EU-EECA Cluster

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ISTOK SOYUZ

EXTEND

SCUBE ICT

„Discover the research potential of EECA: 6 countries offer a gateway to their research trajectories and capacities“

Get acquainted, get connected, get TOGETHER!

Armenia

Georgia

Azerbaijan

Moldova

Belarus

Ukraine

2007-2011

EU-EECA ICT Cluster

The Republic of Armenia, Research and Development in Information and Communication Technologies

GEOGRAPHICAL LOCATION: Eastern Europe
AREA: 29,74 km2
POPULATION: 3,21 million people
CAPITAL: Yerevan
BORDERING COUNTRIES/REGIONS: Georgia / Azerbaijan / Iran / Turkey

Research and Development (R&D) in the Republic of Armenia is concentrated in two clusters – traditional research units, and novel ICT Industry. ICT has become one of the major sectors of economy contributing to the technological innovation and productivity growth in the country.
The general principles of state policy in science and technologies in Armenia are formulated by the law „On Scientific and Science-technical Activity" (December 2000), and in document "Conception of Science Development" (April 2001). Science in Armenia has traditionally enjoyed state attention as essential factor of national security, economic growth and educational, cultural and social progress.
In 2008 the Government adopted a new 10 year industry development strategy focused on building country wide ICT infrastructure, improving quality of IT graduates, creating venture and other financing mechanisms for start-up companies.
After years of debate, the Armenian Government is now ready to move forward with an aggressive project to implement eGov for the country. During June 2009 a practical RoadMap for launching eServices as a 4 to 5 year State programme was developed. Services, such as eHealth, eEducation, and eFinance, will be implemented as Public-Private Partnerships (PPP) within the Armenian ICT Business Cluster. The detailed work plan of development and implementation of eGov system of Armenia was adopted. Project Implementation Unit (PIU) of "E-governance Infrastructures Implementation Office" OJSC was set up.

MAIN ICT R&D INSTITUTIONS:

INSTITUTE OF INFORMATICS AND AUTOMATION PROBLEMS (IPIA.SCI.AM/)

- 16 ICT research subdivisions

Main achievements:

- Providing the necessary ICT support for Information Society Development in Armenia,
- Providing a recognized educational platform for ICT,
- Providing innovative initiatives to the ICT industry in Armenia.

YEREVAN STATE UNIVERSITY (WWW.YSU.AM)

- Faculty of Informatics and Applied Mathematics.
- IT Center.

Main achievements:

- Development of ad hock Programming systems and Information Technologies. Design and implementation of science embedded software products, their verification and validation.
- Development of optimization solutions and algorithms in Discrete Mathematics and Theoretical Informatics.
- Development of tools that involve modelling, simulation and visualisation techniques.

STATE ENGINEERING UNIVERSITY OF ARMENIA (WWW.SEUA.AM)

- Department of Computer Systems and Informatics.

Main achievements:

- Network and systems design, CMOS design and testing, embodied systems, artificial intelligence, information protection, eServices in banking and medicine.

2007-2013

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EU-EECA ICT Cluster

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ICT PRIORITIES[1]:

- Cloud Computing, Internet of Services and Advanced Software Engineering (Objective 1.2)
- Digital Preservation (Objective 4.3)
- Computing Systems (Objective 3.4)
- Trustworthy ICT (Objective 1.4)
- Intelligent Information Management (Objective 4.4)
- Language Technologies (Objective 4.2)
- Technology-Enhanced Learning (Objective 8.1)

COOPERATION:

PROJECTS IN THE 6TH AND 7TH FRAMEWORK PROGRAMME:

- **HP SEE** „High-Performance Computing Infrastructure for South East Europe's Research Communities" (National Academy of Sciences of Republic of Armenia, Institute for Informatics and Automation Problems NAS RA).
- **SEE-GRID-SCI** „South East European GRID eInfrastructure for Regional eScience" (Institute for Informatics and Automation Problems NAS RA).
- **PortaOptica Study project** (Institute for Informatics and Automation Problems NAS RA).
- **The Enterprise Europe Network** (Small and Medium Entrepreneurship Development National Center of Armenia).
- **ADONIS**, „Tools for Reusable, Integrated, Adaptable Learning – Systems/standards for Open Learning Using Tested Interoperable Objects and Networking";
  SPARTA, „Security Policy Adaptation Reinforced Through Agents" (Institute for Informatics and Automation Problems NAS RA, Information Society Technologies – Center, National Standards Institute, INFOSERVICE LTD).

