



Strengthening the Strategic COoperation
Between the EU and Western Balkan Region
in the field of ICT Research

**Initial Strategic Research Agenda:
“ICT Research Priorities for Serbia,
2007-2013”**



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Table of Contents

1	PURPOSE OF THE STRATEGIC RESEARCH AGENDA	3
2	INITIAL ICT RESEARCH PRIORITIES FOR SERBIA.....	4
	2.1 ICTs FOR GOVERNMENT AND eGOVERNMENT	5
	2.2 ICTs FOR LEARNING AND eLEARNING	6
	2.3 SOFTWARE ENGINEERING.....	7
	2.4 WIRELESS AND MOBILE TECHNOLOGIES	8
	2.5 INTERNET TECHNOLOGIES.....	9
	2.6 BROADBAND TECHNOLOGIES	10
	2.7 ICTs FOR HEALTH AND eHEALTH	11
	2.8 EMBEDDED AND PERVASIVE SYSTEMS	12
	2.9 ICTs FOR AGRICULTURE	13
	2.10 ICTs FOR ENTERPRISES AND eBUSINESS	14
	ANNEX I – CLASSIFICATION OF ICT RESEARCH FIELDS	15
	ANNEX II – EXPERTS CONSULTED	16

1 PURPOSE OF THE STRATEGIC RESEARCH AGENDA

This initial Strategic Research Agenda is the outcome of an initial consultation with a group of 20 experts from Serbia, that was developed in the context of the EU funded SCORE project¹. A key objective of SCORE “*Strengthening the Strategic Cooperation Between the EU and Western Balkan Region in the field of ICT Research*” (www.score-project.eu) is to define an **ICT Strategic Research Agenda for Serbia** (among the other countries in the region) that will set out the country’s future ICT research priorities.

The Strategic Research Agenda is intended to contribute to the shaping of future EU-Western Balkan research co-operation, through relevant EC research policies and funding programmes (e.g. FP7 ICT work-programmes).

Currently, there is no formulated EU ICT research policy for the Western Balkan region in the period 2007-2013. SCORE aims to contribute to the shaping of EU ICT research policy in the region, in a way that meets the interests and actual needs of regional ICT research actors.

In order to develop the final Strategic Research Agenda for Serbia, you are invited to provide your feedback and comments on this initial version, in one of the following ways:

- By completing the (downloadable/ attached) SRA Comments form and returning it by email to Jelena Pantelic, e-mail: office@e-drustvo.org
- By completing the SRA Comments form online for Serbia, which is available at <http://consultations.score-project.eu>

Kindly provide your comments by **Friday, 30th November 2007**.

The open consultation involves actors from the following communities:

- National RTD policy-makers: e.g. ministry representatives, working group experts and other national authorities responsible for ICT research policy,
- Research actors: e.g. academic, non-profit research and private sector research organisations, as well as representatives of relevant ICT research projects,
- ICT industrial actors: e.g. IT developers, software companies, systems integrators, internet providers, telecom providers,
- ICT beneficiary communities e.g. representatives of civil society, business and broad public administration, as well as NGOs.

Being one of the **important actors in the field of ICT**, you are invited to actively advocate for the ICT research priorities that meet the actual research needs and interests of our country.

Your experience and views are considered extremely valuable for the successful outcome of the consultation.

¹ More information on the SCORE project is provided at the project’s website www.score-project.eu

2 INITIAL ICT RESEARCH PRIORITIES FOR SERBIA

This section presents the initially identified ICT research priorities for Serbia in the period 2007-2013, with defined objectives and specific research areas, based on the outcomes of the first phase of the consultation.

Initial ICT research priorities for Serbia (2007-2013)
ICTs for Government and eGovernment
ICTs for Learning and eLearning
Software Engineering
Wireless and Mobile Technologies
Internet Technologies
Broadband Technologies
ICTs for Health and eHealth
Embedded and Pervasive Systems
ICTs for Agriculture
ICT for Enterprises and eBusiness

The table above summarizes the proposed research priorities for Serbia ranked by experts based on their social, economic and technological potential and impact.

