Pregledni članak

e-Croatia 2007 – Fostering the Development of Information Society in Croatia

Diana Šimić
Central State Administrative Office for *e*-Croatia
Gajeva 4, Zagreb, Croatia
diana.simic@vlada.hr

Summary

Programme e-Croatia 2007 is a framework programme for the development of information society in Croatia. Paper presents the main objectives of the Programme, describes the implementation mechanisms, summarises its main results in creating the digital content and discusses future activities necessary to maintain the speed of development achieved so far.

Key words: e-Croatia Programme, implementation mechanisms, information society, ICTs, government, education, research, culture, infrastructure

Introduction

Programme e-Croatia 2007 is a framework programme for promoting the development of information society in Croatia. It was built on the best international practices summarised in the documents of the World Summit on Information Society [ITU 2003a, 2003b], EU programme eEurope 2005 [CEC 2002], and the eSEE Agenda [eSEE 2002] as well as the status of implementation of the Strategy for the Information and Communication Technology [Budin et al, 2002; MST 2003]. Main goals of the Programme were focused on building safe and secure electronic communications infrastructure, creating legal framework for the development of information society, building institutional capacity, fostering public administration reform by decreasing administrative burdens and simplifying business processes in public administration through implementation of ICTs, introducing ICTs as a subject matter and a tool at all levels of education and promoting use of ICTs in public institutions and businesses.

Central State Administrative Office for e-Croatia was created with a mandate to coordinate implementation of the Programme. Its task was to create necessary infrastructure, provide support and coordinate activities and projects applying information and communication technologies carried on by the Croatian national authorities.

In this paper I explain the implementation mechanisms, summarise the main results and outline next steps that need to be taken on Croatia's road to the information society.

Implementation Mechanisms

Implementation of the e-Croatia 2007 Programme involves drafting action plans, coordinating and monitoring their implementation, drafting specific sectoral strategic and implementation documents, preparing implementation reports, commissioning independent benchmarking studies and generally promoting use of ICTs as support for business process change and management.

Since 2004, the Central State Administrative Office for *e*-Croatia has involved more than 30 state administration bodies, agencies and the Croatian Chamber of Commerce in the drafting of three action plans [CSUeC 2004a, 2006, 2007]. Each action plan was an opportunity to include the most current international best practices in the implementation of our national programme. Thus, implementation incorporated the results of the Tunis phase of the World Summit on Information Society [ITU 2005a, 2005b], was harmonized with the EU i2010 Initiative [CEC 2005], and implemented regional broadband [eSEE 2005a] and e-business [eSEE 2005b] initiatives.

Benchmarking of on-line availability of e-government services started in 2004, and continued through 2006, implementing EU methodology to provide comparable results [Capgemini 2005, 2006; T&MC 2006]. Figure 1. shows the increase in availability of on-line information, electronic forms and interactive services since benchmarking started in EU and Croatia.

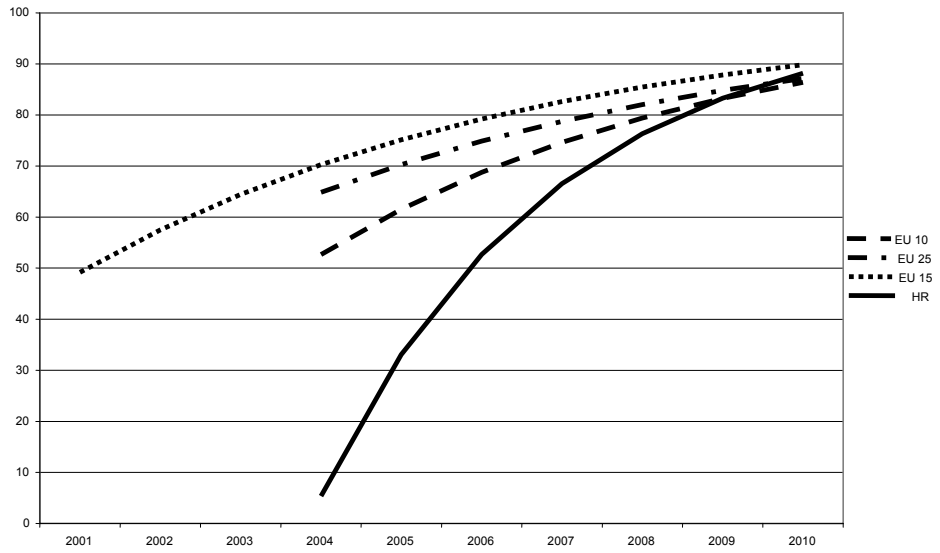

Figure 1. Availability of on-line services in EU member states and Croatia.

While Croatia still lags behind the EU average, the rate of increase of on-line availability was twice as fast in Croatia as in the new member states, and three times as fast as in the old member states.

Study on development of information society was commissioned in 2006. It showed that already in 2005 Croatia was in some aspects better or comparable to EU average. Still, use of ICTs in businesses was at the basic level, and Croatia was specially lagging in broadband availability to the households and the use of advanced internet technologies in the businesses.

