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Revija »Organizacija« je interdisciplinarna, znanstvena in strokovna revija, ki objavlja prispevke s področja organizacijskih ved, poslovne informatike in managementa človeških virov. Pokriva predvsem naslednje tematske sklope:

- *Oblikovanje in prenova poslovnih procesov in organizacijskih struktur*
- *Organizacijski pristopi in njihova uporaba*
- *Organizacijski ukrepi za izboljšanje učinkovitosti in uspešnosti poslovnih sistemov*
- *Management kakovosti*
- *Management človeških virov (HRM)*
- *Oblikovanje in prenova informacijskih sistemov*
- *Procesi odločanja.*

Vsebina ni omejena na navedene tematske sklope. Še posebej želimo objavljati prispevke, ki obravnavajo nove in aktualne teme in dosežke razvoja na predmetnem področju revije, in njihovo uvajanje in uporabo v organizacijski praksi.

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The implementation projects of e-business systems are strategic and complex projects. They require substantial resources, and yet, the success is not guaranteed. Organizations must try to minimize risks by focusing on critical success factors (CSFs) of e-business implementation. We have researched different viewpoints of e-business implementation CSFs. The paper presents an overview of some of existing e-business implementation business models and analyses research about e-business implementation CSFs. Identified CSFs are discussed and linked to the e-business implementation process.

Key words: E-business, CSFs, e- business implementation, e-transformation

Tina Jukić, Mirko Vintar

E-government: the State in Slovenian Local Self-government

The paper presents the results of empirical research intended to ascertain the level of Slovenian municipal web services. Analysing the municipal websites, we were interested in how many of municipalities perform legal duties by transmitting various documents via the World Wide Web; we observed the state of local e-services evolution and the presence of virtual forums and polls as the most important segments of e-participation. Furthermore, we examined how many municipalities publish their basic contact data and information of various social fields, such as health, economy and educational data on their websites. Slovenian local self-government's web services are weak, but strongly and positi-

vely correlated to the populations of municipalities.

Key words: e-government, e-local self-government, municipal website, web services

Mateja Podlogar, Josef Basl

SAP ERP Case Study at University of Maribor, Slovenia and at University of Economics, Prague, Czech Republic

The paper describes two cases of Enterprise Resource Planning (ERP) systems integration into the educational process. Case studies used at the University of Maribor, Faculty of Organizational Sciences, Slovenia and at the University of Economics Prague, Czech Republic are presented and explained with regards to where and how they are used. The lectures and seminars on the ERP systems and the market share leader ERP system SAP are available for students at both universities. Both universities have gained much practical experience with the teaching of ERP based on exercises and practical experience with the SAP product done by students. As a next step, both universities plan to prepare a common international e-business course based on scenarios running on the SAP application accessible for students from both universities. This kind of cooperation could give student projects a new international dimension.

Key words: case, education, Enterprise Resource Planning (ERP), process, procurement, SAP, teaching, selling

Anton Lavrin, Miroslav Zelko

Knowledge Sharing in Regional Digital Ecosystems

The knowledge-based networked business ecosystem represents a geographical (or virtual) area where specific regional policy initiatives could foster growth and improve innovation, productivity and social aspects through the optimal use of local assets empowered by information and communication systems (ICT). Effective human interaction with ICT within such a regional digital ecosystem depends on access methods, suitability and form of content and knowledge sharing. A network of digital ecosystems, as public common resource, offers to regions and to less-developed areas opportunities to participate in the global economy.

Key words: digital ecosystem, regional business digital ecosystem, integrated business information, electronic content management, document management system, knowledge sharing and management

Executive Meetings on Cross-border eCommerce Development in the Region

1st Business and Government Executive Meeting: Regional Cooperation in eCommerce Development: Business & Government Executive Meeting, June 25, 2001.
14th Bled eCommerce Conference: eEverything: eCommerce, eGovernment, eHousehold, eDemocracy.
2nd Business and Government Executive Meeting on Regional e-Commerce Development, October 23, 2001. SKB Bank - Société Générale Group, Ljubljana, Slovenia. Participating countries: Austria, Croatia, Hungary, Italy, and Slovenia.
3rd Business and Government Executive Meeting: Challenges in Regional Cross Border eCommerce: Business Executives Perspective, June 18, 2002. 15th Bled eCommerce Conference: eReality: Constructing the eEconomy.
4th Business and Government Executive Meeting on Cross-border eCommerce Development in the Region. SKB Bank – Société Générale Group, Ljubljana, October 24, 2002.
5th Business & Government Executive Meeting on Cross-border eCommerce Development in the Region: Single Electronic Market in the Region, June 9, 2003. 16th Bled eCommerce Conference: eTranformation.
6th Business and Government Executive Meeting on Cross-border eCommerce Development in the Region. Chamber of Commerce and Industry of Slovenia, Ljubljana, October 16, 2003.
7th Business & Government Executive Meeting On Cross-Border eCommerce Development In The Region, June 22, 2004. 17th Bled eCommerce Conference: eGlobal.
8th Executive Business, Government, and University Meeting On Cross-border eInvoicing in eRegion, October 22, 2004. Merkur Day 2004, Undergraduate and Graduate Students in eCommerce Conference.
9th Business & Government Executive Meeting: Cross-border eCommerce Development within the eRegion, June 7, 2005. 18th Bled eConference: eIntegration in Action.
10th Business & Government Executive Meeting on Cross-border eRegion, November 11, 2005. Merkur Day 2005, Undergraduate and Graduate Students eConference.

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eRegion in eEurope

The idea of eRegion development was first presented by the Slovenia Delegation at the meeting of the Information Society Technologies Committee (DG Information Society) in Brussels on September 20, 2000. It was proposed that regional development exploiting e-technologies may be relevant to the countries preparing for European Union membership. Based on that idea, the Department for International Cooperation at the Ministry of Education, Science, and Sport, sponsored a related meeting in Ljubljana on November 15, 2000. The meeting triggered two workshops in 2001:

The 1st Workshop on the Preparation of Regional ITS Development Projects: Organizational prototype of cross-border Business-to-Business and Business-to-Government eCommerce in Central Europe. Sponsored by the Research and Development Division, Ministry of Education, Budapest, Hungary; March 27-28, 2001.

