



EAST-HORIZON

**Fostering Dialogue and Cooperation between the EU and EECA
in the HORIZON 2020 perspective**

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DEL 2.4 – GLOBAL OVERVIEW OF THE REGION



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1. EXECUTIVE SUMMARY

The deliverable D2.4 “Global Overview of the Region” constitutes the analysis of ICT Research & Innovation priorities and relevant policies in the EECA region (: Russia, Armenia, Azerbaijan, Belarus, Moldova, Ukraine, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan) – as shaped by the domestic measures, needs and capabilities of each country, while taking into consideration the cooperation of EECA countries with neighbour countries and the European Union Member States. The specific report wishes to extract, by the understanding of domestic tendencies and trends, useful conclusions on the region’s overall direction in the ICT R&I field,

The elements analysed in the report derive from two separate reports, D2.1 and D2.3. These reports refer to the validation and revision of past findings in ICT priorities as delivered by the previous projects SCRUBE-ICT, ISTOK-SOYUZ, EXTEND and PICTURE. They also feature the mapping of innovation strategies and policies of the above countries, as well as their main international cooperation activities and agreements. The above were identified via targeted consultations within each addressed country including detailed questionnaires and domestic surveys.

The key findings of this report are based on the analysis of the above reports via the following three parameters.

- 1) The extent to which national policies/strategies effectively support R&D in the field of ICT in the aforementioned region. (The conclusion is established by the study of national ICT objectives and challenges, national implementation mechanisms, dedicated funds, priority setting)
- 2) The extent to which national policies/strategies support innovation in the field of ICT in the aforementioned regions (strategy design regarding innovation, targets, funding)
- 3) The extent to which innovation and R&D activities in the field of ICT goes beyond borders (bilaterally and multilaterally)

Based on the identified country-specific priorities, the common regional ICT R&I priorities and targets were identified, shared difficulties the region faces were recognized and the elements that should be integrated to the national schemes in order to create a more solid base on which dialogue and cooperation with the European Union will be further developed were highlighted.



2. INTRODUCTION

Research and Innovation (R&I) in the field of Information and Communications Technologies (ICT) has always been a vital instrument towards the creation of an “enabling environment” for reform and growth. The use of ICT significantly supports the meeting of challenges in the area of economic development, social advancement and information extent. Undoubtedly it constitutes a powerful driver of international cooperation as well as an important tool for progress acceleration.

However, differences in economic performance and political approaches among countries and regions can be connected to the level of ICT utilization, investment, research and development.

Research and Innovation capabilities in Eastern Europe and the Central Asia (EECA countries) have been severely affected by rapid political changes, internal conflicts and the gradual transformation from state-run to market economies. This is manifested by the huge reduction in the national Science and Technology (S&T) expenditure and the brain drain of leading scientists from these countries during the 1990s.

Since the early 1990s the European Union has played a key role in

supporting the EECA countries’ political and economic transformation as well as the reconstitution of their research infrastructures. The EU has assisted these countries through financial and technical assistance (primarily through the TACIS programmer and INTAS). It provided assistance in the development of strategic regional initiatives for the EECA countries in order to increase awareness of the need to develop, implement and track policies and strategies in the fields of ICT R&I.

This report is intended to provide an updated ICT Research and Innovation profile of the EECA region that includes an informed status report on the implementation of ICT objectives and Priorities. As such, it aspires to provide a strategic support tool to policy and decision-makers and serve as a key report for the future development agenda in the region.

To further improve current cooperation between EECA countries and the European Union, national policies and priorities must be in accordance. It is expected that priorities and objectives in some cases will be different or even overlapping; however they must be designed to serve mutual benefits for the region and the EU.



3. MAIN FINDINGS DERIVED FROM THE ANALYSIS OF ICT NATIONAL POLICIES/STRATEGIES

3.1 COMMON NATIONAL PRIORITIES

The vast majority of EEAC Countries have developed a dedicated policy/strategy for research and development in the field of ICT. Most of these policies are part of a wider national strategy focusing on information society and in some cases development. In most cases these policies, followed by series of measures and implementation plans, serve a dual purpose:

a) that of social ICT integration, aiming at the improvement of citizen's life quality.

ICT social integration is perceived in most of the region's countries as the wide development of infrastructure in terms of broadband internet services, network efficiency, integration of telecommunications, advancement of e-Government services, increase of internet users or the amount of home computers, establishment of information environment etc.