Infrastructure

Basic prerequisite for the development of information society is wide availability of safe and secure network infrastructure.

National infrastructure for information security builds upon the National Programme for Information Security [CSAOeC 2005]. Based on this programme, in 2007 a new Law on Information Security was adopted, which sets-up institutional framework for the implementation of an information security policy. CARNet's CERT – Computer Emergency Response Team (http://www.cert.hr) – has thus legally, as well as functionally, become the national centre for responding to on-line treats.

Wide availability and reasonable cost of communication services are directly related to the development of the communications market. Ministry of Sea, Tourism, Transport and Development is responsible for the legal and institutional framework on electronic communications. Building up of the institutional capacity of the Croatian regulatory agency, changes in secondary legislation and adoption and implementation of the broadband strategy [MSTTD 2006] have helped opening up the market, lowering the costs and increasing the broadband penetration in households from less than 1% at the end of 2003 to above 22% in June 2007.

Croatian Academic and Research Network – CARNet has, since its founding, stayed at the forefront of networking developments in international research community. In cooperation with the University Computing Centre of the University of Zagreb (http://www.srce.hr), where CARNet started as a project, today we can say that CARNet leads the way in Europe, and Croatia is among the first countries in the world when it comes to education and research e-infrastructure. All schools, from elementary schools to higher education institutions, and all public research institutes are connected to the common network infrastructure. Number of services – from common authorisation and authentication infrastructure – part of the Eduroam space, to grid infrastructure, e-learning technologies and on-line access to international journals and books are available to CARNet users, and all student dormitories provide broadband CARNet access to all their student users.

With all these results, there are still things that need to be done. In the area of information security there are several by-laws and government decrees that need to be adopted in order to establish a comprehensive and coherent legal framework. CARNet CERT has to increase in staff to be able to continue providing high quality service with an expected increase in the number of internet users.

While the existing Telecommunications Law has enabled development of market and growth in the number of users, it is not harmonized with the new EU framework and in 2008 we expect a new Electronic Communications Law, fully aligned with the EU framework, to be adopted. Finally, Strategy for digital switch-over is being prepared and the introduction of digital TV broadcasting is expected to increase availability and quality of TV signal in many areas of Croatia, while also providing an additional channel for delivery of rich digital content.

Education

Information and communication technologies are essential both as learning infrastructure, and as an area of learning of utmost importance, since knowledge and skills related to the use of ICTs and digital content are becoming more and more a critical factor for employability. Network and equipment infrastructure in Croatian schools is already at a very high level, comparable to the most developed countries. Building on this infrastructure Ministry of Science, Education and Sports (MSES) is funding two portals for elementary and secondary education. CARNet portal for schools is a common web place for exchange of information and digital content for teachers, students and parents. Central portal for distance learning "Nikola Tesla" provides central infrastructure for digital learning content available to all students and teachers in Croatia.

Even though information and communication technology was offered as an elective subject in Croatian schools for a long period, implementation of the Croatian national educational standard provided definition of common content for ICT training. It has also highlighted the need to provide continuous education on ICTs and their use in education to teachers. More than 10 000 teachers went through the ECDL training. Additionally, CARNet's ELA – e-Learning Academy – provides one-year programs in e-Learning management, e-Learning tutoring and e-Learning design targeted at educators at all levels.

With high quality infrastructure available in Croatian education system, our priorities have to shift to providing high quality training opportunities for teachers, making available high quality digital learning content and gradually introducing information and communication technology as an obligatory subject at earlier stages of elementary education. Teachers should be able to acquire not only basic skills in using computers and the internet, but also the skills to effectively use digital learning content and educational applications, and take an active part in creating new digital educational content. While general educational content of high quality is already available globally and can be localized, it is of the utmost importance to create high quality national educational content (e.g. in language, geography, history, cultural heritage, etc.).

Science

Research in information and communication technology has been the enabling factor for rapid development of information society in the world. While this fact cannot be overstressed, I would like to draw attention to the other facet of research, as a building block of information society that is not as often emphasized. Research is also a producer of vast amounts of digital content in the form of databases, research reports, scientific papers and other publications. The very structure of the world wide web has been developed as a tool for online scientific collaboration.

Croatia has a good track record on creating digital content within the research community. In the World Summit Award competition of 2003 the award in the category e-Science was granted to the Croatian www.blue-world.org, In 2005 the World Summit Award was granted to the www.kopacki-rit.hr in the category e-Science and to the www.fauna.hr in the category e-Learning. This year Croatia was the host of the World Summit Award Grand Jury. At this time the winners are still not known.

The governments of the world agreed in the Geneva Declaration of Principles of the World Summit on Information Society [ITU 2003a] to promote universal access to all scientific knowledge, by inter alia supporting open access initiatives for scientific publications. Croatia is among the few countries that have created an open access portal to scientific journals. Hrčak (hrcak.srce.hr), as it is named, offers access to the journals following the standards adopted through the Open Access Initiative.

Since 2000 Ministry of Science and Technology has funded iProjects – aiming to encourage creation of high quality digital content and services through funding small scale projects in the research institutions and institutions of higher education with a requirement to make results online available. A remarkable number of projects created high quality educational and informative content that remains a part of the Croatian digital landscape.