The 2nd Workshop on the Preparations of Regional ITS Development Projects: Organizational Prototype of Cross Border Business-to-Business and Business-to-Government eCommerce. Sponsored by Intereuropa, Koper & ATNET, Koper, Slovenia; May 31, 2001.

The two workshops lead to the Executive Sellers & Buyers Meeting: Regional Cooperation in eCommerce Development of the 14th Bled e-Commerce Conference (June 25, 2001, http://www.bledconference.org). The purpose of the meeting was to bring together business and government executives involved in cross-border transactions, business process facilitation and simplification as well as eCommerce technology provision. The objectives of the meeting were: to encourage top executives to conduct business electronically, to motivate the use of latest electronic commerce technologies and to prepare proposals for joint cross-border eCommerce projects in the region. The meeting on June 25, 2001 was the first in a series of the business and government executive meetings on cross-border eCommerce development taking place in Slovenia twice a year since then. A list of the Executive Meetings 2001-2005 is below.

From a geographic perspective, an eRegion is defined as an area of some 200-500 kilometers around a point of observation. In the eRegion business and government organizations extensively use eTechnologies for doing business. The eRegion relates to the crossing of the European Transport Corridor No. 5 (Lisbon – Kiev) and No. 10 (Hamburg – Istanbul & Thessalonica). The objective of the Executive Meeting is to contribute to an accelerated cross-border exchange of e-documents between business and government organizations in the emerging eRegion of the neighboring countries. It is assumed that the region may become more competitive by innovative implementation of eTechnologies in business processes.

In the region of the neighboring countries, the Universities Network eBusiness ALADIN – ALpe ADria INitiative was initiated in 2002. It now involves the Universities of Corvinus Budapest, Hungary; Karl-Franzens Graz, Austria; Košice, Slovakia; Maribor, Slovenia; BW München, Germany; Novi Sad, Serbia & Montenegro; Prague, Czech Republic; Rijeka, Croatia; and Trieste, Italy: (http://www.aladin.units.it). The ALADIN universities were very much involved in the preparations of the Executive Meeting.

In recent years an increased interest in eRegions is identified. Various initiatives may have different names; they share, however, a focus on e-Technology usage supporting organizations and individuals in the cross-border environment. For example:

The TeleRegions Network (TRN)
http://www.teleregionsnetwork.org

NeDAP - Northern eDimension e-Government Action Plan
http://www.riso.ee/en/nordic

The Nordic Experience
http://europa.eu.int/comm/regional_policy/sources/docconf/gothenburg/index.cfm

The Central European Initiative – CEI
http://www.ceinet.org

TRACECA – TRAnsport Corridor Europe Caucuses Asia, The New Silk Road
http://www.traceca-org.org

In Slovenia, several current initiatives are devoted to eRegion development:

eInvoicing in eRegion: Slovenia's Project Initiative (November 2005):
http://ecenter.fov.uni-mb.si/eracuni/pobuda.pdf

Information Systems Interoperability of Organizations Involved in a Major Disaster Relief in eRegion: Slovenia's Project Initiative (February 2006):
http://www.elivinglab.org/safe/pobuda.pdf

ICT-Powered eRegion (Central Europe):
http://ecenter.fov.uni-mb.si/ict-powered_eregion.pdf

Individuals interested in eRegion development and inter eRegions cooperation are encouraged to joint the effort.

Jože Gričar,
Special Issue Editor, March 2006

Comparative Analysis of E-Business Implementation Critical Success Factors

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The implementation projects of e-business systems are strategic and complex projects. They require substantial resources, and yet, the success is not guaranteed. Organizations must try to minimize risks by focusing on critical success factors (CSF-s) of e-business implementation. We have researched different viewpoints of e-business implementation CSFs. The paper presents an overview of some of existing e-business implementation business models and analyses research about e-business implementation CSFs. Identified CSFs are discussed and linked to the e-business implementation process.

Key words: E-business, CSFs, e- business implementation, e-transformation

Komparativna analiza kritičnih dejavnikov pri uvajanju elektronskega poslovanja

Projekti uvajanja sistemov e-poslovanja so strateški in kompleksi projekti. Tovrstni projekti zahtevajo precejšnje resurse, pa vendar njihova uspešnost ni zagotovljena. Organizacije morajo minimizirati tveganja s tem, da se osredotočijo na kritične dejavnike uspeha uvajanja e-poslovanja. V prispevku smo raziskali različne vidike kritičnih dejavnikov uspeha uvajanja e-poslovanja. Predstavljamo pregled nekaterih modelov uvajanja e-poslovanja in raziskav s področja kritičnih dejavnikov uspeha uvajanja e-poslovanja. Prepoznani kritični dejavniki uspeha so predstavljeni, opisane pa so tudi povezave dejavnikov s procesom uvajanja e-poslovanja.

Ključne besede: E-poslovanje, kritični dejavniki uspeha, uvajanje e-poslovanja, e-preoblikovanje

1 Introduction

Rapid development of information technology has enabled e-business to become a global phenomenon. As the internet became more commercialized and users began to participate in the World Wide Web in the early 1990s, the term e-business was coined and e-business applications expanded rapidly (Turban *et al.,* 2000). Organizations adopt e-business for several reasons and perceived benefits. Authors mention better management of information, better integration of suppliers and vendors, better channel partnership, lower transaction costs, improved market understanding, expanded geographical coverage (Damanpour, 2001), trading time expanded to 24x7x365 (Tsao *et al.,* 2004). But the problem is not in finding reasons and benefits of e-business, it is in implementation. Because e-business can be done in so many different ways, organizations are facing a serious challenge, when implementing e-business applications.