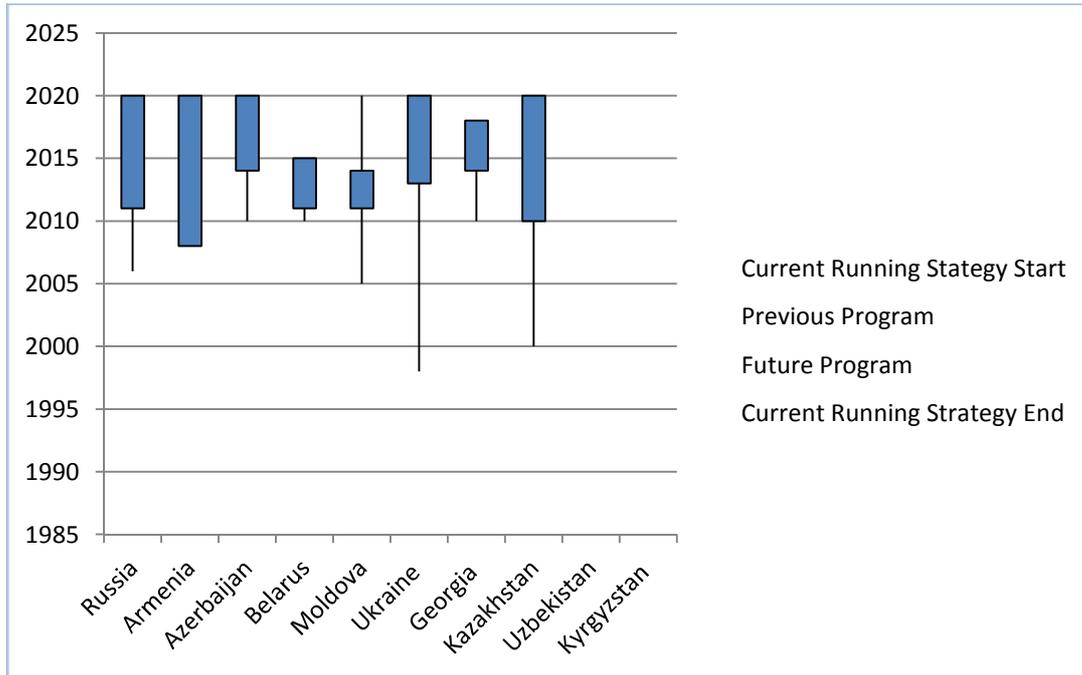
b) that of R&I advancement resulting in economic growth and competitiveness of the country-region.

Research, Development and Innovation advancement is perceived as the enhancement of local ICT market and industry, enhancement of ICT education and expertise, involvement of the private sector in the ICT R&D efforts, especially SME's.

All national strategies feature a series of objectives each country sets to achieve. In the ICT field most strategies of the region have a five year timeframe, whereas the main policy documents concerning adapted ICT objectives, appear to have gone through updated and further developed within the fixed timeframe.

For example Moldova National Strategy for information society under the name "Electronic Moldova" was out forward by the Ministry of Information Technologies and communication in 2005. In 2013 the action plan "Digital Moldova 2020" was adopted as continuance of the established measures from the electronic to the digital era of the county.

The below graph shows the timeline of current strategies running in the region by each country, whereas some info are provided on the wider strategic timeline, since in some cases, the current running strategies are part of a wider national strategy with an extended time horizon, or an updated plan.



The above scheme shows the timetable of implementation for the national policies in the EECA counties. The blue box shows the current timeline for ICT programs and plans running, whereas the thin black line indicates the wider national strategy that the ICT programs derives from. In most cases ICT programs are part of a wider national development strategy that is frequently updated. The scheme is created based on the information provided by the EECA countries in relevant questionnaires submitted for the purposed of EAST HORIZON.

As shown in the graph, most of the EECA countries tend to set as a milestone the year 2020. This does not come as a surprise as they lean towards following international developments and trends especially in the ICT field (particularly rapidly changing & growing). Europe 2020 is a basic example of tendencies followed, as the ten year European growth plan aims to address any shortcoming of the applied growth model and thus to create the conditions for a smart, sustainable and inclusive growth.

Common need for growth and development creates a solid base upon which collaboration with the EU can be built. Of course ICT priorities are the tools which will enable the region to move forward and establish long-term and meaningful partnerships.

The common national ICT priorities identified in the national policies and strategies reviewed are present in the table below. The following five priorities are shared by almost all EECA countries.



- Internet , Broadband and Mobile Technologies (Expansion of existing infrastructure)
- ICT Experts (techno parks & incubators)
- ICT for Government (E-Government)
- ICT for Enterprises (legislation, funding, start up support)
- ICT for Investments (legislation, attractive environment)

The featured objectives appear to be in the core of the regions' development strategies, as they have been included in pervious plans as well.