INTAS PROJECTS:

- Concurrent heuristics in data analysis and prediction"; „Data Mining Algorithm Incubator"; "Data Mining Technologies and Image Processing: Theory and Applications" (Information Society Technologies – Center).

INTERNATIONAL SCIENCE & TECHNOLOGY CENTER (ISTC) PROJECTS:

- „Development of Armenian-Georgian Grid Infrastructure and applications in the fields of high energy physics, astrophysics and quantum physics *(Institute for Informatics and Automation Problems NAS RA; Yerevan Physics Institute; Yerevan State University; Byurakan Astrophysical Observatory NAS RA).*
- „Development of Scientific Computing Grid on the Base of Armcluster for South Caucasus Region" *(Institute for Informatics and Automation Problems NAS RA; Yerevan State University; State Engineering University of Armenia; Institute of Radiophysics and Electronics NAS RA; Byurakan Astrophysical Observatory NAS RA; Institute for Physical Research NAS RA).*
- **ArmCluster.** „Creation of High-Performance Computation Cluster and Databases in Armenia" *(Institute for Informatics and Automation Problems NAS RA).*

[1] National ICT Priorities are based on the ICT objectives of the 7th Framework Programme for Research and Technological Development of the European Union

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EU-EECA ICT Cluster

AZERBAIJAN: Research and Development in Information and Communication Technologies

GEOGRAPHICAL LOCATION: Eastern Europe
AREA: 86,6 km²
POPULATION: 9,022 million people
CAPITAL: Baku
BORDERING COUNTRIES/REGIONS: Iran / Turkey / Russia / Georgia / Armenia

Research and Development (R&D) in Azerbaijan is mainly carried out by research organizations of Azerbaijan National Academy of Sciences (ANAS), at scientific research organizations of the various ministries and universities. According to the President's decree (04.01.2003) the ANAS is considered to be the main organization which provides and organizes the development of science in Azerbaijan Republic, carries out the scientific and technological policy of the state, connects and leads the scientific research activity in all scientific and educational institutions.

Along with above mentioned duties ANAS participates or provides suggestions in determination and qualification of the directions of science's development, in general, the directions of the scientific and technological policy.

Information and communication technologies (ICT) sector holds leading position in innovative technologies and attraction of foreign and domestic investments compared to other sectors of the economy.

The most developed ICT areas:

- automatic management systems for department of the Treasury, Tax Ministry, Ministry for Labor and Social Issues, Health Ministry, Ministry of Justice, Ministry of the Interior, State Frontier Service, National Bank, State Customs Committee, State Fund of Social Protection, Central Election Commission, International Bank;
- distant learning, e-learning, computerized learning system, e-books and e-libraries, automated testing systems for students and college entrants;
- introduction of computer management systems and computer data exchange.

MAIN ICT R&D INSTITUTIONS:

CYBERNETICS INSTITUTE OF ANAS (HTTP://WWW.SCIENCE.AZ/EN/CYBER)

Main achievements:

- Development of new generation of intellectual systems of control monitoring of the oil-extracting objects which have passed pre-production operation under production conditions.
- Elaboration of principles of work and construction of the seismoacoustic intellectual system working on the basis of the information, received from deep layers are suggested.
- Development of the first versions of a recognition system of speech and scoring of texts of the Azerbaijan language.

INFORMATION TECHNOLOGIES INSTITUTE OF ANAS (HTTP://WWW.ICT.AZ/EN/INDEX.PHP)

Main achievements:

- Development of operative refine system for flying information in „black boxes" of fighting planes had been prepared and at present is applied successfully in all military aerodromes.
- Creation of knowing flying objects for Defense system from air attack using special corporative net information transferring system for control punks.

INSTITUTE FOR SPACE RESEARCH OF NATURAL RESOURCES OF NASA (HTTP://WWW.MDI.GOV.AZ/INDEX.PHP?/EN/CONTENT/743/)

Main achievements:

- Mapping of the vegetable cover & lend tenure area of Azerbaijan with regard to the Landsat 5TM data.
- Elaboration of instruments for investigation of X-ray radiation sources (RS-17, Pulsar X-1) on orbital stations „Salute" and „Mir".
- Elaboration of Software/Hardware package for reception, registration and processing of meteorological information from space vehicles of NOAA, Meteor type.
- Subsatellite measurements and processing of experimental results.

