# Electronic Document Management as the asis for E-government Services

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**Abstract**. *Since the beginning of 1990, the information society has indicated Europe's way to benefit from ICT development. This process has resulted with a number of initiatives like eEurope, eEurope 2002, eEurope+, eEurope 2005 and i2010 which have a common goal – to ensure better quality of life for all Europe's citizens. New services, applications as well as new markets are opening up significant opportunities. E-government can be seen as one of many new services which represent easy access and re-use of the information held in the public sector and answer on the need to speed up standard administration process for citizens and business. The main challenges in e-government service implementation are: building business processes that are efficiently supported by modern information and communication technology, document organization and electronic exchange between institutions, educating civil servants, encouraging and educating citizens to use new services. Some of the new services need legal framework, but some of them only need a new perspective and competence. In this paper authors present results of Electronic Document Management System implementation in Varaždin County and mark the relationship between EDMS benefits and weaknesses and e-government services.*

**Keywords**. Information society, eEurope, e-Government, e-Government services, EDMS, regional government, public services.

## 1. Introduction

The end of the past century was marked by the development of information and communication technologies. According to Hudson [16] key technological trends that are results of ICT development are based on:
a) capacity – new communication media has a large capacity to carry information;
b) digitization – analog communication is being replaced with digital;
c) ubiquity – service is available everywhere at anytime;

d) convergence – new media can be combined to satisfy user's needs.

To benefit from this wide range, ICT development and usage European Union decided to undertake some concrete action. The Result of this is a political initiative called eEurope. eEurope's main focus is to enter Europe and Europe's citizens in the new information society. Information society is following industrial society. The main characteristic of information society is the dominant influence of information technology on economic, cultural, political and social aspects of life.

When we say information society it sounds great, distant and scientific at the same time, but what is really information society? According to the Glossary of European Union, [4] information society is synonymous with what is meant by "new information and communication technologies" (ICT) with potential benefits and threats. Potential benefits are:
a) distance learning, e-learning related services;
b) teleworking, virtual companies;
c) practical life (e-health services);
d) leisure;
e) new opportunities in terms of participation of citizens by making it easier to express opinions and points of view.

Positive advances go hand-in-hand with new concerns:
a) new criminal behaviour, pirating, and questions of protection of personal data and intellectual property;
b) the information society may contribute to the marginalization of certain sections of society by emphasizing social inequalities.

It is needed to promote positive aspects of information society and to adopt measures to control and limit the risks.

## 2. Information Society Information Age

Members of the High-Level Group on the Information Society led by Martin Bangemann prepared for European Council Corfu meeting report [1] on the specific recommendation and concrete initiatives to carry Europe into information society.

In 1999 the European Union launched the initiative *e*Europe: An Information Society for all. *e*Europe's key objective [2] was to bring every citizen, home, school, business and administration into the digital age and online; to create a digitally literate Europe and ensure that the whole process would be socially inclusive, which builds customer trust and strengthens social cohesion.

In June 2000 the Action Plan *e*Europe 2002 [15] was agreed. This Action Plan stated three main objectives:

a) to ensure a cheaper, faster, secure Internet;
b) to invest in people and skills;
c) to stimulate the use of the Internet.

Action taken under this Action Plan should have impact on Internet access speed, access to modern communication networks and competitive prices. For research and student *e*Europe 2002 should ensure World Wide Grid to collaborate within dispersed scientific and industrial teams to work together in real time. As the answer to problems with the confidentiality and privacy of new information services, deployment of smart cards and better coordination in cyber crime fight was proposed. The e-Learning initiative was launched to use the advantages of new information society technologies for educational needs. Special attention will be given to disabled people through e-Participation. To increase the number of business to customer interaction, *e*Europe 2002 proposed a variety of initiatives for legislation in different areas of e-commerce like copyright, distance marketing of financial service, e-money etc. Electronic access to public service must be provided by public administration to easily access and re-use public sector information. The Initiative e-Health should ensure that healthcare providers have telematics infrastructure to disseminate health service best practices and to access health related information on the Internet. Under the action plan eEurope 2002 launched initiatives MEDIA and CULTURE 2000 to support digital content industries. As the part concerning intelligent transport system initiatives have been launched to use location information for emergency service, initiative "Single European Sky", than initiatives for intelligent system deployment in road, rail and maritime transport.

eEurope+ [3] 2003 initiative mirrors objectives and targets of eEurope 2002 Action Plan to help central and Eastern European countries (EU candidate countries) to prepare themselves and enter in information society. Candidate countries must catch up EU Members countries in information society development and be prepared for follow them.

