

**NATIONAL STRATEGY
FOR INFORMATION SOCIETY DEVELOPMENT
“DIGITAL MOLDOVA 2020”**

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ANNOTATIONS

ANRCETI	National Regulatory Agency for Electronic Communications and Information Technology
ADSL	Asymmetric Digital Subscriber Line
CPA	Central Public Authority
LPA	Local Public Authority
EBRD	European Bank for Reconstruction and Development
BSEC	Black Sea Economic Cooperation Organization
CBTM	Medium-Term Budget Framework
CERT	Computer Emergency Response Team
CEED	Center for Entrepreneurship and Executive Development
CDMA	Code Division Multiples Access
CNFR	National Radio Frequency Center
CNAM	National Office for Health Insurance
CNAS	National Office for Social Insurance
CIS	Commonwealth of Independent States
CTS	Center for Special Telecommunications
Digital Dividend	Radio frequency band 790-862 MHz
ECDL	European Computer Driver License
CEE	Central and Eastern Europe
e-GRI	e-Governance development index
FTTx	Optical fiber data transport (Fiber To The x)
G2G	Government to Government
G2C	Government to Consumer
GIS	Geographic Information Systems
GSM	Global System for Mobile communications
HD	High Definition
ICDL	International Computer Driver License
IDI	Index of ICT development
IPP	Public Policies Institute
KEI	Knowledge Economy Index
MITC	Ministry of Information Technology and Communications
MVNO	Mobile Virtual Network Operator
Mbps	Megabits per second (data transfer speed)
NRI	Networked Readiness Index
OECD	Organization for Economic Co-operation and Development
UN	United Nations
GDP	Gross Domestic Product
UNDP	United Nations Development Program
PPP	Public-Private Partnership

PNN	National Telephone Numbering Plan
SI	Information Society
SPAM	Messaging systems to send unsolicited bulk messages
SUA	United States of America
SWOT	Strengths, Weaknesses, Opportunities and Threats
STB	Set Top Box
IT	Information Technology
ICT	Information Communication Technology
TNABF	National Table of Frequency Assignment
TVD	Ground digital television
TAIEX	Technical Assistance and Information Exchange
TWINNING	The European Commission cooperation program between Public Administration from a beneficiary country to an equivalent institution in an EU Member State
EU	European Union
ITU	International Telecommunication Union
UNESCO	United Nations Education, Science and Culture Organization
UNECE	The United Nations Economic Commission for Europe
UNIDO	United Nations Industrial Development Organization

I. INTRODUCTION

1. Republic of Moldova achieved significant progress in the implementation of information technologies society, ICT contribution share to GDP in recent years has reached the level of almost 8-10%, every second citizen is an Internet user, more than half of households have at least one computer, the majority of households have an access to Internet broadband, the country was placed among the top 20 after worldwide Internet access speed, it is implemented the biometric passport, the ID card with electronic signature, the e-statements system and digital map, country joined the “Open Government data” initiative and it is running the “e-Transformation” Governance project, etc. However, in international classifications the country is not among the advanced economies in this field, and the level and speed of information society development doesn't meet the current international environment requirements, with which the world is becoming even more “hyperconnected”¹ and digitized.

The complex picture of today's digital world include smart mobile devices and remote collaborative tools, cloud computing and tremendous change of the users' behavior, especially of the digital natives who expect services to be available anytime, anywhere and through any device. These expectations require governments and public institutions to be prepared to provide and use informational services anytime, anywhere and on any equipment in a safer and secured way with fewer resources.

Advantages of digital technologies of which individuals could benefit as citizens/consumers are reduced in many countries, including Moldova, because of the security and privacy issues, insufficient access to the Internet, a low degree of functionality, lack of required competences or service accessibility.

2. Building a country's future without a digital strategy that will create opportunities to innovate /*grow more with less* on ICT technologies basis and, contractors and government agencies to maximize the usage of government data services for the citizen's benefit is unthinkable. European Union adopted and perform „Digital Agenda for Europe” Strategy adjusting their priorities to the new circumstances (in December 2012 where defined 7 priorities). Countries which occupy first places in international rankings also approved digital strategies aiming to ensure an accelerated development (USA, UK, Estonia, and Qatar, for example).

The strategy is aimed to create conditions through minimum state intervention but with maximum effect for information society development, focusing efforts on three pillars:

- 1) **Pillar I: Access and infrastructure** - Connectivity and network access improvement
- 2) **Pillar II: Digital content and electronic services**- Promoting digital content and services generating;
- 3) **Pillar II: - Capacities and utilization**- Strengthening literacy and digital skills to enable innovation and usage stimulation.

These three dimensions have a major favorable impact on following three components of society:

- a) communities/people who will enjoy more comfortable and better life;
- b) business, which will increase the competitiveness level;
- c) governance, which will improve their performance and will offer citizens the services anytime, anywhere and on any terminal equipment.

3. Strategy implementation will be based on core principles of modern information society building, especially on principles of accuracy and legality of electronic data records and information systems and of the electronically performed actions recognition.

¹ Global IT Report 2012 http://www3.weforum.org/docs/Global_IT_Report_2012.pdf

4. Strategy is accompanied by an Action Plan for achieving Moldova Digital Strategy 2020, which sets out the actions and programs meant to achieve the overall objective of building an advanced Information Society and the knowledge based economy.

II. CURRENT STATE OF THINGS

2.1. Progress

5. Even if less than a half of 177 „Electronic Moldova” (2005) National Strategy for Information Society Action Plan directives were fulfilled, this document had a major role in creating a favorable framework or information society technologies development and for preparing the ground for next stages. Strategy and the eSEE Agenda provisions implementation resulted in tangible outcomes. During 2005-2011, various sources allocations for informatization increased dramatically and reached approximately 5.36 billion lei. Sector share in GDP was 10.8%.

6. Mobile telephony penetration exceeded 114% (EU average -128%)², Internet broadband at fixed locations reached a penetration level of 11.1% (EU average - 27.2%), broadband mobile Internet-modems /cards - 4.7% (EU average - 7.5%)³. More than a half of population uses Internet, more than a half of households have at least one computer connected to Internet, half of the population read newspapers online, but only one out of 10 citizens access government web site (www.gov.md) and only one citizen of 20 used at least one electronic public service in the last 12 months. 8 out of 10 Internet users visit social networks (Facebook, Odnoklassniki, Netlog, and so on)⁴.

7. Was created the necessary legislative and normative framework, which currently includes totally about 20 laws, 80 Government decisions, about 70 approved conceptual documents regarding the informational systems of public authorities, more than 20 general purpose regulatory acts and 75 with a specific purpose issued by ANRCETI. Institutional framework was improved through the creation of the Ministry of Information Technology and Communications and of specialized institutions such as the Centre for Electronic Governance and National Center for Personal Data Protection. In 2011 was adopted the governance Technological Transformation Strategic Program “e-Transformation”, supported by World Bank.

8. It was implemented online fiscal declarations systems, biometric passport, and automated biometric border crossing systems based on electronic passports, Moldova digital map, mobile digital signature and online services as: e-record, e-licensee, etc. Interoperability framework based on the open standards and cloud computing based services are currently implementing.

9. Despite major steps forward on a number of indicators, Moldova is placed far behind countries that are among the leaders in terms of implementation and use of ICT.

In international ranking by level of ICT development (IDI), Moldova ranks 62 of 155 countries (number 4 between CIS countries)⁵ and at the e-Governance Development Index (e-GRI) ranks 69 of 159 countries, advancing 11 positions compared to 2010, yet is still on the last place among the countries of Eastern Europe⁶. According to the Global Competitiveness Report 2012-2013⁷, where, on Internet penetration in schools Index (KEI), Moldova is placed on position 61 of 144 countries. In Training Network Index (NRI) Republic of Moldova is placed on position 78 of 142 countries (Figure 1).

² European Mobile Industry Observatory, 2011

³ Source: ANRCETI

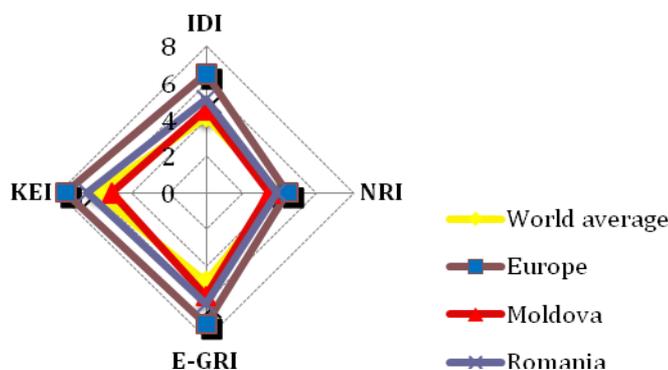
⁴ Source: : Magenta IPP Research, november 2012

⁵ ITU annual report “Measuring the Information Society 2012”.

⁶ UN e-Government Survey 2012: e-Government for the People

⁷ World Economic Forum. The Global Competitiveness Report 2012-2013

Figure 1. Republic of Moldova in 2012 international rankings



The source: MITC, <http://www.mtic.gov.md/>

Although the progress dynamics of electronic readiness is quite impressive, Republic of Moldova is falling behind compared to the EU Member States as well as to the neighboring countries: Romania and Ukraine.

The success of the Republic of Moldova Information Society future development mainly depends on the country's ability to overcome the key obstacles that currently hampers its forward development.

2.2. International decisions

10. In 2010, the European Council and Parliament adopted the Digital Agenda for Europe as a part of the Europe 2020 strategy for stimulation of digital economy and for addressing the social challenges⁸ through ICT.

European Commission adopted on 18 December 2012 new priorities for digital society and economy. *Growth rate recorded by the digital economy is seven times higher than the rest of the economy*⁹, but this potential is currently dimmed by the pan-European political framework fragmentation. The adopted priorities are an extensive review of the policies that additionally outlines the elements with the greatest potential for transformation considering Digital Agenda for Europe 2010.

Full implementation of the updated Digital Agenda will require Republic of Moldova GDP growth of 5% or 1500 Euro per capita over the next eight years through increasing investments in ICT, improving the workforce computer skills levels, facilitating innovation in public sector and by reforming the framework conditions for Internet-based economy.