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RESEARCH INSTITUTE OF AEROSPACE INFORMATION OF NASA (HTTP://WWW.MDI.GOV.AZ/INDEX.PHP?/EN/CONTENT/731/)

Main achievements:

- Development of methods for evaluation of natural and industrial disasters and accidents on the base of geographic information & remote sensing systems data.
- R&D of methods of study of atmospheric physical parameters using modern microprocessors.
- Development of 3- dimensional seismometer with the extended dynamic frequency band. – Development of GSM structures for ecological safety of the Absheron peninsular.

ICT PRIORITIES[1]:

- 1.2 Internet of Services, Software & virtualisation
- 2.2. Language Based Interaction
- 3.6 Computing Systems
- 4.1 Digital libraries and digital preservation
- 4.2 Technology-Enhanced Learning
- 4.3 Intelligent information management
- 7.1 ICT and Ageing
- 7.3 ICT for Governance and Policy Modeling

COOPERATION:




6TH AND 7TH FRAMEWORK PROGRAMME PROJECTS:

- Black Sea ERA-NET Project „Networking on Science and Technology in the Black Sea Region" (National Academy of Sciences of Republic of Azerbaijan);
- ECO-NET EGIDE „Inverse problems and shape optimization with applications to mechanical systems" (IAM BSU – Institute of Applied Mathematics, Baku State University).

INTAS PROPOSAL FOR SOUTH CAUCASIAN REPUBLICS:

- Development of a unified approach and software for numerically solving inverse and optimization problems for distributed systems" (Institute of Cybernetics of National Academy of Sciences of Azerbaijan, State Oil Academy of Azerbaijan).

COST539 ACTION:

- „Electroceramics from Nanopowders Processed by Innovative Methods (ELENA)" (NanoCenter, Baku State University).

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EU-EECA ICT Cluster

The Republic of BELARUS, Research and Development in Information and Communication Technologies

GEOGRAPHICAL LOCATION: Eastern Europe
AREA: 207 600 km2
POPULATION: 9,6 mln
CAPITAL: Minsk
BORDERING COUNTRIES/REGIONS: Ukraine / Poland/ Lithuania / Latvia / Russia

Research and Development (R&D) is being carried out by the state research organizations, universities and private research organizations, including SME. ICT is one of the main country's S&T priorities for 2006-2015. Historically, the country was one of the most technologically advanced republics of the former Soviet Union. The country's strength in ICT sector is rooted in its mature technical infrastructure and reputable educational system inherited from Soviet times when Belarus manufactured over 50 percent of the computers and computer components in the USSR.

Belarus is going through a phase of development and economy transformation where IT sector becomes one of the fastest growing sectors of the economy. Belarus now gives attention to: the enhancement of the national ICT infrastructure; the improvement of ICT and Internet uptake in the education system; increasing opportunities for distance learning; and strengthening of the supporting legislative foundation. The state objective is to ensure economic policy which promotes development across the scientific, innovation, educational, investment and social spheres. Moreover, in 2003 Belarus has adopted a national strategy (e-Belarus) for the development of the information society and e-government. The **National Strategy of the Information Society Development** till 2015 has been approved by the Parliament in August, 2010. At policy level, a large number of measurements have been implemented in Belarus aiming at the development of ICT in different spheres of activity. Belarusian R&D organisations have also developed technical infrastructures such as supercomputers and computer systems for different medical applications, as well as for space technologies, nanotechnologies, photonics etc.

At **RTD level**, Belarus provides many collaboration potentials with the EU ICT actors. The most prominent ICT areas in Belarus are: **Supercomputing; Grid technologies and Infrastructure; e-health applications; Micro/nano- electronics, Photonics; Space/Space related technologies**. Belarus possesses a significant potential in the information technologies export, especially in the field of software development and ICT outsourcing. Software engineering and IT services is quickly developing branch with 15,000 IT-developers working for about 650 private companies and groups.