	Russia	Armenia	Azerbaijan	Belarus	Moldova	Ukraine	Georgia	Kazakhstan	Uzbekistan	Kyrgyzstan
Internet, Broadband and Mobile Technologies (Expansion of existing infrastructure)	✓		✓	✓	✓	✓		✓		✓
ICT Experts (techno parks & incubators)		✓	✓	✓	✓	✓	✓	✓		✓
ICTs for Government (E-Government)	✓	✓	✓	✓	✓	✓		✓	✓	✓
ICTs for Enterprises (legislation, funding, start up support)	✓	✓	✓	✓	✓	✓	✓	✓		
ICT for investments (legislation, attractive environment)		✓	✓	✓	✓	✓	✓	✓		

Common National ICT priorities in the EAST-HORIZON participant countries of the Eastern Europe and Central Asia region



3.2 IMPLEMENTATION OF ICT NATIONAL PRIORITIES

Implementation of the National Strategic plans differs in each country. Although objectives may be shared, there is a proportionate difference in population and wealth, influence that dictates in each case the implementation scheme and its approach. This part of the analysis does not want to analyse each country's implementation plan, but it wishes to identify progress on the common objectives overall, and to highlight any common tendencies and problems that might occur through implementation.

Implementation of Objective 1: Internet, Broadband and Mobile Technologies

Development and usage of internet network constitutes a priority for all the EECA countries. Although lots of work has been achieved through previous ICT priority policies in all the countries, it remains a central issue in all ICT strategies of the region, as its development and social penetration is slowly achieved.

In the case of Russia, Azerbaijan, Belarus, Moldova and Georgia ensuring availability of telecommunication services for citizens is a top priority. The insurance of excellence in internet services guarantees transformation for the domestic social network, which is the ultimate ICT impact.

Digital broadcasting is also mentioned in national strategies of Azerbaijan and Georgia it is perceived another important modernization tool of social transformation.

Individual country reports on the matter highlight that despite efforts and significant achievements, consolidation of digital society has not reached the desirable level. Published figures show increased integration of internet services each year, whereas EECA countries' ranks (on a global scale) show the upward trend. However, ranks are not satisfactory according to objectives. Execution faces as noted, bureaucratic and legislative issues as well as social issues, geographic and demographic issues.

Implementation Objective 2: Human Capital specialization

All EECA countries note that part of their inability to implement ICT plans is caused by the country's lack of the specialized human resources that can enhance the market and speed procedures. They feel that this specific barrier creates multiple problems in their ICT business competitiveness, international presence and cooperation in general. Thus nourishment and appropriate utilization of the specialized human resources experts constitutes yet another important objective in the region.

Even in the case of Belarus and Ukraine which have managed to establish their countries as lead software developers, with their economies being strongly export-



oriented, it is noted that the dynamics of this activity, as derived by the human capital, are not utilized within their countries. It is for this reason that all of the EECA countries have within their priorities the establishment of techno and industrial parks (in some countries first steps have already been made) as well as ICT business incubators. This aims to flourish a new generation of business driven experts, while bridging the gap between business and academia.

In some cases like the one of Kazakhstan the absence of the specialized human resources is located in lack of efficient ICT education programs offered by National Education Institution; therefore ICT priorities indicate the insertion of ICT specialized classes and faculties in the Kazakhstan higher education system to enhance the development of ICT expert in the long run.

Implementation in this field also shows slow steps. In some countries techno-parks have started to operate, while in others they are in a design phase. At the same time countries of the region try to achieve collaborations with international projects and companies, in an attempt to establish a scientific and educational exchange relation that will benefit their scientific staff approach.

E-Government: By comparing information regarding E-government in the countries of interest in this report, one immediately reaches the conclusion that first steps have been made. E- Government is included in all national strategies and in most countries electronic public services constitutes one of the country's major ICT goals.

Although the goal is the same, namely transferring all governmental services into the digital era, the approach and the problems each country is facing are different. The level of sophistication in the offered governmental electronic systems differ and most of the countries feature enhance presence, whereas in some cases, like Azerbaijan or Russia interactive presence. For example in the case of Belarus all national legal documents can be found at in "Pravo.by" portal, designed within the framework of the national e-government programme. Overall the region offers basic e-Government services and it is within the region's intention to provide advanced e-governmental services by 2015.

Many of the region's countries show delays in the design and implementation of their e- Government plan. Three countries, including Azerbaijan, Armenia and Moldova appear to be progressing according to their planning. From the data provided Azerbaijan, has managed to incorporate into the E-Government single portal 219 out of the total 417 e-services provided to its citizens from 41 state agencies. At the same time Moldova appears to have settled all the legal issues and has also, within the framework of its e-Government planning, established of specialized institution to work on the implementation of the program and monitor its course.

Enterprises: Officially recorded data on ICT development in the region clearly shows that ICT sector is solidly moved by Public funds. This may be taking the field forward;



however it fails to address the international market, which is turning into a very competitive sector. For this reason Governments ICT policies consider alternative measures to enhance entrepreneurship in the ICT sector, and involve more private companies into “the game” (Azerbaijan, Belarus, Kazakhstan, Moldova, Ukraine, Uzbekistan). Some of these measures include tax reduction schemes for new coming ICT companies, abolishment of any bureaucratic barriers in company establishment procedure, formation of relevant legislation etc.