11. New priorities of the Moldova Digital Agenda are:

- 1) Creating a new stable regulatory framework in the field of broadband services;
- 2) New infrastructure for digital public services through the *Connecting Europe* facility;
- 3) Launching coalition for promoting competences and employment in the digital domain;
- 4) Develop proposals on a strategy and a cyber-security directive at the EU level;
- 5) Updating the EU framework on copyright;
- 6) Boosting the "cloud computing" system based on the public sector purchasing power;
- 7) Launching a new industrial strategy in electronic field.

2.3. Programs, initiatives and important ongoing projects

⁸ European Council Conclusions of the 28-29 June 2011 and 1-2 March 2012.

⁹ http://europa.eu/rapid/press-release_IP-12-1389_en.htm

2.3.1. Governance: operational e-Government Center that implements the “e-Government Transformation” project - Strategic *program of governance technological modernization*; Open Government Action Plan for the 2012-2013 (Government Decision no.195 of 04.04.2012), including:

- 1) Joint e-Government M-Cloud platform;
- 2) Government Electronic Payment Service;
- 3) Government Interoperability Platform;
- 4) Paperless government initiative - SIGEDIA;
- 5) Government Platform for e-Business Reporting;
- 6) Government office for issuing allowance to business;
- 7) e-Acquisitions system;
- 8) e-Constructions system;
- 9) e-Justice system;
- 10) Digitization of Operational Support Systems for the Government;
- 11) Government data storage infrastructure.

2.3.2. Customs system: The development strategy of Customs Integrated Information System for 2012-2016 years;

2.3.3. Health: Pilot healthcare informational systems to enlarge the access to medical knowledge, patient records, patient monitoring systems and e-Health Strategic Program;

2.3.4. Social protection: Social Assistance Integrated Information System for increasing access to social assistance;

2.3.5. Education: Modernization of learning tools and promoting the use of ICT for enhancing the learning experience, initiating development of e-Education Strategic Program;

2.3.6. Agriculture: Real time data transfer information system by means of web and mobile solutions with following components: PACT (Platform for Early Warning and Communication) and SIMA (Agricultural Marketing Information System);

2.3.7. Cadaster: Creating National Geographic Information System. Republic of Moldova Digital Map;

2.3.8. Culture: National Program ICT for Culture 2012-2020, “Novateca” program of modernization of public libraries and providing access to Internet;

2.3.9. Science: Scientific heritage digitalization;

2.3.10. Sector competitiveness: ICT sector Competitiveness strategy.

2.4. SWOT Analysis

12. Perform analysis of following advantages, disadvantages, opportunities and threats in the development of the Republic of Moldova Information Society:

INFRASTRUCTURE AND ACCESS

Advantages (Strengths)	Disadvantages (Weaknesses)
<ol style="list-style-type: none"> 1) High speed of Internet access 2) High technological level and a high level of mobile telecommunication services accessibility; 3) Relatively high level of electronic communications infrastructure development; 4) The electronic communications legal framework is mainly harmonized with the European Union’ legal framework; 5) The existence of institutional regulatory framework and of the growing regulatory capacity; 6) Competition on mobile communications market and in Internet services industry; 7) Favorable geographical position of the Republic of Moldova; 	<ol style="list-style-type: none"> 1) Access gap between urban and rural areas; 2) Broadband connectivity is not present on the entire territory at the required speed; 3) Too high prices in relation to GDP/capita; 4) Underdeveloped usage capacity of existing electronic communications infrastructure (lacking infrastructure in some localities); 5) Low competition in local loop and bit stream; 6) The absence of MVNO virtual mobile operators; 7) Misusage of the country transportation capacities; 8) Restricted access (mainly due to prices) to the historical operator associated infrastructure (mainly due to ducts); 9) Associated infrastructure (pillars, ducts, other) is badly divided ; 10) Outdated provisions with regard to electronic network location; 11) State owned historical operator „Moldtelecom” is troublesome for fair competition;

8) Mobile telephony and Internet access segment are developing quite fast and the majority of fixed Internet connections are made via broadband.	12) Limited access to associated infrastructure and local loop, tariffs are not cost-oriented, adjusting historical operator tariffs; 13) Low spreading of Broadband Internet comparing to EU average.
Opportunities	Threats
1) Legislative and regulatory framework improvement and harmonization with EU regulations; 2) Fast extension of Internet utilization degree in the society (more than a half of population use it); 3) Republic of Moldova is a testing ground for new mobile communications technologies; 4) Use of the digital dividend.	1) Low level of GDP; 2) Crisis prolongation and decrease of investments capacities; 3) Failing to recover investments in rural areas; 4) Political instability and shifting priorities; 5) Corruption and bureaucracy; 6) Continuing of political factor immersion in the operational management of state institutions and enterprises; 7) Violation by the Transnistrian separatist region of the usage policy and programs for the Frequency Spectrum Management, TNABF and PNN.

CONTENT AND SERVICES

Advantages (Strengths)	Disadvantages (weaknesses)
1) The Government of the Republic of Moldova adopted the direction of integration into the EU, including alignment with EU standards in the ICT sector; 2) Implementation of joint M-Cloud platform for e-Government and of the Interoperability Framework; 3) Open Government Data Initiative; 4) Launching of the mobile digital signature; 5) Issuance of electronic ID card.	1) Limited availability of local information content and of relevant public applications; 2) Small number of electronic services and lack of local digital content; 3) Legal and regulatory framework is not yet entirely adjusted to new realities of the digital era; 4) Lack of the management framework throughout digital content life cycle; 5) The interoperability framework is still not functional; 6) Usage of a unique type of electronic signature; 7) Low level of digital signature penetration; 8) Low number of services that accept online payments; 9) Low population confidence in online payments; 10) The Republic of Moldova is an economy mainly based on cash payments; 11) Lack of measuring instruments for local digital content volume; 12) Low ICT skills level of the public sector employees; 13) Low level of ICT use by households and business; 14) Relatively small market for the digital content.
Opportunities	Threats
1) Increase of the broadband connection coverage encourages continuous development; 2) Improving high-tech image of the Republic of Moldova; 3) The use of governmental cloud; 4) An increasing number of best worldwide practices models; 5) Potential for developing international collaboration with “ success stories” countries (UK, USA, Sweden, Singapore, South Korea, etc.); 6) Electronic commerce in development; 7) The inclusion of Republic of Moldova in international electronic payment systems.	1) Low GDP level; 2) Ongoing economic crisis and decline in remittances which can reduce the ability to pay for services; 3) Bureaucratic resistance to change; 4) Public administration employees do not realize the informatization policy opportunities for the working processes; 5) Small and fragmented internal electronic commerce market; 6) Relatively high number of computer crimes reduce users trust and confidence; 7) Keeping the Republic of Moldova in the list of countries without access to international electronic payment systems (i.e. PayPal).

CAPACITIES AND USE (DEMAND)

Advantages (Strengths)	Disadvantages (weaknesses)
1) Relatively high rate of the workforce employed in knowledge-intensive sectors; 2) Large number of ICT graduates; 3) Multilingual human resources with the high	1) Low level of population digital literacy; 2) Graduates of educational institutions have no appropriate practical skills; 3) The deficit of qualified ICT teachers in schools;

training potential.	<ul style="list-style-type: none"> 4) Low level of educational institution supply with educational software; 5) Low level of open source software use; 6) ICT curriculum is outdated and there is no institutionalized process for its regular updating; 7) Nomenclature of vocational training areas and of the specialization training for higher education staff doesn't cope with current labor demand; 8) Lack of legal framework for distance learning; 9) The low level of ICT skills of public sector employees; 10) Missing express provision in the regulations concerning requirements for digital skills for employing in a public institution; 11) Low level of ICT use by business and population; 12) Diminished rate of admission to the universities; 13) Lack of motivation instruments for the teaching, professional, academic staff, application of ICT practices in teaching and assessment.
Opportunities	Threats
<ul style="list-style-type: none"> 1) International financial institutions readiness to support transformation processes; 2) International scholarships available to young students; 3) Collaboration and training opportunities for specialist in the mostly advanced in ICT and e-Governance countries (UK, USA, Singapore, South Korea, etc.); 4) New Education Code is under development. 	<ul style="list-style-type: none"> 1) Low level of GDP; 2) Labor force emigration and brain drain; 3) The corrupt and low paid educational system which leads to low quality of studies; 4) The stagnation of country's economy with the lack of highly qualified workplaces.

The strategic approach consists in using the advantages, overcome weaknesses by transforming opportunities into advantages and mitigate the identified risks and threats.

III. PROBLEM DEFINING

4.1. Inefficient infrastructure and uneven access

13. The main access and penetration indices: mobile/mobile telephony - 114% (covering - 99% of state territory/EU 128%; fixed/fixed telephony - 33,7%/EU-43%; Broadband fixed Internet - 11,1% /EU-27,2%; Internet mobile network (modems/cards) - 4,7%/EU-7,5%; household access to the Internet - 53%;

These indices reveal a substantial gap in comparison with the EU average. The differences are due to the following:

Investments were made in infrastructure with a low level of usage.

14. Limited access (mainly due to the price level) to associated infrastructure (mainly to ducts) of the historical operator restricts access of other operators, thus making overhead cables a cheaper solution. In most cases associated infrastructure (pillars, ducts, etc.) is not divided, fact that leads to a longer investments return period and high network maintenance costs, and therefore restrict technological development opportunities and increase prices levels for the end users.

A sustainable solution is needed to optimize the existing associated administrative infrastructure that will be proposed on a detailed research base, including splitting the infrastructure entity from the retail service providers.

15. Although Moldova is among the top 20 countries in the world by Internet access speed¹⁰, broadband connectivity required to meet present and future needs of the country isn't available

¹⁰ <http://www.netindex.com/download/allcountries/> accessed on 31 august 2012

throughout the entire territory of the country. About 30% of rural areas still do not have broadband access.

16. Due to construction regulation focused at a single provider of electronic communications services, apartment buildings have not set channel/distribution networks for Internet access and some blocks are posing a significant number of cables.

4.2. Underdeveloped local digital content and low access level for electronic services

17. According to the Global Information Technology Report 2012, Republic of Moldova was placed on the 73 position out of 142 countries (4.9 points out of 7) for the rate of content accessibility. According to the IPP Research, Magenta November 2012: 16% of population use e-commerce, 8% uses Internet banking services, 26% of people know the benefits of public services online, 16% of the population browsed the central public authorities websites, only 1 person out of 20 has used an electronic public service, 63% of people download digital content, 33% uses the Internet for education and training, half of the population read newspapers online, 8 out of 10 people navigate on social networks, 9 people of 10 uses Skype, Messenger, etc. for international calls.