2.1 ICTs for Government and eGovernment

Justification: Public administration in Serbia is way behind the current state-of-the-art of this field in the world, causing excessive budget expenditures. e-Government and ICTs for Government are considered to be highly relevant for public sector modernization and information society development and therefore need fast development and implementation, both at a high quality. The importance in the R&D in this field has been verified by including it as one of the fields in which the government will strongly invest through the National Investment Plan. Introduction of ICT in public administration work will modernize it and support industrial development since it will employ a great deal of domestic ICT industry, create a need for new specialized companies, ease the operation of business and will create new ICT applications in business (e-signatures, e-payment, e-invoice, e-contracts etc.). It will have a direct influence on the increase of ICT users and national computer literacy. Moreover, introduction of e-Government services will have a great social impact, providing adequate treatment of various social groupings and enabling higher quality of services, cost reduction and general improvement to the communication between citizens and public administration bodies. It will contribute to higher level of transparency of public administration activities and will lower the corruption rate. Finally, long-term Government-to-Business services (G2B) will enable positive and stable development of companies that communicate with Government. Serbia is on its path towards e-Government and developing appropriate ICTs for it. The research infrastructure with advanced researchers and internationally recognized experts is being developed, in support of this process.

Priority: ICTs for Government & eGovernment	
Research objectives	Relevant research areas (per objective)
1. Development electronic document and databases infrastructure for Government	<ul style="list-style-type: none"> • Electronic documentation of citizens, companies and public institutions • Safety of administrative data in electronic form, Public Key Infrastructure (PKI) • Development of central register of citizens of Serbia, • Middleware development for web based service providing from registers of citizens and legal entities to all e-government applications • Automated networking of semantically similar documents • Automated networking of personal data electronically available from various sources
2. Fast and secure access to information and services for citizens and the business sector	<ul style="list-style-type: none"> • Development of portal for citizens where they can complete all communication & transactions with public bodies • Security concepts for ensuring trust and confidentiality of applications and services • Systems for electronic consultancy regarding public rules and regulations and how to obtain administrative help • Interface design for e-government services usage, e-Inclusion
3. Specific e-Government applications development	<ul style="list-style-type: none"> • Development of decision support systems for public administration • Development of standard components for e-Government systems at municipality level • Development of system for realization of public procurement for budget beneficiaries

Priority: ICTs for Government & eGovernment	
Research objectives	Relevant research areas (per objective)
	<ul style="list-style-type: none"> • Development of support to reliable public statistics • Spatial resource management systems (support for geo data acquisition, spatial database, geo portals) • Building a communication infrastructure for public service of libraries, digital libraries
4. Establishing systems of public services of e-Government, standardization and interoperability	<ul style="list-style-type: none"> • Development of software systems' standard in e-Government, • Software for managing and filtering Internet traffic. • Policy and principles of building e-Government • e-Government standards & standardization of development for e-Government applications • Structure and architecture of e-Government public services
5. Software solutions for e-Government based on open-source code	<ul style="list-style-type: none"> • Analysis of EU countries approach to application of open-source code solutions in e-Government • Architecture of e-Government systems based on open-source code • Implementation of open-source code technologies

2.2 ICTs for Learning and eLearning

Justification: Knowledge based society is built on educated people and developed ICT infrastructure which supports all its activities. Enhancing ICT for Learning and eLearning are considered to be prerequisites for having educated people that support information society development. More computer literate citizens will enable faster adoption and further development of information society. Quality and capacities of educational institutions must be significantly improved from elementary schools to doctoral studies. The need for modernized and ICT supported learning processes, adapted to specific local education system needs, is evident in Serbia today. Implementation of ICT in education represents the opportunity for everybody to have the access to educational materials. It will enable equal opportunities for all population segments, especially female population from rural areas, to continue with their education. Investment in education is the only way to keep good price/performance ratio of domestic experts. This is also a field in which with minor investments, significant economic effect can be achieved.