Another issue these countries have to address is the perspective of local entrepreneurship by local companies. Local private companies express their lack of interest in invest in innovation within their countries, as they fell that there is neither room, nor demand for such products domestically. Therefore Governments are adopting measures to advance export capabilities and business networking and at the same time create breeding ground for the development of e-services in local business and trade. Local tradeshows and international exhibitions aim to promote local production and increase the need for such products.

Even in countries with established export networks, the demand for further involvement of the private sector is also present (Belarus, Ukraine). Further knowledge of the subject and know how outspread is some of the issues arising under the weight of further business development in these countries.

Investments: One of the region’s main concerns is the attraction of foreign investments in the domestic ICT field (Azerbaijan, Moldova, Ukraine, and Uzbekistan). As noted the specific sector is exclusively funded by the public domain, a fact that creates constrains and limited capabilities in the R&I field. Countries are working on policies that will allow them to attract foreign companies to finance collaboration projects and convey knowledge and tends.

Involvement of multinational companies and organizations in the region will contribute in the promotion of ICT innovative ideas, venture funding, investments, expert’s training. Such cases have occurred in the region already, but the establishment of such actions will bring the desired result. For example companies such as Microsoft, Cisco, IDM, Intel, have already took initiates in Armenia, Moldova and Azerbaijan. Among the customers of Belarus’ software development companies are global leaders in telecommunication and computer technology sphere: Alcatel, IBM, British Telecom, Microsoft, SAP, Siemens, Sun Microsystems and Xerox. There are also other international corporations and institutions that order IT support and development services from Belarusian companies: Coca-Cola, Ford, Goodyear, Honda, Johnson & Johnson, London Stock Exchange, Procter & Gamble and World Health Organisation.

The above efforts are further induced by attractive tax relief measures and grants, in an attempt to create business interest in the region.



3.3 OTHER COMMON ISSUES

A series of common issues derive from the common ICT objectives in the region. The issues are faced more or all by all countries and constitute regional barriers towards the fulfilment of national and regional objectives

Legislation: Out of the 10th countries analysed for the purpose of this study, two claim legislative issues when it comes to the acceleration of their digital services, especially in terms of privacy and personal data security. Legislation however appears to be a regional matter when it comes to the establishment of start-ups and business expansions. Old procedures, taxation, bureaucracy and administrative barriers among others, combined with non-efficient legislation create a regional uncertainty concerning reaction to business development and growth. The provided info clearly demonstrate that although legislation policies show development and modernization, their progress is much slower than the one observed in the ICT field, and therefore it is inadequate towards the demands of the current ICT sector.

Implementation delays: As shown in the timeline of the strategies, most of the EECA countries face implementation delays due to systemic and infrastructure problems that were not properly taken into account. Among them are the socio-economic differences of the targeted population and the level of accessibility of information technology and state regulation in ICT. Although not clearly indicated in the analysis of each EECA country's ICT measures and objectives, one of the main challenges the region faces are implementation delays. How the country will manage to move forward with existing projects that show deferment. It is rather interesting the amount of words implying improvement and continuation that occur in the strategic and action plans. Words such as expand, enhance, improve, rise which actually imply the existence ICT programs and projects in development often occur, whereas no words such as start, establish, begin are lacking. This clearly that programs are already running (thus no need to begin or start something) nevertheless there are obstacles to overcome, as there is a need to enhance, improve etc.

Running and Monitoring of Implementation

Running: It is noted, while going through the individual data provided by each country that implementation of the strategic plans is coordinated by either the national Ministry of Communication and Information Technologies or the Ministry of Development. Only in 2 countries specialized institutions are involved in the execution and monitoring of ICT policy drafting and Measure application.

In the table below one can see the structure of implementation in each country as noted through the overview of the approved and published ICT policy documents. These documents include legislation bills, official government decisions, white papers, action plans, etc.



