becoming embedded in the European Research Area (ERA). It focuses on mapping the capacities and strengths of the local researcher community in ICT and on identifying strong areas of ICT research in Kosovo as well as the stakeholders in these areas.

The result of the technology audit is a prioritized list of areas of ICT RTD in Kosovo, where Kosovo could play a role in the ERA and competitively participate in proposals to the RTD Framework Programme, as well as a list of organizations/stakeholders that are active in these areas.

Finally, a SWOT analysis has prepared and presented together with the recommendations for further actions to the different stakeholders.

1 Introduction

The objective of this document is to explore the existing potential of ICT research in Kosovo, with the long-term view of Kosovo becoming embedded at the European Research Area (ERA). It focuses on mapping the capacities and strengths of the local researcher community in ICT and on identifying strong areas of ICT research in Kosovo as well as the stakeholders in these areas.

The result of the technology audit is a prioritized list of areas of ICT RTD in Kosovo, where Kosovo could play a role in ERA and competitively participate in proposals to the RTD Framework Programme, as well as a list of organizations/stakeholders that are active in these areas. The Technological Audit seeks to engage all the possible stakeholders at the level of (1) industry (including telecommunications and sectors that might benefit from the development of ICT i.e. health, government, business, utilities, production, agriculture and others), (2) academia and (3) policy-making and to make use of past studies. Research and development as well as use of ICT have been investigated in research institutes and universities, industry that carries out RTD and users of ICT in all areas. The technological audit was carried out in three phases:

- (1) **Identification.** The identification phase first defined a list of ICT areas, using the ICT areas' taxonomy of other relevant projects and the ICT areas of the ICT Work Programme. Then, an overview and list of all organizations active in ICT were provided.
- (2) **Interviews.** In a second phase, the universities and other major stakeholders organizations have been interviewed to understand their profile, their experience with European Commission's and other donors' funding programmes and their RTD activity, their use of ICT and their market areas.
- (3) **Analysis.** The results of the desk study and the interviews analysed to obtain a prioritized list of research areas that are compared to those of the ICT Work Programme and of those organizations that are active in these areas. A SWOT analysis concludes the analysis.

The technology audit, also refers to and provides information about:

- The legal and policy environment including policy instruments initiatives and institutions;
- Past studies and current policy papers and projects;
- Kosovo participation in FP7/ICT so far;
- Analysis of participation in FP7/ICT of the other WBC and lessons for Kosovo that can be drawn from it;
- The ICT infrastructure and research capacities at the local level.

2 Objectives and Definitions

Deliverable D2.1 is structured as a document exploring the existing potential of ICT research in Kosovo, with the long-term view of Kosovo becoming embedded at the European Research Area (ERA). It focuses on mapping the capacities and strengths of the local researcher community in ICT and to identify strong areas of ICT research in Kosovo as well as the stakeholders in these areas.

2.1 Objectives

The overall objective of this deliverable is to explore ICT research capabilities in Kosovo to support the full integration of Kosovo researchers into ICT networks of FP-active EU organizations and to enable them to participate in project proposals within the context of FP7 and Horizon 2020 ICT Theme. The key objectives of this deliverable can be listed as follows:

- To review and analyse the ICT RTD policy environment in order to determine potentials, opportunities and barriers
- To evaluate the efficiency and effectiveness of the current ICT RTD policy framework
- To create awareness of potential and opportunities for efficient and proper utilization of available resources
- To map the current status of ICT RTD activities identifying the centres of excellence with the potential to develop research activities related to the Challenge and Objectives of the FP7 – ICT Theme.
- To evaluate the core technological capabilities of the ICT RTD community in terms of both research infrastructure and human capital.
- To identify roadmaps in order to overcome the obstacles and barriers which have been explored previously.
- To contribute to the ICT oriented actions of Kosovo in FP7 and enhancing the participation level of Kosovo researchers from both public and private sector to FP7 and Horizon 2020 ICT Theme.
- To enhance integration of the Kosovo Research Area to the ERA in the ICT field.

3 Current state of the art in Kosovo

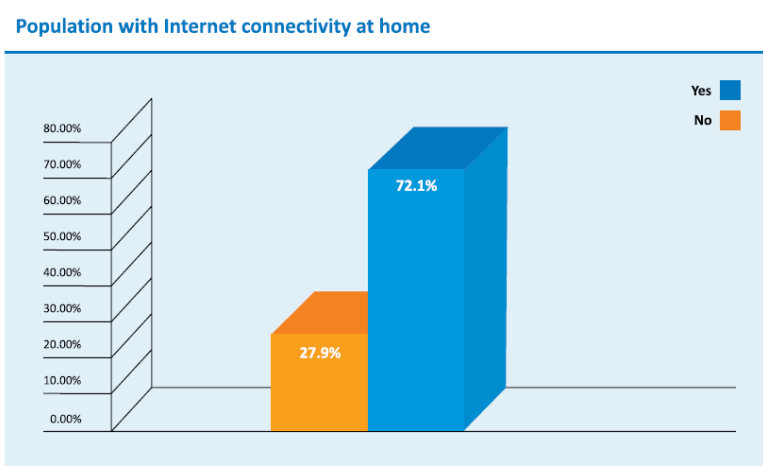
3.1 General data and statistics for Kosovo

This section includes information about general data and statistics for Kosovo, collected from different sources. Description of the features of the country relevant to research and innovation, including data such as area, population, density of population, GDP/c, main activities, etc are included.

3.1.1 General statistics for Kosovo

- **Population:** 1,733,872¹
- **Capital:** Prishtina
- **Territory Area:** 10,908 km²
- **Border countries:** Albania, Montenegro, Serbia, Macedonia
- **Religion:** Muslims over 90%, Orthodox Christians 6% and Roman Catholics are 3% and close to 1% Protestant.
- **GDP:** GDP (International Monetary Fund (IMF), 2011 estimate): \$6.5 billion. GDP (Kosovo Ministry of Economy and Finance (MEF), 2010 estimate): \$7.5 billion
- **Per capita GDP** (IMF, 2010 estimate): \$2,750
- **Per capita GDP** (Kosovo MEF, 2010 estimate): \$3,750
- **GDP by sector:** (2009 est.): Agriculture 13%, industry 22%, services 65%²

Kosovo's demographic Internet penetration based on users is 46.3 %.³



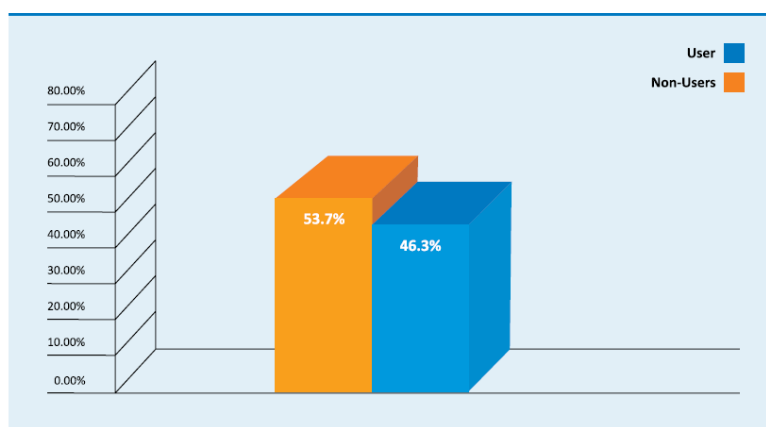
¹

"Population estimates for Kosovo July 2011". Census 2011. Kosovo statistical office

² <http://www.state.gov/r/pa/ei/bgn/100931.htm>

³ Internet Penetration and Usage in Kosovo, STIKK, January 2012

Internet Penetration based on users

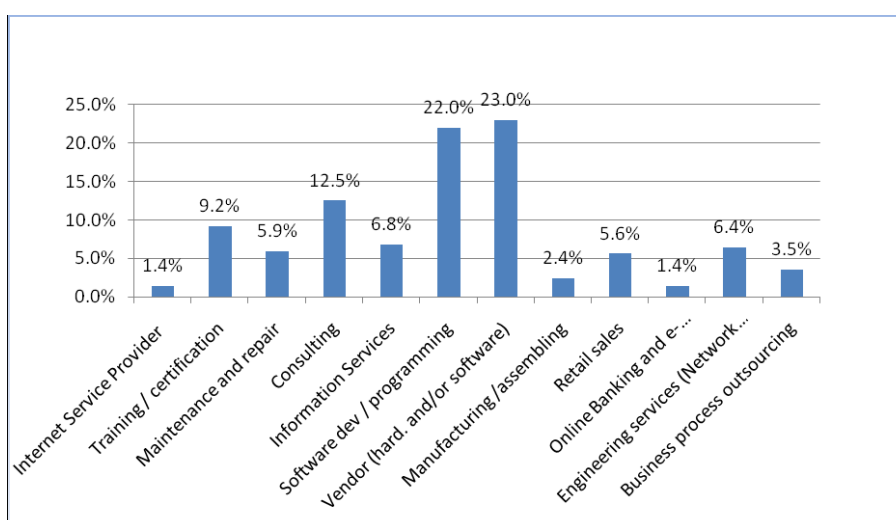


- Mobile phone subscribers (thousand) 1,6531,700⁴

3.1.2 Overview of the ICT sector in Kosovo

This section presents an overview of the ICT sector including the number of companies in Kosovo, their specialisation, IT and Telecoms in Kosovo as listed below.

- The core business activities of the majority of ICT companies are concentrated on vendor hardware and software (23%) and software development and programming (22%).⁵



⁴ Kosovo - Telecoms, Mobile & Broadband, Paul Budde Communication Pty Ltd, September 2009

⁵ Skills Gap Analysis for Information and Communication Technology, STIKK, March 2011

3.2 Review of studies and strategy papers

This section reviews national and European studies and strategy papers for Kosovo that indicate the orientation and the longer and shorter-term objectives of the country. Studies included in the literature review are key national documents, National Action Plans on RTD, National ICT RTD policy environment.

3.1.2.1 Electronic Governance Strategy 2009-2015

The specific strategy handles the responsibility for setting standards and provision of IT services to be used by governmental institutions of the Republic of Kosovo and the coordination of security of IT services in governmental institutions of Republic of Kosovo lies within the Ministry of Public Administration (MPA). The Electronic Governance Strategy 2009-2015 is one of the most important strategic documents in the field of ICT in Kosovo.

The Department of Information Technology (DTI) within MPA

- manages and coordinates the process of the update and the continuous elaboration of governmental strategy related to investments in IT, in parallel with needs and requirements of central and local institutions;
- develops and sets standards and regulations on hardware and software, data and voice communication, inter-communication of computerized systems, provides reports on status, stages, analyses, concepts, studies, guidelines, presentations, seminars, workshops and conferences on information technology and various projects in front of the internal and external audience of the government; plans, designs, integrates, transfers, updates, manages and supports systems and IT requests including e-governance, database centre of Kosovo, etc. interacts with counterpart institutions of governments of regional countries and wider for the purpose of creating synergy;
- participation in national and international meetings, conferences and fairs related to e-governance and other IT topics, aiming at the establishment of a permanent communication and cooperation environment;
- elaborates and manages profitable agreements with IT companies related to services, maintenance and the timely supply of information technology;
- creates, explains and controls expenses forecast in IT;
- plans and implements its budget⁶.

3.1.2.2 The Strategy for development of higher Education in Kosovo 2005 – 2015

In accordance with the Law on Higher Education, the Ministry of Education, Science, and Technology

⁶

http://map.rksgov.net/userfiles/file/Strategjitet%C3%AB%20dhe%20Planet/STRATEGJIA_E_QEVERISJES_ELEKTRONIKE_2009_2015.pdf

(MEST) is responsible for the planning of the development of higher education in Kosovo. MEST has undertaken the task of drafting of a long-term strategy for the development of higher education in Kosovo with a timeline of ten years and with the active involvement of relevant stakeholders. The overall goal of this strategy is to contribute to development of an up-to-date system of higher education in Kosovo, as a promoter of integrated efforts for the development of the country. The strategy document makes it clear which parts of the higher education system need reform and development. This is a challenging task, which requires tremendous efforts from all involved stakeholders, either directly engaged in higher education or interested in its development.

The strategy document is a proposal for transformation, reform and development of the higher education according to a more efficient model.

The main objectives of the strategy are:

- Objective 1: Elaborating and implementing a contemporary and all-inclusive education policy through the process of the higher education legislation
- Objective 2: Advancement of management and coordination in higher education.
- Objective 3: Development of the management system of the quality of higher education.
- Objective 4: Advancement of the capacity for research and scientific work.
- Objective 5: Establishment of the mechanisms for the provision and efficient management of the financial resources for the higher education development.
- Objective 6: Development of a complete and functional infrastructure of the higher education⁷.

3.1.2.3 The National Research Program (NRP)⁸

The National Research Programme aims to work upon identified research priorities, to establish provisions for infrastructural investments, to enhance participation in international scientific research projects and to elaborate a systematic education programme for researchers.

According to this document, research and technological development (RTD) is still a marginal undertaking in Kosovo. There is lack of basic science and technology statistics. A functional and intentional system of innovation does not yet exist. The major reasons for this deficiency are considered the imposed exclusion of academic and research community in the pre-war phase, when the nowadays academic personnel was isolated from the international scientific development, the material and immaterial destructions during the war and the difficult economic recovery process afterwards. Until recently, the general expenditure on R&D in Kosovo amounted to only approximately 0.1% of GDP. This is a ratio significantly below the European average, and even well below the regional neighbourhood average and of many developing countries.

The absorptive knowledge and technology capacities in Kosovo are severely limited in size, scope and quality. The reason for this deficit is the absence of any critical mass of research and technological development (RTD) funding for at least the last 20 years. Without sufficient RTD funding, however, the

⁷ http://www.masht-gov.net/advCms/documents/Strategy_EN.pdf

⁸ http://www.masht-gov.net/advCms/documents/NRP_FINAL_%20English.pdf

potential absorptive capacities in economy and academia in Kosovo are neither satisfactory utilized nor are they able to cope with the technological progress.

The specific science and technology (S&T) targets which are needed to support the socioeconomic development of Kosovo towards a knowledge society routed in an evidence-base interaction between sciences, citizens and business are:

- Objective 1: Development of human capacity for research activities
- Objective 2: Development of research infrastructure
- Objective 3: Internationalization of scientific research activity
- Objective 4: Strengthening the links between science and society and economy for enhancing economic and social development
- Objective 5: Excellence in research and scientific activity

National research priorities have been identified in a participatory process to which national and international RTD funding should be channelled. The National Research Programme of Kosovo priorities reflects the generic thirst for catching-up in science and technology (S&T) in Kosovo across different disciplines leading to following five research priorities:

- (1) Natural Resources, Energy and Environment
- (2) Agricultural Production and Food Safety
- (3) Medical Research
- (4) Social and Economic Studies
- (5) Linguistic, Cultural and Historic Studies

In addition, the field of Information and Communication Technologies is considered as cross-horizontal priority that may occur in any of the abovementioned fields.

3.1.2.4 Kosovo Education Strategic Plan 2011-2016⁹

The Kosovo Education Strategic Plan (KESP) 2011 -2016 constitutes an important tool towards the development of a more coherent education system in order to bridge the gaps in provision and ensures that links are maintained between the relevance of education content and learning with sustainable national development priorities.¹⁰ KESP recognises the need for the education system to be more responsive to the labour market demands, aligned with key government priorities and achieving economic development goals. It offers a range of strategies for meeting the priorities of Government of the Republic of Kosovo, the Millennium Development Goals (MDGs) and the Education for All (EFA) targets by 2015. The strategic priorities and issues that KESP addresses include:

⁹ http://www.masht-gov.net/advCms/documents/KESP_2011_2016.pdf

¹⁰ Life-long learning implies an inclusive education and learning model that includes all – children, youth, women, minorities and adults as learners. It also encompasses learning throughout the life-cycle, from pre-primary to retirement taking in formal, non-formal, and informal education methods. According to the UNESCO Committee for the Development of Education for the 21st Century life-long learning is a continuing process and rests on four basic pillars according to which individuals must: ‘learn how to know’; ‘learn how to do’; learn how to be’ and ‘learn how to live together’.

- Development and support of an inclusive education system that enables equitable access to quality education;
- Reduce the shift's number in schools by minimising the double shifts in schools, mostly located in the urban areas through the construction of new primary and secondary schools;
- Development of child-friendly school environments;
- Development and support of early childhood development services;
- Development and expansion of upper secondary schooling;
- Improvement of the teaching and learning quality and promotion of quality learning outcomes through the definition and the support of the learning process;
- Restructure of the secondary education and promotion of the vocational education and training;
- Development of the Competence Centres;
- Alignment between education and employment through the development of tertiary vocational education and training in response to labour market demand;
- Improvement of the quality of higher education through quality control, the application of European standards and review of the structures of academic organization;
- Expansion of the provision of higher education and establishment of the new public universities;
- Establishment of research institutes within the existing higher education institutes aiming to offer services for the private sector;
- Development of information and communication technologies (ICT) in all levels and all groups of education;
- Development of human resources as a national priority and creation of a life-long learning culture.