Priority: ICTs for Learning & eLearning	
Research objectives	Relevant research areas (per objective)
1. Accessibility of pedagogical educational materials via Internet	<ul style="list-style-type: none"> • Learning Objects and Learning Object Repositories • Integration of distance learning systems with digital libraries
2. Personalization of education process over the Internet	<ul style="list-style-type: none"> • Adaptive learning systems • Student modeling , learner model development • learning process personalization
3. Software systems for learning process management and support	<ul style="list-style-type: none"> • Systems for electronic test of knowledge • Systems for education process management, Learning Management System (LMS) models • Integration of distributed sources of information into

Priority: ICTs for Learning & eLearning	
Research objectives	Relevant research areas (per objective)
	eLearning systems <ul style="list-style-type: none"> Standards in e-Learning, implementation of European standards of ICT education in all levels of education Specialized tutoring systems, software development for specific needs of domestic education system (Cyrillic alphabet, freely available dictionaries, thesaurus and spelling checkers for Serbian etc.)
4. Better computer education for all groups of citizens	<ul style="list-style-type: none"> Development of methods and software tools for improving computer literacy at all education levels Research on ICT equipment needs for education processes Development of curricula for e-learning and website for free basic ICT education for all citizens Application of e-education as technology in schools and in corporate users Development of long-term education model and support, Learning Capacity Building
5. Better education for people with special needs	<ul style="list-style-type: none"> Web portal, content and services adjusted to groups with special needs and marginalized groups Specialized software for people with special needs
6. Content development for MSc and PhD studies in ICT	<ul style="list-style-type: none"> Curriculum development and educational materials development for Master and PhD studies, Middleware development for web based services for content exchange in MSc and PhD studies

2.3 Software Engineering

Justification: Development of professional software is based on knowledge on numerous modern methodologies, architectures and technologies. If the system of education in ICT develops to a greater extent in Serbia, the ICT sector will become even more prosperous. This means more domestic experts could be employed in R&D sectors of foreign ICT companies when they open their branches in Serbia. Investment in R&D in software engineering is inevitable, in order to achieve efficiency, effectiveness and quality in software development, internationally certified. Serbia should develop the software industry because it has educated human resources and its development does not require high investment level in infrastructure. It also holds potential to support the effectiveness of public administration and to meet actual development/modernization needs of the public sector, especially if Government decides to use domestic software engineering capacities. Diversity and potential of software engineering products can contribute to meeting key social needs in the areas of health, education, social welfare or the needs of specific social groups e.g. third age, youth, disabled persons etc.

Priority: Software Engineering	
Research objectives	Relevant research areas (per objective)
1. Development of software tools and service oriented architectures for distributed information	<ul style="list-style-type: none"> Service oriented architectures Intelligent Web services Specialized software for data security and privacy Model driven architectures

Priority: Software Engineering	
Research objectives	Relevant research areas (per objective)
systems	<ul style="list-style-type: none"> • Rapid prototyping • Workflow systems
2. Development of multi-agent software systems components	<ul style="list-style-type: none"> • Multi-agent software system architecture • Ontology for domain knowledge • Multi-agents technology • Complex adaptive systems
3. Development of tools and real time applications for embedded systems and industrial application in energy and transport	<ul style="list-style-type: none"> • Management and advance process control software for energy systems (intelligent and interactive monitoring of energy production, distribution, trading and use) • Middleware and platforms for building secure and fault tolerant systems, • Software for optimization and logistic support of transport
4. Stimulating development of open-source software, platforms and tools	<ul style="list-style-type: none"> • Research of open source models for improving software engineering process • Development of open source platforms, tools and applications for public sector
5. Methods and tools for software development improvement	<ul style="list-style-type: none"> • Methods and tools for testing and software quality control and assurance • Model driven architectures • Applied research in system design, software development, integration and end-user development
6. Strengthening the competitive position of the software industry – stimulated by Government	<ul style="list-style-type: none"> • Stimulation of software development SMEs start-ups • Strengthening cooperation with international software development companies • Software development for service and industry sector based on open standards • Stimulating research in software development, deploying, evolution and benchmarking • Stimulating development of complex software systems for international markets and creation of new types of services

2.4 Wireless and Mobile Technologies

Justification: Having a sound research community in this field, internationally recognized experts as well as young experts, this field is one of the most promising fields of research in Serbia in the years to come. Development and application of wireless technologies contributes to faster digitalization of society and enables reaching those areas with poorly developed wire infrastructure, leading towards the creation of information society. Research in this field has a high future potential in supporting ICT sector in Serbia since mobile telephony penetration is very high and influential to business development. A regulatory body in this field has been formed and most prerequisites for market deregulation have been obtained. Mass application of wireless and mobile technologies will enhance infrastructure with largest capacity to support ICT development in Serbia. Enabling businesses to communicate with business partners from anywhere at any time and providing businesses with specialized ICT services, these technologies contribute to the development of the private sector. Development of wireless and mobile technologies will increase the satisfaction of communicational needs, enable application and usage of ICT by greater number of citizens, and therefore narrow down the digital gap.