MAIN ICT R&D INSTITUTIONS:

THE UNITED INSTITUTE OF INFORMATICS PROBLEMS OF THE NATIONAL ACADEMY OF SCIENCES OF BELARUS (UIIP-NASB, WWW.UIIP.BAS-NET.BY)

ICT research divisions:
- Modeling the intelligence processes;
- Modeling the Image Synthesis and Recognition Processes;
- Information Technologies and Systems;
- Academic Networks BASNET and two branch enterprises: Geo-Information Systems;
- Identification Systems.

Main achievements:
- DISCAN–M - Hardware-software system for digitizing of large size images;
- Automated information system of phonoscopic registration;
- Information technologies to support the life circle of the machines – CALS-technologies;
- BOOK-READER – computer system for ort of orthopedic surgery on the basis of computer tomography images analysis;
- Family of Supercomputer clusters: unit K-500, SKIF-1000, SKIF-1000M, SKIF-UIIP, SKIF-GPU, personal supercomputers „SKIF-TRIADA".

INSTITUTE OF PHYSICS OF THE NATIONAL ACADEMY OF SCIENCES OF BELARUS (IP-NASB, IFANBEL.BAS-NET.BY)

Departments related to ICT:
microelectronics, sensor systems, nanooptics, semiconductor optoelectronics, molecular photonics, physical optics, physics and technology of semiconductors, photovoltaic cells; nanotechnologies; nano-scale ICT devices and systems.

Main achievements:
- Nonlinear and quantum optics, laser spectroscopy;
- Quantum information and quantum cryptography;
- Evaluation of principal optical and electro-optical properties of semiconductor nanocrystals;
- Elaboration of ultrafast semiconductor optical modulators.

BELARUSIAN STATE UNIVERSITY (BSU, WWW.BSU.BY)

ICT research divisions:
- Center of Information Technologies;
- Research Institute of Applied Problems of
- Mathematics and Informatics;
- Research Institute of Applied Physical Problems.
- Radio Physics and Electronics;
- Applies Mathematics and Informatics;
- Mechanics and Mathematics.

Main achievements:
- Spectral lines data base for nuclear emission spectral analysis;
- Cartographical information Visual analyzer;
- Expert system to diagnose malignant growth on the basis of biochemical blood tests;
- Mobile e-health system based on non invasive sensor of blood;
- Novel emerging technique for the label-free analysis of nanoparticles;
- Hard and software for satellite remote sensing system of university satellite in the range 1.72 GHz.

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BELARUSIAN STATE UNIVERSITY OF INFORMATICS AND RADIOELECTRONICS (BSUIR) (WWW.BSUIR.BY)

- Faculty of Computer-Aided Design;
- Faculty of Information Technologies and Control;
- Faculty of Radio Engineering and Electronics;
- Faculty of Computer Systems and Networks;
- Faculty of Telecommunication.

Main achievements:

- Simulation, modeling, testing and control of complex systems;
- Nanotechnologies;
- Silicon based spintronics optoelectronics;
- Quantum computing;
- Microelectronics;
- Devices and components based on electrochemical aluminum
- oxide technology;
- Telecommunication systems, devices and equipment;
- Communication and television antennas and equipment; Information processing devices, etc.

ICT PRIORITIES[1]:

- Internet of Services, Software & Virtualization (Objective 1.2);
- Cognitive Systems and Robotics (Objective 2.1);
- Nanoelectronics Technology (Objective 3.1);
- Design of Semiconductor Components and Electronic-based Miniaturized Systems (Obj.3.2);
- Computing Systems (Objective 3.4);
- Photonics (Objective 3.5);
- Digital libraries and digital preservation (Objective 4.3);
- Personal Health Systems (Objective 5.1);
- ICT for Patient Safety (Objective 5.3);
- ICT for Governance and Policy Modeling (Objective 5.6).

COOPERATION:

COLLABORATIVE PROJECTS CURRENTLY UNDER IMPLEMENTATION IN FP7 (CA. 15 OR MORE):

- Baltic Grid Second Phase;
- EGI-InSPIRE European Grid Initiative: Integrated Sustainable Pan-European Infrastructure for Researchers in Europe;
- MAGISTER NMP etc.

PROJECTS IMPLEMENTED IN FP6 (OVER 20):

- Nanophotonics to realize molecular-scale technologies (it's NoE project!!!);
- Engineered quantum information in nanostructured diamond;
- Distributed optical gateway from Eastern Europe to GEANT etc.

INTAS projects – more than 400 projects had been implemented in Belarus.