KESP has been structured around the following eight priorities:

- Pre-school education (PSE) and Pre-primary education (PPE)
- Pre-university Education (PUE)
- Vocational Education and Training (VET)
- Higher Education (HE)
- Teacher's Education (TE)
- Adult Education & Training (AET)
- Information & Communication Technology (ICT)
- Capacity Building (CB)

The ICT priority program in this document (KESP) is not specific other than tackling the need for planning and provisioning of eLearning, and realizing the perceived existing deficiencies and training needs of teachers and managers, lack of qualified technicians and of sufficient levels of funding for equipment, software etc. At the same time, the document recognises ICT as important part of the formal education system, though it is not specified how, but it is defined as a potential powerful part of non-formal education, lifelong learning, job opportunities, and gender equality.

3.1.2.5 Strategic framework for the development of Information Society in SEE region 2007-2012

Kosovo was the last country in the Western Balkan region that joined the eSEE initiative on July 1st, 2005, and then confirmed commitment to the subsequent “eSEE Agenda +, 2007-2012”. Kosovo joined eSEE through UNMIK during the ministerial conference in Thessaloniki through the presence of the Minister of Transport and Telecommunications of Kosovo Government. The Ministry of Transport and Telecommunication has been the principal contact for all the subsequent meetings organised by eSEE and for the preparation of eventual reports therein. The Ministry pushed legal acts in respect to the commitments undertaken by joining eSEE. However, not all acts and not all steps envisioned by the eSEE have been able to be completed so far. For a long time since accession to eSEE in 2005, the Ministry of Transport has been working in isolation from other government bodies of Kosovo. The situation might apt for improvement with the establishment of the Agency for Information Society in 2012, which is supposed to merge into one structure all the principal government ICT agencies and departments. Illustratively, the establishment of this government body was among the initial obligations of Kosovo undertaken by joining eSEE Agenda for the development of Information Society of 2005.¹¹

eSEE Agenda + includes:

- accept the “i2010 – A European Information Society for growth and employment”¹² as general framework for Information Society development in the region;
- associate with the priorities defined in “i2010 – A European Information Society for growth and employment” framework, but within the specific environment of the South Eastern Europe region rephrase the defined priorities for Information Society development policies for the SEE region specific priorities:
 - Further development of a Single SEE Information Space, which promotes an open and competitive internal market for Information Society and media, moving it toward a common European Information Space in terms of interoperability;
 - Strengthen Innovation and Investment in ICT Research and Education while working with the private sector in order to promote growth and more and better jobs;
 - Achieve an Inclusive Information Society that promotes growth and jobs in a manner that is consistent with sustainable development and which prioritizes better public services and quality of life.

3.1.2.6 E-learning Policy and Strategy 2011-2015

The E-learning Policy and Strategy 2011-2015 outlines values that are expressed by the Kosovo Government concerning education, the ways in which mission and vision relate to e-learning implementation. The document is completely complementary with Kosovo Education Strategic Plan 2011-

¹¹ Conclusions of the South Eastern Europe Ministerial Conference on Information Society, page 2, point 5. <http://www.unece.org/fileadmin/DAM/trade/wsis/conclusions-0705.pdf>

¹² “i2010 – A European Information Society for growth and employment”, Communication from the Commission to the Council, the European parliament, the European Economic and Social Committee and the Committee of the regions, Brussels, 6.1.2005

2016, which is the most important strategic document for the Ministry of Education, Science and Technology.

The main issues of e-learning implementation strategy in Kosovo will be:

- Enhancement of the quality and the efficiency of education
- Wide access to education for all social groups
- Participation of all stakeholders in order to support goal-oriented e-learning implementation
- Boost personal and social development.

The policy initiative also includes:

- Raising awareness about advantages of e-learning
- Systematically developing human resources for e-learning implementation and use
- Developing physical and software infrastructure for e-learning
- Development of e-content in line with inter-operability standards
- Building and ensuring quality in e-learning
- Embedding e-learning into formal education and curriculum framework
- Ensuring wide accessibility of e-learning capacities.

In order to realise the vision and mission of e-learning in Kosovo, the following strategic goals for the period 2011-2015 are planned:

- (1) Every teacher, student, manager and administrator in the pre-university education in Kosovo has the knowledge, skills and support needed to integrate ICT into teaching, learning and school administration.
- (2) A sustainable, functional and well-maintained e-learning system is in place and it is available for all levels of education in Kosovo.
- (3) Planning, monitoring and provision of funding as well as legal and regulatory framework for sustainable implementation of e-learning is established.
- (4) Considerable amount of developed e-learning content in compliance with national curricula and international standards at all levels of education is provided.
- (5) Centre for e-learning is established and coordinates the e-learning activities in Kosovo.
- (6) All beneficiary groups and stakeholders are informed about e-learning implementation and are aware of its advantages and use available e-learning tools.

The strategic goals are connected to the following six priority areas:

- (1) Human resources development.
- (2) Suitable infrastructure.
- (3) Organizational and legal readiness.
- (4) Development of curricula and e-content
- (5) E-learning Centre (to be operational by the end of 2012 at the latest)

(6) Wider e-learning environment.

3.1.3 Regulatory framework

The regulatory framework is mainly described by the following laws and directives:

- Law on Higher Education in the Republic of Kosovo No. 2011/04-L-037
- Law on Scientific Research Activity No 2004/42
- Law on Information Society Services No 2011/04-L-094
- Law on Protection of Personal Data No 2010/03
- Law on Copyright and Related Rights No 2004/45
- Law on Prevention and Fight of the Cyber Crime No 2010/03

The acts on higher education and research fall in the domain of the Ministry of Education, Science and Technology, while the other acts have their own enforcement ministries and agencies some of which have been established by those acts and are yet to become fully functional.

3.1.4 National RD&I programmes and initiatives

The recently established Innovation Centre Kosovo (ICK)¹³ aims to connect the research and development component of scientific field with the business sector, focusing on creating new job opportunities oriented towards the future, based on knowledge and new technology.

The Innovation Centre Kosovo (ICK) was founded to support entrepreneurship, innovation and commercially based business development, with a focus on information and communication technology. The centre supports both start-ups and existing companies with the potential for growth.

The ICK will create new jobs through the businesses it supports and train young people for jobs in the broader marketplace. The ICK will be a hub for connecting new ideas and technologies with human and financial resources in order to create or expand commercially viable companies that can successfully fill the needs of the market, generate sales, trade, local productive capacity and skilled employment.

The ICK offers incubator services, mentoring, consulting and training to entrepreneurs and managers in fields such as business planning, accounting, finance, product/service development, marketing/ sales, human resources, technology development and transfer and matchmaking with local, regional and international businesses.

¹³ <http://www.ickosovo.com/en-us/about.aspx>

4 Review of activities and capabilities of entities in Kosovo carrying out ICT RTD

The team involved in the Kosovo ICT RTD technological audit, in order to collect information regarding academic institutions, governmental bodies, small and medium enterprises (SME) and donor organizations working in Kosovo, created four different questionnaires which were sent to the stakeholders and were followed by interviews. In this chapter we will present the status of ICT RTD and entities carrying ICT RTD in Kosovo.

According to National Research Programme (NRP) in Kosovo, RTD in general is still a marginal undertaking, missing even the most basic statistics on science and technology. Until recently, general expenditure on R&D in Kosovo amounted to approximately 0.1% of GDP. As a reason for this in the NRP is stated lack of the funding for at least 20 years. Therefore, NRP aims to balance funding deficits by providing conceptual orientation frame for development. .

If we are to compare the national expenditure on research and development in Kosovo with other countries in Europe, for the past years, we will have Israel on top of the list with around 5% of GDP expenditure in R&D and in the bottom Slovak Republic with 0.47%¹⁴. According to the Law on Scientific Research (Assembly of Kosova, 2004), 0.7% of the GDP shall be allocated from the budget of Republic of Kosovo, for fulfilling the necessary conditions for scientific research and for providing the means to undertake scientific research.

Until 2008, in Kosovo we had around 120 companies operating in the field of Telecommunications, IT, Internet, etc. Only few of them provided outsourcing or development services internationally. Companies can be “viewed” as carrying research or innovation in the form of “software development”¹⁵.

According to the Kosovo Accreditation Agency there are currently 13 Higher Education Institutions, public and private, offering ICT related study programs in their curricula. It has to be noted that these institutions are accredited by the Accreditation Agency of Kosova. Our questionnaires and interviews have shown that four more privately Higher Education Institutions are planning to start with ICT related programs. The number of institutions providing these programs is growing not only due to the fact that IT is becoming an inseparable part of the life, but also due to the high salaries of individuals working in the IT industry– compared to average salary and salary of other public workers. The salary of regular employee is up to 300 Euro, while supervisor salary ranges from 300-600 Euro, which is the same salary for line managers¹⁵.

Of the available data for the ICT sector¹⁶ (companies in general hesitated to declare salary scales), System Administrators are the highest paid group (950 Euros), followed by ICT Business Development Managers (683 Euros) and ICT Managers (641 Euros).

In the following table, data on human capacities of Higher Education Institutions and SME’s in Kosovo carrying out ICT RTD are presented. It should be noted that, not all of Higher Education Institutions or SME’s have responded to the questionnaires sent to them, and therefore, the table presents only data

¹⁴ GERD Intensity 2008, Source: OECD

¹⁵ ICT in Kosovo – sector decoded, Demand Supply Survey, 2011, http://www.stikk-ks.org/index.php?option=com_content&view=article&id=132&Itemid=16&lang=en

¹⁶ Skills Gap Analysis for Information and Communication Technology, 2011, http://www.stikk-ks.org/index.php?option=com_content&view=article&id=130&Itemid=111&lang=en

gathered from those institutions that responded to the questionnaires.

| | 2010 | 2012 | 2015 |
|--|--------|--------|-----------------|
| Total number of ICT research organizations | 19 | 20 | * |
| Of which universities / colleges | 12 | 13 | 16 |
| Of which public research organizations | 0 | 0 | - |
| Of which private research organizations | 1 | 1 | - |
| Of which private companies | 7 | 7 | * ¹⁷ |
| Number of PhD students graduated | - | 2 | 2 |
| Total number of ICT RTD personnel | 71 | 82 | 99 |
| Percentage of women of the total number of ICT RTD personnel | 10.26% | 12.74% | 16% |
| Total number of employees on a Full-Time-Equivalent (FTE) basis | 141 | 178 | 234 |
| Total number of researchers / personnel | 20 | 26 | 40 |
| Percentage of women of the total number of researchers / personnel | 2% | 3.4% | 12.25% |
| Total number of researchers / personnel on a FTE basis | 20 | 22 | 38 |
| Number of researchers / personnel with Ph.D. degree or higher | 1 | 3 | 5 |
| Number of researchers / personnel with Ph.D. degree or higher on a FTE basis | 1 | 3 | 5 |
| Number of researchers / ICT personnel under the age of 35 | 20 | 23 | 23 |
| Number of researchers / ICT personnel under the age of 35 on a FTE basis | 29 | 38 | 25 |

Table 1. Data gathered on human resources of universities' and SME's

The responders mapped into Table 1 are 2 public Higher Education Institutions, 10 privately owned Higher Education Institutions, as well as 7 Small and Medium Enterprises. The two public universities are University of Prishtina and University of Prizren.

University of Prishtina is represented by six of its units: Faculty of Electrical and Computer Engineering, Faculty of Mathematical and Natural Sciences, Faculty of Economics, Faculty of Education, Faculty of Applied Sciences in Mitrovica, and Faculty of Business Applied Sciences in Peja.

University of Prishtina is the first and oldest public university in Kosovo. It has long tradition with programs related to ICT. It has several Master programs related to ICT including a joint program which was developed and run jointly with international partner universities. Moreover, University of Prishtina is the only university in the country providing PhD studies in the field of ICT.

University of Prizren is represented by Faculty of Computer Science. It is the second public university in Kosovo, established in 2009. Its Faculty of Computer Science consists of two departments: information and telecommunication technology, and software design.

Below we have listed alphabetically privately owned Higher Education Institutions that responded to questionnaires and were interviewed:

1. AUK – American University in Kosovo has since 2003 an Information Technology program in bachelor studies.
2. Dukagjini – European College Dukagjini has two bachelor programs related to ICT as of 2011: Management and Informatics, and Applied Informatics.

¹⁷ Partial data: only few institutions provided projections for 2015

3. FAMA – College Fama has for the moment no related program to ICT, but according to them, will start an ICT program in the near future.
4. Globus – College Globus has also no ICT related program at the moment. The representatives of the college stated that they will start this year a program related to ICT.
5. Iliria – College Iliria has two programs related to ICT: Management and Informatics, and Applied Informatics. Even though they have few master programs, none of them is related to ICT.
6. Riinvest – College and Institute, has an ICT related program - Software Engineering in bachelor studies, and also the same one in the master studies.
7. UBT – College, has an ICT related program both in bachelor and master studies.
8. College Universum, even though they have several bachelor and master programs, they do not have a program related to ICT which according to their representatives will be available in the near future.
9. Victory College has no ICT related study program.
10. Vizioni Per Arsim – started last year a bachelor program related to ICT:– Computer Science.

If we compare data of Table 1 with a table derived from the report done in 2009, National Background Research on ICT – Research for Kosovo¹⁸, we find following facts:

1. The number of Higher Education Institutions has increased from 10 in 2008, to 13 in 2012 (research organizations dealing with ICT).
2. The number of PhD graduates in 2012 is 2, compared to only one graduating in 2008 (in relation to ICT).
3. The total number of FTE is 178 in 2012, compared to 76 in 2008.

Besides Higher Education Institutions, also privately owned companies and Kosovo Governmental Institutions participated in the survey giving their input in filling the questionnaires. Only few private companies claimed to have research activities, indicating that most of the research is carried in the Universities.

¹⁸ http://wbc-inco.net/attach/KosovoICTReportFINAL_01_12_2009.pdf

5 Analysis of the participation of Kosovo in European ICT-RTD

Research and Technology Development in the area of Information and Communication Technology is mainly financed by the European RTD Framework Programmes. The first question is therefore whether Kosovo can participate in these programmes and in particular in FP7. The official answer is that Kosovo counts officially as ICPC (International Cooperation Partner Country) and discussions with the European Commission on Kosovo's Association to the Framework Programme are on-going and a decision could be expected latest for the beginning of Horizon 2020.

In April 2008 the Commission had a first exploratory meeting with Kosovo. The valid position is based on the Commission's statement that candidate and potential candidate countries are entitled to participate in Community programmes on the basis of Framework Agreements. Participation in these programmes is an important means of facilitating integration cooperation and policy development. The Commission provides support and, in some cases, favourable terms for their participation. Kosovo can participate in Community programmes in line with the approach adopted in the 2003 Commission Communication "Preparing for the Participation of Western Balkan countries in Community programmes and agencies (COM[2003]748 final, 3.12.2003).

In April 2009, Mr Kushtrim Bajrami was appointed as the FP7 Contact Point for Kosovo; the official FP7 national contact point is now Mr. Bujar Gallopeni, **Ministry of Education, Science and Technology**.

In March 2011, the Commission had proposed a draft mandate to negotiate a framework agreement for Kosovo's participation in EU programmes and to help Kosovo to become familiar with EU policies in a wide variety of policy areas and sectors, and help Kosovo to further the necessary EU-related reforms. In a recent post¹⁹, the European Commission reports that the Council's has issued the decision authorising the Commission to start negotiations with Kosovo for a framework agreement enabling Kosovo to participate in EU programmes. Once the agreement has been negotiated and signed, Kosovo will have the possibility to participate in all EU programmes that are open to all other countries in the Western Balkans. "This is a welcomed move which brings Kosovo a step closer to benefiting from EU programmes, like all other Western Balkans countries. We will now start negotiations with Pristina on the draft framework agreement in consultation with the Council," Commissioner for Enlargement and European Neighbourhood Policy Štefan Füle said. Once the framework agreement has been negotiated, agreed and signed, Kosovo will be able to participate in any EU programme that is or will be open to potential candidates benefiting from the EU's pre-accession strategy, provided it meets the criteria for participation. These criteria are specific for each programme and essentially concern administrative and financial capacity. The terms and conditions for submission, assessment and selection of applications from Kosovo will be the same as for other potential candidates.

Kosovo has begun participating as a partner in FP7 projects: in 2009, Kosovo was a partner in seven FP7 applications.

As of the time of writing, partners from Kosovo participated in two projects financed by the ICT thematic programme of FP7. The first one is ICT-WEB-PROMS, the second one ICT-KOSEU, under which this

¹⁹ http://ec.europa.eu/commission_2010-2014/fule/headlines/news/2012/10/20121022_en.htm

report is prepared. The project ICT-WEB-PROMS had been submitted in April 2008 as a CSA proposal to the call FP7-ICT-2007-3, Objective ICT-2007.9.2: International cooperation and included partners from all countries of the Western Balkans; the Kosovo partner was CACTTUS (<http://www.cacttus.com/>). The project was active between January 2009 and December 2010, with the web site still being operational. The project ICT-KOSEU was submitted as Support action (SA) proposal to the 7th ICT Call 7 – FP7-ICT-2011-7 – to the Objective ICT-2011.10.3: “International partnership building and support to dialogues”.