18. Digital content and services are key factors that deliver benefits to society and economy of any country and are a major source of employment and economic growth.

There is no universally accepted definition of digital content. For example, one of them states that the digital content is *any information that is available on the Internet (or other networks) to be reached by the user, including web pages, images, music, documents, audio and video, books, drivers and software downloads, and reference materials for education and training*¹¹.

Thus *digital content* is defined as *any electronic information subject of following processes: Creation, Collection, Management, Processing, Storage, Distribution, Access, Use and Reuse, Abolition.*

The most important content to people is usually that, which is in their native language and relevant to the communities in which they live and work. UNESCO has defined "*local content*" as "*expression and transfer of knowledge and experience generated, owned and locally adapted that are relevant to the situation of the community*" (UNESCO, 2001).

19. *Moldovan citizens face a shortage of local digital content and a low number of electronic services.*

So, few of about 570 public government services are offered through Internet (only 5 out of 12 online public services for citizens, and 6 out of 8 – for entrepreneurs¹²). Recently the e-Transformation project launched online application for Criminal Record and e-Licensing¹³.

20. Moldova demand for broadband was caused mainly by downloading movies and music via data exchange systems peer-to-peer (Torrents) and use of Skype, social networking "Odnoklassniki", "Facebook", "Netlog", "YouTube" etc. Social network "Odnoklassniki.ru" is the most visited site among Internet users of Moldova¹⁴. Accessing the foreign information resources by Moldova users outlines the internal resources shortage. In order to generate more local digital content it is necessary to provide conditions and mechanisms for content managers, including intensive use of open data sources.

21. *Cultural and scientific heritage is not yet digitalized.* The national program of cultural domain informatization for the 2012-2020¹⁵ was approved only in 2012. Although, are taken measures to

¹¹ Source: <http://encyclopedia2.thefreedictionary.com/content>

¹² Court of Accounts Decision No. 12 of 05.04.2012

¹³ Another 3 e-services - within the eTG Project financed from the World Bank loan will be developed at the end of 2012. Before January 2012 in 9 CPA will be launched SIGEDIA (integrated system of documents and public records management).

¹⁴ Source: <https://gemius.com/pl/news/2012-09-05/01>

¹⁵ Government Decision no. 478 of 04.07.2012

digitize heritage of other areas¹⁶, assessment actions and interventions measures are required to speed up the process.

22. *Legal and regulatory framework is not yet completely adjusted to the new realities of the digital environment, especially regarding the proportional wide use of new information technologies and insuring an adequate level of intellectual property protection¹⁷.*

23. *Interoperability Framework Program approved by the Government in September 2012¹⁸ is on the beginning of implementation and the citizen is required to submit copies of a given number of documents (identity acts, certificates, etc.) - each time when requests services or concludes various acts, even if it is addressed repeatedly to the same public institution. This drives to time mismanagement, waste of paper and other materials and therefore unnecessary costs, negative environmental impact and inefficiency of the institutions.*

24. *There is no digital content management framework during its life cycle that will ensure that the national historic content and the new one are designed to be available, accessible, distributed, understandable and well used. Providing simple access to this content requires a comprehensive framework that will cover all management and decision aspects throughout the digital lifecycle. Enriching the content increases the number and quality of services meant for citizens.*

25. *Moldova state institutions data are stored/handled in about 150 data centers, most of which do not meet the safety requirements, durability and reliability and do not have enough qualified staff to manage them. Besides these centers risk of information loss, the annual cost of their maintenance is about 150 million lei, which indicates inefficient expenditure of public money.*

26. *Access to content and services through electronic signature. Although the Law on electronic document and digital signature is into force since 2004, the digital signature is rarely used. Only 474 public key certificates were issued by CTS in 2012 for civil servants, even if they are used in all systems and respect digital signature legislation of the Republic of Moldova.*

27. *Mobile Electronic Signature launched in September 2012 places Moldova among the top seven countries in the world that also implements such innovative technology and the use of this tool will safely boost access to the available electronic services. IDs with digital embedded signature¹⁹, which are to be issued on March 7th 2013, will ease access to electronic services. If there are more digital identity owners, digital identity management becomes an important factor for operational infrastructure and access to digital content/services.*

28. *Although 37.7% of the country's Internet user's make on-line purchases²⁰, these procurements are mainly from abroad, and even with the existing technological infrastructure, e-commerce in the Republic of Moldova is still weak because of the low number of services that accepts online payments. However, some abroad, popular e-commerce portals do not support Moldova's inclusion in the list of countries that accept Internet payments and sending online software²¹. Moldova still is an economy of cash payments (cash is 90 percent of transactions as number and 96.5 percent as value, 97%*

¹⁶ For example, the Action Plan for implementation of e-Transformation Program provides for 2013 digitization of up to 40% of Civil records.

¹⁷ Copyright issues (in particular on licensing in the digital space, the term of copyright, etc.) in the new realities are targeted by the European Union.

¹⁸ Government Decision no 656 of 05.09.2012

¹⁹ Regulation approved by Government Decision from 26.12.2012

²⁰ Gemius, august 2012

²¹ For example: www.acrobat.com does not accept the Republic of Moldova online payment services

of bank card transactions are account withdrawals)²². As rated by the World Bank, the biggest drawback for electronic payments is the *lack of trust and comprehension shown by the society*²³.

However, there is an increasing trend concerning the number of electronic shops, and on-line electronic payment instruments are deployed. Law no.114 from 18.05.2012 on payment services and electronic money was enacted²⁴. A number of banks have established Internet payment mechanisms for services, airline ticket, discount card, books sales, etc.²⁵ Moldova's inclusion in the group Europe II was officially declared in August 2012, which abolished the previously existing restrictions and now allowed not only sending but also receiving payments thus Moldovan citizens may register through PayPal and buy products from online stores that use it.²⁶

29. *Measuring the volume of digital content is troublesome* due to the lack of direct indicators. OECD empirical research²⁷ outlines that there is a close link between network infrastructure development and increasing local content amount. Significant statistical correlation becomes obvious through indirect measurements that makes use of different local content such as: number of visible top level domains with country code per capita; Wikipedia articles in state language per capita, per capita blogs, and Internet Development Indicators (broadband penetration rates, autonomous information systems per capita, international bandwidth per capita, the number of IPv4 addresses targeted per capita). In international reports²⁸, content accessibility rate is computed according to conventional agreed algorithms and countries are rated according to this indicator values.

Moldova's position is quite weak in terms of online promotion. Number of web-generic top-level domains per 1000 people in Moldova is only 2.0 units compared with 2.9 units/1000 in the CIS and 22.3/1,000 in CEE²⁹. This speaks about low presence of domestic companies and organizations on the Internet, which is a gap for promoting local digital content and domestic products.

4.3. Low "digital literacy" and miss usage

30. *According to the Global IT Report 2012, Republic of Moldova, in terms of people skills was assessed with 5 points out of 7 possible (place 65 of 142). Even though the literacy level is ranked 44 and the level of education in mathematics and science is ranked 69 (4 points out of 7 possible)³⁰, then by the educational system quality, Moldova is ranked 102 with 3.2 points out of 7 possible, which is among the last 40 countries included in the report³¹, that is a matter of concern. Only 14% of population aged between 35-44 years and 10% of the population aged between 45 and 54 years are Internet users.³²*

Republic of Moldova, as well as all countries over Europe, *faces with increasing ICT skills gap and with a low level of digital literacy*. These drawbacks caused by the *insufficient use of Information Society advantages* and even the removing of *many citizens* from ICT-based society and economy. On the other side, although citizens own computers and are Internet users, *many of them do not know the ICT terminology*³³, not to mention the adequate use of the outcomes offered by them.

Since a large part of population does not possess the necessary learning traits, knowledge and digital skills throughout their lives, that have become nowadays something ordinary for many countries population, it reduces the opportunities to participate in the global digital economy.

31. *Digital literacy of the population starts from the general education system and mainly due to:*

²² http://www.bnm.md/en/payment_system?redirect=1, NBM, 2011

²³ FIRST Assistant project. Payment system modernization: Report and Action Plan on retail electronic payments Assessment, May 2012.

²⁴ Published on 14.09.2012.

²⁵ <http://www.maib.md/en/news/42940> accessed on 1.11.2012.

²⁶ <http://totul.md/ro/expertitem/1122.html>, accessed 1.11.2012. It is o mention that on 25.01.2013 is not solved yet.

²⁷ Report on The relationship between local content, Internet development and access prices. ISOC, OECD, UNESCO, 2011.

²⁸ For example: The Global Information Technology Report 2012.

²⁹ Inovation Global Index 2012 (IGI 2012) <http://www.globalinnovationindex.org/gii/main/fullreport/index.html>

³⁰ The Global Information Technology Report 2012, pg.355.

³¹ The Global Information Technology Report 2012, pg.354.

³² Source: Magenta consulting. <http://prezi.com/-h5ucdggw2qf/serviciile-noi-in-mediul-on-line-realitaea-utilizatorilor-de-internet-trenduri-stranietati-si-ritualuri-magenta-consulting/>

³³ Perception, assimilation and support by the population of the e-government transformation in Moldova. Analytical report based on survey results. IPP, Magenta, November 2012.

- 1) Curriculum adjusted to the needs of society;
- 2) Well trained teaching staff;
- 3) Integration of information technology in the didactic process.

32. Even though, during the previous years have been undertaken the efforts by the Government in order to implement ICT in general education (800 computer classes in 1997, the "SALT" program, funding to open at least one computer classroom in every school, the broadband Internet access and procurement of didactic software), they are *not completely integrated into the educational process*.

While equipping level of general educational institutions rose, there is a lack of management, maintenance and budgeting for computer labs and most software are not provided with license, at the same time open software sources are poorly used. ICT curriculum is outdated at some sections and there are no procedures for its regular update.

Graduates from educational institutions do not possess sufficient practical skills to work in an information society.

There is a shortage of qualified staff: half of all teachers of computer science have appropriate education and only 3 out of 10 of them studied computer science.