Implementation of e-business is a project, which influences all levels of an organization. For an organization to successfully implement and benefit from e-business, management has to consider several CSFs.

We have researched different viewpoints of e-business implementation CSFs. The paper presents an overview of some of existing e-business implementation business models and analyses research about e-business implementation CSFs. Identified CSFs are discussed and linked to the e-business implementation process. Findings will be the basis for hypothesis building for a field study of e-business implementations of different systems and later for in-depth case research in selected organizations.

2 Introduction to methodological issues of e-business implementations

E-business implementation, if not taken seriously enough, can have very negative consequences on organizations. Some companies have made impressive studies, but many have suffered from lack of reliable guides along the road

to e-business transformation (Barua *et al.*, 2001). An e-business implementation is from the outset aimed at integrating business processes with external business partners (Ash and Burn, 2003). Main focus is on the integration of cross-company value chains using e-business tools (Kalakota and Robinson, 2001). E-business implementation is not a one time event. Activities continue on an ongoing basis to accommodate changing relationships with business partners and enhanced functional and technical scope of existing relationships (Norris *et al.*, 2000).

One major problem in transforming organizations is found to be lack of business models. Several models have been developed so far, some of them are (Arunatileka and Ginige, 2003):

- Seven steps to Nirvana by Prof. Mohan Sawhney,
- Seven Co-business Strategy Formulation by Pricewaterhouse Coopers,
- 7S Model for Change Management by McKinsey Consultants.

On the basis of above models and using the experience gained from various eTransformation projects, an additional model was created, that is "Seven Es in eTransformation" (Arunatileka and Ginige, 2003).

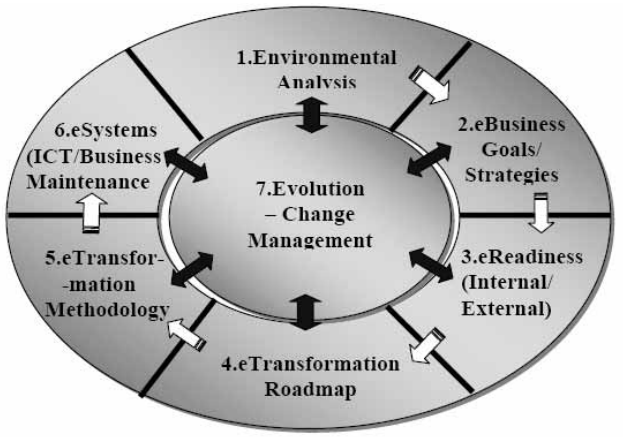

Figure 1: The Seven E's in eTransformation (Arunatileka and Ginige, 2003).

The model (see figure 1) consists of seven very important aspects of e-business transformation process. Each stage is important on its own and as a part of the whole process. Six stages are to be achieved one after another; additionally all are linked to the Evolution stage, which deals with issues related to change management. After each stage, the organization goes through the changes to the evolution stage and through that to the next stage, after the required evolutionary changes have been made (Arunatileka and Ginige, 2003).

3 CSFs in e-business implementations

In order for organizations to realize the full advantages of e-business solutions, they need to identify the CSFs of implementation. It has been suggested that management needs to pay attention to those areas, and make performance measures integral to the definition of CSFs in order to preclude poor enterprise performance (Khandelwal, 2001). With this in mind, organizations should also be aware, that the key to e-business success is to complement an organization's specific business knowledge with the necessary awareness of the new opportunities created by e-business (Norton, 2000). Central and axiomatic to this viewpoint is that adoption of e-business should be appropriate, relevant, value adding, and operationally as well as strategically viable for an organization instead of being a result of apprehensive compliance (Dubelaar *et al*, 2005).

We have scanned computer databases and published books on the subject of e-business implementation CSFs. Through the review of these sources, we were able to identify ten papers that were focused on e-business implementation success factors. In table 1 we have summarized major CSFs mentioned by authors. CSFs are sorted by number of authors, who mentioned them; authors are sorted in alphabetical order. Most important CSFs are further discussed bellow.

3.1 Top management support and involvement

Table 1 shows that most important success factor is top management support and involvement. Sustained management support, cited as the most relevant factor in implementation projects, is needed throughout the implementation project (Lertwongsatien and Wongpinunwatana, 2003; Phan, 2001; Grandon and Pearson, 2003; Molla and Licker, 2005). Top management needs to constantly monitor the progress of the project, provide directions to the implementation teams and establish clear priorities. Adopting and implementing e-business requires substantial resources that are forthcoming only with the active support from top management (Lertwongsatien and Wongpinunwatana, 2003). As Kalakota and Robinson (2001) putted, senior executives who rely on IT managers to relate technology to overall business strategy do so at their own peril. Executives must take responsibility for understanding the implications of up-and-coming technologies and anticipating when they'll affect business strategy (Kalakota and Robinson, 2001).

3.2 Clear goals, objectives and planning

Before making action plans, we have to be aware of organization's perception, comprehension, and projection of the benefits and risks of e-business (Molla and Liker, 2005; Lertwongsatien and Wongpinunwatana, 2003). Clear goals and objectives, should be specific and operational and indicate the general directions of the project (Somers and Nelson, 2004). Feasible budget and schedule predictions are also very important (Chuang and Shaw, 2005; Butler, 2000). Well-defined objectives help to keep the project constantly focused, and are essential for analyzing and measuring success. After that, extensive planning and an understanding of the concepts of e-business sys-

Table 1: Published articles about e-business implementation CSFs.