Some other activities related to ICT are on-going in Kosovo. The European Commission Liaison Office to Kosovo has called for project proposals to support research activity as well as build the capacity of Universities and research institutes in Kosovo in priority research sectors and, thereby, to strengthen research and innovation to the benefit of economic and social development in Kosovo. The call had the title “Research Capacity Development in Kosovo Under UNSCR 1244/99” with a deadline 25 January 2012 and a budget available of 1 Million Euro. This grant scheme is funded by the Instrument of Pre-Accession (IPA). The overall objective was to strengthen research and innovation in Kosovo based on the existing capacities in the universities as well as the public and private research institutions. Amongst the specific objectives of the call was to improve management capacity in the research fields, in also facilitating future participation in the EU FP7 for Research and Technological Development. Information Technology was mentioned as one out of five priority sectors. The call is based on the Research Programme for Kosovo (2010) and its set of strategy objectives and thematic priorities, but keeps also with the strategic objectives of the European Union.

The beneficiaries of this call and the funded projects are listed in the table below.

Table: Grants awarded under Call for Proposals: EuropeAid/132-003/L/ACT/XK published on 17 October 2011²⁰

| Beneficiary | Action title | Action duration (in months) |
|---|--|-----------------------------|
| National Institute of Public Health of Kosovo | Capacity building to implement state of the art surveillance systems for antibiotic consumption and resistance in Kosovo | 30 |
| Kosovo Education Centre Foundation | Enhancing social Scientific Research in Kosovo and its integration into European Research Area | 28 |
| University of Prishtina | In Water Sense: Intelligent Wireless Sensor Networks for Monitoring Surface Water Quality | 20 |
| University of Prishtina | Environmental pollution in Kosovo: potential genotoxic effects and related human health risks | 24 |

Following the approval of a five-year Research Programme by the Parliament in July 2010, the Ministry of Education, Science and Technology (MEST) has moved forward with the implementation arrangements. At the end of September 2010, the first round of calls for research funding supporting the implementation of the programme measures was published in the local media. Deadline for the submission of proposals was October 31, 2010 or October, 20th 2010.

²⁰

<https://webgate.ec.europa.eu/europeaid/online/services/index.cfm?do=publi.welcome&nbPubliList=15&orderby=upd&orderbyad=Desc&searchtype=RS&aofr=132003>

The total available funding is € 1 million and is made available through five programmes: Brain Gain Grant (BGG), Short- Term Mobility Grants, Publication Funds, Special Research Grants and Research Awards.

Priority fields of research which are eligible for funding include:

- Natural Resources, Energy and Environment
- Agricultural Production and Food Safety
- Medical Research
- Social and Economic Studies
- Linguistic, Cultural and Historic Studies
- Cross-Horizontal Research in Information and Communication Technologies

Brain Gain Grant (BGG): The objective of the Brain Gain Grant is to attract the best Kosovar researchers living abroad and to enable them to pursue professional scientific careers in Kosovo (under UNSCR 1244). The awardees should accomplish the grant through regular work at a public university or a public research institution (i.e. host organisations), where they have to be actively involved in research, teaching and mentoring. They need to be able to lead the selected project autonomously, even before obtaining a tenure position. The host organisation should guarantee that it will employ the candidate after the end of the support provided by the BGG for at least the double duration of the given Brain Gain Programme. Outstanding researchers may apply if they have finished at least a doctorate and if they want to return to Kosovo (under UNSCR 1244). Candidates must have stayed and worked abroad in a dedicated scientific research environment for at least three years after finishing their PhD. The total amount foreseen for the BGG in 2010 is limited to € 250,000. The total grant for a project for one year cannot top the amount of € 70,000. Only in duly justified cases extra additional top-up funding of a maximum of € 30,000 per year can be exceptionally granted for research equipment or personnel costs for further team members. Proposed projects have to last for a minimum period of 12 months and a maximum of 24 months.

Short-Term Mobility Grants: This programme aims to enable scientists to work at universities or reputed research institutions abroad, with the purpose of gaining research experience. Furthermore, Kosovar scientists shall be enabled to participate in scientific conferences to present their own research results abroad. The maximum amount will be € 1,500. In case of a two months' stay, the grant can be extended to € 3,000 for the entire period.

Publication Funds: This programme provides funds for the production costs to support the publication of scientific, non-profit oriented research findings and the translation of relevant international scientific publications into Albanian or Serbian language. Only publications of excellent scientific quality, which anticipate a significant enhancement of scientific knowledge and a further advancement of research in the framework of the respective specialist area in an international context shall be funded or translated. The maximum support for the production of a publication amounts to € 6,000. In exceptional cases, this amount can be raised up to € 10,000. The maximum level of support for the translation of a scientific publication amounts to € 10,000, and only in duly justified cases it can be extended to a maximum subsidy of € 12,000.

Special Research Grant: The objective of the Special Research Grant is the establishment of a research programme based on international standards through autonomous research concentration at a single research institution/university location. The projects funded by the Special Research Grant must be unique and with a long-lasting perspective. They should have an added value compared to small sized research

projects through the establishment of programmatic research endeavours. The grant is aimed at researchers from Kosovo (under UNSCR 1244) working together in research projects. The awardees should accomplish the grant through regular work at a public university or a public research institution, where they have to be actively involved in research, teaching and mentoring. The total funding available for 2010 is € 625,000. The grant for a single project cannot be higher than € 125,000.

Awards: The Research Programme established a fund for yearly awards for extraordinary achievements with the aim to promote scientific excellence, to encourage science careers and to recognise the efforts and commitment of those researchers, who are advancing in their area of expertise. The award “Kosovar Researchers of the Year” annually will be given to the five most outstanding researchers in Kosovo (under UNSCR 1244). Each of them will receive a prize money of up to € 6,000 to support the continuation of their research career and to enable them to build up or consolidate and lead research groups. The award “Best newcomer researchers of the Year” will be given to the best five newcomer researchers with a prize money of up to € 2,000.

Support for capacity building and modernisation of higher education and public universities in Kosovo is also provided through the TEMPUS programme. 25 Joint European Projects were funded, of which 12 ongoing and 13 completed projects and eight Structural and Complementary Measures projects have been supported with approximately EUR 7 million and the Kosovo/Austria Partnership on Higher Education and Research Programme. However, there were no TEMPUS projects related to ICT.

6 Identification of research priorities

In this section, we will identify the priority themes of ICT R&D based on the experience and competencies of the stakeholders, the country's needs, as well as their alignment with the future EU digital agenda. This section is based on the results of the collected questionnaires developed for the collection of information, which was distributed to: academic institutions, governmental bodies, donors operating in Kosovo and SMEs' (please refer to ANNEX II for the full list of stakeholders).

It should be noted that more than 15 Academic institutions were considered when interviews were being scheduled based on their relation with ICT RTD. Around 30 SMEs' were found suitable for the information supply and around 10 donors operating in Kosovo, who dealt or deal with ICT RTD were approached^{21 22}. Even though, most of them were contacted several times, more than half of the Higher Education Institutions did not reply to the questionnaires.

ICT RTD activities in Kosovo have been launched only recently, in the past few years, including the creation of Strategies, National Research Council and National Research Programme.

According to ICTs in Kosovo, the publication in WorldTWAS newsletter volume 23, no.2 of the Academy of Science: building scientific capacity, based on a strong foundation in information and communication technologies, is a key to a better future for Kosovo. Furthermore, the publication emphasizes that efforts to promote science and technology and, more specifically ICTs, could help Kosovo overcome its chronic state of poverty and isolation, especially taking in consideration surveys that show that investments in ICTs have been climbing at an annual rate of 30% and reached total of around USD135 million by the end of 2011. It should be noted that this information is only related to investments and not RTD.

6.1 Priority themes

In the EU's Seventh Framework programme (FP7) for Research and Technological development research in ICT is one of the highest priorities. Its funds will be available across Europe for the period of 2007-2013. Even though Kosovo can't apply directly for the funds, it should at least follow its practice and refer to it for the local research in ICT. ICT research can help Kosovo's economy indirectly and also have major impact on Kosovo citizens' well-being.

The FP7 Programme has a total budget of 53.2 Billion Euros. The Programme is divided into ten scientific themes, with 32.4 Billion Euros. ICT is one of the themes with a budget of 9.11 Billion Euros.

The current FP7 Work programme for ICT research 2013²³, focuses on 8 challenges:

- (1) Challenge 1: Pervasive and Trusted Network and Service Infrastructures
- (2) Challenge 2: cognitive systems and robotics
- (3) Challenge 3: alternative paths to components and systems
- (4) Challenge 4: technologies for digital content and languages
- (5) Challenge 5: ICT for health, ageing well, inclusion and governance

²¹ MEST <http://www.masht-gov.net/advCms/#id=537>

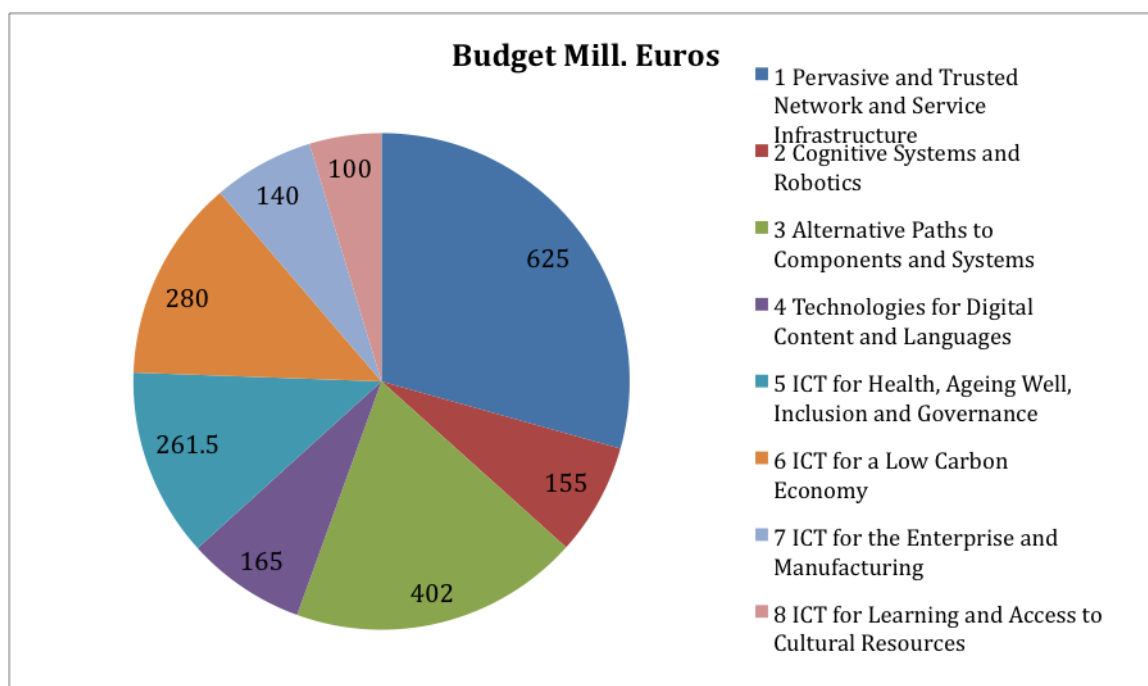
²² STIKK – Skills Gap Analysis for Information and Communication Technology

²³ FP7 Programme http://ec.europa.eu/research/fp7/index_en.cfm

- (6) Challenge 6: ICT for a lower carbon economy
- (7) Challenge 7: ICT for manufacturing & factories of the future
- (8) Challenge 8: ICT for learning and access to cultural resources

Besides the eight challenges, research into “Future and emerging technologies” and support for horizontal actions, such as international cooperation and pre-commercial procurement, are in focus of the FP7 programme. It should be noted that a call for FP7 2013 is closed in September 2012 but further calls are coming up in 2013.

The total budget for the challenges is distributed as viewed in Graph 1.



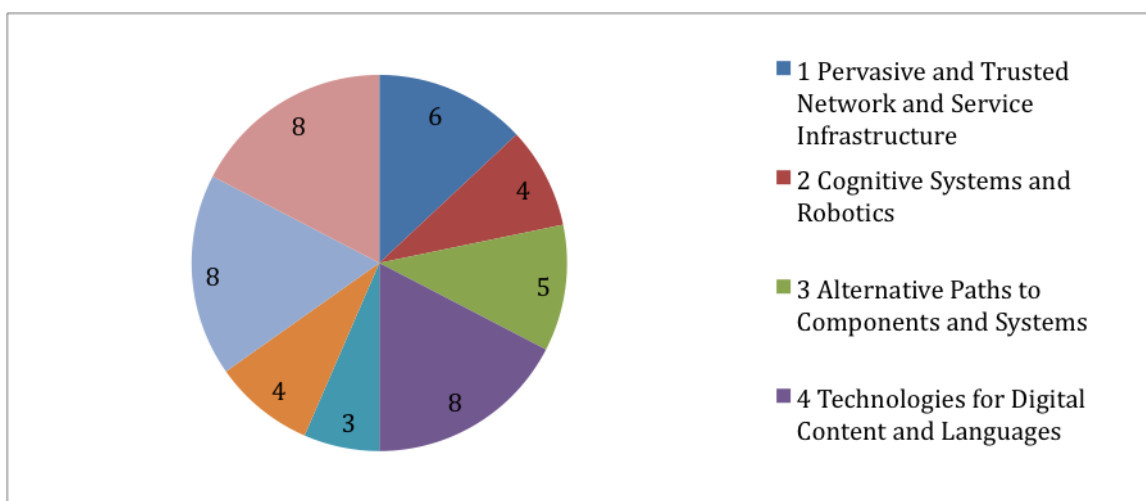
Graph 1. Total budget for FP7 challenges

The result from the completed questionnaires, indicates the relation of Kosovo’s institutions, institutes, Universities, and SMEs to FP7 Research programme priorities. Below, we will present data gathered from the questionnaires. Table 2 below, represents the relation between Kosovo organization expertise and the FP7-ICT theme Challenges.

| Nr | Organization / Challenge | Type of Organization | Challenge 1 | Challenge 2 | Challenge 3 | Challenge 4 | Challenge 5 | Challenge 6 | Challenge 7 | Challenge 8 |
|----|---|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 | Faculty of Electrical & Computer Engineering, University of Prishtina | Faculty / University of Prishtina | X | | X | X | | | | X |
| 2 | Faculty of Mathematical and Natural Sciences, University of Prishtina | Faculty / University of Prishtina | | | X | X | | | | |
| 3 | Faculty of Applied Technical Sciences, Mitrovica, University of Prishtina | Faculty / University of Prishtina | X | X | X | X | | X | X | |
| 4 | Faculty of Education, University of Prishtina | Faculty / University of Prishtina | | | | | | | | X |
| 5 | Riinvest College / Institute | College- / Institute | | X | | X | | X | X | X |
| 6 | University for Business & Technology | College | X | X | | X | | X | X | X |
| 7 | Universum | College | | | | | | | X | X |
| 8 | Vizioni per arsim | College | | | X | X | | | | X |
| 9 | Tempus | Donor Organization | X | | | | | | | X |
| 10 | FP7 Contact point | Donor Organization | | | | | | | | |
| 11 | WUS Austria | Donor Organization | | | | | | | | |
| 12 | GIZ | Donor Organization | | | | | | | X | |
| 13 | Expik | SME | | | | | | | X | |
| 14 | Komtel | SME | | | | | | | | |
| 15 | 3CIS | SME | | | | | | | | |
| 16 | Appdec | SME | | | | | X | | X | |
| 17 | Cactus | SME | | | | X | X | | | |
| 18 | PTK | SME | X | | | | | | | |
| 19 | Gashi Comp | SME | X | X | X | X | X | X | X | X |

Table 2. Relation between organizations' expertise and challenges

Based on Table 2, graph 2 is constructed, which reflects most of experience that organizations have in regards to ICT-FP7 research programme. It seems that the maximum expertise is concentrated around Challenge 4, challenge 7 and challenge 8, while challenge 5 is the least mentioned one.



Graph 2. Organizations expertise in challenges

Graph 2 can be used to create a Competence Matrix, where several fields are regarded as high competence fields (Challenge 4, Challenge 7 and Challenge 8), where organizations have expertise, and several others (as Challenge 5) can be viewed as low competence field.

| High Competence | Low Competence |
|--|--|
| Challenge 4: technologies for digital content and languages | Challenge 1: Pervasive and Trusted Network and Service Infrastructures |
| Challenge 7: ICT for manufacturing and factories of the future | Challenge 2: cognitive systems and robotics |
| Challenge 8: ICT for learning and access to cultural resources | Challenge 3: alternative paths to components and systems |
| | Challenge 5: ICT for health, ageing well, inclusion and governance |
| | Challenge 6: ICT for a lower carbon economy |

Table 3. High vs. Low competence

The expertise from the organizations can be compared with the priorities of the National Research Programme (NRP) in Kosovo, drafted in 2010²⁴. NRP lists ICT as one of the priorities, naming it as a cross horizontal research in ICT. Main objectives are using ICT and its innovations in solving environmental and social issues; using ICT contribution to sustainable economic growth and social well-being; using ICT in different fields (economy, environment, education, health, public administration); promotion of relevant information content, trust, freedom of opinion and the other potential for innovation in society, besides other.

²⁴ National Research Programme, March 2010

If we try to approximate some of the challenges with the objectives of using ICT listed in NRP, we can see that there are few fields where expertise is lacking, like for example challenge 5 “ICT for health, ageing well, inclusion and governance” compared to sustainable economic growth and social well-being and challenge 6 “ICT for lower carbon economy” compared to solve environmental issues. But there is expertise, mentioned by most of the organizations, and that is Challenge 8, which could be approximated with promotion of relevant information content, trust, freedom of opinion and the other potential for innovation in society as mentioned in NRP.