Most of the staff that teaches computer science and other disciplines have never attended training courses and have not acquired teaching degrees. A lot of teachers do not possess general skills for handling the computer (email, Internet, etc.), and even fewer are able to use ICT in teaching. School teachers of the main scholar disciplines (except those 140 schools with all educational software) have no educational software and have not been trained to handle such software. Although there is an increase of applications using ICT in school and university subjects, most of the school subjects have no dedicated educational software.

Due to uncompetitive salaries, most skilled in ICT teaching are not drawn to higher education, performance management, personal development and motivation systems are not applied, and governance education is confusing (the role of the Academy of Sciences, technical-vocational schools is not clear)³⁴. *Nomenclature of vocational training areas and of the specialization training for higher education staff doesn't cope with current labor demand*. Evaluation systems of higher education institutions performance are not facing the EQF (European Qualification Framework).

Internet admission in institutions of higher education and distance learning is not used in Republic of Moldova. Although some universities have implemented electronic management systems for certain processes and issued electronic course, *having no approved regulatory framework for distance learning*, universities do not apply such mechanisms. Electronic educational services from which people could take advantage are made in form of lessons published online without any mechanisms that could be applied.

There is a huge brain drain to large international companies from this field. Through normative support to ICT business, it is possible to encourage large international companies to use ICT human resources directly in the Republic of Moldova and to encourage valuable professionals to remain in Moldova.³⁵

33. According to ITU Report 2012³⁶, by the sub-index of Use, Moldova ranked only number 79, although it has achieved some progress regarding indicators that form the sub-index (adult literacy rate - 98.5%, the average rate of population with average studies - 88.0%, and the rate of population with higher education - 38.1%). *The use of ICT*, according to Global IT Report 2012 is still low - only 3.2 points out of 7 possible (place 90 of 142)³⁷. The lowest level of use is observed in business – 3.0 of 7 (120 of 142), and governmental use is at 3.5 out of 7 (94th of 142). By level of e-participation Moldova was ranked 38 out of 125 countries³⁸.

Insufficient use is due to *the small number of online services*, and *the low level of skills of public institutions employees*. Although the Academy of Public Administration uses Methodological Norms for ICT training and online training tools developed with the support of UNDP. These instruments have not

³⁴ The research on "ICT Education in Moldova: connection to the industry needs" by CEED Agenda for Action Project, 2012

³⁵ Some experts believe that this is not a problem - it is a natural process. The recent consulted findings of IDIS Viitorul "Brain drain: challenges, consequences, remedies" Official Journal No. 3, 2010.

³⁶ UIT Annual Report „Measuring the Information Society 2012”.

³⁷ The Global Information Technology Report 2012, pg.252.

³⁸ The Global Global Innovation Index Report 2012, pg.261.

been used widely because *there is no express provision in regulations that would require digital skills for employment in a public institution.*

4.4. Increasing cybercrime danger and mistrust in networks and online services

34. The more a society is computerized the more it is vulnerable and cyberspace security should be a major concern of all stakeholders, especially at the institutional level, which is responsible for coherent policy development and implementation in the field.

Cyber security means the normal state resulting from application of a set of proactive and reactive measures that ensure confidentiality, integrity, availability, authenticity of public and private resources digital information and services in cyberspace.

Size of cyberspace is liable to increase the risks both for private and public sectors.

Cyber threats are taking advantage of human nature weaknesses, technical and procedural processes, most often in:

- 1) cyber-attacks against the infrastructure that maintain public functions or services of the information society which disruption/damage could be a threat to national security;
- 2) unauthorized access to cyber infrastructure;
- 3) modify, delete or damage data or illegally restricting access to data;
- 4) cyber espionage;
- 5) causing a loss of property, harassment and blackmail of individuals and legal entities, in the public and private sectors.

Report about *Origin of Hacks* identify 981 million global hacking attempts in the third quarter of 2012, with an increase of 23 million compared with the number identified in the second quarter.³⁹ Top 4 countries by their attacks origin are USA, Russia, China and Ukraine, and Romania - was ranked 7 in this top.

Attacks may be politically motivated, as proven by cyber-attacks against Estonia, Lithuania and Georgia⁴⁰ or electoral - attacks on Central Election Commission servers of Moldova on parliamentary election day in 2010. Over 44 million cyber-attacks on Israel government websites were registered between 14 and 19 November 2012, when Israel forces began an offensive in Gaza⁴¹.

Being situated territorially between 2 of the top 10 countries, generating cyber-attacks, Moldova is subject to major risks of new forms of “cyber” crime. In fact, thanks to the Internet, we can say that all countries are neighbors in the sense of cyber threats.

35. Moldova has ratified the Council of Europe Convention on Cybercrime, adopted in Budapest on November 23rd, 2001⁴². Law on preventing and fighting cybercrime was developed and adopted⁴³, which deals with legal relations on preventing and fighting cybercrime, protection and aid delivery to information systems users, public administration collaboration with NGOs and other representatives of civil society in preventing and fighting cybercrime, cooperation with other states, international and regional organizations.

Currently, there is *no directly liable public authority responsible and empowered with rights and duties on cyber security* in Moldova. Currently, there are several institutions involved in this process, each of them providing coverage for this issue on their market segment. Thus, *the existing gap is to be covered by the legislative and regulatory framework in the field of cyber security.*

Being aware of risks and threats carried out activities are exposed to in the cyberspace and means to prevent and counterattack them requires effective communication and cooperation between specific stakeholders in this realm.

From this view, there is a need to develop a culture of cyber security and communications systems users, which are often poorly informed about the potential risks, and solutions against them.

³⁹ <http://www.nccgroup.com/en/news-events/news/hacking-attempts-to-exceed-one-billion/#.UKMYuOTtE0>

⁴⁰ Source: Digital Agenda for Europe.

⁴¹ <http://www.business24.ro/internet/securitate-it/milioane-de-hackeri-au-atacat-site-urile-guvernului-israelian-in-ultimele-zile-1521870>

⁴² Law nr.6-XVI from 02.02.2009.

⁴³ Law nr. 20-XVI from 03.02.2009.

36. Internet now become an infrastructure of information so important to people, but also for the economy in general, *thus the resistance to a multitude of new threats to IT systems and networks is important for users to feel comfortable and safe when connecting online.* As in the real world, cybercrime cannot be tolerated. So far Internet has proven to be very safe, strong and reliable, IT networks and end-user terminals remain to be vulnerable to a wide range of new threats: in recent years Unsolicited electronic messages (SPAM) disturbed e-mail traffic on the Internet - according to various statistics, *spam accounts from 80 till 98% of all messages in circulation*⁴⁴ - they spread a multitude of viruses and malicious software. In Moldova, for example, only during the period 17 May - 21 November 2012, within the total amount of electronic messages sent to the central public administration authorities, only about 986,500 were legitimate messages, while more than about 8.5 million were spam messages that contained 874 detected viruses⁴⁵. It follows that Moldova is in the same situation regarding spam as all across the Europe⁴⁶.

Scourge of identity theft and online fraud is ongoing. Attacks are becoming increasingly sophisticated (trojans, botnets, etc.) and more difficult to identify and destroy: a good example is the virus "Red October"⁴⁷; attacks are often motivated by financial purposes.

Although there are technical means, nowadays *there are no legally binding provisions for reporting information to CERT-MD*⁴⁸ and this entity has no special liabilities or sufficient capacity to meet the new challenges at the national level.

IV. MISSION, GOALS AND PROGRAMS

37. Following the example and taking into account the priorities of the European Union and of the most developed countries in the digital field, the Republic of Moldova has formulated its own vision, goals and priority actions till 2020.

4.1. MISSION

38. The Government, private sector and civil society agreed on the following strategic vision:

Republic of Moldova is to become a country with an advanced information society where the use of information and communication technology (ICT), expanded access to modern electronic communication infrastructure, rich digital content and advanced informational services drives to economic competitiveness, population welfare and good governance of the country.

For achieving this vision the state will undertake measures that will remove constraints and overcome challenges.

This strategy is focused on three main policy directives/pillars of development:

- 1) expanding access and connectivity trough networks and broadband access services competition promotion;
- 2) enabling digital content and electronic services establishment/development;
- 3) capacity building for using outcomes offered by ICT.

In order to achieve the strategic vision, general and specific objectives, basic principles were established and were identified programs, initiatives and key measures for achieving them.

⁴⁴ European Network and Information Society Agency spam survey 2009 (January 2010).

⁴⁵ <http://cert.gov.md/incidente/statisticaincidentelor.html>

⁴⁶ Article 17 from the Law on Electronic Commerce of 2004 prohibits sending of commercial messages without the prior agreement

⁴⁷ <http://www.telegraph.co.uk/technology/news/9800946/Red-October-computer-virus-found.html>

⁴⁸ Cyber Security Center (CERT) was created within the SE "Center for Special Telecommunications" in accordance with the Government Decision nr.746 from 18.08.2010, regarding the approval of the "Individual updated Partnership Action Plan Republic of Moldova-NATO". The center provides information security for public administration authorities in cyberspace through the collection and analysis of information related to cyber attacks, and undertakes urgent and effective measures to protect information resources.

4.2. GENERAL AND SPECIFIC GOALS

39. General objective of the Strategy:

Establish proper facilities for developing and wide spreading of ICT potential to public institutions, businesses and individuals in order to help them achieve economic goals, social and cultural rights.

4.2.1. Pillar nr.1: *Enlarging access and connectivity* - wide optimized ICT infrastructure, with free uniform and non-discriminatory access to everyone.

40. General pillar objective: *Informational infrastructure development and improving access for everyone.*

Specific objectives:

1. Internet access at a speed of at least 30 Mbps

The state will have established a legal, institutional and regulatory framework for optimized informational infrastructure development, which would meet the quality standards at data transfer speed of at least 30 Mbps covering all regions with services at affordable prices.

Following programs shall be developed and implemented:

1.1) Fixed broadband networks development program for 2013-2020, that will provide conditions for:

- a) gradual placement of at least one fiber network presence point within each locality with town hall;
- b) management and shared use of electronic communication networks including associated infrastructure through the development/adjustment of the legal and regulatory framework;
- c) high speed access networks development through infrastructure sharing and open access to ownership.