INTERNATIONAL SCIENCE AND TECHNOLOGY CENTER (ISTC) PROJECTS: OVER 90 PROJECTS:

- Automatization of Diagnostics and Prognosis of Mediastinal and Retroperitoneal Tumors in Children Based on Analysis of Radiological Images;
- Studying Ovarian Cancer Angiogenesis for Advancing Diagnosis and Treatment of the Fifths Leading Cause of Death in Women.

Large ICT-based bi-lateral programs supported from the budget of the Belarus-Russia Union State are being implemented:

- „Development and application in full-scale production of the high-productive computers with a parallel architecture (supercomputers)" (SKIF-GRID, 2007-2010);
- „Development of basic elements of orbital and ground-based facilities of the multifunctional space system, as well as technologies for their production and application" (KOSMOS-NT, 2008-2011).

Over 100 bi-lateral fundamental research projects in mathematics, physics and ICT with Russia, France, Moldova, Poland, Ukraine etc and other scientific centers are under implementation.

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EU-EECA ICT Cluster

The Republic of GEORGIA: Research and Development in Information and Communication Technologies

GEOGRAPHICAL LOCATION: Georgia is situated at the juncture of Eastern Europe and Western Asia
AREA: 69,700 km²
POPULATION: 4.436 million people
CAPITAL: Tbilisi
BORDERING COUNTRIES/REGIONS: Black Sea/Russia/Turkey/Armenia/Azerbaijan.

Research and Development (R&D) is coordinated by Georgian National Science Foundation and carried out by Georgian state and private universities, high education schools, research institutes of the former Academy of Sciences of Georgia, and private companies, SMEs, NGOs in the field of ICT (especially in telecommunication area), which are mainly working as a service and provider companies.

According to the reforms conducted in the country during the last 6-7 years Department of S&T was reorganized in Georgian National Science Foundation (GNSF) and the function of financial support of science was delegated to this new structure. From the Georgian Academy of Sciences remained only Presidium of Sciences. The scientific sector was abolished at all state universities and at present academic position combines the research activity as well. Three stage degrees of bachelor, master and doctor were adopted.

All scientific institutions and universities moved on grant system (which is periodically being organized by GNSF on the competitive bases). At present the process of joining of scientific institutions with universities is under way. Several years ago Georgian National Communications Commission - GNCC was created, which has the consultative structure.

For stable and secure Communication among the governmental bodies Georgian government has launched Georgian Governmental Network (GGN project) that has started in November 2006. The modern technologies based GGN provides the development of IP protocol-supported, integrated and protected VPN type of computer network all over the Georgia that enables the online interconnection of governmental bodies, exchange of any type of digital data between central and regional agencies, considerably decreasing the communication costs of state authorities, allowing the use of high-speed, as well as that of the ordinary internet access at affordable rates. The GGN is the first and the most prominent step towards implementation of electronic governance in Georgia.

MAIN ICT R&D INSTITUTIONS:

INSTITUTE OF CYBERNETICS (WWW.CYBERNET.GE)

ICT subdivisions:
- Department of Mathematical Cybernetics;
- Department of the Applied Pattern Recognize Systems;
- Department of Biocybernetic Systems;
- Department of the Computer Engineering Elements and Nanomaterials;
- Department of Coherent and Quantum Optics;
- Laboratory of the Information Holographic Recording and Processing;
- Department of the Optically controlled Anisotropic Systems;
- Opto-Chemical Research Laboratory

Main achievements:
- Elaboration of the methods of modeling and prediction of stochastic processes;
- LCD technologies (Researches in this area have been awarded by Frederic Ives medal);
- Pacemaker activity in neuron, dolphin and bat sonar modeling (granted by USA naval researches);
- Creation of the laser canceroscope.

MUSKHELISHVILI INSTITUTE OF COMPUTATIONAL MATHEMATICS (WWW.COMPMATH.GE)

ICT subdivisions:
- Department of Computational Methods
- Department of Operations Research and Discrete Problems
- Department of Programming and Informatics

Main achievements:
- Application of information and code theory to conflictology;
- Elaboration of cryptograph systems;
- Effectively realizable computational algorithms for some classes of problems
- Elaboration of new models of continuous and discrete problems of operational calculus and their application to various fields of economics.