Priority: Wireless & Mobile Technologies	
Research objectives	Relevant research areas (per objective)
1. Increasing usage of Internet services over mobile devices	<ul style="list-style-type: none"> • Development of Internet services applications for mobile devices • Development of software and hardware support for faster wireless Internet access • Multimedia services on specific devices, development tools for HSDPA (High Speed Downlink Packet Access) • Improving accessibility for population in rural areas and groups with special needs
2. Ensuring security in mobile technologies and infrastructure	<ul style="list-style-type: none"> • Security, resilience and dependability in wireless network infrastructures, including 3G and 4G environments • Models, policies, frameworks and platforms for secure, trusted and efficient data-sharing in cross-domain wireless network infrastructures • Models, methods and tools for information privacy protection and user empowerment • Development of security protection systems and surveillance systems
3. New services in wireless and mobile communications	<ul style="list-style-type: none"> • Interoperable, dynamic and reconfigurable services over wireless communication technologies (e.g. WiFi, WiMAX, GPS Radio Frequency Identification (RFID)) • Development and application of wireless methods of connecting areas with poor wired infrastructure • Application of mobile technologies in banking sector, electronic payment and e-banking, m-payment systems and m-banking tools • ad hoc connectivity in wireless environment, advanced wireless technologies that support integration of robust connectivity into ad-hoc, sensors and wireless networks
4. Development of the model for characterization of wireless communication channels	<ul style="list-style-type: none"> • EM field prediction using neural networks and other numerical technologies • Software radio technologies and their applications • Control, management and optimization in wireless networking scenarios beyond 3G and 4G • Ultra wideband (UWB) technologies and their applications

2.5 Internet Technologies

Justification: Research in Internet technologies in Serbia is as old as the technology itself. Witness to this are numerous publications and research papers published in the most prestigious international journals and magazines in this field. Researchers in this field have the closest links with the international research community and vast is the number of national and international projects. Internet Technologies facilitate the development of the SME sector and the realization of growing economic potential of Serbia. Introduction of Internet Technologies in business will modernize work, support industrial development and offer wide application possibilities and a chance for local companies to enter international markets. Moreover, their introduction in public administration will modernize work and contribute to effectiveness of public services. Wide application of Internet Technologies in everyday life will increase the quality of life of Serbia's

citizens and will contribute to faster society development towards information society.

Priority: Internet Technologies	
Research objectives	Relevant research areas (per objective)
1. Standardization in data sharing across different web service technologies	<ul style="list-style-type: none"> • Application of XML technologies in e-Government systems • Application of XML technologies in electronic publishing • Control of access to XML documents • Native XML databases, XML data forms and relational databases • Access control (context dependant access and airbag based systems) • XML based applications (e-Learning, e-Government, e-Health)
2. Ensuring interoperability between different software applications on the Internet	<ul style="list-style-type: none"> • Web services architectures • Semantic web and applications (e.g. e-Government, GIS, etc.) • Web agents
3. System Architectures for the Internet	<ul style="list-style-type: none"> • Overcoming Internet limitations, new forms of routing and content delivery • Internet architecture and protocols • Security on the Internet.
4. Increase in Internet penetration rate	<ul style="list-style-type: none"> • Internet market research in accordance with international standards • Availability of Internet to groups with special needs • Standardization and guidelines for Internet research

2.6 Broadband Technologies

Justification: Research infrastructure in the field of broadband technologies is growing and strengthening in Serbia, though additional funding needs to be allocated for further research in this field. Experience of numerous researchers in development and implementation of new broadband services based on cable, optic and wireless infrastructure is available for the creation of an attractive environment for business development. To stimulate growth of this research infrastructure, Government has financed numerous projects in this field, realizing that it holds great potential for future development of the economy. Ensuring communication infrastructure of high performances is the precondition for the development and implementation of modern ICT services aiming at business improvement in private sector. It is also one of the tools for bridging the digital divide, still present in Serbia and indirectly influencing the satisfaction of key social needs of citizens.