1.2) Broadband Radio Access Networks Development Program for 2013-2020 years, which will include the development/adjustment of the normative regulatory framework for radio spectrum management:

- a) establishing legal framework for assigning radio frequencies spectrum applying technological neutrality criteria;
- b) assigning frequency bands of 900-3600 MHz through open contest, by competitive selection;
- c) issuance and allocation of the digital dividend (800 MHz frequency band).

2. Transition to digital terrestrial television

Government will create necessary conditions for transition until 15 June 2015 to display digital terrestrial television programs through digital signal and to cancel analog signal transmission.

Will be developed and implemented the following schedule:

2.1) Program for transition from analogue terrestrial television to digital television embed actions that are meant to ensure transition to digital television until 15 June 2015:

- a) developing legal and regulatory framework to ensure the transition from analogue terrestrial television to the digital one;
- b) ensuring socially vulnerable groups with equipment for digital terrestrial television reception(STB);
- c) promoting HD standards for national programs suppliers.

4.2.2. Pillar nr.2: A rich digital content and affordable electronic public service.

41. General pillar objective: Setting favorable conditions for the development and use of national digital content and digitization of the existing national one, as well as for implementation and use of electronic services.

Republic of Moldova has a rich intangible heritage and a wide knowledge base that should be identified, recorded and disseminated for the benefit of local and foreign population. Without digitization, a large number of valuable contents will remain unavailable even for the local population, not mentioning a regional or global level.

Various measurements show that developing countries are more frequently becoming significant sources of content and their share in global content creation is increasing⁴⁹. Nowadays, Republic of Moldova is able to earn an honorable position in digital content services.

The Government will undertake strong action in order to exploit the opportunities of creating and promoting the digital content and services generated in the Republic of Moldova, including the positioning services based on GIS.

Specific objectives:

- 1) Digital content is available, accessible, used and valued;**
- 2) Information held by public institution is available for other public institutions;**
- 3) Public services provided to citizens at the counter are delivered with a single document -**

ID card.

Will be developed and implemented the following programs:

1.1) The program „Creation, development and use of the digital content of the Republic of Moldova”

The program will include actions for:

- a) Sorting the existent informational content by fields, assessing the informational content digitalization, preparing plans for content digitization by fields and providing access to this content;
- b) adjusting the legal and institutional framework for content digitization, proceeding from identified constraints and including in MTBF the budgeting of content digitalization actions as well as adopting, approval and implementation of basic international standards, technical regulations related to digitization and online content accessing;
- c) implementation of the Government Interoperability Framework and Recommendations for the content/resources interconnection and interoperability for the digital content development and interoperability improvement;
- d) facilitating the development via PPP of data centers/local digital content warehouses, including for geospatial data, in compliance with the content conservation management and effective time accessing standards and setting up Digital Content Register with public access.
- e) placing, by public authorities, of all information of public interest in electronic form on the pages of open data governmental portal and manage its update procedures;
- f) content diversification and adjustment for accessing by people with special needs (seniors, handicap people, vulnerable groups, people with gender and cultural differences);
- g) developing and spreading recommendations concerning children and adults internet digital content accessing, also including through the existing hazards.

2.1) The program of public services digitization

The program will include at least:

- a) inventorying the existing public services (cost, content and volume analysis) with the number of public services and existing processes optimization and reengineering the existing business processes for public services offering, standardization and drafting, the approval of public services digitization Plans according to individual priority areas: Health & Social assistance, Education, Justice, Agriculture, Civil engineering, Cadaster, Transportation, Science, Culture, and so on;

⁴⁹ Source: OECD.

b) legal and regulatory framework development for electronic public service access and provision (including the electronic identity management), implementation of the public services minimum quality standards and the system of indicators for quality monitoring/evaluation, as well as submission of complaints against public services delivered under any expectations and developing a transparent methodology and fair pricing on electronic public services;

c) development of the standard forms solutions for local public authorities regarding G2G and G2C services, using common governmental technological platform;

d) full implementation of electronic payment mechanisms and integration into the international payment system;

4.2.3. Pillar nr.3. Enforcing ICT usage: high usage level for all community members

42. General pillar objective: Increasing digital literacy, digital skills and inclusion degree

Local content development and distribution, as well as the use of e-services depend on a specific set of skills and tools. Government will periodically assess the multiple skills of citizens, such as ICT skills, knowledge, abilities and attitudes leading to a high level of skills. ICT education improvement policy measures will cover both the formal education system as well as the lifelong training.

Specific objectives:

1) Educational institutions graduates possess digital skills to activate in the information society;

2) Public sector employees own digital skills required for an efficient governance;

3) Appropriate conditions are created for social inclusion based on electronic services.

Will be developed and implemented the following programs:

1.1) “Digital literacy in general compulsory education” program

Will be provided the following actions:

a) assessing the general compulsory education ICT curriculum;

b) developing digital literacy educational standards compatible with the European practices;

c) developing / updating the curriculum and electronic textbooks for general education;

d) *compulsory certification of general secondary and vocational-technical education graduates ICT skills*”;

e) electronic curricula and textbooks for general secondary education will be tested and afterwards extensive curricula and manuals for general education will be implemented;

f) digital skills certification scheme will be extended in schools and universities.

g) electronic courses will be developed in order to facilitate access to the studies and educational software;

h) financing plans of educational institutions will provide separate funds for purchasing equipment and software;

1.2) Continuous training programs and digital inclusion “digital skills for all ”

Will be provided the following:

a) will update continuous training programs, reshaping and retraining by including / adjusting of training modules and performing digital skills based on educational standards similar to European ones.

b) will organize training courses both in a traditional way and online platforms in ICT for teachers and trainers within the training programs;

c) will be developed regulatory and legal framework for distance learning;

d) ensure the development of courses in electronic format to facilitate access to education and inclusion;

e) will establish conditions for remote management training deployment, developing and implementing applications (software) education, as well as electronic versions of academic courses and will ensure access to these courses (electronic approval);

f) universities will implement anti-corruption practices based on the use of ICT for learning assessment.

1.3) The "Access to equipment and software for the educational process"

Will be provided the following:

- a) new equipment that will be purchased by educational institutions will have installed educational genuine operating systems and educational software;
- b) financing plans of educational institutions will provide separate funds for purchasing equipment and software;
- c) institutional development programs will include measures for modernization/replacement of computers and software at least once every three years;
- d) will provide a mechanism for implementation and maintenance of ICT for education and educational management process;
- e) elaborate schemes/options and customized programs for (computers, tablets, etc.) pupils, students and teachers and adjust the regulatory framework to implement the program.

2.1) The "digital literacy training for public employees"

Will be provided the following:

- a) will develop professional digital standards for public positions/public employees in areas: health, education, social welfare, agriculture, justice, transport, land, science, culture, archives, etc.
- b) will develop for traditional and online training of modules public institutions employees according to specific use of ICT in order to fulfill professional responsibilities;
- c) will develop certification mechanisms for servants/employees of public institutions concerning the ICT use;
- d) recruitment of civil servants/employees of public institutions will provide minimum requirements on digital literacy.

3.1) Digital Inclusion Program

Will be provided the following:

- a) programs for social inclusion will include mandatory component "Digital Inclusion";
- b) will issue training spots for population in sectorial electronic services (ministries will forward resources and will develop specific electronic guides - OSC, CNAS, CNAM, medical services, building services, etc...) and interactive electronic boards will be installed in locations with a demo modules, electronic counter offices;
- c) public media programs will include programs promoting and training people to use electronic services;
- d) will create conditions for the deployment of dedicated equipment and access to electronic services for people with special needs;
- e) will implement standards for equipment and software in terms of their use by people with special needs.

4.2.4. Secured and protected digital environment

43. Main objective: To establish conditions for increasing security and trust of the digital space

Specific objectives:

1) Improve cyber security of the national critical infrastructure (public authorities/institutions, electronic communications networks, water pipes, energy grids, transportation networks, etc.).

- 2) **Increase in cyber security skills;**
- 3) **Raise awareness of the risks in the digital space and measures that are necessary to ensure its cyber security;**
- 4) **To promote and develop international cooperation in cyber security.**

1.1 In order to achieve program objectives, a **Cyber Security Program** will be developed and will provide:

Improve cyber security of the national critical infrastructure (authorities, electronic communications networks, aqueducts, energy networks, transport networks, etc.), including:

- a) defining national critical infrastructure units that are to be protected from cyber-attacks, establishing and applying minimum safety requirements for national critical infrastructure, relevant to these facilities including the establishment and administration of a national cyber security,
- b) completing and harmonizing the national legislation framework on cyber security and institutionalization of individual responsibility concerning cyber security;
- c) stimulating the common exchange of information between public and private sectors regarding threats, weaknesses, risks and also cyber cases and attacks;
- d) strengthening CERT-MD team (creating structure/national CERT team);
- e) providing electronic identity management for cyber security;

2.1 Increase in cyber security skills:

- a) adequate training of persons working in cyber security and widespread promoting of professional certifications in the field;
- b) inclusion of items related to cyber security in training programs and professional development of the public and private sectors managers;
- c) informing and training employees in public institutions on cyber security issues and cyber risk reduction;
- d) elaboration of a User Guide, concerning minimum requirements for cyber security.

3.1 Raise awareness of the risks in the digital space and measures that are necessary to ensure its cyber security:

- a) conducting the national informational campaign about the risks in the digital space and protective skills;
- b) including in public media programs promotion and people training the information about how to use electronic services.

4.1 Promote and develop international cooperation in cyber security:

- a) signing international cooperation agreements in order to improve the response capacity in the case of major cyber-attacks;
- b) participation in international programs aimed at cyber security;
- c) promote national cyber security interests in international cooperation formats where Republic of Moldova takes part.

V. IMPACT AND COST ESTIMATION

44. The Strategy implementation will have a positive impact on citizens, business environment and government and will follow in the Republic of Moldova Information Society accelerated development, improving the ICT inclusion into society, providing the human capital and knowledge based economic growth and will forge citizen's life improvement.

The impact of the Strategy implementation will occur in:

- 1) governance improvement;
- 2) improving services for population and business environment;
- 3) diminishing corruption;
- 4) increase of economic competitiveness.

Therefore, the large scale implementation of the public institutions interoperability, in the long term will cause a significant increase of productivity.

An increase of 10 percentage points in digitization reduces a nation's unemployment rate by 0.84% and results in a six-point increase in the country's score on the Global Innovation.