Critical success factor	Author									
	1	2	3	4	5	6	7	8	9	10
Top management	X		X	X	X	X	X	X	X	
Clear goals, objectives and planning	X	X	X	X	X	X		X		
Compatibility (infrastructure)	X		X	X		X	X	X		X
Market forces			X	X	X	X	X		X	X
Competencies of internal users			X	X	X	X		X		X
Government support			X		X		X	X		X
Strategy	X							X	X	X
BPR		X						X	X	
Change management		X				X				X
Consultants		X							X	
Excellent project management	X				X					
Firm size				X			X			
Project champion	X	X								
Effective communication	X									
Minimal customization		X								

[1] Butler (2000)
[2] Chuang and Shaw (2005)
[3] Grandon and Pearson (2003)
[4] Lertwongsatien and Wongpinunwatana (2003)
[5] Molla and Licker (2005)
[6] Phan (2001)
[7] Thatcher, Foster and Zhu (2005)
[8] Tsao, Lin and Lin (2004)
[9] Viehland (2000)
[10] Zhu, Kraemer, Xu, Korte and Selhofer (2005)

tem will result in the company saving much more time in the implementation process.

3.3 Compatibility (infrastructure)

Compatibility of new technology with the firm's existing technology influences e-business adoption (Zhu *et al.*, 2005). If e-business implementation requires the same or similar technological infrastructure that is already in use, the success is more likely. If organizations had already implemented some form of enterprise resource planning (ERP), inter-organizational integration involved in e-business has the potential to pay significant dividends because this leverages the internal integration within the firm (Thatcher *et al.*, 2005). Adopting e-business entails with the selection and implementation of a suite of technologies (i.e., hardware, software), therefore if the innovation is compatible with existing work practices, environments and firms' objectives, firms will be more likely to adopt them (Lertwongsatien and Wongpinunwatana, 2003).

3.4 Market forces

Market forces CSF refers to the application and use of e-business by a firm's competitors, customers, suppliers, and business partners (Molla and Licker, 2005). Pressure from business's market forces has been identified as one of the key drivers for the adoption and subsequent level of utilization of e-business (Dos-Santos and Peffers, 1998). There are two possible implications of this CSF. First, an organization can start the e-business initiative (because of perceived benefits or fear of competitive disadvantage) and customers, suppliers and business partners will follow. Second, an organization is forced into e-business adoption by the same market forces. E-business can be used as a strategic tool to implement an organization's chosen strategy and respond to competitors (Lertwongsatien and Wongpinunwatana, 2003). Some authors argue that the most important key to success is to focus on the customer (Phan, 2001). E-business system has to be customer-centric.

3.5 Competencies of internal users

This success factor is very important because human resources are crucial in the implementation process. One distinct problem was recognised in that the knowledge and skill base is ever changing because the technology in not yet mature (Zhu *et al.*, 2005). As a result it is very important that employees who work on e-business project are constantly improving their knowledge. Organizations with IT departments are in a better position to acquire new knowledge for adopting e-business, since IT departments can be viewed as a source of IT related skills and

knowledge (Lertwongsatien and Wongpinunwatana, 2003). Since e-business implementation is a project, we have to consider rules of team building. So, selecting the right employees to participate in implementation process and motivating them is critical for the implementation's success (Khan, 2002).

3.6 Government support

Government can encourage e-business diffusion by providing supportive infrastructure, legislation, public policies and regulatory frameworks (Molla and Liker, 2005). Governmental support varies between developing countries and developed countries. As the state of supporting infrastructure in developing countries is not at the level of those in developed countries, this actually has a negative effect on the uptake of e-business. One of major areas, where government can help is security. A related study of e-business and globalization indicates that e-business adoption is slow in countries without strong privacy legislation and security protection (Zhu and Kraemer, 2002).

3.7 Strategy

If an organization wants to benefit from an e-business system, it has to prepare a clear strategy or a plan. If it is a commercial organization, one way of doing this is to incorporate new internet-based functionalities into their existing marketing strategy (Tsao *et al.*, 2004). Plans have to be prepared prior to start of implementation process. Another angle of this CSF is that firms are more likely to adopt open, standard internet-based e-business system, than proprietary, closed technologies such as EDI (Zhu *et al.*, 2005).

Businesses must develop information-centric business strategies to participate in the Information Age economy. Value will be found in information-based products such as branding, customer relationship, supplier integration and the use of key information assets (Viehland, 2000).

3.8 Business process reengineering

The software my not necessarily fit our business processes, so implementing an e-business system also involves reengineering business processes to the best business standard. The adoption of e-business is not just technological gimmickry; it is in fact a whole new way of doing business that replaces traditional models (Tsao *et al.*, 2004). Implementation of e-business system also brings increases in operational efficiency and effectiveness and a chance to reengineer the business process (Tsao *et al.*, 2004). Some organizations hire consultants to reengineer their business processes to fit the software system they intend to implement (Chuang and Shaw, 2005). In these cases it is important for consultants to have very good system process knowledge (Chuang and Shaw, 2005).

3.9 Change management

E-business implementation may significantly affect organizational structures, policies, processes and employees, and can cause resistance, confusion, redundancies, and errors if not managed effectively. Many implementations fail to achieve expected benefits possibly because companies underestimate the efforts involved in change management (Somers and Nelson, 2004). Given that e-business can also involve major changes in business process, it is important that managers also develop human resources skilled in change management. These technical and managerial capabilities are essential to a firm's ability to capitalize on the relative advantage of e-business and mitigate the negative influence of adoption costs and organizational change (Zhu *et al.*, 2005). Employees not only have to change how they work but also how they behave. Somers and Nelson (2004) said that such activities appear to be important from the early stages of a project and continue throughout the adaptation and acceptance stages. If people are not properly prepared for the imminent changes, then denial, resistance and chaos will be predictable consequences of the changes created by the implementation.

3.10 Consultants

The success of a project depends strongly on the capabilities of the consultants because the consultant is the only one with in-depth knowledge of the software. On the other hand if consultants lack business process knowledge, this can dramatically increase implementation difficulties (Chuang and Shaw, 2005). Somers and Nelson (2004) added that an organization frequently uses outside consultants for setup, installation, and customization of their software. They provide a very valuable service by filling gaps, providing expertise, and thinking outside the box (Khan, 2002). They are specialized and can usually work faster and more efficiently. Organizations have to establish a knowledge transfer mechanism by which consultants' role is defined clearly and their skills and expertise are acquired and transferred adequately.