Priority: Broadband Technologies	
Research objectives	Relevant research areas (per objective)
1. Providing broadband for all	<ul style="list-style-type: none"> • Service-enabling technologies and platforms based on interoperability of telecom and internet infrastructures • Interoperability of heterogeneous broadband network technologies • Development and introduction of broadband technologies

	and services based on wireless communications for all
2. Increasing safety in broadband technologies application	<ul style="list-style-type: none"> • Finding efficient ways of increasing safety when using broadband technologies • Secure and resilient architecture and technologies to ensure end-to-end secure transmission of data and services across heterogeneous infrastructure
3. Multimedia network and service infrastructure	<ul style="list-style-type: none"> • Application of multimedia services enabled by broadband technologies (mostly in business) • Interoperability of multimedia networks • Personalization of multimedia services and applications • Management and control applications for multimedia services for home and entertainment
4. Development and implementation of solutions for broadband transfer through existing infrastructures	<ul style="list-style-type: none"> • xDSL services • power line network • interactive broadcasting • Broadband access through HFC networks, Increasing bandwidth capacities, Wireless broadband access

2.7 ICTs for Health and eHealth

Justification: Usage of ICTs in health is currently at a very low level, but some improvements have been made and some research in health has been supported by the ICT industry. Integrated Health System needs to be designed and implemented, in order to increase efficiency, efficient usage of available capacities and improve quality of provided services. In the first place it will meet key social needs for healthy living and healthy aging. Application of ICTs in this sector will enable more accurate assessment of the general health of population. Modern economy dictates the need for minimization of expenses in health sector and the most logical and “cost-effective” solution would be introduction of ICTs in healthcare through initiatives such as remote medical assistance, which would cut the cost of service provision (including the expense a patient has to pay) and would employ large number of experts, resulting in a significant increase in service quality and increase of people’s trust.

Priority: ICTs for Health & eHealth	
Research objectives	Relevant research areas (per objective)
1. Development of integrated electronic healthcare system in Serbia	<ul style="list-style-type: none"> • Electronic Health Record Systems (based also on wireless technologies), Electronic Patient Record Systems • Healthcare IS for healthcare facilities • Interoperability of Hospital Information System (HIS) • Integration of diagnostic devices in Health Information System (including 3D and 4D presentation of diagnostic results) • Networking of all healthcare institutions including laboratories
2. Data Security in e-Health Networks	<ul style="list-style-type: none"> • Network layer security • Role based security • Management of access in e-health systems

Priority: ICTs for Health & eHealth	
Research objectives	Relevant research areas (per objective)
3. Development of ICT for the surveillance of groups at risk and early diagnosis of critical health situations	<ul style="list-style-type: none"> • Development of integrated ICT support in basic and specialized healthcare protection services, • Development of ICT based support to living, • Patient tracking like process tracking, • Patient data collection over the Internet, • Expert system for patient advising
4. Introduction of new e-health services	<ul style="list-style-type: none"> • e-services for managing and supporting interaction of health providers, insurance, companies, and patients • e-services integrating health providers and pharmacies, • connecting patients through wireless networks and location services

2.8 Embedded and Pervasive Systems

Justification: Wide field of application and valuable existing resources in Serbia make this priority one of the most promising fields regarding future development. Research in this field can be applied in various industries with just slight adjustments. This flexibility in application of research results, given the state of the economy, is of utmost importance. All areas of production and management are potential fields of application of the results and therefore research in this field has a high future potential to support the development of the private sector, and therefore Serbian economy.

Priority: Embedded and Pervasive Systems	
Research objectives	Relevant research areas (per objective)
1. Increasing effectiveness of industrial process management	<ul style="list-style-type: none"> • Design on specific devices for management of industrial processes and installments • Concepts, methods and tools for system design • Management and control onto embedded platforms • Integration of management systems via Internet
2. Technology to the benefit of elderly	<ul style="list-style-type: none"> • Surveillance systems and assistance to persons with restricted mobility • Systemic solutions for independent living • Design and integration of sensors, devices and subsystems into smart living environments
3. embedded systems for ICT energy efficiency	<ul style="list-style-type: none"> • Development of modern solution for management of energy resources on macro and micro level with emphasis on “embedded” systems” • Design and development of system for production and distribution of electric energy, gas and oil derivates, • Design and development of system for management and exploitation of biomass and other renewable sources • Design and development of system for Intelligent and interactive monitoring of energy production, distribution, trading and use.