By 2020, Republic of Moldova will benefit from ICT solutions for all component parts of the society (population, economy, state). ICT will also contribute to a deeper integration into the global economy, promotion of own information products and services all around the world, while citizens will have a high level of wellbeing.

45. The strategy involves a large volume of financial allocations during the whole implementation period (2013-2020). Financial costs approximate estimations were developed during the actions planning phase, when the accurate financial amount estimation is impossible due to justified reasons.

In the development processes of programs and projects for Strategy accomplishing would be attracted internal as well as the external public and private funds. Local funds will be originated from the following sources:

- a) state budget;
- b) „Electronic Moldova” Fund;
- c) state programs for technological development and innovation area;
- d) technology transfer projects with mandatory private sector co-financing;
- e) public private partnerships.

Setting up priority actions and their financing in the strategic plans will be done according to the financing amount and expenditures celling from the CBTM into force, and annual financing of the actions will be carried on within the disbursements approved in the state budget fund „Electronic Moldova” for each sector/additional sources.

As appropriate, when it is required the achievement of mandatory but financially uncovered measures, additional funding sources identification is to be started.

The "e-transformation" project, funded from World Bank loan, will continue to be implemented. For the further activities of information society building shall be engaged international funds, especially the European ones.

European integration potential in research and innovation will be used in order to stimulate country economic growth by attending a series of EU funding programs.

Opportunities for support and promotion of ICT are to be harnessed by international organizations as UNECE, UNIDO, PNUD, and programs of European Commission - TAIEX and TWINNING, BSEC (Black Sea Economic Cooperation) and others.

VI. EXPECTED RESULTS AND PROGRESS INDICATORS

46. Implementation of this strategy will lead to the following measurable results:

1) Ranking Republic of Moldova among top 50 countries in the international rankings: ICT Development (ITU), E-Governance development (UN), Network readiness (World Economic Forum), The level of a knowledge-based economy development (World Bank Institute);

2) All municipalities from the country shall be granted with access to at least one fiber link presence points with the speed of at least 30Mb/s;

3) At least 70% of households will be connected to broadband;

4) At least 75% of citizens will be Internet users;

- 5) 100% of public services which may be provided by electronic means will be available online;
- 6) 100% of archives, civil status records, cultural and scientific heritage will be digitized and made available;
- 7) At least 80% of citizens will be satisfied with the quality of provided services;
- 8) Public services will be delivered under a single document - ID card or on-line identification;
- 9) At least 70% of population will use electronic services;
- 10) At least 60% of population will use the digital signature;
- 11) At least 20% of population will use online shopping;
- 12) 100% of population will have the possibility to access digital terrestrial television.

47. The expected results after this Strategy implementation will be assessed according to the key progress indicators regarding the objectives achievement:

- 1) Uplift Republic of Moldova in international rankings from ICT field;
- 2) Access to broadband and digital terrestrial television provided all over the country;
- 3) Share of public institutions integrated into the interoperability platform;
- 4) The share of households with computer and broadband internet access;
- 5) The rate of digital content accessibility;
- 6) Number of computers per 100 pupils;
- 7) The share of the general compulsory education graduates possessing ICT skills;
- 8) The share of public services available online from the total number of services which may be provided electronically;
- 9) The confidence degree in the safety of online required service;
- 10) The number of secured servers per 1 million inhabitants.

VII. IMPLEMENTATION STAGES

48. The strategy will serve as a key document for coordination activities of all regulatory authorities competent in Information Society development field. Strategy implementation will be fulfilled along with the ministries and interested organizations/institutions, as well as with the active participation of business and civil society. Implementations will occur in 3 stages:

- 1) organizational stage, adjusting legal and regulatory framework, capacity building and launching programs (2013-2014);
- 2) infrastructure sustainable development stage, generation and intense digitization of content and services (2015-2017);
- 3) total absorption stage of ICT through intensive usage and generating of digitized content and e-services based on ongoing infrastructure and policy instruments, legislative/regulatory and institutional instruments create at the first 2 stages.

VIII. MONITORING AND ASSESSMENT FRAMEWORK

49. Monitoring

Monitoring Strategy aims to:

- 1) supervise the Strategy implementation stages, the objectives and proposed actions execution, as well as the need to revise them depending on the evolution of internal and external factors;
- 2) improving communication environment and fostering the exchange of experience among institutions;
- 3) providing transparency and dissemination of information regarding the carried out activities and the achieved results.

Strategy implementation will be under an ongoing process of monitoring, evaluation and reporting, the purpose of which will be identification of the recommended results and of factors that hinder the expected results achieving. Thus, monitoring will help optimize the implementation process and respectively, will improve the way of products delivery, outcomes and the expected benefit.

The Strategy implementation monitoring and assessment will be accomplished by e-Transformation Council⁵⁰, technical support being provided by the Agency for Information Society under MITC.

Central public administration authorities will submit to MITC annual monitoring reports concerning the progress of planned activities and implementation setbacks. Action Plan for the reporting process will be used.

Monitoring will be carried out on the basis of performance indicators set out in this strategy, also using the information from “List of indicators for assessing and monitoring e-Development in the Republic of Moldova”, approved by an Agreement between central government institutions on distribution of responsibilities of collecting, production and dissemination of monitoring indicators for building the Republic of Moldova Information Society. On the basis of primary monitoring reports received from the authorities involved in the Strategy implementation, MITC will prepare annual consolidated report on the strategy implementation, submitted for the e-Transformation Council examination until 1st April of the next reporting year.

50. Assessment

The assessment of the Strategy implementation will be carried out at the end of each stage of the Action Plan implementation (in the Appendix) and will result in the **Strategy implementation assessment report**.

The assessment report will contain information concerning achievements and possible failures regarding the Action Plan implementation and impact indicators. Thus, factors that lead to success or failure will be identified and this information is to be used for the further activity planning.

According to the assessment results, the Strategy implementation action plan can be updated and modified at the end of each stage in accordance with the existing realities and budgetary planning for subsequent period.

The final evaluation of the Strategy will be accomplished after the end of its final implementation stage, but not later than after six months.

Transparency of the strategy implementation process is provided through the publication, on the MITC official website, of annual monitoring reports, assessment reports made at the end of each stage of implementation and final evaluation report.

MITC will ensure a wide media coverage of the Strategy implementation process and will provide significant information to local and foreign partners.

⁵⁰ This method is going to be discussed alongside with other options and the best solution will be found.

ACTION PLAN ON IMPLEMENTATION OF THE NATIONAL STRATEGY FOR INFORMATION SOCIETY DEVELOPMENT “DIGITAL MOLDOVA 2020”

Nr	Objectives	Actions	Responsible authority	Partners	Financing sources	Deadlines	Progress Indicator
PILLAR 1.							
OVERALL GOALS :Informational infrastructure development and improving access for everyone							
IMPACT INDICATORS:							
<ul style="list-style-type: none"> • All localities provided with Internet access of at least 30 Mb/s (at least one point of presence of the optical fiber network) • The subscribers from connected areas will have minimum speed of 5 Mbps in 2014, 15 Mbps in 2017 and 30 Mbps in 2020 • At least 70% of households will be connected to broadband • 85% of localities having access to mobile broadband • 100% of new civil buildings, from 2018, equipped with electronic communications access network infrastructure • 100% of population will have the possibility to access digital terrestrial television 							
Fixed broadband networks development program for 2013-2020 years:							
Main actions:							
Internet access at the speed of at least 30 Mb / s	Fixed broadband network development program for the 2013-2020 years	MITC	ANRCETI, Infrastructure supplier	Institutions budget	2013	Approved program	
	Access networks development :	MITC	ANRCETI	Institutions budget		Developed and adjusted normative regulatory framework	
	• Civil engineering -provision in buildings of spaces / special infrastructures and sanitation systems for access networks	MDRC	MITC	Institutions budget	2014		
	• Ensuring shared access to network users and providers that use the same technology.	MITC	ANRCETI, MDRC	Institutions budget	2014		
	• Modernization and reuse of existing cable television networks for broadband access.	MITC	ANRCETI	Institutions budget	2014-2015		
	Main networks development						
	Develop a feasibility study regarding the opportunity of identification / creation an operator for associated infrastructure management (sewage, pillars, etc.).	MITC	ANRCETI	Institutions budget , Development partners	2014	Performed study	
	Search/set out (in case if feasible) of an entity to management underground ducts/associated infrastructure.	MITC	Economy Ministry, APL	Stockholder/ Investment resources	2014	Identified and set up the entity	

	Evaluate the existing underground sewerage capacity and replacement of old or inefficient cables.	MITC	ANRCETI, S.A. Moldtelecom	Stockholder/ Investment resources	2014	Mainly underground located networks
	Drafting laws for more efficient use of alternative/ complementary infrastructure investments:					
	<ul style="list-style-type: none"> Building optional infrastructure (roads, bridges, railway, sewerage , electricity pillars) Provisions concerning location infrastructure / hotel space for electronic communications networks 	MDRC	MITC, ANRCETI	Institutions budget	2015	Publishing the information about new construction at the design stage for the potential participation of electronic communications providers
	Provisions regarding: <ul style="list-style-type: none"> Access to alternative infrastructure for placing electronic communications networks. Sharing passive associated infrastructure (pillars, sites, electricity, etc.) and operators existing assets (antennas, transmitters, generators, and so on). 	MDRC	MITC, ANRCETI	Institutions budget	2014	Publication of the information about access to alternative / complementary infrastructure
The development of broadband mobile networks program for 2013-2020 years						
Main actions:						
	Draw up/revise the Program	MITC	ANRCETI	Institutions budget	2013	Approved program
	Draw up/adjusting of legislative framework for radio frequency management.	MITC	ANRCETI	Institutions budget	2013-2014	Legal framework approved
	Setting the regulatory framework for assigning and technically licensing frequency band 900 - 3600 MHz.	ANRCETI	MITC	Institutions budget	2013-2014	Legal framework approved
	Issue and allocation of the digital dividend (Frequency range 800 MHz).	ANRCETI	MITC	Institutions budget	2014	Organized procedures. Digital dividend allocated
	Guide on providing temporary mobile services to demonstrations and public events.	ANRCETI		Institutions budget	2014	Regulations approved
The transition from analogue terrestrial to digital terrestrial television						
Key actions:						
	Program Implementation:	MITC	CCA, ANRCETI, Ministry of Economy		2013-2015	Starting 15.06.2015 all TV transmitters are to work only in digital mode
Transition to digital terrestrial television	Develop legal framework to ensure the shift from analogue television to digital terrestrial one.	MITC	CCA	Institutions budget, Donors.	2013-2014	Legal framework and regulations approved
	Ensuring socially weak groups with receiving equipment (STB) of digital terrestrial television signal.	MITC	MMPSF, Ministry of Finance	State budget	2015-2016	All households are provided with reception TVD equipment
	Advertising HD standards for national TV providers	MITC	INSM	Institutions budget	2013-2016	HD standards adopted