In May 2002 *e*Europe 2005 Action Plan was launched to follow *e*Europe 2002 and *e*Europe 2000+. *e*Europe 2005 [13] focused on enabling opportunity for everyone to participate in the global information society. New technologies are bringing diversity of new services and markets. To run new services on new markets new building infrastructures are needed. Therefore, *e*Europe 2005 is based on two groups of action:

a) service, application and content;
b) infrastructure and security.

Those groups of action are combined with policy measures, development, analysis and dissemination of good practice, benchmarking and overall co-ordination of existing policies. Under the Action Plan *e*Europe 2002 was agreed to provide basic services online through the initiatives e-Government, e-Learning and e-Health. *e*Europe 2005 proposed for e-Government actions that cover broadband connections for all public administration by 2005; interoperability framework for e-Government service delivery; delivery of interactive, accessible public services; adoption of legislative package on electronically public procurement; easy access to Public Internet Access Points for all citizens; defining of e-services to promote Europe and offering of user friendly public information by both the private sector and regional authorities. According e-Learning initiatives *e*Europe 2005 aims for all schools and universities to have Internet access over broadband connection and the deployment of Europe-wide computer-supported networks and platforms that will allow collaborative work, access and sharing learning resources. By the end of 2005 all Member States should develop health information networks to connect hospitals, laboratories, paper-based forms needed for patient treatment should be replaced with electronic health cards and online health services should be provided to the citizen. Online health services should cover services like information on healthy living and illness prevention, teleconsultation, e-reimbursement, electronic health records as well as online information on air and water quality. To promote and encourage SMEs to working online establishment of e-business support network was proposed. On this way the private sector should develop e-business solutions for transactions, security, signatures, procurement and payments. Cyber security task force (CSTF) was made operational as a centre of competence on security question under *e*Europe 2005. All good practices that were results of development in all areas of *e*Europe 2005 were identified, selected, analyzed and disseminated through conferences, workshops, support networks and web sites.

In 2005 the Commission of the European Communities proposed *i*2010 – European Information Society 2010 [14] as new strategic framework. This framework is based on the use of ICT in public services, SMEs and households and is seen as a driver for growth, jobs and better quality of life. Under *i*2010 were proposed following priorities:

a) a single European Information space – is connected with term digital convergence. Digital convergence is a system of rules needed to offer faster and secure bandwidth

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communication, new digital service and rich, diverse content;

b) innovation and investment in ICT research – this aim is crucial to continue delivering jobs and growth. But research and innovation is not enough, deployment and adoption of ICT are also required. The Seventh Framework Programme (FP7) and the Competitiveness and Innovation Programme (CIP) are launched by the Commission. This Programme proposes increase for ICT research, first 1800m€ annually and second 800m€ for 2007 to 2013;

c) inclusion, better public services and quality of life – the Commission agenda for these goals covers policy on e-accessibility and coverage of broadband, a European initiative on e-Inclusion, an Action plan on e-Government and strategic orientations on online public services and launching flagship ICT initiatives on key social challenges.

## 3. E-Croatia 2

In 2000 the Government of the Republic of Croatia started the development processes of strategic documents for ICT and uses the sources in the European Union. It is obvious that Croatia was not far behind the EU at that time, but the problem wasn't in strategy, but in the implementation. In 2003 the Government of the Republic of Croatia adopted the e-Croatia 2007 programme which marks the efforts to transform the Croatian society into an information society.

Croatia must take coordinated, comprehensive and dynamic action to make a faster step forward into the information society. The aim of the e-Croatia 2007 programme is to provide the Croatian citizens and the economy with the highest level of information services.

The main objectives of this project are the following [5]:

a) to provide an opportunity for citizens to receive information in a timely manner and therefore actively participate in society through a networked information system;

b) to strengthen and connect business entities of the Croatian economy;

c) to provide a comprehensive exchange of information and experience in the business and entrepreneurial world;

d) and finally, to enable the state to become a transparent, quick and efficient service to its citizens.