Comparing the challenges with the National Background Report on ICT Research for Kosovo²⁵, ICT research priorities based on country’s readiness, one can see that expertise exists especially in some of the challenges as for example Challenge 7: “ICT for manufacturing & factories of the future” which corresponds to ICT for enterprise and eBusiness, then Challenge 8: “ICT for learning and cultural access” which corresponds to ICT for learning and eLearning. Comparing research priorities based on future potential, one can see that in some cases expertise exists as for example Challenge 4: “technologies for digital content and languages” which corresponds to digital contents and digital libraries but also there is still missing expertise in ICT for health and eHealth which corresponds to Challenge 5: “ICT for health, ageing well, inclusion and governance” which also relates to governance.

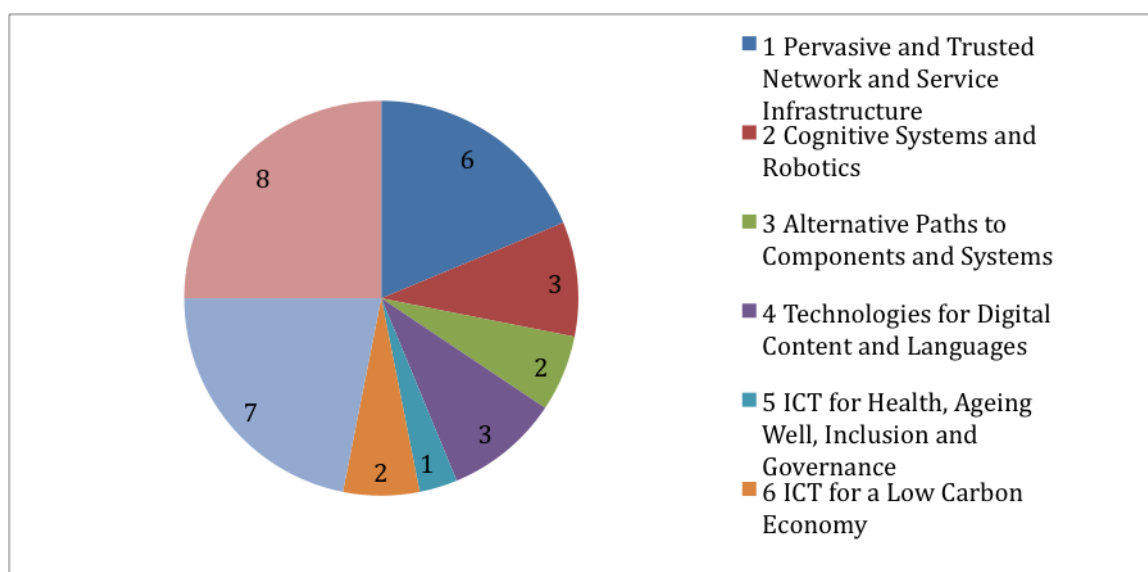
Besides the expertise of the organization, the questionnaires also recorded the expertise of the representative of the organization as an individual. The following Table 4, demonstrates the expertise of the representatives, in regards to FP7 challenges, which does not differ significantly from the overall expertise of the organization.

²⁵ http://wbc-inco.net/attach/KosovoICTReportFINAL_01_12_2009.pdf

| Nr | Organization / Challenge | Type of Organization | Challenge 1 | Challenge 2 | Challenge 3 | Challenge 4 | Challenge 5 | Challenge 6 | Challenge 7 | Challenge 8 |
|----|---|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 | Faculty of Electrical and Computer Engineering, University of Prishtina | Faculty / University of Prishtina | X | | X | X | | | | X |
| 2 | Faculty of Mathematical and Natural Sciences, University of Prishtina | Faculty / University of Prishtina | X | | | | | | | |
| 3 | Faculty of Applied Technical Sciences, Mitrovica, University of Prishtina | Faculty / University of Prishtina | X | X | X | X | X | X | X | X |
| 4 | Faculty of Education, University of Prishtina | Faculty / University of Prishtina | | | | | | | | X |
| 5 | Riinvest College / Institute | College- / Institute | | | | | | X | X | X |
| 6 | University for Business and Technology | College | X | X | | | | | X | X |
| 7 | Universum | College | | | | | | | | |
| 8 | Vizioni per arsim | College | | | | X | | | | |
| 9 | Tempus | Donor Organization | X | | | X | | | X | X |
| 10 | FP7 Contact point | Donor Organization | | | | | | | | |
| 11 | WUS Austria | Donor Organization | | | | | | | | |
| 12 | GIZ | Donor Organization | | | | | | | X | |
| 13 | Expik | SME | | | | | | | X | |
| 14 | Komtel | SME | | | | | | | | |
| 15 | 3CIS | SME | | | | | | | | |
| 16 | Appdec | SME | | | | | | | | X |
| 17 | Cactus | SME | | | | X | | | | |
| 18 | PTK | SME | X | | | | | | | |
| 19 | Gashi Comp | SME | | | | | | | X | X |

Table 4. Relation between organizations representative expertise and challenges

Based on Table 4, graph 3 is constructed, which indicates the available expertise as connected to the FP7 ICT Programme Challenges. Challenge 8 is still one of the most mentioned while challenge 5 is the least mentioned.



Graph 3. Organizations expertise in challenges

6.2 Potential Competence Centers

The definition of Competence Center in Kosovo, as used in this report, stems from the analysis of their study programmes, research and development in the field of ICT and their physical infrastructure. According to NRP, Kosovo infrastructure is considered to be within acceptable limits, as compared to poor and outdated infrastructure in many other fields of research. The report indicates that the laboratories of Faculty of Electrical and Computer Engineering, University of Prishtina and facilities of Higher Education institutions (public and private) are active in the field. NRP does not provide further details on the exact type of laboratories and equipment. In the following Table 5, the competence centers are presented with their representative for this study and their ICT infrastructure.

| Nr | Organization / Challenge | Type of Organization | Representative | Infra-structure | Research carried in the institution | Support is offered through published tender opened for any researcher/ developer | Institution takes part in developing research that are supported by certain favorite sponsor | Co-financing research/ developer projects with other national/ state bodies | Co-financing research/ developer projects with other states institutions |
|----|---|-----------------------------------|--------------------------------|--|-------------------------------------|--|--|---|--|
| | | | | | | | | | |
| 1 | Faculty of Electrical and Computer Engineering, University of Prishtina | Faculty / University of Prishtina | Prof. Dr. Myzafer Limani, Dean | Computer networks lab, telecommunications lab, and software development lab | X | | X | | X |
| 2 | Faculty of Mathematical and Natural Sciences, University of Prishtina | Faculty / University of Prishtina | M.Sc. Artan Berisha, assistant | Computer laboratory (3) equipped with 70 computers. | X | | | | |
| 3 | Faculty of Applied Technical Sciences, Mitrovica, University of Prishtina | Faculty / University of Prishtina | Prof. Dr. Avdi Salihu, dean | Laboratory, computers, analog electronic equipment, digital electronic equipment, equipment for computer network realization, electronics measurement equipment. | | | | | |

| | | | | | | | | | |
|---|---|-----------------------------------|------------------------------------|---|---|---|---|---|---|
| 4 | Faculty of Education, University of Prishtina | Faculty / University of Prishtina | Prof. Dr. Xhevdet Thaqi, Professor | Computer class with computers, internet access, and other necessary infrastructure. | | | | | |
| 5 | Riinvest College | College / Institute | Prof. Naim Hoxha, Dean | Computer laboratories | X | X | X | X | X |
| 6 | University for Business and Technology | College | Prof. Dr. Petrit Shala, Dean | Computer equipped laboratory, simulative tools, cloud computing technology | X | | | | |
| 7 | Universum | College | Arlinda Berisha, admin assistant | Computer laboratory and research office. | | | | | |
| 8 | Vizioni Per Arsim | College | Prof. Dr. Naim Braha | Computer Laboratory | X | | | | |

Table 5. Potential Competence Centers

Furthermore, as shown on Table 6, in more than half of the institutions, the research is carried within their premises, while one can assume that other organizations use their infrastructure only for teaching and learning purposes. When it comes to developing the research, only two of organizations have experience on that, with the two being the only ones to co-finance the research.

It should be noted that some other privately owned Universities will start their ICT related programmes within this academic year, even though they offer different other programmes actually. If the future ICT related programs of these privately owned Higher Education Institutions move beyond teaching and invest on research they could potentially be future centres of excellence and list include–University College Victory, Globus College etc.

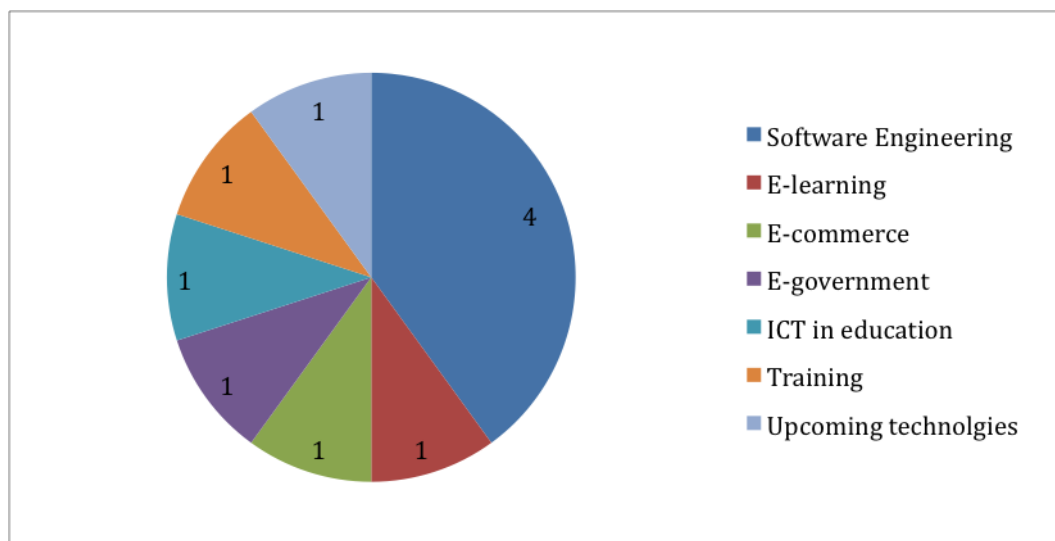
6.3 Conclusions and highlights

From the questionnaires collected, there are many future issues that concern actors involved in ICT R&D. Besides obstacles and barriers, also future priority fields are listed.

The priority fields, presented also in Graph 4, are: software engineering, e-learning, e-commerce, e-government, ICT in education, training, upcoming technologies such as IPV6, MANET technologies and routing protocols, cloud services and technologies. Software engineering is mentioned mostly by the interviewed institutes/faculties, which is shown in the graph below. Software engineering is also mentioned in a report done in 2011 by STIKK on skill gap analysis²⁶, where besides telecommunication and network engineers, software developers are the second most hired professionals in the ICT industry. Still the demand is growing on web designers and web developers, besides others. Graduates are mostly coming from two institutions The Faculty of Electrical and Computer Engineering and The Faculty of Mathematical and Natural Sciences – Computer Science, which led also by the number of students registered.

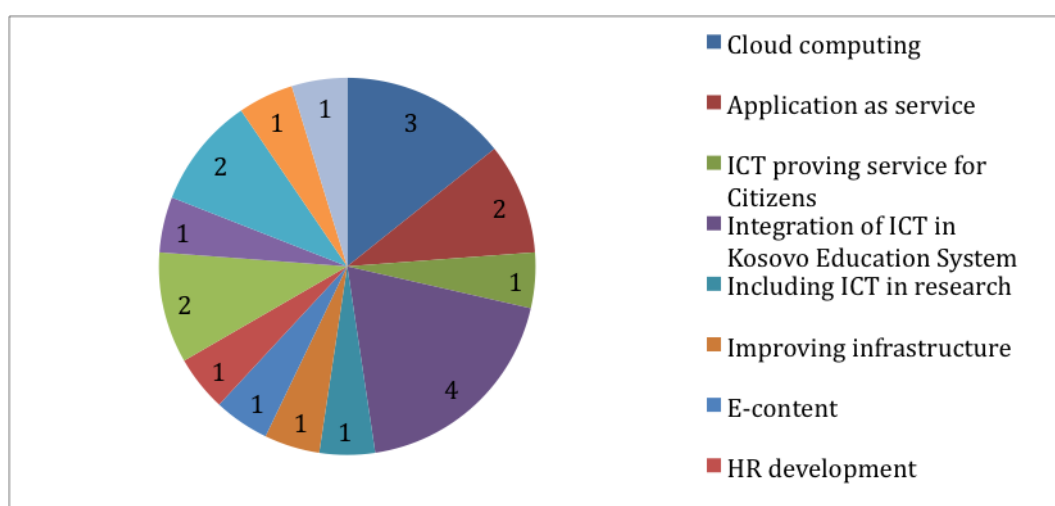
²⁶ STIKK – Skills Gap Analysis for Information and Communication Technology

Software Engineering is mentioned in the National Background Report on ICT Research for Kosovo²⁷, as a research priority based on the country's readiness but according to respondents it still has to be viewed as a research priority.



Graph 4. Research priorities

In the questionnaires collected by the Kosovo institutions, there are also other priorities mentioned, such as: cloud computing, application as service, using ICT to provide services for citizens, integration of ICT in Kosovo Education System, including ICT in research, improving the infrastructure in ICT, development of e-content, human resource development, experience exchange, provision of online services, participation in international projects, proper enabled environment for ICT development and Information Society Services. As presented in Graph 5, high ranked priority by the Kosovo Institutions is integration of ICT in Kosovo Education System, followed by cloud computing.



Graph 5. Priorities mentioned by Kosovo Institutions

²⁷

http://wbc-inco.net/attach/KosovoICTReportFINAL_01_12_2009.pdf

As a conclusion (based on the data of the collected questionnaires), we should note that software engineering is marked as a top priority field and demonstrates potential both in terms of readiness and of ability to respond to the challenges of the field. However, it should be supported with funds and leashed of the bureaucratic procedures in order to result in very successful research field, which could contribute also in fulfilling objectives of NRP.

7 SWOT Analysis

The Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis provides a comprehensive picture of the current situation of Kosovo in ICT RTD and the possibilities and threats of the future. The following **SWOT analysis** provides a comprehensive picture of the current situation in Kosovo and the possibilities and threats of the future.

| STRENGTHS | WEAKNESSES |
|---|--|
| <p>S1.Strong international presence in Kosovo may be finally paying off with the creation of collaborative links to European and non-European Institutions, Universities, Research centres and ICT companies.</p> <p>S2.Increase in budget expenditure for education planned by MEF in 2012-2014 and that by creating research institutions in the universities</p> <p>S3.Research is among the main objectives of the strategy of Ministry of Education, Science and Technology (MEST)</p> <p>S4.National Research Council (NRC) established</p> <p>S5.ICT recognized among national priorities by the National Research Programme</p> <p>S6. Law on scientific and research activities adopted (No 2004/42)</p> <p>S7.Increase in budget expenditure for ICT planned by the Ministry of Education, Science and Technology (MEST) in 2012-2014 (<i>Korniza e mesme e shpenzimeve 2012-2014</i>)</p> <p>S8.Increased budget for UPR for expenditure on laboratory equipment²⁸ (<i>Korniza e mesme e shpenzimeve 2012-2014</i>)</p> <p>S9.Increase in budget expenditure for education planned by MEF in 2012-2014 and that by creating research institutions in the universities</p> | <p>W1. Diversity of personnel is partly unexploited.</p> <p>W2. Lack of internationalisation of research; the networks of local researchers do not extend beyond Kosovo.</p> <p>W3. Insufficient presence of Kosovo organizations within established EU R&D and innovation networks</p> <p>W4. Lack of international project experience for most of Kosovo Research Capacity in ICT RTD themes and focus on individual studies</p> <p>W5. Lack of technology vision in firms present in ICT themes. Focus on short-term applications rather than technology development</p> <p>W6. Despite the existence of policies and plans in ICT, insufficiency of incentives and enforcements in application and monitoring of the results, In addition, scarcely available public funding for ICT research and existence of procedural difficulties to obtain funds</p> <p>W7. Existence of problems in transferring accumulated knowledge from universities in ICT to industry</p> <p>W8. Kosovo lacks large ICT established activities and is far away from the business centres of Europe.</p> <p>W9. Although facilities were recently upgraded, some equipment is still missing in key research areas.</p> <p>W10. Weak linkages between ICT RTD and ICT industry</p> <p>W11. Technology gap of Kosovo and weak industry to drive the ICT RTD actors toward the FP7 and Horizon 2020</p> <p>W12. Low specialisation and the lack of critical mass in ICT RTD</p> <p>W13. Lack of strategy setting capacities and capabilities Inappropriate management capacities in several ICT RTD centres</p> |

²⁸ Korniza afatmesme 2012-2014

| OPPORTUNITIES | THREATS |
|--|--|
| <p>O1. Diversity in expertise makes it possible to address a wide range of R&D challenges in ICT that can raise industry- academia collaboration and enable market for smaller players, which is necessary for the Kosovo economy.</p> <p>O2. Large Kosovan diaspora, in view of recent economic hardship, may present a viable source of Kosovo researchers to return and foster an increase in research activities.</p> <p>O3. Generally positive feedback and interest of Kosovo ICT companies to participate in ICT research activities.</p> <p>O4. In the newly shaped economic situation, Kosovo and the existing research centres can play the role of consultant alternative for companies that cannot invest in research.</p> <p>O5. Lower cost of labour in ICT sector compared to the Europe and the region.</p> <p>O6. Strong demand for reforms and the available funds for implementation of public administration reforms in Kosovo will drive research projects in ICT.</p> <p>O7. NRC proposing national research priority fields for the next 5 years – valid</p> <p>O8. Ministry of Public Administration adopted Strategy for development of e-Government - valid</p> <p>O9. MEST advocates policy for reaching regional standards in R&D funding</p> <p>O10. Advanced communication network and a growing number of internet users</p> <p>O11. Growing number of graduate high-school students interested to enter ICT-related studies.</p> <p>O12. Increased number of higher education institutions providing study programs in ICT-related fields in the country – it almost double the number of the existing study programs few years ago.</p> <p>O13. A number of newly established ICT centers giving boost to the development of the sector - just to mention few: Kosovo ICT Innovation Center, Kosovo Innovation Lab, etc.</p> <p>O14. EU in coordination with the local stakeholders bringing into focus programs for funding research capacity building in Kosovo.</p> <p>O15. International donors raised interest in providing funding opportunities for researchers at universities.</p> <p>O16. The youngest population in Europe, and with high fluency in English</p> | <p>T1. Increasing concentration of FP7 project proposals to some specific areas and low success rate</p> <p>T2. Repeated brain-drain; the best Kosovo PhD students are still attracted by far better conditions at EU and USA universities.</p> <p>T3. Inability to establish sufficient integration between institutions to determine ICT policies and being in distance to private sector dynamics</p> <p>T4. Closed networks in EU FP. Difficulty of participating for newcomers</p> <p>T5. Weak financial situation of Kosovo is an obstacle to attracting good researchers from abroad and makes it hard to remain competitive in the ICT research arena.</p> |

Table 7.1: SWOT Analysis.