Priority: Embedded and Pervasive Systems	
Research objectives	Relevant research areas (per objective)
4. Effective management and monitoring of irrigation and drainage systems with embedded systems	<ul style="list-style-type: none"> • Development of embedded systems for monitoring and management of irrigation and drainage systems

2.9 ICTs for Agriculture

Justification: Serbia has a great agricultural potential, being located at geographic position as it is. The percentage of the population that works in this sector implies the strategic, social and economic importance of this field for the country and therefore it is a necessity to invest in related research. However, comparing it to other European states, this field needs to be modernized, and ICTs must be introduced to production processes in order to improve them and make producers competitive at foreign markets. The potential of this field of industry and competitive advantages of agriculture in Serbia could become ICT advantages as well.

Priority: ICTs for Agriculture	
Research objectives	Relevant research areas (per objective)
1. Optimization of agricultural production with ICTs	<ul style="list-style-type: none"> • Design and development of ICT supported uninterrupted monitoring and processing of data collected in fields and food storages • Using ICT to increase yield in agriculture (crop farming and stock farming) • Design of integrated system for the protection of agriculture production and goods, protection from natural disasters and protection from human neglecting, theft, on purpose destruction etc. • Application of methods of remote detection and location based services in agriculture
2. Development of hardware/software support for agriculture vehicle park management	<ul style="list-style-type: none"> • Development of GPS based hardware device for tracking agriculture vehicles and navigation • Development of software support for management and navigation in agriculture
3. Strategic management of production and services in agriculture	<ul style="list-style-type: none"> • Yield prediction systems, Herbal and vegetable disease detection, • Service support to herbal (vegetable) production management • Business processes modeling • New services for information provision • ICT application in production process as well as in sector promotion • Development of integrated system for collection, processing and evaluation of data from fields, food storages and food flows

2.10 ICTs for Enterprises and eBusiness

Justification: Indicators such as a developing research infrastructure, good human resources, and large number of projects financed from national and /or international funds and good price/performance ratio of domestic experts compared to the world market show that this is a promising field of research. This field has a great influence to the increase of competitiveness of our economy, influences society as a whole, increases quality of life and creates a fruitful environment for both national and international business. Investment in this field of research will have twofold impact: i) improvement of SME business; ii) possibility of bringing ICT companies closer to applied research. Its potential to support the ICT industry in Serbia lays in the facts that there are sufficient research potentials at universities and institutes whose research can be supported by ICT industry. Moreover, the introduction of ICTs in organization and business would modernize work and support industrial development. Finally, privatization in Serbia and support to local private sector will give initial stimulation to local ICT industry development, but it would take a strategic approach and the support to local ICT sector to compete in the international market.

Priority: ICTs for Enterprises & eBusiness	
Research objectives	Relevant research areas (per objective)
1. ICT support for business processes management and integration	<ul style="list-style-type: none"> • Supply chain management • adaptive business process management, modeling and design of business processes, workflow systems, CRM • business integration based on B2B models (including electronic payment system, digital signature)
2. Development of ICT support to automation and control in process industry	<ul style="list-style-type: none"> • Automated machines and security systems (build in processors and sensors into machines and usable objects and their networking) • ICT as a support to large systems (oil, gas, traffic, electro energy, water, etc.)
3. Supporting development of innovation activities of ICT companies – stimulated by Government	<ul style="list-style-type: none"> • Improving information flow to and from IS: innovation centers business and technology incubators, New technology parks • Corporate e-Identity and intranet portals establishing standards for realization of corporate presence on the Internet

ANNEX I – CLASSIFICATION OF ICT RESEARCH FIELDS

The following table presents the classification of ICT research fields used during the first phase of consultation for the identification of the initial research priorities. This taxonomy was based on the ICT research taxonomy developed by the CISTRANA project (www.cistrana.org).