In accordance with the Government of Republic of Croatia Programme for the 2003-2007 term of office, the e-Croatia 2007 programme will provide opportunity for [5]:

a) informatisation of the Croatian educational system within the process of general modernization of education, therefore developing a system of educational programmes available on the Internet for widespread use and a lifelong learning system;

b) on-line access to health care services and quality medical assistance, regardless of the institution where patients are actually registered;

c) building and equipping of science-business parks throughout the country where young graduate entrepreneurs will be given a two-year free-of-charge lease on premises and equipment to start their own IT business. The funds for building such centres will be established through the collaboration of the state, private capital, Croatian emigrants and international financial institutions;

d) in the period between 2004 and 2007, creating and networking a system which will provide each and every citizen with necessary services in public administration, health care, education and jurisdiction obtained via the Internet. Thus, a citizen will be able to communicate via the Internet with bodies of public administration, to request and receive various documents, endorsements and settlements, as well as information about the functioning of public authorities.

### 3.1. he implementation of the e-Croatia programme

It is stated earlier that the real problems were in implementation. Mechanisms of implementation and monitoring of the activities and projects of the e-Croatia 2007 programme planned in a particular year were incorporated in the following documents: Operational Plan for the Implementation of the e-Croatia 2007 Programme for the year 2004/2005 [10], Operational Plan for the Implementation of the e-Croatia 2007 Programme for the year 2006 [11], Operational Plan for the Implementation of the e-Croatia 2007 Programme for the year 2007 [12].

Those documents are issued as a framework for the enforcement and monitoring of the programme in order to establish and provide a successful and effective implementation of the programme at the level of activities, projects and implementation measures [6].

The e-Croatia 2007 programme [12] follows the guidelines of The Action Plan e-Europe 2005, supplemented with the recommendations for the Action plan after 2005 (e-Government beyond 2005) and finally The i2010 Initiative which recognizes information and communication technology as a powerful moving force in both development and employment.

By adopting these guidelines and by implementing the e-Croatia 2007 programme, the Republic of

Croatia will fulfil the precondition for increasing the general competitiveness of the country as well as active participation on equal footing in the development of a knowledge-based society for which we strive.

The e-Croatia 2007 programme comprises of several areas [6]:

a) broadband;
b) interoperability;
c) information security;
d) HITRONet Network;
e) e-Government;
f) e-Justice;
g) e-Education;
h) e-Health;
i) e-Business.

Croatia as a country has a state, regional and local government. In strategic documents like the study on development of information society [9] the other two parts of government are forgotten. Always present are overviews, analysis, programmes, etc. of public services and business services of state government but nothing is said about regional and local government services to the citizens. Of course, the majority of services are in competence of state administration, but competences are overlapping in some areas:

a) broadband;
b) interoperability;
c) information security;
d) e-Government;
e) e-Education;
f) e-Health.

Those overlaps are in different levels but they exist. It is important not to ignore those facts.

At the moment, the majority of all regional and local governments are in a so called deep sleep and little thought is given to information society. However, Varaždin County is one regional government that clearly recognizes the importance.

## 4. he role of EDMS in regional government

Regional government – county (according to law) [7] has competence in areas:

a) education;
b) health care;
c) urban and area planning;
d) economic development;
e) traffic and road infrastructure;
f) planning and development of educational, health, social and cultural institutions.

That means that the county's concern is to create the framework and specifications of services for its citizens through strategic planning and creating public policies. That also means that direct services are provided mainly through institutions which are in the county's ownership. For example, the County plans the network of primary healthcare institutions, the level of services to the citizens, decides who will be the managers of these institutions, but those institutions provide services to the citizens. The amount of direct services is very small.