Country	Organization Responsible
Russia	<ul style="list-style-type: none"> • Ministry of Mass Communications • Rospechat Agency • Service for Supervision of Communication
Armenia	<ul style="list-style-type: none"> • GoVA
Azerbaijan	<ul style="list-style-type: none"> • Ministry of Communications and High Technologies • Ministry of Economy and Industry
Belarus	<ul style="list-style-type: none"> • Ministry of Communication and Informatization • State Committee on Science and Technology • National Academy of Science • Ministry of Education
Moldova	<ul style="list-style-type: none"> • Ministry of Information Technologies & Communication • E GovCentre • National Regulatory Agency for Electronic Communications and Information Technologies • National Association of private ICT companies
Ukraine	<ul style="list-style-type: none"> • Verkhovna Rada • Cabinet of Ministers
Georgia	<ul style="list-style-type: none"> • Ministry of Justice • Ministry of Economy • National Communication Commission
Kazakhstan	<ul style="list-style-type: none"> • Ministry of Transportation and Communications •
Uzbekistan	<ul style="list-style-type: none"> • State Committee for Communication, Information and Telecommunication Technologies of the Republic of Uzbekistan
Kyrgyzstan	<ul style="list-style-type: none"> • Ministry of Transport & Communication

The table above clearly shows the state’s exclusive involvement in the design and implementation of the ICT policy in the region. Apart from Ministries the implementation scheme also includes academic organizations and institutes, which however are also public organizations. The only participation of the private sector is found in the case of Moldova with the involvement of the National Association of private ICT companies. In particular the specific organization has assisted in the creation of a white Book which presents the consolidated opinion of the ICT private business community. In Belarus it is a regular practise started from the first national e-Belarus programme formation, that ICT private sector – ICT Associations, NGOs are very actively involved in formation of ICT national strategy and its implementation.



Monitoring

As far as ICT performances measurement is concerned, the available data show clear lack of efficient fixed indicators. Currently any assembled data and info are the result of a cyclic procedure executed by a series of different organizations, often creating gaps and overlaps. It is important that any measurement and evaluation doesn't solely focus on output indicators but also on impact indicators (impact of ICT development and economic growth, labour productivity, employment opportunities). Such development is vital due to the growing regional interest in understanding the role ICT plays in economic and social development. Integrated monitoring and assessment procedures will further help the region define the areas in which it has a strong position and indicate the areas where there is room for improvement, thus allowing policy makers to focus resources on appropriate dimensions of ICT.

3. MAIN FINDINGS DERIVED FROM THE ANALYSIS OF ICT INNOVATION NATIONAL POLICIES/STRATEGIES

4.1 NATIONAL INNOVATION STRATEGIES

Innovation can be described as the process of translating an idea into a product (either an item or a service) that creates value and addresses a problem. In the ICT field research and innovation is becoming the steering will of development, growth and future anticipation. With a range of opportunities arising in the field of new technologies, Europe has placed innovation in the centre of its targets for the future.

However, it is not certain how ready the EECA counties are to follow this trend. Overall the main conclusion from the analysis of innovation strategies in the region, shows that EECA countries have understood the need to expand their innovative capabilities and to further focus on that path, however implementation has not yet began, and even design of action plans seems to be turning into an major barrier to cross. For more countries innovation policies have not yet provided any solid achievement targets and key indicators. But some countries as Belarus eg has already started with the implementation, they had completed the 1st National Innovation Programme (2007-2010), and continue the 2nd (2011-2015)

Almost all of the EECA counties have drawn relevant Development and Innovation policies and strategies. Counter to ICT policies, these plans in some cases remain concept papers and often include vague priorities. It is important to note that in the case of innovation, relevant policies are under the jurisdiction of the Ministry of Finance and Commerce/Entrepreneurship (Instead of Communication & Technology Ministries as in the case of ICT). Due to the importance of Research as a step towards



Innovation we can also find in some cases the implication of Academy of Sciences and other relevant academic organizations and institutions. (????)

The above conclusion are drawn from the below table, which showcases each country's Innovation Policy Strategy, the status of the policy document and the organization behind it.

Country	Innovation Policy	Status of Policy	Organization Responsible
Russia	Economic development and innovation Economy	Concept Paper	<ul style="list-style-type: none"> • Relevant Ministries and Agencies
Armenia	“Initial Strategy of the formation of innovation Economy” (2011)	Concept Paper	<ul style="list-style-type: none"> • Ministry of Economy • National Center of Innovation and Entrepreneurship
Azerbaijan	Azerbaijan 2020:A look into the future (2014)	Development Concept	<ul style="list-style-type: none"> • Ministry of Economy and Finance
Belarus	National Innovation System of the Republic of Belarus State Programme for Innovation Development (since 2007)	Policy Paper Running Programme	<ul style="list-style-type: none"> • President of Belarus • Council of Ministers • State Committee of Science and Technology • State governing bodies • National Academy of Science of Belarus • Other state Agencies
Moldova	Innovation for Competitiveness (2013-2020)	Policy Paper	<ul style="list-style-type: none"> • Ministry of Economy
Ukraine	Strategy for innovation development of Ukraine for 2010	Policy Paper	They have some Ministries responsible PLEASE PROVIDE
Georgia	State Strategy on Regional Development of Georgia 2010-2017		<ul style="list-style-type: none"> • Ministry of Economy and Sustainable Development • Agency of Innovations and Technologies