INSTITUTE OF CONTROL SYSTEMS (WWW.ICS.ORG.GE)

ICT subdivisions:
- Optimal problem management
- Lingual and speech systems
- Information transfer
- Machine intelligence

Main achievements:
- Complex information processing, quantum computations.

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GEORGIAN TECHNICAL UNIVERSITY (WWW.TGU.GE)

ICT subdivisions:

- Faculty of Informatics and Control Systems

Main achievements:

- Creation of LMS systems, moodle open source community-based tools for learning, etc.

ICT PRIORITIES[1]:

- High Performance Computing and Networking;
- Operations research and discrete mathematics;
- Stochastic processes and applied statistics;
- Research focuses on new technologies in decision-making (on the basis of fuzzy logics);
- Cryptograph systems, methods of numerical solution of technical problems (e.g. plane and spatial elasticity theory, shell theory, quantum field theory);
- Maximum inequalities for rearrangements; applications to functional analysis and scheduling theory;
- Generalized random elements and stochastic integrals in infinite dimensions, and best approximation and characterization of inner product spaces;
- Quantum computations; automated systems of pattern recognition;
- Photo-physical effects in photonics and quantum optics;
- Optical and photo-electrical properties of nano-structures, and optical chemistry, etc.

COOPERATION:

PROJECTS SUPPORTED BY EC AND EUROPEAN ORGANIZATIONS:

- Deer Leap project (MES - Ministry of Education & Sciences of Georgia);
- IncoNet EECA project (GNSF – Georgian National Science Foundation);
- e-Infrastructure for regional e-Science (SEE-GRID-SCI) project (GRENA);
- Black Sea Interconnection project (GRENA);
- Tristan-East project (MESI Ltd.).

PROJECTS SUPPORTED BY TACIS:

- Development of e-Societies in South Caucasus (TSU - I. Javakhishvili Tbilisi State University);
- European studies project (GRENA & TSU);
- „Creation of effective model of science administration, review of EU experience and elaboration of recommendations for science policy together with the Ministry of Education and Science of Georgia, with its implementation" (GNSF & the MES).

NATO PROJECTS:

- Virtual Silk Highway (GRENA);
- Networking Infrastructure Project EAP.NIG (GRENA).

PROJECTS SUPPORTED BY ESTONIAN MINISTRY OF FOREIGN AFFAIRS:

- INNOTRANS project (GNSF & TSU).

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EU-EECA ICT Cluster

The Republic of Moldova, Research and Development in Information and Communication Technologies

GEOGRAPHICAL LOCATION: Central-Eastern Europe
AREA: 33,843.5 km2
POPULATION: 3.63 million people
CAPITAL: Chisinau
BORDERING COUNTRIES/REGIONS: Romania / Ukraine

Research and Development (R&D) in the Republic of Moldova is mainly carried out by research organizations and universities. Actually the R&D activity in Moldova is regulated by the Law – Code on Science and Innovations, adopted by the Parliament of the Republic of Moldova in 2004.

The encouragement of the scientific research and stimulation of a long standing innovational climate were acknowledged under the law as main priorities for the social and economic development of the Republic of Moldova.

Recognizing the priority of the development of fundamental research, a worthy source in order to get new knowledge, the activity of the science and innovation organizations is guided towards the conversion of the scientific research results into new tools and technologies, in order to be subsequently used by the national economy of the country.

One of the main directions of R&D&I organizations is to eliminate the state of isolation of the Moldovan scholars from the world science. The Republic of Moldova's participation in the establishment of a common European scientific space has contributed to the stabilization of the country scientific potential, as well as to the deepening of the mutual exchange with the scientific community of the EU.

MAIN ICT R&D INSTITUTIONS:

ACADEMY OF SCIENCES OF MOLDOVA (WWW.ASM.MD)

INSTITUTE OF MATHEMATICS AND COMPUTER SCIENCE (WWW.MATH.MD)

- Laboratory of Programming Systems
- Laboratory of Informational Systems

Main achievements:

- Development of decision support systems for critical, information-bound domains
- Development of intellectualization interfaces methods for symbolic computation systems

INFORMATION SOCIETY DEVELOPMENT INSTITUTE (WWW.IDSI.MD)

- Laboratory of Research and Development of Information Society
- Laboratory of Information and Communication Technologies

Main achievements:

- Development of adaptive and intuitive systems for learning and learning appliances for teachers and students
- Development of information systems that acquire, analyse and categorise extremely large, rapidly evolving and potentially conflicting and incomplete amounts of information