The County has very intensive information flow into, inside and out of the County. Information is usually in paper form and handling with that kind of information poses difficulties. Some authors state that 80% of informational resources are in document form [17], in Varaždin county that statement can be confirmed. Handling with paper documents became very difficult but possible. Handling with electronic documents in an ordinary way is impossible, thus, something has to be done.
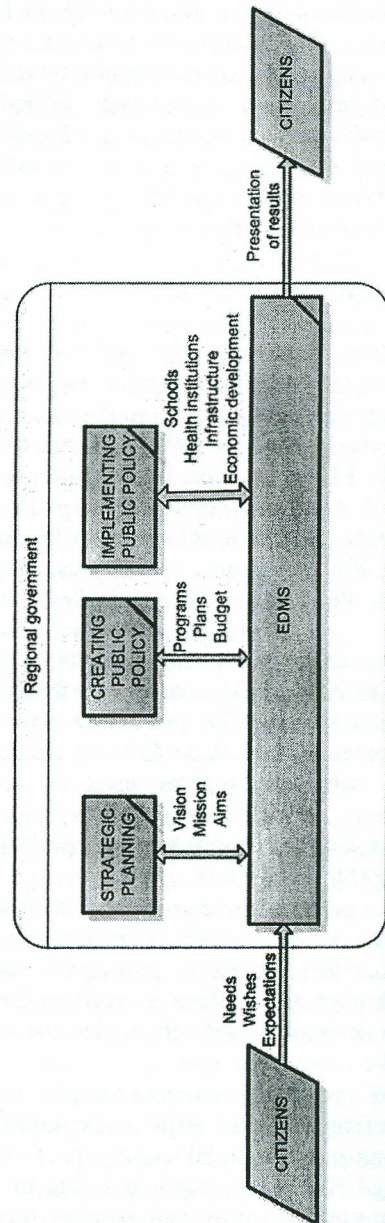


**Figure 1. D S as basis o e o ernment**

The County decided to implement e-Government principles into administration business operations. This means application of modern information and communication technology as the main prerequisites for increasing efficiency and to provide as many

services to the citizens as possible. The result was the implementation of the Electronic Document System. That system connects all departments, all public servants, and all kinds of information and enables efficient communication and document handling. Connection to the internet enabled the first public service – every citizen which had some kind of communication with the County had the possibility to access its file and convince himself at which stage is its case.

Because the main concern of regional government is efficient handling with information, we see the role of the Electronic Document Management System as basis for e-Government (Fig. 1). Electronic public administration (e-Government) is impossible without EDMS which is a result of implementation modern information and communication technologies.

## 5. he result of EDMS implementation

For the majority of new EDMS effects new indicators and methods for measuring must be revealed, because just a small amount of indicators can be measured with classical methods. Particularly for non profit organizations, like Varaždin County. Performance of the whole EDMS can be expressed through four different perspectives: financial success, relationship with users, business processes and learning quality and finally, growth and development.

In our case we can use measures like "average time of processing cases" and "rate of active and passive time of case processing". In Varaždin County "average time of case processing (days)" decreased from 158 days (in year 2005) to 84 days (in year 2006). It has to be mentioned that according to Office work regulation [8] a case can be active for two years. Therefore the real results of unsolved cases for 2005 and 2006 year will be proved in year 2007 and 2008.

Varaždin County has been using EDMS for two years and some advantages can be specified.

Public servants report that document distribution and retrieval is faster, the distribution of work is better, there are no lost and misplaced files, electronic document handling is improved. Work with customers and the decision-making process is easier. Security and control are improved, archiving is centralized and it takes less space.

There are some disadvantages about EDMS. Whole EDMS is realized with Microsoft technologies so it depends on it. Some individuals reject new technology because they are lacking in IT skills. Other institutions do not have any information system. The cost of implementing EDMS is significant because some preconditions must be realized (networking, computers in all workplaces, servers, internet connections, etc.). Management must accept certain risk and decide whether they'll accept some problems and costs in implementing EDMS or not. In the long term view, their business will benefit from the EDMS advantages.

## 5. Conclusion

Governments of all levels realized that all society can benefit from fast development of information and communication technology. To implement that technology they are trying to restructure their business processes and provide sets of services to their citizens and business subjects. The Republic of Croatia is undertaking measures to transform Croatian society into an information society but those measures do not include regional and local governments. They must undertake something themselves.

Varaždin County decided to invest in EDMS and tried to use modern information and communication technology as much as possible. The use of EDMS provides better security measures, facilitates all document processing procedures and decreases average time of case processing. Today, all internal communication is in electronic form. Because of its important role in all processes, EDMS is the base of e-Government services in regional government.