PILONUL 2:

OBIECTIV GENERAL: Creating conditions conducive to the development and use of digital content and national digitizing existing national content, and implementation and use of electronic services

Outcome Indicators:

- Share of all public services available online comparing to services that may be provided online : 2015-30%, 2017-80%, 2020-100%
- Share of public institutions integrated in the interoperability platform: 2015-50%, 2017-75%, 2020-100
- Share of population using digital signature : 2015-15%, 2017-35%, 2020-60%
- Share of population using e-services 2015-20%, 2017-35%, 2020-70%
- Proportion of people who view / download digital content: 2015-41%, 2017-46%, 2020-57%
- Proportion of people who are satisfied with the quality of public services offered electronically: 80%
- 100% of public services which may be provided by electronic means will be available online;
- 100% of records, documents of civil status, cultural heritage, science will be digitized and made available;
- 100% of public data will be located in data centers complying with management, preservation and time standards;
- At least 70% of the population will use electronic services;
- At least 20% of the population will be shopping online;
- At least 80% of citizens will be satisfied with the quality of services provided;
- 100% of public service institutions will be interconnected and will meet the criteria of Interoperability Framework;
- Citizens will get the desired public service with only the identity document or electronic identification, other information necessary for the service provider is extracted from digitized archives.

		The "Establishment, development and use of digital content in Moldova"				
		Key actions:				
Digital content is available, accessible, used and capitalized. Information held by a public institution are available to other public institutions (in compliance with legislation on personal data and access to information) Public services are provided to citizens under a single document - ID	Establishing the program	MITC	State Chancellery, E-Governance Center, APL AGEPI	Institutions budget	2013	Approved program
	A classification of the existing informational content by areas and its digital conversion assessment (digitization of content)	MITC	State Chancellery, APC, APL, AŞM.	Institutions budget , Development Partners	2013	Assessment reports on completed directives, identifying constraints and preliminary estimate the costs for each field.
	Adjusting legal and institutional framework for content digitization, given the constraints identified and included in the CBTM actions to transform digital content, including accepting SIA extracts as documents confirming the legal power.	MITC	State Chancellery , APC, APL.	Institutions budget, Donors.	2013 -2014	Laws amending the legal framework are developed and approved. Institutional framework adjusted.
	Undertaking, approving and implementing international basic standards, technical regulations in the field of digitization and online content access.	MITC	E-Governance Center.	Institutions budget, Donors.	2013 -2014	1. List of necessary standards. 2. Approved standards. 3. List of technical regulations developed and approved. 4. Approved technical regulations.

	Implementation of Government Interoperability Framework and Recommendations on interconnection and interoperability of content / resources (including catalogs, classifiers, IDs, meta-data) to facilitate the interoperability of digital content and government	E-Governance Center	Chancellery de Stat, MITC, APC, APL, CTS	E-Transformance budget, APC, APL	2013 -2016	1. % of State SIA integrated platform interoperability. 2. % Of planned volume digitized content. No. Electronic services
	Set out conditions for establishing data centers / digital storages, including geospatial data, PPP, in compliance with the management, conservation and content access-time standards	MITC	E-Governance Center, ARFC, APC, CTS	E-Transformance budget, APC, PPP Investments.	2013 -2018	Migration of data from existing points to the newly established centers. Functional data centers.
	Establishing digital content for public access (which will include orphan content also).	MITC	Ministry of Culture, AGEPI.	Institutions budget	2014	Technical concept approved and implemented
	Conduct content uploading processes , access, use and update of the information that is digital content	MITC	State Chancellery.	Institutions budget	2013 -2014	Approved regulations
	Publishing by public authorities / institutions all of the public information in electronic format on open a data portal.	APC, APL	Public Institutions	Institutions budget	2013 -2017	% AP that publish information
	Establish requirements for content accessing by people with special needs (old ones, with handicaps, vulnerable, with gender or cultural differences)	MITC, MMPSF	APC, APL, Entities owners of digital content	State Budget, Institutions budget, Development Partners assistance	2014 -2018	Nr. of applications for people with special needs
	Promoting the use of open software and free tools for creation, dissemination and use of digital content	MITC	State Chancellery , E-Governance Center, APC, CTS	Institutions budget	2013 -2017	Nr. free applications "plug-in" to be used by public services
	Identify and implement monitoring mechanisms of statistical use for accessed national web resources	MITC	National Bureau of Statistics.	Institutions budget, Donors.	2013 -2014	Periodic reports with recommendations
	Seminars, workshops, dedicated contests to stimulate the creation, use and sharing of digital content	MITC	APC, entities with digital content.	Institutions budget , Donors.	2013 -2020	Nr. Of yearly organized seminars
	Develop and disseminate recommendations for accessing digital content in the Internet space for children and adults, including through existing risks	National Center for Personal Data Protection	MITC, MAI.	Institutions budget , Donors.	2013 -2014	Recommendations developed and disseminated
	A classification of the existing public services (cost analysis, content, volume) optimizing the number of public services , existing processes and re-engineering business - existing processes for granting public services and their standardization (front office)	State Chancellery, MITC, APC, APL.		E-Transformance budget Institutions budget , Donors.	2013 -2014	1. Inventory report. 2. Optimized list of approved public services. 3. % Revised business processes, sampled and standardized.

	Develop and approve programs / plans to digitize the internal processes of public authorities / institutions, providing compliance with the Interoperability Framework, the following priority areas (back office) are:	State Chancellery	E-Governance Center	Institutions budget , Development Partners	2013 - 2014	Plans approved and financed
	Health Care	Ministry of Health Care	MITC	Institutions budget, Development Partners	2013 -2014	Strategic Program E-Health approved
	Social Care	Ministry of Employment and Social Protection	MITC	Institutions budget , Development Partners	2013 -2014	Strategic Program e – Social Welfare approved
	Education	Ministry of Economy	MITC	Institutions budget , Development Partners	2013 -2014	Strategic Program E - Education approved
	Justice	Ministry of Justice	MITC	Institution budget, Development Partners	2013 -2014	Strategic Program e - Justice approved
	Agriculture	Ministry of Agriculture and Food Industry	MITC	Institution budget, Development Partners	2013 -2014	Strategic Program e-Agriculture approved
	Transport	Ministry of Transport and Road Management	MITC	Institution budget, Development Partners	2014	Strategic Program "Intelligent Transport" approved
	Cadaster	Cadaster	MITC	Institutions budget Development Partners	2013 -2014	Establish the geo information system "E-Cadaster"
	Scientific Content	AŞM	MITC	Institutions budget , Development Partners		
	Archive	State Archive	MITC E-Governance Center.	Institution budget, Development Partners	2013 -2014	

		Develop legal framework for delivering and accessing electronic public services	MITC	State Chancellery, E-Governance Center, APC	Institutions budget, Development Partners	2013 -2014	Laws, regulations (including electronic identity management)
		Implementation of minimum quality standards for public services and a system of indicators for monitoring / evaluating their quality as well as tools for submitting complaints against public servants services under any expectations.	State Chancellery	MITC E-Governance Center,	Institutions budget, Development Partners.	2013 -2014	Received standards
		Develop a methodology for transparent and fair pricing of electronic public services	State Chancellery	MITC, Ministry of Finance, APC	E- Transformance budget	2013	Approved methodology
		Developing solutions G2G and G2C for APA services, using common governmental technological platform.	State Chancellery	MITC, E-Governance Center, CTS	E- Transformance budget, Institutions budget, Development Partners.	2013 -2014	Nr. Of solutions came up with
		Full implementation of electronic payment mechanisms and integration in international payment systems	State Chancellery	E-Governance Center National Bank, CTS	Institutions budget, Development Partners.	2013	Working payment system
		Develop communication program for conducting media campaigns to promote public electronic services	E-Governance Center	MITC State Chancellery	Institutions budget, Development Partners	2013 -2020	Approved Program

Pillar nr. 3:

General Goals: Setting conditions to increase digital literacy, digital skills and social inclusion.

Outcome Indicators:

- Share of compulsory education graduates having ICT skills 2015-75%, 2020-100%
- Share of secondary education/vocational-technical graduates to have their ICT certificates obtained to be internationally recognized 2015-20% 2020-40% '
- Share of training programs graduates that have acquired ICT skills 2015-80%, 2020-100%
- Share of graduates who have been awarded national digital literacy certificates 2015-80%, 2020-100%
- Number of training programs who took over ICT training modules
- Share / number of universities that supply electronic programs 2015-40%, 2020-70%
- Share of Universities that have implemented online admission mechanism. 2015-10%, 2020-30%
- Teachers trained with the help of ICT application of: 25% -2015, 45% -2017, 80% -2018
- Share / number of candidates admitted online to Universities 2015-5%, 2020-20%
- Share of Universities that have implemented anti-fraud practices based on the use of ICT: 2015-80%, 2020-100%
- Number / share of population using e-services 2015-25%, 2020-50%
- Number / share of curricular programs including ICT means: 2015-40%, 2020-90%
- 30% of the total number of computers recycled / replaced annually in schools
- Share of training programs for civil servants which embed ICT modules: 2015-50%, 2020-100%
- Number / share of educational programs that include facilities for people with special needs 2015-50%, 2020-100%