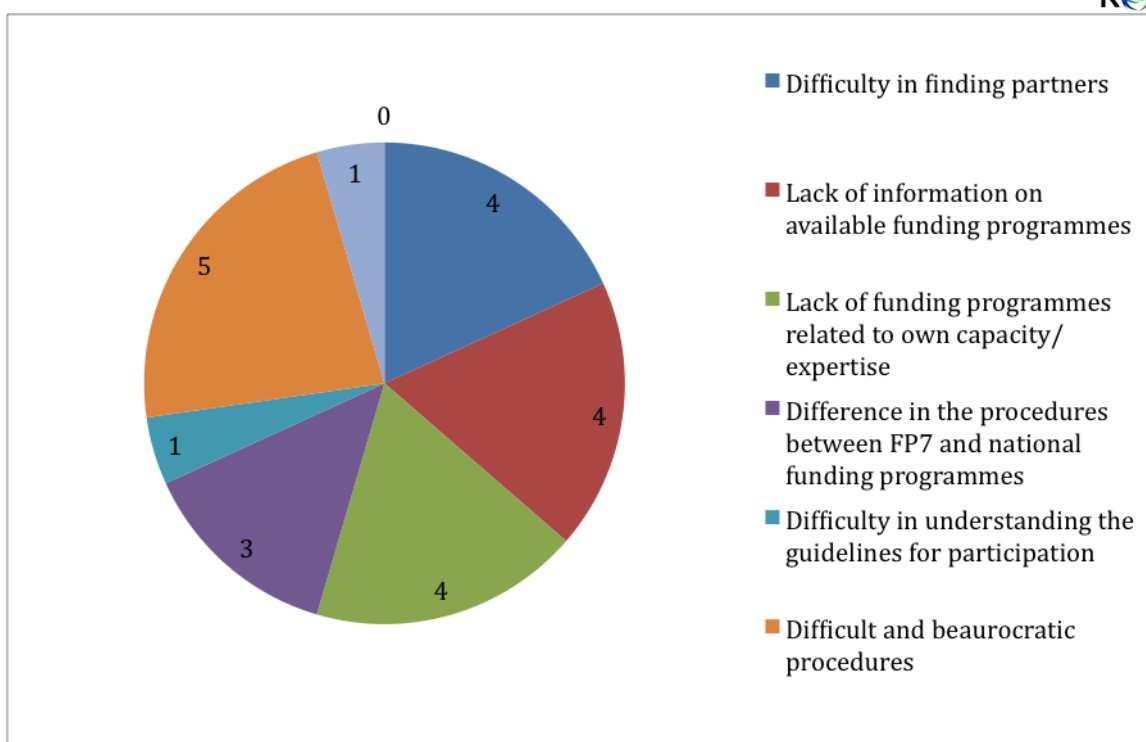
7.1 Opportunities and barriers for increasing the contribution of Kosovo to the FP7-ICT

One of the goals of this deliverable was to identify the barriers and obstacles to successful participation of Kosovo organizations in EU ICT research programs. Based on current state of the art, the interviews with the local stakeholders and the SWOT analysis, the main barriers identified and listed below.

7.1.1 General barriers for all types of organizations

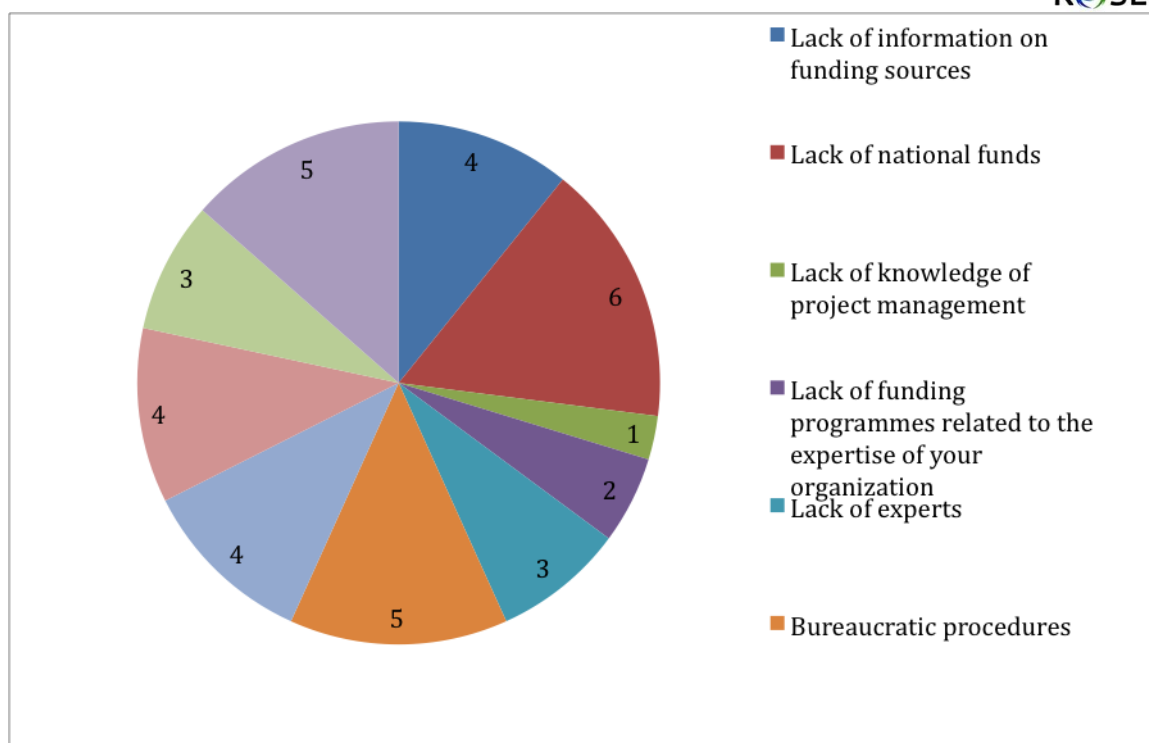
The analysis of this deliverable discovered that many barriers and obstacles for successful participation in EU collaborative ICT research are related to the type and history of an individual organization. At the same time, some of the obstacles have been pointed out by all types of organizations – research institutes, as well as SMEs and governmental organizations – these are defined as general barriers.

- No access to EU leading networks in specific (target) research areas. Quite a few Organizations with high RTD competence and research capacity in ICT Theme do not have links to leading EU networks in their research area. Therefore they are isolated and not able to take part in up-front RTD ICT projects.
- No or minimal experience of participation in collaborative projects. Many organisations with high ICT competence have never participated in any collaborative projects. They do not have experience and understanding of what is required, what to expect, and how to collaborate.
- No clear understanding about participation rules, conditions, financing schemes. Organisations without any experience find it difficult to read all the materials and understand the rules of various programmes, project types, financing schemes, etc. Lack of understanding of participation rules creates reluctance to participate in EU projects.
- Not enough resources (staff, financial) to prepare quality project applications. Preparation of applications requires a lot of time and resources. Not every organisation has them.
- Lack of necessary support to prepare projects (information, finances). Several organisations have complained that they have no resources to study all available information. Also, the management attitude is sometimes reluctant to commit resources. Financial support for preparation of proposals might help.
- Preparation, application and evaluation period too long. During the interviews, quite a few organisations pointed out that the proposal preparation, evaluation and starting process takes too long. Often organisations, in order to survive, have to change staff, direction of activities and research priorities.
- Kosovo organizations prefer to participate in proposals as partners. Participation in a proposal as a partner could be achieved with less effort than when building own consortium and proposal as Coordinator.
- Actors involved in the process have mentioned several of the barriers they have to overcome in order to participate in EU funded projects or research proposals. Graph 6 presents barriers mentioned for the EU projects.



Graph 6. Barriers for participation in EU projects

- One of the first barriers that appears is difficult and bureaucratic procedures, followed by lack of information on available funding programs, lack of funding programs related to own expertise and difficulty in finding partners.
- Besides barriers prohibiting participation in EU projects, respondents also gave answers on the barriers and obstacles they face in accessing national research funds in their country. Graph 7 presents these barriers.



Graph 7. Barriers for accessing national funds

- An interesting fact is, that almost all organizations mention lack of national funds and bureaucratic procedures and lack of communication with NCP for ICT as biggest barriers.

7.1.2 Barriers specific to academic sector and higher education institutions

Academic and higher education organizations have a number of specific obstacles and barriers, which are not characteristic for business entities. These barriers are related to the specifics of academic research as well as to the economic and political situation in science and RTD sector in Kosovo.

- Weak cooperation with industry sector in Kosovo and abroad. Industry and research institutions do not cooperate enough. Research findings and developments are not being implemented by the industry.
- Not enough dedicated resources to follow up EU ICT research work programs and calls.
- Lack of orientation to research results and outcomes in national projects, creating an inappropriate research project attitude/ culture
- Unclear future support for ICT research and education in Kosovo; this leads to low motivation to work on future projects
- Brain-drain of young researchers. Difficult economic situation, minimal support from the government, and public opinion, which does not hold education and science in high esteem, incites young, talented people to leave the country.

7.1.3 Barriers specific to Industry and SME sector

The analysis clearly showed a comparatively low participation and success rate of business organizations in FP7 calls. As discussed with the relevant stakeholders, most of the barriers are linked to enterprise policy, management attitude and lack of knowledge and cooperation.

- Do not have RTD ICT strategy or plans. Most of the companies do not consider research as a vital part of their activities, even though that they do research and it is important for their growth.
- Participation in EU ICT research projects is not a target for company management, since they are interested in immediate business gains.
- Companies do not have clearly defined responsibilities for RTD and innovation
- Weak cooperation with academic sector inside Kosovo and abroad.
- Strong focus only on obtaining financial support. Companies are not ready to share their experience and competence with partners. Their main interest is to find financial support for business activities.
- Importance of access to leading edge technologies and international experience underestimated
- Too much focus on short term goals and markets
- Development of services dominates over product and technology development
- The market and current demand dictate what a company is working on at the moment. Deeper analysis and forecasting is not done.
- Insufficient participation in international / EU events and networking activities; this decreases opportunities to contact best consortiums.

8 Initial Conclusions and Recommendations

To assist removal of barriers and to assist increase of the participation of Kosovo in the FP7 and Horizon 2020 ICT Theme, there are mutual and interacting actions expected to be performed at stakeholder level, national level and EU level.

8.1 *Recommendations for the EC*

- Providing support for more equal participation including visa/mobility constraints and issues of researchers/businessmen from Kosovo.
- Reducing bureaucratic workload and paperwork for application processes.
- Given Kosovo's specific situation, targeted calls for Kosovo ICT R&D priorities are suggested for improving the Kosovo-EU cooperation, experience exchange and speeding up solving the common problems and barriers.
- Apart from targeted calls on regional priorities, the support actions for other (EU) priorities that are underdeveloped in the region are recommended, since they are expected to facilitate the participation of research entities from Kosovo
- It is suggested to create awareness of the FP participation benefits through conferences and events dedicated to demonstrations of the success stories and best practices. Consider transfer of knowledge and experience from EU to Kosovo participants that are eager to participate in future activities
- Promoting high value added work packages of projects, which are sources of learning by doing, knowledge transfer and exchange in the field of ICT RTD for Kosovo.
- Redefinition of currently low material gains.
- Eliminating inappropriate timing of payments.
- Promoting academic career contribution of FP7 projects in universities in Kosovo.
- Establishing new programme approaches reducing mismatches at objective level for organizations in Kosovo.
- Defining short term (1-1.5 years) projects to gain experience.
- Defining small-scale projects to gain experience.
- Online access for strengthening transparency in evaluation of projects.

8.2 *Recommendations for local RTD stakeholders and actors*

- Defining organizational strategies parallel to priorities of FP and defining road map coherently.
- ICT RTD organizations should not miss the advantages of upcoming process of economy and

society modernization in a number of sectors promoted by ICT Theme.

- Organizational innovation to be adaptable into international environment.
- Prioritization of knowledge transfer and exchange in the field of ICT RTD by FP Projects.
- Focusing on learning by doing activities in FP7 ICT RTD.
- Insufficient cooperation between ICT industry and business, on one side, and institutes and faculties, on the other, could lead to collapse of projected policy for financing scientific work in Kosovo. Improve the cooperation between private enterprises and public research and education ICT institutions. Rise awareness of need for increasing ICT budget from public and private sector. Create measures for stimulation innovations and patents.
- Define national science and research priorities and policy for making clusters. Create stimulation measures to increase number of projects related directly to industry/business.

8.3 Recommendations for the national policy makers and governmental authorities

Some initial recommendations for the national policy makers and the relevant government authorities follows:

- Organise extensive capacity-building actions for improving skills of ICT researchers, particularly in FP7 application procedures, project planning and management (including financial management).
- Promoting academy-industry relations in Kosovo in terms of effective and cross-disciplinary collaborations for participating into FPs- level ICT RTD.
- Promotion and facilitation of the networking of Kosovo researchers in activities of the EU through the organization of national support programmes
- Developing policies for academic career contribution of FP projects by new regulations in universities, supporting organizational innovation.
- More active lobbying activities, support for attending international actions increasing establishment level visibility.
- Support for clustering activities, research institutes, high-tech SMEs and start-ups.
- Creation of a public national database of R&D actors and organizations and to improve processes for partner search within the country.
- Support from all ICT RTD sectors, it is necessary to significantly intensify and widen the dialogue between the national research stakeholders and the policy makers. The convergence of their positions is the key for the success of future work and plans.
- Careful creating of national and sustainable ICT RTD policy is needed, which will support ICT projects based on merit and will support the national institutes including private ones.
- Raise awareness of need for increasing ICT budget from public sector. Create measures for stimulating of innovations and patents.

9 Abbreviations, Glossary, References

9.1 Abbreviations

| | |
|------|---|
| DoW | Description of Work (Annex I to the contract) |
| EC | European Commission |
| IWP | ICT-WEB-PROMS |
| QA | Quality Assurance |
| QCM | Quality Control Manager |
| WBC | Western Balkan Countries |
| MEST | Ministry of Education, Science and Technology |
| VET | Vocation Education and Training |

9.2 Glossary

9.3 References

KOSOVO 2011 PROGRESS REPORT, COMMISSION STAFF WORKING PAPER, Brussels, 12.10.2011, SEC(2011) 1207 final, Accompanying the document “COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL, Enlargement Strategy and Main Challenges 2011-2012”

10 Annexes

10.1 Annex I – Questionnaires

Questionnaire for Research Institutes and Universities

Subject: Kosovo ICT RTD

This questionnaire aims to collect information regarding current status of scientific and applicative research in Republic of Kosovo, in the field of ICT. Please, give short answers about data (non confidential) regarding research and also the infrastructure and funds available for research in your institute/university.

Name of the institute/university:

Representative of the institute/ university:

Phone:

Email:

Web page:

Questions:

1. Does your institute/university deal with scientific/ applied research in the field of ICT RTD?

Answer (write Yes/No):

If yes, then please fill in the following data:

| | 2010 | 2012 | 2015 |
|--|------|------|------|
| Number of graduated PhD students | | | |
| Total number of ICT RTD personnel | | | |
| Percentage of females in total number of ICT RTD personnel | | | |
| Total number of full time equivalent basis (FTE) | | | |
| Total number of researchers/personnel | | | |
| Percentage of females in total number of researchers/personnel | | | |
| Total number of researchers/personnel on FTE basis | | | |
| Number of researchers/personnel with PhD degree or higher | | | |
| Number of researchers/personnel with PhD degree or higher on FTE basis | | | |
| Number of researchers/ICT personnel below 35 years of age | | | |
| Number of full time researchers//ICT personnel below 35 years of age | | | |

2. Is

your institute/university engaged in supporting scientific/applicative research in the field of ICT (financial or infrastructural support)?