3.11 Project management

Since the combination of hardware and software and the organizational, human and political issues make many e-business projects huge, complex and risky, effective project management is crucial from initiation to acceptance (Somers and Nelson, 2004). Because e-business systems implementation is a set of complex activities, involving all business functions, companies should have an effective project management strategy to control the implementation process, avoiding overrun of budget and ensuring the implementation within schedule (Butler, 2000). To fulfil this task efficiently and effectively, the management needs broad authority over all aspects of the project. Im-

plementation must be managed by an effective project leader who is responsible for overall management of the implementation effort and coordinates the use of the organization's resources with those of contractors and consultants.

3.12 Firm size

Firm size has been constantly recognized as a factor influencing technology adoption in the existing literature (Damanpour, 1992). For example, the proportion of EDI adoption is about 95% Fortune 1000 firms, and only 2% in small companies (Densmore, 1998). With regard to e-business adoption, larger firms have several advantages over small firms (Zhu *et al.*, 2003):

- They tend to have more slack resources to facilitate adoption.
- They are likely to achieve economies of scale, an important concern due to the substantial investment required for e-business projects.
- They are more capable of bearing the high risk associated with early stage investment in e-business.
- They possess more power to urge trading partners to adopt technology with network externalities.

Although there are bound to be exceptions. Since we know, that e-business comes in a diversity of forms, not all of them are out of reach for small and medium-sized enterprises.

3.13 Project champion

A project champion is person who performs the crucial functions of transformational leadership, facilitation and marketing the project to the users. Championship should also be considered as a critical enabling factor (Somers and Nelson; 2004). Project champions play a critical role in acceptance of the technology and he is usually somebody at senior management level, so that this person has the authority to make substantial organisational changes happen. The project champion should ensure that (Khan, 2002): management stake in the project is conveyed to all levels, top management support is maintained throughout the project, necessary resources are provided at critical junctures, parties at loggerheads are brought together and, decisions and compromises are enforced.

3.14 Effective communication

The importance of communication across different business functions and departments is well known in the IT implementation literature, because communication has a high impact from initiation phase until system acceptance, as it helps to minimize possible user resistance. We need effective communication in project team and within the organization. Khan (2002) explained that good communication in project team can be ensured by: weekly team meetings where team and project status updates are provided; postings on the company intranet; formal and informal information sessions etc.

3.15 Minimal customization

Somers and Nelson (2004) say that successful e-business implementations are often the result of minimal customization as customization is usually associated with increased implementation cost, longer implementation time, the inability to benefit from vendor software maintenance and upgrades etc. Keeping e-business system as standard as possible tends to have a positive effect on implementation process (Chuang and Shaw, 2005). Every modification request should be carefully evaluated.

4 E-business implementation CSFs and e-business implementation process

According to our preliminary research some e-business implementation CSFs are more important in some phases of e-business implementation process than in other phases. In other words it seems that not all e-business implementation CSFs have the same importance during all phases of the implementation process. We speculate that the margin of importance or relevance of factors is not the same through all the stages of the implementation process. We tried linking the e-business implementation CSFs with Seven E's in eTransformation model (see section 2) and our assumptions for this phenomenon are discussed bellow.

Environmental analysis phase gives an insight into the external environment the organization is working in (Arunatileka and Ginige, 2003). Usually in this stage SWOT analysis, industry analysis and global trends analysis are conducted. According to previous research on CSFs we think that in the first stage very important factors are: Top management support, Market forces, Government support, Change management, Consultants, Firm size, Effective communication.

E-business goals/strategies phase defines corporate strategy and goals for e-business. A prerequisite for this are identified organization's competitive advantages (Arunatileka and Ginige, 2003). Important CSFs in this stage would be: Top management support, Clear goals, objectives and planning, Market forces, Strategy, BPR, Change Management, Excellent project management, Project champion,

In third phase e-business readiness has to be assessed. According to Porter (1996), seven aspects of e-readiness have to be analysed: business process, applications & infrastructure, web presence, skills, executive management, external connectivity and future directions. The following CSFs are in our opinion crucial in this stage: Top management support, Clear goals, objectives and planning, Com-

patibility (infrastructure), Competencies of internal users, Strategy.

The fourth phase – eTransformation roadmap assesses the current status of the company and shows the direction to proceed. We assume that in this phase very important factors are: Top management support, Clear goals, objectives and planning, Compatibility (infrastructure), Competencies of internal users, Strategy, Change management, Consultants, Project champion, Effective communication.

E-transformation methodology phase has an iterative nature, ensuring the changes are not difficult to cope with. Modifications and changes to systems are to be expected. According to the matter of this stage as important factors can be defined: Top management support, Compatibility (infrastructure), Competencies of internal users, Strategy, BPR, Change management, Excellent project management, Effective communication.

In the eSystems phase management controls have to incorporate standards, guidelines to users, procedures and manuals for the new system. Security issues are being taken care of at this point. In this phase it seems that the important CSFs are: Top management support, Clear goals, objectives and planning, Compatibility (infrastructure), Competencies of internal users, Change management, Effective communication, Minimal customization.

Change management phase ensures the transition is smooth and that it achieves the expected broader and narrower goals and objectives of the entire transformation process. Since the entire phase is the same as one of identified CSFs, that is change management, this is clearly the most important factor. This last stage is supposed to have a connecting role to all other stages, so it is different in its definition. As a result, we won't assign additional factors to this stage.

5 Conclusion

The implementation projects of e-business systems are strategic and complex projects. They require substantial resources, and yet, the success is not guaranteed. Organizations must try to minimize risks by focusing on CSFs of e-business implementation. We are persuaded that linking of e-business implementation CSFs to an e-business implementation process is crucial to improve success of e-business projects and to enhance the knowledge about management issues of e-business implementations.