TECHNICAL UNIVERSITY OF MOLDOVA (WWW.UTM.MD)

- Department of Computers, Informatics and Microelectronics
- Department of Radio electronics and Telecommunications

Main achievements:

- Development of tools that involve modelling, simulation and visualisation techniques
- Development of algorithms and software products for verification, validation and animated simulation of complex control systems

STATE UNIVERSITY OF MOLDOVA (WWW.USM.MD)

- Department of Mathematics and Computer Science

Main achievements:

- Development of shell model for rapidly building systems based on previous events that have no precedent
- Development of open, scalable, dependable service platforms, architectures, and specific platform components.

ACADEMY OF ECONOMIC STUDIES OF MOLDOVA (WWW.ASE.MD)

- Faculty of Economic Cybernetics, Statistics and Informatics
- Department of Informatics

Main achievements:

- Methodological and economic aspects of Development of Information Society
- Electronic business and information security research aspects

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ICT PRIORITIES[1]:

- Digital Libraries and digital preservation (Objective 4.1)
- Focus on learning in 21st century; the new links between individual and organisational learning, and creativity; adaptive and intuitive systems for learning; knowledge management (Objective 4.2)
- Intelligent Information Management (Objective 4.3)
- Focus on multi-core and polymorphic system architectures; new systems software, programming paradigms; Engineering of large distributed systems (Objective 3.6)
- Nanoelectronics Technology (Objective 3.1)
- ICT for Patient Safety: safer surgery, integration of clinical research and clinical care, early detection of public health events (Objective 5.2)

COOPERATION:




COLLABORATIVE PROJECTS IN THE 7TH FRAMEWORK PROGRAMME:

- „Distributed Optical Gateway from Eastern Europe to GEANT (POS)" (RENAM Association)
- „SEE-GRID eInfrastructure for regional eScience" (RENAM Association)

PROJECTS WITH THE SCIENCE AND TECHNOLOGY CENTRE IN UKRAINE (STCU):

- „Computer monitoring technology for operational state and accidental risk of poison-fluid and petroleum depots" (Institute of Mathematics and Computer Science)
- „Creation of unique information environment in GUAM community for remote training and technical and scientific cooperation" (Information Society Development Institute)
- „Power and efficiency of natural computing: neural-like P (membrane) systems" (Institute of Mathematics and Computer Science)

BILATERAL PROJECTS:

- Academy of Science of Moldova & Belarusian Republican Foundation for Fundamental Research
  - „Analysis of priority queueing models in modern systems of information resources diversification" (Institute of Mathematics and Computer Science)
- Academy of Science of Moldova & Russian Foundation for Basic Research
  - „New algorithms for authentication of electronic information and cryptographic schemes with secret sharing" (Institute of Mathematics and Computer Science)
  - „Analytical, symbolic and numerical procedures for hard perturbed dynamical systems, problems of mathematical modelling and optimal control" (State University of Moldova)
- Academy of Sciences of Moldova & Federal Ministry of Education and Research (BMBF) of Germany
  - „Orientation and stabilization methods and procedures for capturing images at distance associated with coding, compression, protection and real-time transmission" (Technical University of Moldova)

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EU-EECA ICT Cluster

UKRAINE: Research and Development in the field of Information and Communication Technologies

GEOGRAPHICAL LOCATION: Central East Europe
AREA: 603 700 square km
POPULATION: 45, 962, 900 people (as for 01 January 2010)
CAPITAL: Kyiv
BORDERING COUNTRIES/REGIONS: Moldova, Romania, Hungary, Slovakia, Poland, Belarus and Russia – land border; Bulgaria, Turkey and Georgia – sea border. The total length of the border 6992 km.

Research and Development (R&D) in Ukraine is mainly carried out by research organizations and universities.

Ukraine has developed a strong tradition in the fields of cybernetics, mathematics and computer science which brought up several scientific schools in Ukraine. It is one of few countries of the world to produce space stations, global radio, microwave and satellite communication systems and aircrafts, and it has more achievements in modern engineering. In addition, Ukrainian engineers and scientists have been involved in large-scale complex projects for forty years, cutting across various technology fields.