	<p>Graduates of educational institutions own skills that enable them to work into an information society.</p>	<p>Program „Digital training in the compulsory education” Key actions:</p>					
		Evaluating the "Informatics" curriculum for compulsory education and digital literacy level of it (knowledge, skills, attitudes)	Ministry of Economy	MITC ATIC	Institutions budget Development Partners	2013	Performed research
		Developing digital literacy educational standards compatible with European practices.	Ministry of Economy	MITC ATIC	Institutions budget Development Partners	2014	Established standards
		Developing / updating the curricula and online manuals for general education (electronic curriculum through teaching and evaluation methodology).	Ministry of Economy	MITC ATIC	Institutions budget Development Partners	2015	Updated curricula and completed textbooks, implemented under the trial program
		Testing electronic curricula and textbooks for compulsory education	Ministry of Economy		Institutions budget Development Partners	2016- 2017	
		Large-scale implementation of curricula and electronic textbooks for general education	Ministry of Economy		Institutions budget Development partners	2017- 2020	Published curricula and textbooks
		Applying national digital skills certification system for graduates of compulsory education. Expanding digital skills certification scheme in schools	Ministry of Economy		Institutions budget Development Partners	2015	Certification system established

	Training program and digital inclusion “digital skills for everyone ”					
	Key actions:					
	Updating training programs, retraining and by including / adjusting training modules and performing digital based education standards similar to those in Europe.	Ministry of Economy	Training entities	Institutions budget Development Partners	2014-2015	Methodological guides, handouts, evaluation tools
	Organizing digital literacy courses for teachers and trainers.	Ministry of Economy		Institution budget	2013-2020	Methodology and evaluation framework approved
	Developing legal regulatory framework for distance learning	Ministry of Economy	MITC	Institutions budget Development Partners	2013	Legal regulatory framework approved by 2014
	Developing electronic courses to facilitate access to education and inclusion.	Ministry of Economy	Universities	Institutions budget Development Partners	2013-2018	20% developed courses in 2014, 40% -2015, 100% - 2020
	Establishment and implementation of the remote training management systems.	Ministry of Economy	Universities	Institutions budget Development Partners	2016-2018.	System is set
	Develop and implement educational applications (software).	Ministry of Economy	Universities	Institutions budget	2013-2020	No. applications submitted. No. virtual laboratories developed and used
	Carry on anti-corruption actions for assessing learning based on ICT use.	Ministry of Economy	Universities	Institutions budget	2014-2020	% of courses which outcomes are assessed through ICTs
	Developing electronic versions of university courses and assure access to them (Electronic approval)	Ministry of Economy	Universities	Institutions budget, Development Partners		% of certified courses 2013-2020
	Equip educational institutions with hardware and legal educational software systems.	Ministry of Economy, Ministry of Finance	Educational Institutions	Institutions budget, Development Partners		% Share of equipment with legal software in 2014, 2016, 2020 - 100%

		Stating in the financing plans of the educational institutions different funds meant for equipment and software purchase.	Ministry of Economy		Institutions budget, Development Partners	2014-2020	Purchased Equipment and Software
		Enclose measures of modernization / replacement of computers and software in the institutional development strategy at least once in three years.	Ministry of Economy	Ministry of Finance	Institutions budget, Development Partners	2014	Regulations budgeting norms for updated educational institutions by 2014.
						2015 - 2020	Annual enacted budgets
		Establishing a mechanism for ICT implementation and maintenance in education and educational management process	Ministry of Economy	MITC	Institutions budget	2014	Established mechanism
		Develop schemes/programs for supplying pupils, students and teachers with customized ICT programs (computers, tablets, etc.).	Ministry of Economy	Ministry of Finance, Ministry of Economy, MITC ATIC	Institutions budget, Development Partners Bank, Companies	2014	Established program
						2018	Performed program
		Adjusting the normative framework needed for program implementation	Ministry of Economy MITC		Institutions budget	2014	Adjusted legal framework
		Public sector employees have necessary digital skills for an efficient governance	The "digital literacy training for public employees" program				
	Key actions:						
	Developing professional standards regarding digital skills for civil servants by each position		APC	MITC	Institutions budget, Development Partners	2014-2015	Approved standards
	Develop training modules for civil servants in accordance with the specific ICT peculiarities according to their positions (organized courses, APP curriculum, etc.).		State Chancellery	MITC, Academy of Public Administration	Institutions budget, Development Partners	2013	Approved and lunched modules
						2014	Methodological framework for updating the modules approved
	Establish instruments for validating TIC competences and setting up a Score Card that will keep track of the digital training acquired by each civil servant.		State Chancellery	MITC, Ministry of Economy	Institutions budget, Donors.	2013	Normative framework developed
						2014-2020	Scoreboard implemented
	Adding in the procedure of civil servants recruitment the individual performance requirements and evaluation criteria of mandatory ICT skills possession.	State Chancellery		Institutions budget	2013	Adjusted employment regulations and procedures	
					2015	Employment is made according to new methodology	

	Adequate background is to be set for proper social inclusion of electronic services.	Digital Inclusion Program Key actions:					
		Enclosing in the social inclusion programs the component "digital inclusion"	MMPSF	APC	State Budget Development Partners	2014	No. of social programs with the "Digital Inclusion" component approved for financing
		Broadcast training spots about electronic services for population (sectorial ministries will allocate resources and will develop electronic guides by field - registry office, CNAS, CNAM, medical services, construction services, etc.).	APC	E-Governance Center	APC Funds, Development Partners	2013-2020	Programs approved public authorities Budgeted resources planned
		Installing interactive electronic boards in municipalities with demo modules - electronic counter	State Chancellery	APC	Institutions budget, Development Partners	2015	Electronic guides developed and released
		Add programs promoting and training people to use electronic services in public TV schedule.	State Chancellery	MITC APC	Institutions budget, Development Partners	2013-2020	Budgeted resources reserved for promotion and training programs
		Built mechanisms for deploying dedicated equipment and access to electronic services for people with special needs.	MITC	MMPSF	Institutions budget, Development Partners	2014-2015	Subvention of the special equipment
		Develop requirements / standards in terms of equipment and software to be used by disabled with special needs	MITC	MMPSF	Institutions budget, Development Partners	2015	Requirements and special rules regarding electronic services and developed / purchased equipment
General Goals: Establishing the framework for increasing trust in digital space							
INDICATORI DE IMPACT:							
<ul style="list-style-type: none"> • Share of population that is aware of cyber risks: 50% - 2015, 65% - 2017, 80% - 2020 • Share of public employees certified in cyber security comparing to all of them: 20% - 2015, 40% - 2017, 80% - 2020 • Share of institutions that use data protection systems: 2015-70%, 2017-85%, 2012-100% • At least 70% of citizens will feel secure in digital environment. 							
Increase cyber security of national institutions and ICT infrastructure	Cyber security program for the Republic of Moldova Key actions:						
Enhance cyber security competences	Develop program on cyber security in Moldova	SIS	MAI, CTS (CERT-GOV-MD) MITC, E-Governance Center	Institutions budget	2013	Program approved	

	Defining national critical infrastructure to be protected from cyber attacks	SIS	MITC, MAI, State Chancellery.	Institutions budget	2013	List of critical Infrastructure
	Establishment and operationalization of a national cyber security system	SIS	MAI, State Chancellery, MITC, CTS	Institutions budget, Donors	2015	National operational security system.
	Completing and harmonizing the national legislation, establish and enforce minimum security requirements for national sensitive infrastructure, but also maintaining its operability.	SIS	MAI, MITC, State Chancellery, CTS.	Institutions budget	2013	Coordinate minimum requirements
	Encouraging mutual exchange of information between public and private domains concerning threats, weaknesses, risks, cyber incidents and attacks	CTS (CERT-MD), MAI	MITC, State Chancellery.	Institutions budget, Donors	2014	Mechanism for implemented information sharing
	Training employees of public institutions in matters of cyber security and reduce cyber risks.	State Chancellery	MAI, MITC, CTS	Institutions budget, Donors	2014 - 2020	Number of prepared programs. Number of instructional materials. Number of trained employees.
	Establish appropriate training requirements for persons operating in cyber security environment and wide spreading professional certifications.	State Chancellery	UTM, MITC, Ministry of Economy, APC, APL	Institutions budget, Donors	2014 – 2020	Number of programs prepared. Number of instructional materials issued. Number of employees trained.
	Enclose some cyber security related training in the professional development programs at public and private managers.	State Chancellery	AAP, Ministry of Economy	Institutions budget, Donors	2014 – 2020	No. of modules enclosed in the training programs.
	Develop User's Guide regarding minimum cyber security requirements, also assuring provisions for individual security responsibility	CTS (CERT-MD)	E-Governance Center	Institutions budget	2013	Developed guidelines
	Develop procedures for accessing information and checking the compliance of these procedures.	MITC	E-Governance Center, CTS (CERT-MD)	Institutions budget	2013-2014	Developed and approved procedures.
	Strengthening CERT MD (creating structure / national CERT)	SIS, MAI	MITC, State Chancellery	Institutions budget, Donors	2014	CERT team capabilities improved.
	Developing a Plan for protective measures and security in M-cloud	E-Governance Center		E-Transformance budget	2013 - 2015	Approved plan. Measures implemented.
	Providing electronic identity management for cyber security	E-Governance Center	MITC	Institutions budget, E-Transformance budget	2013-2014	All types of digital identities can be used to access certain services.

		Providing personal data protection	National Center for Personal Data Protection	APC, APL Companies	, companies budgets	2013-2020	Assessing the compliance with the procedures established for access to personal data. Access for people to assure their personal data information. Agreement liability for disclosure of personal data implemented.
	Increasing awareness of the digital space risks and the measures to ensure cyber security	Making national awareness campaigns regarding digital space risks and protection skills	E-Governance Center	CERT, MITC, MAI.	Institutions budgets, donors	2013-2020	Budgeting campaigns No. of campaign organized. % of Internet users who have installed software antivirus.
		Inclusion in the public media and education programs to boost the use of public electronic services.	State Chancellery	MITC, APC, APL.	Institutions budgets	2013-2020	Budgeted resources designated to promotion and training programs.
	Promotion and development of international cooperation concerning cyber security	Signing international cooperation agreements for improving the response capacity in the case of major cyber attacks	CTS	SIS, MITC.	Institutions budgets	2013-2020	Nr. of agreements signed.
		Participation in international programs aimed at cyber security	CTS (CERT-MD)	MITC, E-Governance Center, CTS.	Institutions budgets	2013-2020	Nr. Performed programs.
		Promote national cyber security interests in international cooperation forums where RM is part of.	CTS (CERT-MD)	MITC, E-Governance Center, CTS.	Institutions budgets	2013-2020	Number of Moldova proposals accepted and included in international documents.