Answer (write Yes/No):

If yes, choose applicable support forms in your case:

| | |
|--------------------------|---|
| <input type="checkbox"/> | Research/development is carried in your institution |
| <input type="checkbox"/> | Support is offered through published tender opened for any researcher/developer |
| <input type="checkbox"/> | You take part in developing research that are supported by certain favorite sponsor |
| <input type="checkbox"/> | Co-financing research/developer projects with other national/state bodies |
| <input type="checkbox"/> | Co-financing research/developer projects with other states institutions |
| <input type="checkbox"/> | Other forms – please fill in: |
| <input type="checkbox"/> | Other forms – please fill in: |

3. Is your institute/university equipped with any laboratory, research space or specific physical infrastructure that could be used for development of research in scientific or applicative field (not including common office equipment)?

Answer (write Yes/No):

If yes, please write shortly about the infrastructure possessed:

4. Has your institute/university in the recent past or is it actually involved in national or international projects with main focus in research or application in the field of ICT RTD?

Answer (write Yes/No):

If yes, please write the number of projects:

| | Ongoing in 2012 | Completed in 2012 |
|--|-----------------|-------------------|
| Number of ICT RTD projects | | |
| Of which: the number of projects in which the national institution co-ordinates | | |
| Of which: the number of projects in which the national institution participates | | |
| Of which: the number of FP EU projects in which the national institution co-ordinates | | |
| Of which: the number of FP EU projects in which the national institution participates | | |
| Number of research or applicative projects supported by governmental body | | |

Please write name and cost of every project:

| # | Name of the project | Cost (€) | Year |
|---|---------------------|----------|------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |

| | | | |
|----|--|--|--|
| | | | |
| 9 | | | |
| 10 | | | |

If you need more space, please use a separate list!

5. What is the number of contributions/scientific discoveries from your institute/university in the field of ICT?

| Total in the field of ICT (*) | <2010 | 2011 | 2012 |
|--|-------|------|------|
| Number of important discovery ** | | | |
| Number of local patents achieved | | | |
| Number of patents achieved from EPO *** | | | |
| Number of patents achieved from USPTO *** | | | |
| Number of patents achieved from JPO *** | | | |
| Number of publications in scientific journals with review from Institute Scientific Information **** | | | |

** important discovery : a product/process/organizational form/ new tool or method that has contributed in earning more than 100 thousand euro or more than 500 people use the product/new process or has helped in saving lives of people in a considerable number. Institutes research contribution is considered substantial if at least one third of the knowledge came from research organization.

*** EPO: European Patent Office; JPO: Japan Patent Office; USPTO: United States Patent and Trademark Office

**** and as such appears in the index of scientific citations

6. According to your institutions point of view, what do you think should be main priority fields in regard to ICT RTD science and innovation presently and in the next 5 years?

Answer:

7. What is your research interest in relation to the ICT Work programme priorities? Please rank (check Annex 1).

In which challenges does your organization have research expertise in? Please tick (✓) one or more as appropriate.

| FP7 ICT Work Programme Priorities | |
|--|--|
| Challenge 1: pervasive and trusted network and service infrastructures | |
| Challenge 2: cognitive systems and robotics | |
| Challenge 3: alternative paths to components and systems | |
| Challenge 4: technologies for digital content and languages | |
| Challenge 5: ICT for health, ageing well, inclusion and governance | |
| Challenge 6: ICT for a lower carbon economy | |
| Challenge 7: ICT for the Enterprise and Manufacturing | |
| Challenge 8: ICT for learning and access to cultural resources | |

8. In which challenges do you, as a person, have research expertise in? Please rank (check Annex 1).

| FP7 ICT Work Programme Priorities | |
|---|--|
| <i>Challenge 1: pervasive and trusted network and service infrastructures</i> | |
| <i>Challenge 2: cognitive systems and robotics</i> | |
| <i>Challenge 3: alternative paths to components and systems</i> | |
| <i>Challenge 4: technologies for digital content and languages</i> | |
| <i>Challenge 5: ICT for health, ageing well, inclusion and governance</i> | |
| <i>Challenge 6: ICT for a lower carbon economy</i> | |
| <i>Challenge 7: ICT for the Enterprise and Manufacturing</i> | |
| <i>Challenge 8: ICT for learning and access to cultural resources</i> | |

9. Are you familiar with using CORDIS, the main European Information Service for Research and Development?

Answer (write Yes/No):

If yes, specifically which CORDIS tools/aspects you mostly utilize?

| | |
|-----------------------------------|--------------------------|
| Partner Search tool | <input type="checkbox"/> |
| Information on Open Calls | <input type="checkbox"/> |
| Information on past projects | <input type="checkbox"/> |
| Official Documents and Guidelines | <input type="checkbox"/> |
| Other (please specify): | <input type="checkbox"/> |

10. Are you familiar with the existence and operation of the National Contact Point (NCP) system in the European Commission's Framework Programmes for RTD?

Answer (write yes/no):

If yes, do you know who (person, authority) is the National Contact Point for ICT in your country?

Person/authority:

11. Which services of the NCP have you utilized?

| | |
|-------------------------|--------------------------|
| Request for information | <input type="checkbox"/> |
| Request for advice | <input type="checkbox"/> |
| Partner Search | <input type="checkbox"/> |
| Other (please specify): | <input type="checkbox"/> |

12. Please tick (✓) in which of the below you have experience of having participated in:

| Funding Body | Research Proposal (a proposal for a project that was submitted to a funding body but was either unsuccessful or the outcome is pending) | Research Project (a project that has been successful in receiving funding from the funding body) |
|--|---|--|
| European Commission | <input type="checkbox"/> | <input type="checkbox"/> |
| National Funding Body | <input type="checkbox"/> | <input type="checkbox"/> |
| Other International or Bi-lateral Funding Bodies | <input type="checkbox"/> | <input type="checkbox"/> |
| None of the above | <input type="checkbox"/> | <input type="checkbox"/> |

13. What are the barriers of not participating in European-funded research projects or in research proposals:

| | |
|--|--------------------------|
| Difficulty in finding partners | <input type="checkbox"/> |
| Lack of information on available funding programmes | <input type="checkbox"/> |
| Lack of funding programmes related to own capacity/expertise | <input type="checkbox"/> |
| Difference in the procedures between FP7 and national funding programmes | <input type="checkbox"/> |
| Difficulty in understanding the guidelines for participation | <input type="checkbox"/> |
| Difficult and bureaucratic procedures | <input type="checkbox"/> |
| Funding level (contribution to project costs) too low | <input type="checkbox"/> |
| Limited (or no) knowledge of the English language | <input type="checkbox"/> |
| Other (please specify): | <input type="checkbox"/> |

14. Your participation in research proposals

| Funding Programme | Research Project | Research Proposal |
|--|--------------------------|--------------------------|
| Framework Programme 6 (FP6) IST | <input type="checkbox"/> | <input type="checkbox"/> |
| Framework Programme 7 (FP7) ICT | <input type="checkbox"/> | <input type="checkbox"/> |
| Marie Curie/Mobility for researchers Action | <input type="checkbox"/> | <input type="checkbox"/> |
| Other FP6 | <input type="checkbox"/> | <input type="checkbox"/> |
| Other FP7 | <input type="checkbox"/> | <input type="checkbox"/> |
| Lifelong learning programme (DG Education and Culture) | <input type="checkbox"/> | <input type="checkbox"/> |
| Competitiveness and Innovation Framework Programme (CIP) | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (please specify): | | |

15. What are the thematic priorities of FP7 ICT programme, you have addressed:

| FP7 ICT Work Programme Priorities | Research proposal | Research project |
|---|--------------------------|--------------------------|
| <i>Challenge 1: pervasive and trusted network and service infrastructures</i> | <input type="checkbox"/> | <input type="checkbox"/> |
| <i>Challenge 2: cognitive systems and robotics</i> | <input type="checkbox"/> | <input type="checkbox"/> |
| <i>Challenge 3: alternative paths to components and systems</i> | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|--|--------------------------|--------------------------|
| Challenge 4: technologies for digital content and languages | <input type="checkbox"/> | <input type="checkbox"/> |
| Challenge 5: ICT for health, ageing well, inclusion and governance | <input type="checkbox"/> | <input type="checkbox"/> |
| Challenge 6: ICT for a lower carbon economy | <input type="checkbox"/> | <input type="checkbox"/> |
| Challenge 7: ICT for the Enterprise and Manufacturing | <input type="checkbox"/> | <input type="checkbox"/> |
| Challenge 8: ICT for learning and access to cultural resources | <input type="checkbox"/> | <input type="checkbox"/> |

16. What are the EU countries you collaborated for the preparation of research proposals?

Answer:

17. Please tick (✓) the statements that best describe your role in the European-funded research project or in the research proposal:

| | |
|--|--------------------------|
| Development of technical expertise/solutions | <input type="checkbox"/> |
| Dissemination activities (i.e. organization of events) | <input type="checkbox"/> |
| Quality Assurance | <input type="checkbox"/> |
| End user/pilot application of technology developed | <input type="checkbox"/> |
| Other (please specify): | |

18. Have you undertaken any collaborative research activity (i.e. joint research project with other research organizations or with the Industry) in the last five years on a national or bilateral level?

| | |
|--|--------------------------|
| YES at a national level | <input type="checkbox"/> |
| YES at a bilateral level | <input type="checkbox"/> |
| Both of the above | <input type="checkbox"/> |
| If at a bilateral level, please state the country: | |

19. Which are the most important obstacles in accessing national research funds in your country?

| | |
|--|--------------------------|
| Lack of information on funding sources | <input type="checkbox"/> |
| Lack of national funds | <input type="checkbox"/> |
| Lack of knowledge of project management | <input type="checkbox"/> |
| Lack of funding programmes related to the expertise of your organization | <input type="checkbox"/> |
| Lack of experts | <input type="checkbox"/> |
| Bureaucratic procedures | <input type="checkbox"/> |
| Lack of transparency in the allocation of research funds | <input type="checkbox"/> |
| Lack of clear guidelines | <input type="checkbox"/> |
| Difficulty with networking and identifying suitable partners | <input type="checkbox"/> |
| Lack of communication with the National Contact Point for IC | <input type="checkbox"/> |

Annex 1

Challenge 1: pervasive and trusted network and service infrastructures

Challenge 1 covers tools and platforms for novel Internet application development and deployment through the Public-Private Partnership on Future Internet. At the same time, key technological developments and large scale experimentation in networking, cloud computing, Internet of Things, Trustworthy ICT and connected and social media of the future are targeted.

Challenge 2: cognitive systems and robotics

Challenge 2 initiates a research and innovation agenda, aiming to develop artificial systems that operate in dynamic real life environments, reaching new levels of autonomy and adaptability. There is a strong focus on advanced robotics systems, given its potential to underpin the competitiveness of key manufacturing sectors in Europe and a wide range of innovative products and services across the economy, from home appliances to health, security, space and leisure.

Challenge 3: alternative paths to components and systems

Challenge 3 covers nano/microelectronics and photonics, the heterogeneous integration of these key enabling technologies and related components and systems, as well as advanced computing, embedded and control systems at a higher level. Energy- and cost efficiency as well as recycling/end of life issues are major drivers across the Challenge.

Challenge 4: technologies for digital content and languages

Challenge 4 aims to enable individuals and small organisations to create quality content and innovative services and at allowing people to access and use online content and services across language barriers; it also aims at ensuring reliability of retrieval and use of digital resources across applications and platforms and at scaling up data analysis to keep pace with extremely large data volumes.

Challenge 5: ICT for health, ageing well, inclusion and governance

Challenge 5 focuses on development of solutions that empower the individual to improve and manage personal life conditions and participation as a citizen, elderly, patient and consumer. Special emphasis will be given to productivity gains, customer satisfaction, and provision of new capabilities of public interest by spanning across health and social care systems and government and linking up to other areas of ICT R&D.

Challenge 6: ICT for a lower carbon economy

Challenge 6 concentrates on the development of ICT to achieve substantial efficiency gains in the distribution and use of key resources such as energy and water, as well as the application of ICT to decarbonise transport and make it safer. This incorporates the ICT contributions to the Public-Private Partnerships on Energy Efficient Buildings and on Green Cars: ICT for the fully electric vehicle.

Challenge 7: ICT for the Enterprise and Manufacturing

Challenge 7 will support industry in bringing together suppliers and users for experiments that target the broad uptake of ICT in all domains of manufacturing. Focus is on emerging innovative technologies and processes, which need to be validated and tailor-made for customer needs before being able to enter the market. Special emphasis is on strengthening European SMEs, both on the supply and on the demand side.

Challenge 8: ICT for learning and access to cultural resources

Challenge 8 will develop technologies and methodologies that enable people to learn more effectively and support the acquisition of new skills. It also supports production of more powerful and interactive tools for creative industries and anticipate future trends in research and innovation by encouraging interaction in and between different segments of the creative industries.

While thanking you for cooperation and the contribution, we remind you to send the filled questionnaire

before (date) on the following email address. For further information or clarification, do not hesitate to contact us on the above mentioned email address or phone number (number).

Thank you!

Questionnaire for SMEs and Industrial Companies

Subject: Kosovo ICT RTD

This questionnaire aims to collect information regarding current status of scientific and applicative research in Republic of Kosovo, in the field of ICT. Please, give short answers about data (non confidential) regarding research and also the infrastructure and funds available for research in your SME / industrial company.

Name of the SME / company:

Representative of the SME / company:

Phone:

Email:

Web page:

Questions:

1. Does your SME or company deal with scientific/ applied research in the field of ICT RTD?

Answer (write Yes/No):

If yes, then please fill in the following data:

| | 2010 | 2012 | 2015 |
|--|------|------|------|
| Number of graduated PhD students working | | | |
| Total number of ICT RTD personnel | | | |
| Percentage of females in total number of ICT RTD personnel | | | |
| Total number of full time equivalent basis (FTE) | | | |
| Total number of researchers/personnel | | | |
| Percentage of females in total number of researchers/personnel | | | |
| Total number of researchers/personnel on FTE basis | | | |
| Number of researchers/personnel with PhD degree or higher | | | |
| Number of researchers/personnel with PhD degree or higher on FTE basis | | | |
| Number of researchers/ICT personnel below 35 years of age | | | |
| Number of full time researchers//ICT personnel below 35 years of age | | | |

2. Is

your SME / company engaged in supporting scientific/applicative research in the field of ICT (financial or infrastructural support)?

Answer (write Yes/No):

If yes, choose applicable support forms in your case:

| | |
|--------------------------|---|
| <input type="checkbox"/> | Research/development is carried in your institution |
| <input type="checkbox"/> | Support is offered through published tender opened for any researcher/developer |
| <input type="checkbox"/> | You take part in developing research that are supported by certain favorite sponsor |

| | |
|--------------------------|---|
| <input type="checkbox"/> | Co-financing research/developer projects with other national/state bodies |
| <input type="checkbox"/> | Co-financing research/developer projects with other states institutions |
| <input type="checkbox"/> | Other forms – please fill in: |
| <input type="checkbox"/> | Other forms – please fill in: |

3. Is your SME / company equipped with any laboratory, research space or specific physical infrastructure that could be used for development of research in scientific or applicative field (not including common office equipment)?

Answer (write Yes/No):

If yes, please write shortly about the infrastructure possessed:

4. Has your institute/organization/company in the recent past or is it actually involved in national or international projects with main focus in research or application in the field of ICT RTD?

Answer (write Yes/No):

If yes, please write the number of projects:

| | Ongoing in 2012 | Completed in 2012 |
|--|--------------------|----------------------|
| Number of ICT RTD projects | | |
| Of which: the number of projects in which the national institution co-ordinates | | |
| Of which: the number of projects in which the national institution participates | | |
| Of which: the number of FP EU projects in which the national institution co-ordinates | | |
| Of which: the number of FP EU projects in which the national institution participates | | |
| Number of research or applicative projects supported by governmental body | | |

Please write name and cost of every project:

| # | Name of the project | Cost (€) | Year |
|----|---------------------|----------|------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |

If you need more space, please use a separate list!

5. What is the number of contributions/scientific discoveries from your company in the field of ICT?

| Total in the field of ICT (*) | <2010 | 2011 | 2012 |
|--|-------|------|------|
| Number of important discovery ** | | | |
| Number of local patents achieved | | | |
| Number of patents achieved from EPO *** | | | |
| Number of patents achieved from USPTO *** | | | |
| Number of patents achieved from JPO *** | | | |
| Number of publications in scientific journals with review from Institute Scientific Information **** | | | |

** important discovery : a product/process/organizational form/ new tool or method that has contributed in earning more than 100thousand euro or more than 500 people use the product/new process or has helped in saving lives of people in a considerable number. Institutes research contribution is considered substantial if at least one third of the knowledge came from research organization.

*** EPO: European Patent Office; JPO: Japan Patent Office; USPTO: United States Patent and Trademark Office

**** and as such appears in the index of scientific citations

6. According to your company point of view, what do you think should be main priority fields in regard to ICT RTD science and innovation presently and in the next 5 years?