Following this tradition, over the past few years Ukraine has rapidly become a strong player in software engineering and IT business services, having as major advantages the up-to-date technical skills and education of its workforce. Because of the national efforts towards technology development, Ukraine is a society with a national focus on research and development.

Thus, there is a strong collaboration potential between Ukrainian and EU ICT actors, mainly due to the well established educational system, the availability of a large pool of highly qualified human resource as well as the existence of significant ICT infrastructures which are established in several Ukrainian institutions.

The national **ICT policy development** is mainly focused on the following areas:

- improving the implementation and performance of projects within the National Programme of Informatization;
- creating a favourable investment climate for ICT developments;
- supporting the advanced basic and applied research and knowledge based technologies;
- supporting development of the domestic software industry and ICT manufacturing industry;
- developing national, branch and regional information systems, networks and e-resources, information analytical systems of executive authorities and local government institutions.

MAIN ICT R&D INSTITUTIONS:

- V.M. GLUSHKOV INSTITUTE OF CYBERNETICS (HTTP://WWW.ICYB.KIEV.UA)
- NATIONAL TECHNICAL UNIVERSITY OF UKRAINE „KYIV POLYTECHNIC INSTITUTE“ (HTTP://WWW.NTU-KPI.KIEV.UA)
- LVIV POLYTECHNIC NATIONAL UNIVERSITY (HTTP://WWW.LP.EDU.UA)
- NATIONAL TECHNICAL UNIVERSITY „KHARKIV POLYTECHNICAL INSTITUTE“ (HTTP://WWW.KPI.KHARKOV.UA)
- INTERNATIONAL RESEARCH AND TRAINING CENTER FOR INFORMATION TECHNOLOGIES AND SYSTEMS (HTTP://WWW.IRTC.ORG.UA)
- TARAS SHEVCHENKO NATIONAL UNIVERSITY OF KYIV (HTTP://WWW.UNIV.KIEV.UA)
- STATE UNIVERSITY OF INFORMATICS AND ARTIFICIAL INTELLIGENCE (HTTP://WWW.IAI.EDU.UA)

2007-2013

EU-EECA Cluster is the joit effort of three FP7-ICT support action (ISTOK-SOYUZ, SCUBE-ICT, EXTEND) to strengthen the collaboration in ICT research between European Union and Eastern Europe and Central Asia (EECA) countries

EU-EECA ICT Cluster

ICT PRIORITIES[1]:

- Computing systems (Objective 3.6)
- Microsystems and smart miniaturised systems (Objective 3.9)
- Internet of services, software & virtualization (Objective 1.2)
- Cognitive systems and robotics (Objective 2.1)
- Technology enhanced learning (Objective 4.2)
- Intelligent information management (Objective 4.3)
- ICT for environmental services (Objective 6.4)

ICT INTERNATIONAL COOPERATION:




PROJECTS OF THE EU SEVENTH FRAMEWORK PROGRAMME:

- „Extending ICT research co-operation between the European Union, Eastern Europe and the Southern Caucasus – EXTEND" *(National Information Centre for Ukraine-EU S&T Cooperation);*
- „Strategic Cooperation in Ukraine, Belarus and EU in Information and Communication Technologies – SCUBE-ICT" *(V.M. Glushkov Institute of Cybernetics of National Academy of Sciences of Ukraine; L'viv Centre for S&T and Economic Information; Institute of Artificial Intelligence Problems);*
- „Information Society Technologies to Open Knowledge for Eastern Europe and Central Asia – ISTOK-SOYUZ" *(Technology Business Incubator „Kharkov technologies");*
- „Spin-thermo-electronics – STELE" *(Institute of Low Temperature Physics and Engineering).*

THE SCIENCE AND TECHNOLOGY CENTRE OF UKRAINE (STCU) FUNDED PROJECTS :

- Computer monitoring technology for operational state and accidental risk of poison-fluid and petroleum depots" *(State Enterprise „Design office „Youzhnoe", Institute of applied machine building);*
- „Creation of unique information environment in GUAM community for remote training and technical and scientific cooperation" *(State Enterprise „Design office „Youzhnoe", National Space Agency, Academic and Research Network of Ukraine UARNET);*
- Ukrainian R&D teams have several bilateral projects with Italy, Latvia and Poland.

[1] National ICT Priorities are presented in accordance with the ICT objectives of the EU 7th Framework Programme for Research and Technological Development following the results of the Consultation Workshop

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