A variety of different research methods were used by cited authors which are not completely comparable. To achieve comparability and scientific relevance we are planning to test the importance of CSFs from table 1 in a complex field research focused on 200 successful implementations of Navision based e-business modules in companies in Slovenia and on 90 successful implementations of SAP based e-business modules in companies also in Slovenia. This research will be followed by several case research attempts of selected number of successful and less-successful e-business implementations. Case research will be conducted in (1) second biggest local newspaper company using Navision based e-business, (2) very large multinational electronics company based in Slovenia which is using SAP based e-business and in (3) very big port also using SAP based e-business. In case research special attention will be focused in project management specific factors.

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E-government: the State in Slovenian Local Self-government

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The paper presents the results of empirical research intended to ascertain the level of Slovenian municipal web services. Analysing the municipal websites, we were interested in how many of municipalities perform legal duties by transmitting various documents via the World Wide Web; we observed the state of local e-services evolution and the presence of virtual forums and polls as the most important segments of e-participation. Furthermore, we examined how many municipalities publish their basic contact data and information of various social fields, such as health, economy and educational data on their websites. Slovenian local self-government's web services are weak, but strongly and positively correlated to the populations of municipalities.

Key words: e-government, e-local self-government, municipal website, web services

E-uprava: stanje v slovenski lokalni samoupravi

Prispevek predstavlja rezultate raziskave, katere namen je bil ugotoviti stanje spletne ponudbe slovenske lokalne samouprave. V okviru analize občinskih spletišč nas je zanimalo, koliko občin izpolnjuje normativne obveznosti posredovanja različnih dokumentov in vsebin v svetovni splet; opazovali smo stanje razvoja elektronskih lokalnih storitev in prisotnost virtualnih forumov in/ali anket kot poglavitnih segmentov elektronske participacije. Nadalje nas je zanimalo, koliko občin je v svetovni splet posredovalo osnovne kontaktne podatke ter koliko jih je na svoja spletišča umestilo podatke iz različnih družbenih področij, kot so zdravstvo, izobraževanje in gospodarstvo. Ugotavljamo, da je spletna ponudba slovenske lokalne samouprave šibka, a močno in pozitivno povezana z velikostjo občin glede na število prebivalcev.

Ključne besede: e-uprava, e-lokalna samouprava, občinsko spletišče, spletna ponudba

1 Introduction

E-government is not just a tool enabling faster and cheaper services, it is the way of operation that should be implemented at the central, regional and local levels of each country**.** However, it can be ascertained that e-government research focuses most often on services provided by central levels of individual countries, even though Slovenian internet users, for example, visit their municipalities' websites most often (53%), while the state e-government portal is visited less frequently (28%) (Vehovar *et al*., 2005).

Thus, the purpose of this paper is to present the results of research, in the range of which we examined 52% of Slovenian municipal websites. In general these websites were evaluated for three main components: (1) publication of various data, (2) presence of e-services and (3) the state of e-democracy. The survey was conducted in the first quarter of 2005.

In the first part, the state of previous local e-government development in Slovenia is presented as well as the main findings of other author's surveys. Furthermore, the research design is given and the results are presented in the fourth chapter. In the next part, the results are evaluated and compared with other countries' local e-government indicators. In the conclusion some suggestions for further e-(local) government development are given.

We presume that Slovenian e-local self-government's web supply is weak and the reason for that can be seen specially in the (overly) large number of small municipalities, whose budgetary capabilities are, as a rule, smaller. As Oplotnik (2003) ascertained, shared tax (personal income tax) represents around 42% of local income in Slovenia. Therefore, municipalities with fewer residents have less income from personal income tax. Additionally, strong cooperation between municipalities as well as between municipalities and the state is necessary for the evolution of e-local self-government phenomenon, and none

of these forms of cooperation is common practice in Slovenia.

2 Presentation of the state

There was the Strategy of E-commerce in Local Communities formed in Slovenia in 2003. This document hasn't been verified by the Government, which is why its content can only be used as a guideline. In spite of that, there are also some concrete goals for further development of e-local self-government in this Strategy, such as establishment of united information portal with information on processes and with the ability to search official databases (MOK *et al*., 2003), but this goal has not been achieved during the analysis.

As a matter of fact, Slovenia does not have any concrete, formal goals regarding the implementation of e-commerce in local communities. The Strategy of E-commerce in Public Administration of the Republic of Slovenia for the period from 2001 until 2004 and the Action Plan make almost no mention of local self-government, therefore their provisions can also be used only as guidelines. One of the main directives of this Strategy is ''to ensure a more constant and faster development on regional and local levels'' (CVI, 2001, p. 9), but this directive is too abstract to be measured.

The municipalities are autonomous communities, therefore they are not obliged to join or follow any strategy and especially not any action plan. This is the reason electronic commerce has taken its own way in each municipality and the speed and quality of its realization depends especially on local budgets and also on the mayors' attitudes toward e-government. Within electronic commerce of local self-government, we are confronted with the problem of disproportional development - some municipalities have perfected their web sites and they also enable the possibility of an electronic intake with an official electronic forms with digital certificates, some of them are rather static and a few of them are not present on the internet at all.

Moreover, according to the current situation, municipal web supply is very much dispersed. Currently e-local services can be found in four web places: (1) firstly, there are municipal websites, provided by the majority of municipalities, (2) furthermore, 11 e-forms for co-operation with municipalities exist at the state e-government portal, (3) along with this, residents can find the forms for operation with local or central level on the 'Informiran.si' portal, (4) moreover, the portal named 'Informative door' (http://www.obcine.net/) offers environmental information, information about projects, calls for applications, municipal councils' decrees, meetings material and press releases. However, this portal is not service-oriented, its nature is informative and it does not contain application forms for concrete services. So, municipal web supply is currently developing at several places, but the state is satisfying nowhere.