Answer:

7. What is your research interest in relation to the ICT Workprogramme priorities? Please rank (check Annex 1).

In which challenges does your organization have research expertise in? Please tick (✓) one or more as appropriate.

| FP7 ICT Work Programme Priorities | |
|--|--|
| Challenge 1: pervasive and trusted network and service infrastructures | |
| Challenge 2: cognitive systems and robotics | |
| Challenge 3: alternative paths to components and systems | |
| Challenge 4: technologies for digital content and languages | |
| Challenge 5: ICT for health, ageing well, inclusion and governance | |
| Challenge 6: ICT for a lower carbon economy | |
| Challenge 7: ICT for the Enterprise and Manufacturing | |
| Challenge 8: ICT for learning and access to cultural resources | |

8. In which challenges do you, as a person, have research expertise in? Please rank (check Annex 1).

| FP7 ICT Work Programme Priorities | |
|--|--|
| Challenge 1: pervasive and trusted network and service infrastructures | |

| | |
|---|--|
| <i>Challenge 2: cognitive systems and robotics</i> | |
| <i>Challenge 3: alternative paths to components and systems</i> | |
| <i>Challenge 4: technologies for digital content and languages</i> | |
| <i>Challenge 5: ICT for health, ageing well, inclusion and governance</i> | |
| <i>Challenge 6: ICT for a lower carbon economy</i> | |
| <i>Challenge 7: ICT for the Enterprise and Manufacturing</i> | |
| <i>Challenge 8: ICT for learning and access to cultural resources</i> | |

9. Are you familiar with using CORDIS, the main European Information Service for Research and Development?

Answer (write Yes/No):

If yes, specifically which CORDIS tools/aspects you mostly utilize?

| | |
|-----------------------------------|--------------------------|
| Partner Search tool | <input type="checkbox"/> |
| Information on Open Calls | <input type="checkbox"/> |
| Information on past projects | <input type="checkbox"/> |
| Official Documents and Guidelines | <input type="checkbox"/> |
| Other (please specify): | |

10. Are you familiar with the existence and operation of the National Contact Point (NCP) system in the European Commission's Framework Programmes for RTD?

Answer (write yes/no):

If yes, do you know who (person, authority) is the National Contact Point for ICT in your country?

Person/authority:

11. Which services of the NCP have you utilized?

| | |
|-------------------------|--------------------------|
| Request for information | <input type="checkbox"/> |
| Request for advice | <input type="checkbox"/> |
| Partner Search | <input type="checkbox"/> |
| Other (please specify): | <input type="checkbox"/> |

12. Please tick (✓) in which of the below you have experience of having participated in:

| Funding Body | Research Proposal (a proposal for a project that was submitted to a funding body but was either unsuccessful or the outcome is pending) | Research Project (a project that has been successful in receiving funding from the funding body) |
|--|---|--|
| European Commission | <input type="checkbox"/> | <input type="checkbox"/> |
| National Funding Body | <input type="checkbox"/> | <input type="checkbox"/> |
| Other International or Bi-lateral Funding Bodies | <input type="checkbox"/> | <input type="checkbox"/> |

| | | |
|-------------------|--------------------------|--------------------------|
| None of the above | <input type="checkbox"/> | <input type="checkbox"/> |
|-------------------|--------------------------|--------------------------|

13. What are the barriers of not participating in European-funded research projects or in research proposals:

| | |
|--|--------------------------|
| Difficulty in finding partners | <input type="checkbox"/> |
| Lack of information on available funding programmes | <input type="checkbox"/> |
| Lack of funding programmes related to own capacity/expertise | <input type="checkbox"/> |
| Difference in the procedures between FP7 and national funding programmes | <input type="checkbox"/> |
| Difficulty in understanding the guidelines for participation | <input type="checkbox"/> |
| Difficult and bureaucratic procedures | <input type="checkbox"/> |
| Funding level (contribution to project costs) too low | <input type="checkbox"/> |
| Limited (or no) knowledge of the English language | <input type="checkbox"/> |
| Other (please specify): | <input type="checkbox"/> |

14. Your participation in research proposals

| Funding Programme | Research Project | Research Proposal |
|---|--------------------------|--------------------------|
| Framework Programme 6 (FP6) IST | <input type="checkbox"/> | <input type="checkbox"/> |
| Framework Programme 7 (FP7) ICT | <input type="checkbox"/> | <input type="checkbox"/> |
| Marie Curie/Mobility for researchers Action | <input type="checkbox"/> | <input type="checkbox"/> |
| Other FP6 | <input type="checkbox"/> | <input type="checkbox"/> |
| Other FP7 | <input type="checkbox"/> | <input type="checkbox"/> |
| Lifelong learning programme (DG Education and Culture) | <input type="checkbox"/> | <input type="checkbox"/> |
| Competitiveness and Innovation Framework Programme (CIP) | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (please specify): | | |

15. What are the thematic priorities of FP7 ICT programme, you have addressed:

| FP7 ICT Work Programme Priorities | Research proposal | Research project |
|---|--------------------------|--------------------------|
| <i>Challenge 1: pervasive and trusted network and service infrastructures</i> | <input type="checkbox"/> | <input type="checkbox"/> |
| <i>Challenge 2: cognitive systems and robotics</i> | <input type="checkbox"/> | <input type="checkbox"/> |
| <i>Challenge 3: alternative paths to components and systems</i> | <input type="checkbox"/> | <input type="checkbox"/> |
| <i>Challenge 4: technologies for digital content and languages</i> | <input type="checkbox"/> | <input type="checkbox"/> |
| <i>Challenge 5: ICT for health, ageing well, inclusion and governance</i> | <input type="checkbox"/> | <input type="checkbox"/> |
| <i>Challenge 6: ICT for a lower carbon economy</i> | <input type="checkbox"/> | <input type="checkbox"/> |
| <i>Challenge 7: ICT for the Enterprise and Manufacturing</i> | <input type="checkbox"/> | <input type="checkbox"/> |
| <i>Challenge 8: ICT for learning and access to cultural resources</i> | <input type="checkbox"/> | <input type="checkbox"/> |

16. What are the EU counties you collaborated for the preparation of research proposals?

Answer:

-
17. Please tick (✓) the statements that best describe your role in the European-funded research project or in the research proposal:

| | |
|--|--------------------------|
| Development of technical expertise/solutions | <input type="checkbox"/> |
| Dissemination activities (i.e. organization of events) | <input type="checkbox"/> |
| Quality Assurance | <input type="checkbox"/> |
| End user/pilot application of technology developed | <input type="checkbox"/> |
| Other (please specify): | |

-
18. Have you undertaken any collaborative research activity (i.e. joint research project with other research organizations or with the Industry) in the last five years on a national or bilateral level?

| | |
|--|--------------------------|
| YES at a national level | <input type="checkbox"/> |
| YES at a bilateral level | <input type="checkbox"/> |
| Both of the above | <input type="checkbox"/> |
| If at a bilateral level, please state the country: | |

-
19. Which are the most important obstacles in accessing national research funds in your country?

| | |
|--|--------------------------|
| Lack of information on funding sources | <input type="checkbox"/> |
| Lack of national funds | <input type="checkbox"/> |
| Lack of knowledge of project management | <input type="checkbox"/> |
| Lack of funding programmes related to the expertise of your organization | <input type="checkbox"/> |
| Lack of experts | <input type="checkbox"/> |
| Bureaucratic procedures | <input type="checkbox"/> |
| Lack of transparency in the allocation of research funds | <input type="checkbox"/> |
| Lack of clear guidelines | <input type="checkbox"/> |
| Difficulty with networking and identifying suitable partners | <input type="checkbox"/> |
| Lack of communication with the National Contact Point for IC | <input type="checkbox"/> |

Annex 1

Challenge 1: pervasive and trusted network and service infrastructures

Challenge 1 covers tools and platforms for novel Internet application development and deployment through the Public-Private Partnership on Future Internet. At the same time, key technological developments and large scale experimentation in networking, cloud computing, Internet of Things, Trustworthy ICT and connected and social media of the future are targeted.

Challenge 2: cognitive systems and robotics

Challenge 2 initiates a research and innovation agenda, aiming to develop artificial systems that operate in dynamic real life environments, reaching new levels of autonomy and adaptability. There is a strong focus on advanced robotics systems, given its potential to underpin the competitiveness of key manufacturing sectors in Europe and a wide range of innovative products and services across the economy, from home appliances to health, security, space and leisure.

Challenge 3: alternative paths to components and systems

Challenge 3 covers nano/microelectronics and photonics, the heterogeneous integration of these key enabling technologies and related components and systems, as well as advanced computing, embedded and control systems at a higher level. Energy- and cost efficiency as well as recycling/end of life issues are major drivers across the Challenge.

Challenge 4: technologies for digital content and languages

Challenge 4 aims to enable individuals and small organisations to create quality content and innovative services and at allowing people to access and use online content and services across language barriers; it also aims at ensuring reliability of retrieval and use of digital resources across applications and platforms and at scaling up data analysis to keep pace with extremely large data volumes.

Challenge 5: ICT for health, ageing well, inclusion and governance

Challenge 5 focuses on development of solutions that empower the individual to improve and manage personal life conditions and participation as a citizen, elderly, patient and consumer. Special emphasis will be given to productivity gains, customer satisfaction, and provision of new capabilities of public interest by spanning across health and social care systems and government and linking up to other areas of ICT R&D.

Challenge 6: ICT for a lower carbon economy

Challenge 6 concentrates on the development of ICT to achieve substantial efficiency gains in the distribution and use of key resources such as energy and water, as well as the application of ICT to decarbonise transport and make it safer. This incorporates the ICT contributions to the Public-Private Partnerships on Energy Efficient Buildings and on Green Cars: ICT for the fully electric vehicle.

Challenge 7: ICT for the Enterprise and Manufacturing

Challenge 7 will support industry in bringing together suppliers and users for experiments that target the broad uptake of ICT in all domains of manufacturing. Focus is on emerging innovative technologies and processes, which need to be validated and tailor-made for customer needs before being able to enter the market. Special emphasis is on strengthening European SMEs, both on the supply and on the demand side.

Challenge 8: ICT for learning and access to cultural resources

Challenge 8 will develop technologies and methodologies that enable people to learn more effectively and support the acquisition of new skills. It also supports production of more powerful and interactive tools for creative industries and anticipate future trends in research and innovation by encouraging interaction in and between different segments of the creative industries.

*While thanking you for cooperation and the contribution, we remind you to send the filled questionnaire before (date) on the following email address. For further information or clarification, do not hesitate to contact us on the above mentioned email address or phone number (number).
Thank you!*

Questionnaire for Ministries and Donors

Subject: Kosovo ICT RTD

This questionnaire aims to collect information regarding current status of scientific and applicative research in Republic of Kosovo, in the field of ICT. Please, give short answers about data (non confidential) regarding research and also the infrastructure and funds available for research in your institution.

Name of the institution:

Representative of the institutions:

Phone:

Email:

Web page:

Questions:

1. Is your institution engaged in supporting scientific/applicative research and development in the field of ICT RTD (financial or infrastructural support)?

Answer (write Yes/No):

If yes, please tick forms of support applicable in your case:

| | |
|--------------------------|---|
| <input type="checkbox"/> | Research/development is carried in your institution |
| <input type="checkbox"/> | Support is offered through published tender opened for any researcher/developer |
| <input type="checkbox"/> | Co-financing research/developer projects with other national/state bodies |
| <input type="checkbox"/> | Co-financing research/developer projects with other states institutions |
| <input type="checkbox"/> | Other forms – please fill in: |
| <input type="checkbox"/> | Other forms – please fill in: |

2. Is your institution equipped with any laboratory, research space or specific physical infrastructure that could be used for development of research in scientific or applicative field (not including common office equipment)?

Answer (write Yes/No):

If yes, please write shortly about the infrastructure possessed:

-
3. Has your institution in the recent past or is it actually involved in national or international projects with main focus in research or application in the field of ICT RTD?

Answer (write Yes/No):

If yes, please write the number of projects:

| | Ongoing in 2012 | Completed in 2012 |
|--|-----------------|-------------------|
| Number of ICT RTD projects | | |
| Of which: the number of projects in which the national institution co-ordinates | | |
| Of which: the number of projects in which the national institution participates | | |
| Of which: the number of FP EU projects in which the national institution co-ordinates | | |

| | | |
|--|--|--|
| Of which: the number of FP EU projects in which the national institution participates | | |
|--|--|--|

Please write name and cost of every project:

| # | Name of the project | Cost (€) | Year |
|---|---------------------|----------|------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |

-
4. Is there any relation of strategy in ICT at the national level to EU policy and FP7 programme?

Answer (write Yes/No):

If yes, describe the relation.

Answer:

5. What is your research interest in relation to the ICT Workprogramme priorities? Please rank (check Annex 1).

In which challenges does your organization have research expertise in? Please tick (✓) one or more as appropriate.

| FP7 ICT Work Programme Priorities | |
|---|--|
| <i>Challenge 1: pervasive and trusted network and service infrastructures</i> | |
| <i>Challenge 2: cognitive systems and robotics</i> | |
| <i>Challenge 3: alternative paths to components and systems</i> | |
| <i>Challenge 4: technologies for digital content and languages</i> | |
| <i>Challenge 5: ICT for health, ageing well, inclusion and governance</i> | |
| <i>Challenge 6: ICT for a lower carbon economy</i> | |
| <i>Challenge 7: ICT for the Enterprise and Manufacturing</i> | |
| <i>Challenge 8: ICT for learning and access to cultural resources</i> | |

-
6. In which challenges do you, as a person, have research expertise in? Please rank (check Annex 1).

| FP7 ICT Work Programme Priorities | |
|---|--|
| <i>Challenge 1: pervasive and trusted network and service infrastructures</i> | |
| <i>Challenge 2: cognitive systems and robotics</i> | |
| <i>Challenge 3: alternative paths to components and systems</i> | |
| <i>Challenge 4: technologies for digital content and languages</i> | |
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| <i>Challenge 7: ICT for the Enterprise and Manufacturing</i> | |
| <i>Challenge 8: ICT for learning and access to cultural resources</i> | |

7. Are you familiar with using CORDIS, the main European Information Service for Research and Development?

Answer (write Yes/No):

If yes, specifically which CORDIS tools/aspects you mostly utilize?

| | |
|-----------------------------------|--------------------------|
| Partner Search tool | <input type="checkbox"/> |
| Information on Open Calls | <input type="checkbox"/> |
| Information on past projects | <input type="checkbox"/> |
| Official Documents and Guidelines | <input type="checkbox"/> |
| Participant portal | <input type="checkbox"/> |
| Other (please specify): | |

8. Are you familiar with the existence and operation of the National Contact Point (NCP) system in the European Commission's Framework Programmes for RTD?

Answer (write yes/no):

If yes, do you know who (person, authority) is the National Contact Point for ICT in your country?

Person/authority:

9. According to your institutions point of view, what do you think should be main priority fields in regard to ICT RTD science and innovation presently and in the next 5 years?

Answer:

Annex 1

Challenge 1: pervasive and trusted network and service infrastructures

Challenge 1 covers tools and platforms for novel Internet application development and deployment through the Public-Private Partnership on Future Internet. At the same time, key technological developments and large scale experimentation in networking, cloud computing, Internet of Things, Trustworthy ICT and connected and social media of the future are targeted.

Challenge 2: cognitive systems and robotics

Challenge 2 initiates a research and innovation agenda, aiming to develop artificial systems that operate in dynamic real life environments, reaching new levels of autonomy and adaptability. There is a strong focus on advanced robotics systems, given its potential to underpin the competitiveness of key manufacturing sectors in Europe and a wide range of innovative products and services across

the economy, from home appliances to health, security, space and leisure.

Challenge 3: alternative paths to components and systems

Challenge 3 covers nano/microelectronics and photonics, the heterogeneous integration of these key enabling technologies and related components and systems, as well as advanced computing, embedded and control systems at a higher level. Energy- and cost efficiency as well as recycling/end of life issues are major drivers across the Challenge.

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Challenge 5: ICT for health, ageing well, inclusion and governance

Challenge 5 focuses on development of solutions that empower the individual to improve and manage personal life conditions and participation as a citizen, elderly, patient and consumer. Special emphasis will be given to productivity gains, customer satisfaction, and provision of new capabilities of public interest by spanning across health and social care systems and government and linking up to other areas of ICT R&D.

Challenge 6: ICT for a lower carbon economy

Challenge 6 concentrates on the development of ICT to achieve substantial efficiency gains in the distribution and use of key resources such as energy and water, as well as the application of ICT to decarbonise transport and make it safer. This incorporates the ICT contributions to the Public-Private Partnerships on Energy Efficient Buildings and on Green Cars: ICT for the fully electric vehicle.

Challenge 7: ICT for the Enterprise and Manufacturing

Challenge 7 will support industry in bringing together suppliers and users for experiments that target the broad uptake of ICT in all domains of manufacturing. Focus is on emerging innovative technologies and processes, which need to be validated and tailor-made for customer needs before being able to enter the market. Special emphasis is on strengthening European SMEs, both on the supply and on the demand side.

Challenge 8: ICT for learning and access to cultural resources

Challenge 8 will develop technologies and methodologies that enable people to learn more effectively and support the acquisition of new skills. It also supports production of more powerful and interactive tools for creative industries and anticipate future trends in research and innovation by encouraging interaction in and between different segments of the creative industries.