Kazakhstan	“A new Decade- A new economic growth and new opportunities for Kazakhstan”	Development Policy	<ul style="list-style-type: none"> • Responsible Ministries
Uzbekistan	Support to Innovation and Technology policy 2010-2012	Policy	<ul style="list-style-type: none"> • Ministry of Economy • Agency for Technology Transfer • Committee for Coordination of Development of Science and Technology • Other State Agencies
Kyrgyzstan	Kyrgyz Republic Sustainable Development Program 2013-2017		<ul style="list-style-type: none"> • Ministry of Education and Science • Ministry of Transportation and Communication • Ministry of Industry • National Academy of Science

4.2 COMMON ISSUES AND TARGETS CONCERNING INNOVATION

Going through strategy priorities one can easily understand that four are the main concerns/targets of the region when it comes to research and innovation:

- Research
- Innovation Structures
- Entrepreneurship
- Funding

Research: Although EECA countries have a long tradition of experts and scientists they locate research as main priority in terms of Innovation. EECA countries do comprehend that under the current economic climate, competition is tough, and thus the scientific community should create global research impact, while being open to the international markets.

Armenia and Kyrgyzstan note that academia, in the framework of innovation strategy, needs to prepare/create high quality research staff that can address modern ICT trends and needs on an international level. Since innovation is addressing the problems of today, research and academia need to be alerted and up to date, beyond old complications and ways of thinking. By improving the



capabilities of existing institutions, cultivation of innovation culture is achieved, bringing on cutting edge- yet technologically applicable ideas.

It is obvious that the region intends to ensure that research (each country separately and the region as a whole) is organized in accordance to the priority directions of science, technics and technology on a worldly scale.

Innovation Structures: The implementation of Innovation structure such as the establishment / development of Technology parks, business incubators, scientific hubs, novel structural systems and alternative materials for a sustainable future might be the only element of national innovation policies that can show some progress.. The EECA countries are already familiar with this concept because they used it in the frame of the ICT overall development Strategy (as shown in chapter 3 of the report).

However, structure implementation in innovation policies (in comparison to ICT ones) is rather more ambitious and this is due to the angle under which it is registered, namely financial growth. It must be noted that whereas in the ICT priorities these actions are described and set within a social and academic context, in the innovation strategies they focus on sustainability and economic development. All the above aim to stimulate involvement of key stakeholders, bring together expertise and harvest innovative results with significant added value.

Entrepreneurship: All regional innovation policies concepts focus mainly on fostering domestic and regional entrepreneurship, especially through active involvement of Small and Medium Enterprises. Their mutual aim is to support domestic innovation and enhance its commercialization. By bringing together the power of ideas and the power of technology they aim to create new ventures and support the growth of all companies, small and large, thus growth of domestic economy and visibility.

In order to promote entrepreneurship, the region sets as a prior goal the modernization of Governmental processes so that the provided support of the state becomes efficient, following 3 directions that will create new business approaches within their countries.

The 3 basic directions are:

- ✓ Production, distribution and use of competitive knowledge: In this case knowledge is not regarded in the strict academic sense, on the contrary research is perceived as the main product. Moreover, knowledge refers to risk taking human resources that will make the next step in entrepreneurship, locate the next ICT business trends and create innovation needs in the region. As stated, such knowledge is missing and it is one of the main goals to enhance entrepreneurship in the region. The direction is to bridge the gap between traditional research and education with business and create domestic demand for innovation.



- ✓ Investment attraction: This direction serves a dual purpose. Firstly to create the domestic base (including legislation, and public authorities' procedures) that will make it easy and attractive for a foreign entity to invest in the region. Secondly it aims to create (through dedicated institutes and events) the necessary networks and channels that can bring both sides together and create room for discussion, exchange of views and ideas and potential cooperation.
- ✓ Reorganization of State mechanism on innovation & Institutional strengthening: This direction aims to simplify established government procedures relevant to business operations and development. The reorganization refers to certain mechanism's structures based on the recorded strategic perspectives of the region. This mechanism supports SME's extraversion, Start Ups, as well as collaboration on the basis of development of innovation products and services which address international problems and feature global adaptation. Support penetration of ICT in all spheres of economy.

It must be noted that in the field of innovation regional priorities appear to be complementary, with the one co-existing within the other. For example the nourishment of competitive knowledge transfers into entrepreneurship, whereas the states establishment of techno- parks creates common ground for research and business to connect, and through this connection to attract, within the context of the Techno Park, foreign interest.

On the other hand the specific objectives and the proposed tools directions appear to be rather generic and vague, showing that innovation has not yet been transformed to a basic regional activity. The transition from R&D to R&I has just started in the EECA regions and it will take some time until actual steps are made and first results are formed from the relevant indicators.