Id.	ICT Research Fields	Id.	ICT Research Fields
	<i>ICT Software & Information Processing</i>		<i>ICT Hardware Components</i>
1	Artificial intelligence	33	Digital systems, digital representation
2	Bioinformatics	34	Display systems and technologies
3	Cognitive systems	35	Embedded & pervasive systems
4	Computational modelling	36	High frequency technology
5	Database management	37	Micro/nano systems
6	Distributed systems	38	Nanoelectronics
7	Entertainment computing	39	Nanotechnologies
8	Grid technologies	40	Organic electronics
9	Identity management	41	Optical networks and systems
10	Image processing & pattern recognition	42	Peripheral technologies
11	Knowledge Technologies	43	Photonic components and subsystems
12	Middleware	44	Printed and Integrated circuits
13	Privacy	45	Quantum Informatics
14	Security technologies	46	Robotics
15	Semantic technologies	47	Smart cards and access systems
16	Sensor systems and networks		<i>Telecommunications</i>
17	Service engineering	48	Broadband technologies
18	Simulation technologies	49	Internet technologies
19	Software engineering	50	Network security
20	Speech & Language processing technologies	51	Network technology
21	Signal processing systems	52	Satellite technologies
22	Virtualisation tools	53	Wireless & mobile technologies
	<i>ICT software applications</i>		<i>Multimedia</i>
23	Electronic commerce	54	Digital content & digital libraries
24	GIS – Geographic Information Systems	55	Digital video broadcasting
25	ICTs for Agriculture	56	ICTs for Cultural Heritage
26	ICTs for Energy	57	ICTs for Learning & eLearning
27	ICTs for Enterprises & eBusiness	58	Multimedia infrastructures
28	ICTs for Environment	59	Virtual reality
29	ICTs for Government & eGovernment	60	Visualisation tools
30	ICTs for Health & eHealth	-	Other
31	ICTs for Independent living & eInclusion		
32	ICTs for Transport & eTransport		

ANNEX II – EXPERTS CONSULTED

The following list presents the experts consulted during the first phase of consultation for the development of the initial Strategic Research Agenda.

Svetlana Bogdanovic, MSc: Ms. Bogdanovic is a Ministry of Science representative from department for international cooperation. She is an ICT and SME NCP for Serbia. She is an experienced policy maker.

Marija Dabovic: Ms. Dabovic is a Ministry of telecommunication and information society representative. She is an advisor in the group for European integrations and development of International business and cooperation Sector.

Prof. Vladan Devedzic, PhD: Prof. Devedzic is a professor at Faculty of Organizational Sciences at University of Belgrade. He teaches programming languages and intelligent systems. He is a member of International Society for Artificial Intelligence in Education. He is also coordinator of numerous national and international projects as well as an FP projects evaluator.

Prof. Dragan Domazet, PhD: Prof. Domazet is the dean of Faculty of Information Technology (FIT) and an expert in the field of artificial intelligence, e-government and e-learning which he had implemented at FIT. He was The Minister of Science and Technology and is familiar with policy development process. He has extensive international cooperation experience as a leading researcher at National institute in Singapore. He managed over 20 projects and is a FP projects evaluator.

Vojislav Genic: Mr. Genic has extensive experience in IT business management. He is the VP for IT solutions of whole ComTrade Group, leading the regional development of this business line, crucial for the future of ComTrade Group. Mr. Genic graduated from the Faculty of Mechanical Sciences of Belgrade University.

Prof. Natasa Gospic, PhD: Prof. Gospic is a professor at Faculty of Traffic and Transport Engineering at course Information Society. She is a member of advisory board or RATEL (Republic Agency for Telecommunication) and a member of Advisory Board for gender issues of the WSIS. She is also an active member of NGO “Equal opportunities”.

Prof. Slobodan Jankovic, PhD: Prof. Jankovic is professor of informatics and computer sciences t Faculty of technical sciences “Mihajlo Pupin” in Zrenjanin. He is an expert in engineering measurements, data acquisition systems, computer monitored process. He conducted and worked on numerous complex national and international projects in technical systems verifications, and was a consultant of international companies in the field of measuring.