In order to provide more incentive for creation of digital content within the research community National Council for Science and the Agency for Science and Higher Education should consider including criteria on digital publications among the evaluation criteria for the scientific promotion.

Culture

Croatian cultural heritage is a potentially rich source of digital content. Libraries, museums, galleries and archives hold vast quantities of data and objects that are accessible to only a limited number of visitors or researchers.

Availability of online services in libraries has been among the best since the beginning of national benchmarking, with high number of libraries offering online search of the catalogues and other services. Building on this experience Ministry of Culture initiated the National Programme of Digitisation of Archival, Library and Museum Holdings [MC 2006] aiming to develop and make widely

accessible content in digital form, as a way to protect and evaluate Croatian cultural heritage, present it through national, European and regional networks, preserve cultural diversity and make Croatian cultural contents available for use in education, tourism and other service industries. Implementation of the Programme is carried on through coordination of the Ministry, Croatian State Archives and the Museum Documentation Centre. The first project proposals are already under evaluation. The time-frame for the Programme implementation is 2007-2009.

e-Government and e-Business

Legal framework for information society services in Croatia is in place and its level of harmonization with the Acquis Communautaire is high. It includes Law on Electronic Signature (OG 10/2002), Telecommunications Law (OG 122/2003, 158/2003, 60/2004, 70/2005), Law on Electronic Commerce (OG 173/2003), Law on Personal Data Protection (OG 103/2003), Law on Electronic Document (OG 150/2005), Law on Classified Data (OG 79/2007), and Law on Information Security (OG 79/2007).

Through the implementation of the e-Croatia Programme the Government has introduced a large number of on-line services for citizens and businesses like e-VAT (value added tax), e-Crew (service for yacht charters), e-Land Registry (land ownership), e-Cadastre, e-Customs (online services for shipping agents), e-REGOS (online provision of data for the central registry of retirement insured persons), e-Pension (online provision of data to the Croatian Pension Insurance Administration) as well as online access to other national registries. In addition to providing higher quality of service and increasing its availability, it also aims to stimulate the use of internet by citizens and businesses.

In October this year the Central Portal of Public Administration MojaUprava.hr has been launched as a one stop shop web place for access to online information and services offered by the central public administration. The portal is based on the principle of user centricity. Research on user needs and usability were carried on in order to create more accessible and usable data presentation and portal functionality.

While we have witnessed a rapid increase in availability and use of online services, as well as increase in the use of e-commerce in private sector during the last four years, there are still many assignments to be carried on if we want to continue decreasing the gap between Croatia and the countries with highly developed e-business and e-public administration. Some specific laws and secondary legislation still explicitly require paper document or hand signature. In order to overcome these obstacles, we need to do research on remaining legal barriers to e-business and initiate appropriate change to legislation. Further efforts are needed on raising awareness about benefits of use of ICTs in business and public sector and on existing mechanisms and technologies for ensuring information security and protecting personal data. In the area of basic infrastructure

we need to establish national electronic identity management infrastructure with central gateway for authorisation and authentication for users of on-line services and civil servants. In a longer run we should introduce a national ID on a smart card. We have only started building interoperability framework for public administration information systems. Further work in this area will have to be coordinated with European efforts through the IDABC Programme of the European Communities. Croatia has already joined this programme. Building of the safe virtual private network HITRONet was a necessary prerequisite for back-office integration across different public authorities. Secure transactional middleware is the other such prerequisite that needs to be built.

e-Inclusion

While ICTs open new opportunities, they can also become an additional barrier to access to knowledge, if we do not take special care to remove or at least decrease these barriers from the beginning.

In Croatia, today, many web pages are created implementing latest fads in design and interactivity technologies, without taking into account needs of the people with disabilities. Within the *e*-Croatia Programme we emphasise the need to make digital information available to all groups of people. Thus we promote conformance with W3C WAG AAA (http://www.w3.org/TR/WAI-WEBCONTENT/) for all public web sites. The need to provide resources to all groups of citizens is also addressed in the Broadband Strategy – which aims to make broadband available not only to large cities, where investment into infrastructure is commercially viable, but also to those areas of Croatia where it is not profitable to invest in such infrastructure – such as islands or remote mountain areas. Availability of school computer labs, and broadband connectivity is essential to providing access to digital content and information resources to children in less well-off families. Switching to digital TV broadcasting will also create an additional channel of communication that will be more easily available and also more accessible to all.

Conclusion

Our efforts in building e-Croatia often remind me of the Red queen's reply to Alice: "Now, *here*, you see, it takes all the running *you* can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!" [Carroll, 1988]. We have started later, and we have been running 2-3 times as fast as other European countries. And we need to carry on running. The strategic framework and the implementation mechanisms we introduced have provided results in practice. We need to carry on, assessing the results as we go, and adjusting the objectives and priorities to the current situation. Coordinated action of all stakeholders is necessary to achieve the potential synergistic effect on the growth and competitiveness of the whole society.

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