E-local self-government's dispersed supply is probably also the reason for local self-government being much less thoroughly surveyed in the past in comparison to other fields of e-government in the nation. The most thorough research concerning e-local self-government in Slovenia is the research paper 'Development of the Measurement System of IT use in the Public Sector in Slovenia' (Vintar *et al*., 2003), which analysed the public sector's web services, tested the responsiveness of individual bodies of public sector, and also acquired information with the inquiry of representatives of the state bodies. The results of this research shows that 68% of municipalities are present on the internet and, on the basis of previous research, the anticipation about 100% municipal web presence within three to four years (2006, 2007) is expressed (*ibid*.). Furthermore, other research (Pinterič *et al*., 2004) is worth mentioning; the methodology of this research is based on questionnaires sent to municipal government directors; part of this questionnaire refers to municipal governments' readiness for ICT's challenges. It is interesting that 65% of municipalities express the need for extra computer education (writing text, use of electronic post).

Another analysis (Ojsteršek, 2004) is also informative. It examined the current state in the field of access to information of public character, implementation of e-services and e-democracy on the local level. The author (*ibid*.) ascertains that municipal websites are deficient and that there are many technical and content errors, lack of quality search engines and other issues.

Comparative analysis concerning local e-governments among other countries was made in 2003 (The E-Governance Institute and The Global e-Policy e-Government Institute); its instrument for the evaluation of the websites consists of five components: security and privacy, usability, content, services and citizen participation. Among 80 cities, Ljubljana, the capital of Slovenia, is ranked as 56th. Moreover research (Socitm & IDeA, 2002) analyses local levels of e-government worldwide; it analyses 14 countries[1], within which it focuses on two to four local communities. In this place, the results of some Finnish local e-government evolution indicators are interesting and enviable: 99% of Finnish municipalities had a website in 2002 and 3% provided services with electronic signatures/digital certificates. Presently, three and a half years later, Slovenian local communities are hardly comparable to these results.

Furthermore, we can find some research and articles focused only on the local governments of one country. One research paper (PTI/ICMA, 2001) ascertains that local governments in US are enthusiastically adopting e-government elements. In 2000 83% of them had a website, while 10% had planned the establishment of one in the next 12 months. Other research (PSI Group, 2002) centres on America's cities; its results show that 87% of cities

[1] In addition to these countries, Singapore, Hong Kong and Japan are included; they are represented in more general way.

websites offer downloadable forms. Moreover, research (West, 2004) examined 1,873 US city government websites – 40% of them offered fully executable on-line services. In 2004, 98% of America's city governments could be found on the web (Taylor and Grenslitt, 2005).

The methodologies of the research cited above and below are diverse, therefore their reciprocal comparison should be taken into account with a certain degree of reserve.

3 Research design

The methodology, used by Capgemini for the measurement of 20 services in EU countries is well-known, but in case of Slovenia none of these 20 selected services fall within the competence of local government (IDABC, 2005a). Furthermore, a four-stage framework of service development is only partly applicable to our research, since our scope is not only service-oriented and, in general, concrete municipal services are very rare (with the exception of informational services).

The main goal of our research, which occurred in February 2005, was to evaluate e-local government's supply of services. The evaluation tool was the model of 24 indicators[2], listed in Table 1.

Table 1: The list of indicators

	Indicator
1.	web presence
2.	publication of address data
3.	publication of municipal telephone number
4.	publication of mayor's telephone number
5.	publication of telephone number of government director or/and other departments' managers
6.	publication of other employees' telephone numbers
7.	publication of municipal e-mail
8.	publication of mayor's e-mail
9.	publication of e-mail of government director or/and other departments' managers
10.	publication of other employees' e-mails
11.	publication of official hours
12.	publication of tourist information
13.	publication of economy data
14.	publication of health data
15.	publication of education data
16.	publication of news
17.	publication of municipal work data
18.	presence of forum/poll
19.	access to municipal regulations
20.	access to municipal statute
21.	presence of application forms
22.	number of application forms
23.	classification of application forms
24.	presence of search engines

To reach the highest measure of objectivity and easily scanned results, every indicator was valued with YES /NO values and some of them with a PARTLY value. The indicator of web presence is excluded from the final estimation, since the positive value of this indicator is necessary for estimation of further indicators; the number of application forms available on the municipal websites is also excluded from the final estimate. Every municipality presented on the web had had the possibility to collect 22 YES values which represents 100%. As for how many of these values were collected by each municipality, we calculated the estimation of each municipal web site in percentages and established the criteria for the final marks shown in Table 2.

Table 2: Criteria for estimating municipal web services

Percent	Mark
to 50%	1
51% — 64%	2
65% — 78%	3
79% — 90%	4
91% — 100%	5

3.1 Sample description

The survey involved 101 (52% of all) municipalities in Slovenia. First, they were classified regarding the number of residents and then, using the same criterion, divided into 11 categories, defined at Statistical Office of the Republic of Slovenia (SY, 2004). From this list, we collected every other municipality into the sample (random systematic sampling), and the categories with 1, 2, 3 or 4 municipalities (four categories) were entirely included in the sample.