While thanking you for cooperation and the contribution, we remind you to send the filled questionnaire before (date) on the following email address. For further information or clarification, do not hesitate to contact us on the above mentioned email address or phone number (number).

Thank you!

Questionnaire for Government

Subject: Kosovo ICT RTD

This questionnaire aims to collect information regarding current status of scientific and applicative research in Republic of Kosovo, in the field of ICT. Please, give short answers about data (non confidential) regarding research and also the infrastructure and funds available for research in your institution.

Name of the institution:

Representative of the institutions:

Phone:

Email:

Web page:

Questions:

20. Are you aware of the existing documentation in setting ICT research priorities:

a) The National Research Programme of the Republic of Kosovo

☐ yes ☐ no

b) NATIONAL BACKGROUND REPORT ON ICT RESEARCH FOR KOSOVO

☐ yes ☐ no

21. To what extend do you think that a strategy in ICT at the national level has been implemented?

Answer:

22. What are the factors that you consider important for drafting the methodology the National Strategy for ICT for your country such as:

- Mapping of research strengths
- Alignment with European Strategies
- Alignment with FP7 ICT objectives
- Cooperation between academia and industry
- More open consultations with researchers
- Cooperation with European experts

Answer:

23. What are the elements that you consider important in terms of content for a strategy in ICT at the national level, such as

- Building support for existing ICT research competencies
- Developing new ICT research competencies
- Financial Incentives for research projects at national level
- Financial Incentives for preparation for joining FP7 ICT programmes
- International mobility of researchers
- Mobility of researchers at national level between industry and academia
- Support for the expansion of ICT infrastructures (i.e. broadband internet)

Answer:

24. What is the degree of the involvement of the research institutions in implementing a strategy in ICT at the national level?

Please describe:

25. When planning and setting ICT RTD and innovation policies, describe entities involved and their status (local/regional/international/joint) and weight of stakeholders participating in decision making?

Answer:

26. What are the main national development policy priorities in regard to ICT RTD science and innovation presently and in the next 5 years?

Answer:

27. Are you familiar with using CORDIS, the main European Information Service for Research and Development and the Participants Portal?

Answer (write Yes/No):

If yes, specifically which CORDIS tools/aspects you mostly utilize?

| | |
|-----------------------------------|--------------------------|
| Partner Search tool | <input type="checkbox"/> |
| Information on Open Calls | <input type="checkbox"/> |
| Information on past projects | <input type="checkbox"/> |
| Official Documents and Guidelines | <input type="checkbox"/> |
| Other (please specify): | |

28. Are you familiar with the existence and operation of the National Contact Point (NCP) system in the European Commission's Framework Programmes for RTD?

Answer (write yes/no):

If yes, do you know who (person, authority) is the National Contact Point for ICT in your country?
Person/authority:

29. How are the future ICT RTD priorities selected and agreed on (e.g. foresight)?

Answer:

30. Having in mind development policy of the government, what are the specific fields of ICT RTD, which should have priority in development and scientific research presently and in the future?

Answer:

31. What are digitalization products/efforts?

Answer:

32. Is there any relation of strategy in ICT at the national level to EU policy and FP7 programme?

Answer (write Yes/No):

If yes, describe the relation.

Answer:

-
33. Is there any bilateral agreement or collaboration between the government of Republic of Kosovo and EU member states and donor states, in the level of ICT?

Answer (write Yes/No):

If yes, which are the agreements and with which States?

Answer:

-
34. Is there any bilateral agreement or collaboration between the government of Republic of Kosovo and any other west Balkan state, in the level of ICT?

Answer (write Yes/No):

If yes, which are the agreements and with which Balkan State?

Answer:

-
35. In your opinion, what are the specific priority fields of ICT RTD, for which one could work and cooperate with other west Balkan states (e.g. public service digitalization, eGovernment, eBusiness, eTourism etc)?

Answer:

If there will be any initiative to organize meetings of the higher level (once or twice a year)

Annex II – List of contacted stakeholders

Universities

| Nr | Higher Education Institution | Faculty | Web address | Contact person | Email | Tel | First contacted / emailed 30 May | Second contact / email 12 Jun | Third contact / email 20 Jun | Questionnaire obtained | Comments |
|----|------------------------------|---|---|--|--|-------------------|----------------------------------|-------------------------------|------------------------------|------------------------|--|
| 1 | Universiteti i Prishtinës | FIEK | http://fiek.uni-pr.edu/ | Dr. sc. Myzafer Limani, prof.asc. | myzafer.limani@uni-pr.edu | 038 554 896 / 102 | X | | | Y | |
| 2 | Universiteti i Prishtinës | FSHMN | http://fshmn.uni-pr.edu/ | Dr. Muhib Lohaj | m_efendija@yahoo.com, muhib_lohaj@yahoo.com | 038 249 872 / 105 | X | | | Y | |
| 3 | Universiteti i Prishtinës | Faculty of Applied Sciences in Mitrovica | http://fshtam.uni-pr.edu/ | Dr.sc. Avdi Salihu, Prof.asc | avdi.salihu@uni-pr.edu | 028 534 179 | X | | | Y | |
| 4 | Universiteti i Prishtinës | Faculty of Applied Sciences of Business in Peja | http://fshabp.uni-pr.edu/ | Dr.sc. Armand Krasniqi, prof ass | armand.krasniqi@uni-pr.edu | 039/ 423 - 492 | X | X | X | N | No reply neither by phone or email |
| 5 | Universiteti i Prishtinës | Faculty of Education | http://edukimi.uni-pr.edu/ | Prof. asc. Hasan Mujaj | hasan.mujaj@uni-pr.edu, xhevdetthaqi@hotmail.com | 038 229 201 | X | X | | Y | |
| 6 | Universiteti i Prishtinës | Faculty of Economics | http://ekonomiku.uni-pr.edu/ | Prof. Dr. Skender Ahmeti | skender.ahmeti@uni-pr.edu | 038 221 895 | X | X | X | N | Were referred to the Vice Dean |
| 7 | Universiteti i Prizrenit | Computer science | http://uni-prizren.com/ | Prof. Dr. Mazlum Baraliu, Ermir Rogova | rektorati@uni-prizren.com | 029-232-140 | X | X | X | N | No reply neither by phone or email |
| 8 | Riinvest | Computer science | http://www.aabriinvest.net/ | Naim Hoxha | naim.hoxha@riinvestinstitute.org | 038 601 019 | X | | | Y | Two questionnaires in one: university and institute. |
| 9 | AUK | Information Technology | http://www.aukonline.org/ | Brian H. Bowen, Ph.D. | bbowen@aukonline.org, delshani@aukonline.org | 038 608 608 / 110 | X | X | X | N | No reply neither by phone or email |
| 10 | UBT | Computer science and engineering | http://www.ubt-uni.net/ | Prof. Dr. Edmond Hajrizi | ehajrizi@ubt-uni.net, petrit.shala@ubt-uni.net | 038 541 400 | X | | | Y | |
| 11 | Iliria | Computer science - applied informatics | http://www.uiliria.org/ | Prof. Dr Mixhait Reçi | mixhait@hotmail.com, mevlansh@hotmail.com | 038 233 951 | X | | X | N | Did not deliver the questionnaire completed |
| 12 | Kolegji Evropian Dukagjini | Computer science - applied informatics | http://www.dukagjinicollege.eu/ | N/A | ebeqiri@evun.eu, info@dukagjinicollege.eu | 039 431-684 | X | X | X | N | No reply neither by phone or email |

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|----|-------------------|------------------|---|--------------------------------|---|---------------------------|---|---|---|---|---|
| 13 | FAMA | Meanagement | http://www.kolegijfama.eu/ | Dr.Sc. Ardiana Gashi, Prof.Ass | info@kolegijfama.eu | 038 - 222 212 | X | | | N | No ICT related program |
| 14 | Kolegji Globus | Meanagement | www.kolegijglobus.com | Dr. Nazmi Mustafa, | nazmibmustafa@hotmail.com info@kolegijglobus.com, esatdurguti@gmail.com | 038 22 54 05, 044 152 975 | X | X | X | N | No ICT related program |
| 15 | Universum | Meanagement | http://www.universum-ks.org/?cid=1,1 | N/A | info@universum-ks.org | 038 544 210 | X | X | X | Y | No ICT related program. Will start this year. |
| 16 | Victory | Meanagement | http://www.kuvictory.com/ | N/A | info@kolegijvictory.com | 038 248 445 | X | X | X | N | No ICT related program. Will start this year. |
| 17 | Vizioni per arsim | Computer Science | www.vizioniperarsim.com | Prof. Dr. Naim Braha | nlbraha@yahoo.com | N/A | | | X | Y | |

Donors

| No | Organization | Addressed to: | Telephone | Email | Web page | Questionnaire obtained | Comments |
|----|-------------------------------|---|----------------------------|--|---|------------------------|------------------------------------|
| 1 | USAID | Ms. Maureen Shauket, Mission Director | 038 59 59 2000 | kosovousaidinfo@usaid.gov | http://www.usaid.gov/kosovo/eng/ | N | No reply |
| 2 | EU Office | Samuel Žbogar | 038 5131 200 | delegation-kosovo@eeas.europa.eu | http://eeas.europa.eu/delegations/kosovo/index_en.htm | N | No reply |
| 3 | SIDA | | 038 245 795 | ambassaden.pristina@foreign.ministry.se | http://www.sida.se/English/Countries-and-regions/Europe/Kosovo/ | N | Not relevant to their support work |
| 4 | Swiss cooperation | | 038 248 091 /2 /3 | pristina@sdg.net | www.swisscooperation-kosovo.ch | N | Not relevant to their support work |
| 5 | World Bank | Mr. Lundrim Aliu | 038-609-333 | laliu1@worldbank.org | http://www.worldbank.org/kosovo | N | No reply |
| 6 | American Council | | 038 226-255 | pristina@americancouncilssee.org | http://americancouncilssee.org/ | N | No reply |
| 7 | GIZ | Ilir Rexha | 038 233 002 100 | ilir.rexha@giz.de | https://www.giz.de/en/SID-83C65998-57063FB8/worldwide/298.html | Y | |
| 8 | Tempus | | | tempuskosovo@gmail.com , dragusha.bleranda@gmail.com , kimete.canaj@gmail.com | http://ec.europa.eu/education/external-relation-programmes/tempus_en.htm | Y | |
| 9 | WUS Austria | | | prishtina@wus-austria.org | http://www.wus-austria.org/ | Y | |
| 10 | DAAD | | 038-246750 | daad_pristina@yahoo.de | www.daad.de | N | No info. Contacted HQ. |
| 11 | FP7 contact point | Bujar Gallopeni | 038 211 924 | bujar.gallopeni@rks-gov.net | | Y | |
| 12 | Higher-KOS (Austria - Kosovo) | Almir Kovacevic, Project Director | 038 241 472 044 506 403 | adi.kovacevic@wus-austria.org | http://www.higherkos.info/ | N | WUS Project / Included in WUS |

SMEs

| Nr | Company | Department | Web address | Contact person | Email | Tel | First contacted /email 23 May | Second contact / email 29 May | Third contact / email 19 June | Phone contact / July 2 | Questionnaire obtained | Comments |
|----|------------|------------|---|--------------------|--|-------------|-------------------------------|-------------------------------|-------------------------------|------------------------|------------------------|--|
| 1 | Cacttus | Management | http://www.cacttus.com/ | Driton Hapçiu | dritonh@cacttus.com | 038 246 888 | X | | | | Y | |
| 2 | Asseco | Management | http://asseco.com/see/ | Ilir Shehu | Ilir.Shehu@asseco-see.com | 038 557 799 | X | X | X | X | N | Despite multiple contacts, the company representative stated that the information required in the questionnaire is not relevant to their work. |
| 3 | Komtel | Management | http://www.komtelpe.com/S_hqip/index.htm | Sylejman Bekteshi | sbekteshi@komtelpe.com | 038 224 545 | X | X | | | Y | |
| 4 | 3cis | Management | http://www.3cis.net/index.php | Gezim Pula | gpula@3cis.net | 038 226 002 | X | X | | | Y | |
| 5 | Comtrade | Management | http://www.comtrade-ks.com/about.php | Enver Doko | doko@comtradecomputers.com | 038 222 695 | X | X | X | X | N | Several contacts were made. The company stated that the questionnaire was not relevant to their work |
| 6 | Interadria | Management | http://www.interadria-ks.com/ | Gazmend Kajtazi | gazmend@interadria-ks.com | 038 229 170 | X | X | X | X | N | No reply |
| 7 | Rrota | Management | http://www.rrota.com/v4/ | Shkumbin Brestovci | bresta@rrota.com | 038 544 299 | X | X | X | X | N | Several contacts were made. The company stated that the |

| | | | | | | | | | | | | |
|----|------------|------------|---|------------------|------------------------------|-------------|---|---|---|---|---|---|
| | | | | | | | | | | | | questionnaire was too lengthy, and that it was not relevant to their work |
| 8 | Innovativi | Management | http://www.inovativi.com/ | Bashkim Gllgovci | bashkimi@inovativi.com | 038 544 562 | X | X | X | X | N | No reply |
| 9 | Elting | Management | http://www.elting-el.com/index.html | Dumrishi Smani | smani@ipko.net | 044 500 800 | X | X | | | Y | |
| 10 | IPKO | Management | http://www.ipko.com/ | Lavdrim Sadiku | lavdrim.sadiku@ipko.com | 038 700 700 | X | X | X | X | N | No reply |
| 11 | PBC | Management | http://www.pbc-ks.com/ | Gazmend Selmani | gazzi@pbc-ks.com | 038 544 137 | X | X | X | X | N | No reply |
| 12 | Adaptiv-IT | Management | http://www.adaptiv-it.com/ | Mentor Sahiti | mentor.sahiti@adaptiv-it.com | 038 221 772 | X | X | X | X | Y | |
| 13 | Appdec | Management | http://www.appdec.com/Home/tabid/38/language/en-US/Default.aspx | Zana Tabaku | zana.tabaku@appdec.com | 038 227 606 | X | | | | Y | |
| 14 | PTK | Management | http://www.ptkonline.com/ptk/index.php | Shkelzen Cakaj | Shkelzen.Cakaj@ptkonline.com | 038 525 637 | X | | | | Y | |
| 15 | Gashi Comp | Management | http://www.gashicomp.net/ | Hazir Gashi | hhgashi@gmail.com | 044 120 470 | X | | | | Y | |
| 16 | Riinvest | Management | http://www.riinvestinstitute.org/ | Naim Hoxha | hoxhanaim@gmail.com | 038 244 320 | X | X | X | X | N | No reply |
| 17 | Phogen | Management | http://www.phogen.com/?page_id=25 | Agron Fazliu | agron@phogen.com | 044 670 037 | X | X | X | X | N | No reply to the questionnaire; the respondent stated the questions are not relevant to their current work |
| 18 | Logic Plus | Management | http://www.logicplus.org | Besnik Limaj | besniklimaj@gmail.com | 044 506 403 | X | X | X | X | N | No reply to the questionnaire; the respondent stated the |

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|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | questions are not relevant to their current work |
|--|--|--|--|--|--|--|--|--|--|--|--|

Policy / Governmental Stakeholders

| Nr | Policy Maker | Department | Web address | Contact person | Email | Tel | Questionnaire obtained |
|----|---|------------|---|------------------|--|--------------------|------------------------|
| 1 | Ministry of Local Governante Administration | | http://mapl.rks-gov.net/Home.aspx?lang=en-US | Besnik Osmani | besnik.osmani@rks-gov.net | 038\200-35577 | Email |
| 2 | Ministry of Local Governante Administration | ICT | http://mapl.rks-gov.net/Home.aspx?lang=en-US | Shehadin Rustemi | Shehadin.Rrustemi @rks-gov.net | 038/200-35554 | Email |
| 3 | Ministry of Education, Science and Technology | ICT | http://www.masht-gov.net/advCms/ | Adnan Osmani | Adnan.Osmani@rks-gov.net | 038 200 20 148 | Email/meeting |
| 4 | Ministry of Education, Science and Technology | ICT | http://www.masht-gov.net/advCms/ | Shkumbim Gashi | Shkumbin.Gashi@rks-gov.net | 038 200 20 034 | Email/meeting |
| 5 | Ministry of Education, Science and Technology | ICT | http://www.masht-gov.net/advCms/ | Argjend Osmani | Argjend.Osmani@rks-gov.net | 038 200 20 148 | Email |
| 6 | Ministry of Economic Development | ICT | http://mzhe.rks-gov.net/?page=2,1 | Agim Kukaj | Agim.Kukaj@rks-gov.net | +377 (0)44 799 631 | Email |
| 7 | Ministry of Economic Development | ICT | http://mzhe.rks-gov.net/?page=2,1 | Enver Basha | Enver.Basha@rks-gov.net | +377 (0)44 184-437 | Email/meeting |
| 8 | Ministry of Public Administration | ICT | http://map.rks-gov.net/en/ | Atdhe Buja | atdhe.buja@rks-gov.net | 038 200 30 084 | Email |
| 9 | Ministry of Public Administration | ICT | http://map.rks-gov.net/en/ | Selim Lulaj | selim.lulaj@rks-gov.net | 038 200 30 900 | Email |
| 10 | | | | | | | |