## 6. References

1. ***, Europe and the global information society – Bangemann report, Recommendations to the European Council, <http://ec.europa.eu/information_society/eeurope/i2010/docs/communications/com_229_i2010_310505_fv_en.pdf>, (accessed on 28.5.2007.)
2. ***, eEurope, An Information Society For All, Communication on an Commission Initiative for the Special European Council of Lisbon, 23 and 24 March 2000, <http://ec.europa.eu/information_society/eeurope/2002/news_library/pdf_files/initiative_en.pdf>, (accessed on 28.05.2007.)
3. ***, eEurope+ 2003, A Co-operative effort to implement the Information Society in Europe, Launch and Action Plan, <http://ec.europa.eu/information_society/eeurope/plus/action_plan/index_en.htm>, (accessed on 24.5.2007)
4. ***, Europa Glossary, <http://europa.eu/scadplus/glossary/information_society_en.htm> (accessed on 31.5.2007)
5. ***, E-croatia 2007 programme – Summary <http://www.e-croatia.hr/modules.php?name=Content&pa=showpage&pid=5> (accessed on 30.05.2007)
6. ***, E-croatia 2007 programme – Implementation, <http://www.e-croatia.hr/modules.php?name=Content&pa=showpage&pid=6> (accessed on 30.05.2007)
7. ***, Zakon o lokalnoj i područnoj (regionalnoj) samoupravi , "Narodne novine" No. 33/01., 60/01., 2001.
8. ***, Uredba o uredskom poslovanju, Narodne novine No. 38/87., 1987.
9. Central State Administrative Office for e-Croatia, Studija razvoja informacijskog društva u

Hrvatskoj u 2005. godini, October 2006,
<http://www.e-
hrvatska.hr/repozitorij/dokumenti/downloads/Stud
ija_razvoja_informacijskog_drustva_2005.pdf>
(accessed on 30.05.2007)

10. Central State Administrative Office for e-Croatia,
Operational Plan for the Implementation of the e-
Croatia 2007 Programme for the year 2004/2005.
(Croatian), June 2004, <http://www.e-
hrvatska.hr/repozitorij/dokumenti/downloads/oper
ativni_plan_eHR2004.pdf> (accessed on
30.05.2007)

11. Central State Administrative Office for e-Croatia,
Operational Plan for the Implementation of the e-
Croatia 2007 Programme for the year 2006 (in
Croatian), April 2006, <http://www.e-
hrvatska.hr/repozitorij/dokumenti/downloads/plan
_provedbe_e-Hrvatska_za_2006.pdf> (accessed
on 30.05.2007)

12. Central State Administrative Office for e-Croatia,
Operational Plan for the Implementation of the e-
Croatia 2007 Programme for the year 2007
(Croatian), May 2007, <http://www.e-
hrvatska.hr/repozitorij/dokumenti/downloads/Oper
ativni_plan_eHrvatska_za_2007.pdf> (accessed
on 30.05.2007)

13. Commission of the European Communities,
eEurope 2005: An information society for all,
Brussels, Action Plan, 28.5.2002.,
<http://ec.europa.eu/information_society/eeurope/
2002/news_library/documents/eeurope2005/eeuro
pe2005_en.doc>, (accessed on 28.05.2007.)

14. Commission of the European Communities, i2010
– A European Information Society for growth and
employment, Brussels, 1.6.2005.,
<http://ec.europa.eu/information_society/eeurope/i2
010/docs/communications/com_229_i2010_31050
5_fv_en.pdf>, (accessed on 28.5.2007)

15. Council of the European Union, Commission of
the European Communities, eEurope 2002, An
Information Society For All, Action Plan,
Brussels, 14.6.2000.,
<http://ec.europa.eu/information_society/eeurope/
2002/news_library/documents/eeurope2005/eeuro
pe2005_en.pdf>, (accessed on 28.05.2006.)

16. Hudson, H. E., from rural village to global village:
telecommunication for development in the
information age, Lawrence Erlbaum Associates,
New Jersey, 2006, pp. 4.

17. Sorić, D., Automatizirana izrada i upravljanje
dokumentima, Case 15, Opatija, 2003.