4.3 FUNDING

Funding is the major issue when it comes to innovation. Once again the state supports any innovation action and according to the information presented, however offered funding is not enough. It is clear that all EECA are considering alternative funding methods that will enable the ICT R&I sector to flourish. Apart from state support, the idea of Venture Capital is becoming popular; however it hasn't yet proven to be effective. The region is also opening itself to innovation actions that provide funds from other sources (such as the Horizon 2020). The region's most important bet is that of increasing the foreign investment.

In a way to address external funding, EECA governments offer tax remissions grant for new companies or the development of new innovative products, state risk guarantees, funding criteria that promote innovation culture and other different stimulation mechanisms.



Global Innovation Index Ranking

The below table¹ is part of the Global Innovation Index Ranking as published in 2014

Country	Score	Rank	Income	Rank	Region	Rank	Efficiency Ratio	Rank	Global Innovation Index report ² .
Moldova	40,74	43	LM	1	EUR	27	1,07	1	
Russia	39,14	49	HI	42	EUR	30	0,79	49	
Belarus	37,10	58	UM	13	EUR	33	0,83	27	
Ukraine	36,26	63	LM	3	EUR	36	0,90	14	
Armenia	36,06	65	LM	4	NAWA	9	0,83	28	
Georgia	34,73	73	UM	22	LCN	10	0,62	107	
Kazakhstan	32,75	79	UM	25	CSA	2	0,59	118	
Azerbaijan	29,6	101	UM	32	NAWA	17	0,58	120	
Kyrgyzstan	27,75	112	LI	8	CSA	5	0,46	136	
Uzbekistan	25,2	128	LM	30	CSA	7	0,61	108	

5. OVERVIEW OF REGIONAL COOPERATION

5.1 REGIONAL COOPERATION

Enhancing internationalization and cooperation of the R&I sector has been identified by regional policy makers as very important element for improving the quality and general outcome of the regional R&I system.

Internationalization, exists at every level, from universities to Government institution. However still, many R&I EECA organizations are isolated from the outside world, in some cases cooperation does not exist even between organization at a National level . It must be also noted that despite the political openness of the region over the last decade, political issues in the region in some cases clearly limit mutual exchange of expertise and research cooperation.

¹ Note: World Bank Income Group Classification (July 2013): LI = low income; LM = lower-middle income; UM = upper-middle income; and HI = high income. Regions are based on the United Nations Classification: EUR = Europe;

NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEAO = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; SSF = Sub-Saharan Africa

² Cornell University, INSEAD, and WIPO (2014): The human Factor in Innovation, Fontainebleau, Ithaca, and Geneva



The table below shows the collaboration between the EECA countries.

	Russia	Armenia	Azerbaijan	Belarus	Moldova	Ukraine	Georgia	Kazakhstan	Uzbekistan	Kyrgyzstan
Russia	X	✓		✓		✓		✓	✓	✓
Armenia	✓	X		✓	✓	✓	✓			
Azerbaijan	✓		X	✓	✓	✓	✓	✓	✓	✓
Belarus	✓	✓	✓	X	✓	✓	✓	✓	✓	✓
Moldova	✓			✓	X			✓		
Ukraine	✓	✓	✓	✓	✓	X	✓	✓		
Georgia	✓	✓	✓	✓		✓	X			



Kazakhstan	✓		✓	✓		✓		X	✓	✓
Uzbekistan	✓			✓		✓			X	
Kyrgyzstan	✓		✓	?✓		✓			✓	X

The collaboration in the table refers to several kinds including bilateral agreements signed between Governments and Ministries, research institutions (mainly the National Academies of Sciences), national bodies, research organizations and centers include agreements on scientific and technical cooperation, cooperation agreements, protocols of intent, memorandums of cooperation and understanding, working groups, Joint Commissions.

It is obvious that EECA countries can easily collaborate among them due to common scientific background, cultural and linguistic common ground.

The regional cooperation also benefits from cross border programmes under the European Neighborhood Policy Instrument (ENPI). Within ENPI, however, R&I is not seen as a priority area for funding as such but can be supported only for regulatory reform and capacity-building activities.

The political situation in the region influences strongly the scientific cooperation. Largely, regional cooperation is still driven by the past (meaning Soviet) personal or institutional links, although also new initiatives emerged in the last few years.

It's worth to mention that within the CIS (Commonwealth of Independent States includes all EECA except Georgia, which left CIS 2 years ago) there are several thematic Interstate Committees, whose activities are related to RTDI areas, and from which one is directly addressing innovation issues. The Interstate Committee on cooperation within research-technical and innovation spheres is responsible e.g. for the implementation of the Interstate programme on innovation cooperation of the CIS MS (member states) until 2020.