Prof. Zoran Jovanovic, PhD: Prof. Jovanovic is the Director of RCUB (Computer centre of University of Belgrade) and a professor at Faculty of Electrical Engineering, one of the most respective ICT research institutions in Serbia. He is a project manager of several international (FP) and national projects. He is also a member of Working group for national policy of ICT industrial development.

Prof. Zora Konjovic, PhD: Prof. Konjovic is a professor at University of Novi Sad at Faculty of Technical Sciences. She is a specialist in software engineering, e-government, and digital libraries. She is also coordinator of several large national ICT projects. Currently she is involved in project e-Vojvodina and is engaged on the project regarding GIS in Serbia.

Djuro Kutlaca, PhD: Dr. Kutlaca is an expert in the development of strategies and policies as well as an expert in assessment of scientific work. He also did a research on transition processes in R&D systems of SEE countries. He is head of the Centre for research and development of S&T in one of the most prestigious scientific institutes in Serbia “Mihajlo Pupin” and is a project coordinator to numerous national and international research projects.

Slobodan Markovic: Mr. Markovic is a member of ICANN board of experts, the president of Centre for development of Internet (ICT promotion NGO) and is very active in promotion of ICT in Serbia

Prof. Bratislav Milovanovic, PhD: Prof. Milovanovic is a professor at Faculty of Electrical Engineering, University of Nis in the field of microwave technique. He is a member of IEEE and ARFTG, the secretary of ETRAN (an NGO for promotion of electronics and ICT) association commission for microwave and sub-millimeter technique, and a board member of association for microwave technique and association for telecommunication. Prof. Milovanovic was a president of ICT board in regional chamber of commerce. He is a member of several expert commissions and work groups of various Ministries.

Prof. Veljko Milutinovic, PhD: Prof. Milutinovic was on various faculty positions in top 10 US schools in electrical and computer engineering. He was also on various faculty positions at the University of Belgrade and he still teaches and conducts research in the field of infrastructure for e-business on the Internet and computer architecture/design, where he combines his expertise in hardware, software, and business administration. He is on the Advisory Board several US companies and he was a consultant of a large number of high tech companies. Prof. Milutinovic is a member of the Yugoslavian National Academy of Engineering, a Senior Member of the IEEE.

Snezana Pantelic, MSc: Ms. Pantelic is an expert in IT strategy development and business process management. She worked as a project leader on numerous national ICT research projects. She worked as a researcher and project manager in two of the largest research institutes in Serbia: Institute for nuclear sciences “Vinca” and “Lola Institute”. She was also in charge for IT strategic planning and operations in a large industrial company “Ivo Lola Ribar” in Belgrade. Currently she is manager assistant of a private small IT company in charge for IT systems development and a consultant on several national and international projects. She is a Member of Technical Commission for System and Software Engineering of the Institute for Standardization of Serbia.

Prof. Dusan Petrovacki, PhD: Prof. Petrovacki is a professor at Faculty of Technical Sciences at University of Novi Sad. His field of expertise is automated computing and regulation and GIS. He is a member of the Senat of University of Novi Sad. He is a member of numerous NGOs for ICT promotion. He is former Vojvodina secretary of Science and technological development in the Ministry.

Gordana Petrovic, MSc: Ms. Petrovic is a senior assistant minister of telecommunications and information society for international relations and development. She is a member of numerous expert teams in the field of telecommunications.

Prof. Jelica Protic, PhD: Ms. Protic is a vice-dean of Faculty of Electrical Engineering, one of the most respective ICT research institutions in Serbia. She teaches Computer engineering classes and has extensive experience in international projects.

Vojislav Rodic: Mr. Rodic is a president of Internet service providers association, company INet and a specialist in Internet technologies and markets’ trends. He has extensive experience in Internet sector. He was also a member of the work group for developing the “Strategy of telecommunication up to year 2007”.

Dragan Sataric: NCP for energy in Ministry of science. He is an expert for international cooperation in the field of energy research. He is an experienced policy maker.

Prof. Miroslav Trajanovic, PhD: Prof. Trajanovic is a professor at Faculty for Information Technologies (FIT) and Faculty of Mechanical engineering at University of Nis. He has got 24 years of experience in application of IT in mechanical engineering. He is an expert for computer programming, CAD, finite element method, digital libraries and content management system.