5.2 EU-EECA COOPERATION

International science and technology cooperation between the EU, its member states and the Eastern European and Central Asian countries began soon after the collapse of the communist system in early 1990s. At community level, the European Commission pursued and supported collaborative trans-European R&D efforts whose main aims were:



- 1) to safeguard and strengthen the S&T potential in the EECA partner countries by orienting research towards new socioeconomic needs of the transition countries.
- 2) to prevent proliferation of military-relevant knowledge and to generate and disseminate new scientific and technological knowledge by encouraging enterprises and research institutes from the East and West to carry out joint research projects.
- 3) to organize technology transfer under the European FPs for RTD.

International cooperation also plays a vital role in the implementation of the national R&I strategies in all Central Asian and EaPs countries. International relations are usually regulated through presidential decrees (Uzbekistan, Kazakhstan) or through the current laws on science (Kyrgyzstan, Kazakhstan). The main national objectives of the Central Asian countries regarding international R&I cooperation include the following aspects: (a) exchange of know-how, (b) financial and technical support and (c) creation of joint research centers and organizations.



	Russia	Armenia	Azerbaijan	Belarus	Moldova	Ukraine	Georgia	Kazakhstan	Uzbekistan	Kyrgyzstan
Austria	✓			✓				✓		
Belgium	✓			✓						
Bulgaria	✓			✓			✓	✓		
Belarus		✓	✓		✓			✓		✓
Cyprus				✓						
Czech Republic	✓			✓				✓		
Denmark	✓			✓						
Estonia				✓			✓	✓		
Finland	✓									
France	✓	✓	✓	✓	✓		✓			
Germany	✓	✓	✓	✓	✓		✓	✓	✓	✓
Greece	✓			✓			✓			
Hungary	✓			✓						
Ireland										
Italy	✓	✓		✓	✓		✓			
Latvia				✓				✓		
Lithuania				✓						
Luxembourg	✓									
Malta	✓									
Netherlands	✓			✓				✓		
Poland	✓			✓				✓		
Portugal	✓				✓					
Romania	✓			✓	✓			✓		
Slovakia	✓			✓						
Slovenia	✓		✓		✓					
Spain	✓		✓	✓				✓		
Sweden				✓						
UK	✓			✓				✓		

The above table indicates collaboration relations between countries of the EECA and country members of the European Union.

Each EECA country has signed a few bilateral S&T agreements with different EU member states, for example, an agreement between the Government of Georgia and the Government of Bulgaria for the collaboration in the field of post service, electronic communications and communication technologies (27 April 2010), or the



agreements between the government of Kazakhstan and the government of Estonia on economic and scientific-technical cooperation (4 March 2010). Besides government level agreements, bilateral collaboration is established also at the level of research-performing organizations, such as the national academies of science, state research centers and universities.

Many EECA countries benefit from several international research programmes and organizations. US National Science Foundation CRDF programme, STCU, NATO's Science for Peace, IAEA etc, these programs are assistance programmes focusing on research.

The European Neighbourhood Policy (ENP), developed in 2004, appears to be the most important collaboration framework EECA countries have with the EU. With the objective of avoiding the emergence of new dividing lines between the enlarged EU and neighbors and instead strengthening the prosperity, stability and security of all, the policy found valuable ground in the region.

Within the framework of the ENP, Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine participate in the Eastern Partnership Initiative a joint initiative between the EU, EU countries and the Eastern European partner countries. It enables partner countries interested in moving towards the EU and increasing political, economic and cultural links to do so. It is underpinned by a shared commitment to international law and fundamental values - democracy, the rule of law and respect for human rights and fundamental freedoms - and to the market economy, sustainable development and good governance. The aim is to improve relations with individual countries. However there is no any particular RTDI focus in this Programme.

6. FINAL CONCLUSIONS

The findings analyzed in this report suggest that all EECA countries recognize the importance of ICT priorities especially in the R&I sector for both social and economic development.

Nevertheless, such an appreciation is not always translated into a real penetration in the region's development.

Given the changing nature of ICT Research and Innovation field, policies and approaches that address these areas have to be adaptive and continuous. National strategies and action plans need to be developed followed by definition of priorities, while results of implementation of such policy initiatives should be regularly assessed.

On another level the implementation of innovative programs requires cooperation; cooperation between entrepreneurs and research community, cooperation and support of public institution, cooperation between regions and countries.

Innovation structures that are being designed and established at a local or a national level need a global

perspective and international linkage.

Aims and objectives:

- To strengthen innovative education towards a competitive and innovative culture
- Strengthen innovative info structure
- Bridge the gap of the academia with the private sector
- Project the benefits of an innovative ICT field
- Stimulate and boost innovation through partnerships

Means:

- Create research and innovation cooperation strategy
- Create institutional mechanisms to implement and monitor innovation cooperation strategy
- Guarantee research and innovation cooperation strategy fund
- Project the results in order to attract interest, foster collaboration, widen participation.