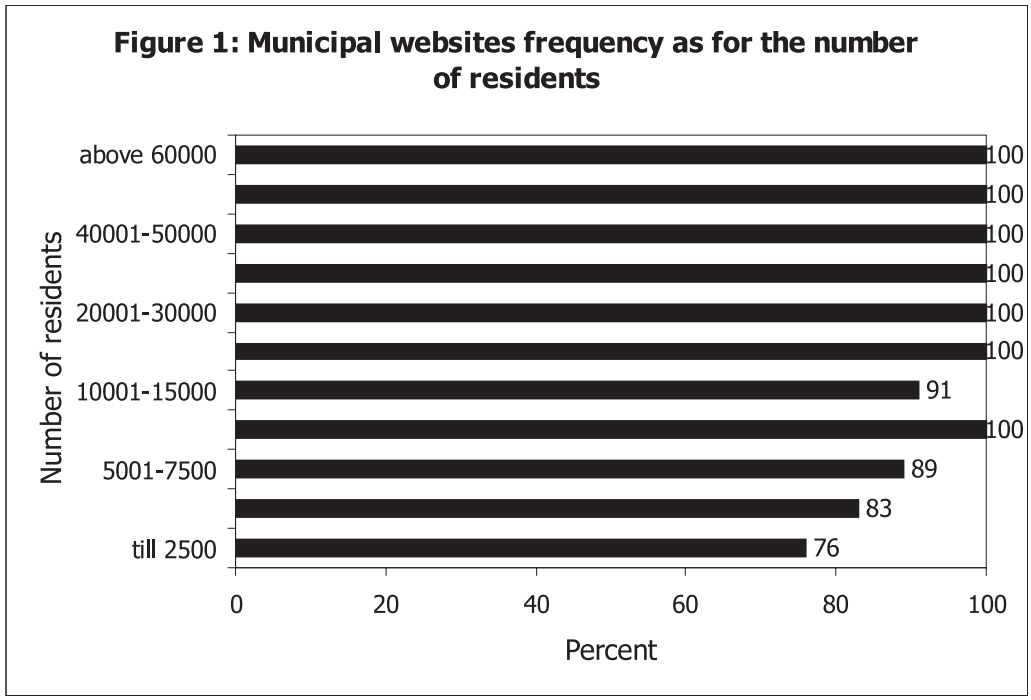
4 Presentation of the results

4.1 Web presence

Results of the analysis show that 88% of municipalities are present on the web (Figure 1), which is not satisfactory, since US local governments reached a similar (83%) result five years earlier (2000) (PTI/ICMA, 2001).

A year earlier (2004) Portugal had 91% of municipalities present on the web (IDABC, 2005b) while America had 98%[3] (Taylor and Grenslitt, 2005); both a much higher web presence than Slovenia in 2005.

[2] All indicators have the same weight.
[3] The other 2% were developing web sites.



4.2 Basic data publication

At this point we were interested in basic municipal data publication such as:

- address,
- official hours,
- telephone numbers and e-mails of municipality (central), mayor, municipal government director and/or other departments' managers and other employees (secretariat, accounting etc.).

The municipal address is published on 91% of municipal websites, and information on official hours can be found on 57% of websites. Regarding telephone numbers and e-mails, we ascertained that central municipal telephone numbers and e-mails are published most frequently (89%), while telephone number and e-mail addresses of mayors (tel. number 45%, e-mail 43%) and directors of municipal administration and/or other departments managers (49%) are least frequently published. Publication of the telephone number of at least one department manager or administration director is moderately correlated to the the size of municipalities (coefficient value is +0,56). Furthermore, 56% of municipalities publish the telephone number of other employees and 54% publish other employees' e-mail addresses.

4.3 Economy, health and education data

To reach a positive value of these indicators, a website had to contain basic data of at least five enterprises or links to their websites[4] and basic data or links to at least one educational/health public institution.

Analyses of these indicators show that economy, health and education data are placed on websites of all municipalities with the number of residents above 40,000. However, if we examine the results more closely, we can see that they are not encouraging: health information is published on 44% of municipal websites, economic information on 47% and educational information on 57% of municipal websites. Municipalities most often publish data about nursery schools, homes, hospitals and 24-hour pharmacies.

4.4 News and tourist information

The date of news publication is also a good up-to-date indicator, which is why we only took into consideration news published in 2005. 74% municipalities publish news and the correlation between this indicator and the size of municipal population is moderate and positive (coefficient value is 0,47).

Tourist information can be found on 72% of municipal websites and the correlation between this indicator and the size of municipalities is weak and negative (coefficient value is -0,30). Evidently, smaller municipalities are trying to increase income through tourist activity. The tourist information most frequently describes the location, natural beauty and other items; a few of municipalities also offer a so-called virtual view of their surroundings.

[4] In the field of economic information, we also took into consideration link to the Business Register of Slovenia.

4.5 Municipal work data, forum and polls as an important e-democracy segments

At this point, we were looking for municipal council meetings (minutes, invitations or orders of the day) and information about municipal projects. At least one of these is published on 51%[5] of municipal websites.

Regarding e-democracy, we also observed the presence of forums and/or polls referring to the municipal work; it has been proven that their presence is not correlated to the size of municipalities (the coefficient value is -0,15). This method of participation is offered by only 21% of the studied municipalities. Non-functioning forums (6,7%) and a forum with only sport topics are excluded from this percentage. Likewise, the poll with the question "How old are you?" which was not active on one municipal website is excluded because we presume that this question does not refer to municipal work.

Forums and e-polls are probably the easiest way for internet users to convey their opinion, proposals and to pose questions. It is likely that regular internet users are considerably less interested in actually visiting municipal offices just to express their opinion. Some people do not want to expose themselves via e-mail and other ways which could also uncover their identity.

The Municipality of Velenje is an exception to these findings; it is an example of e-democracy excellence. It offers a complete e-democracy system enabling:

- mediation of opinions and initiatives on a published topic to which mayor also comments once a week,
- mediation of questions and initiatives to councillors, councillors' party or municipality and
- viewing of videos of municipal council meetings.

Even though the e-democracy system is well-formed it is not yet popular or well-used. Only few residents put questions and mediate the initiatives and even these questions are rarely answered by the councillors. No topical subjects had been published; nor was it possible to view videos of council meetings. It is questionable if residents knew about the possibilities offered by their municipal website at all or if they were interested in mediating initiatives and opinions. Several authors (eg. Ojsteršek, 2004) highlight the problem of inadequate promotion of these forums in the media. Irrespective of that, establishing e-democracy in the Municipality of Velenje is a major step forward in comparison with other municipalities.

Reviewing some 2003 e-democracy indicators in Norwegian and Hungarian local governments, it can be perceived that establishing the concept of e-democracy is superior in Slovenian municipalities. In 2003 e-polling/voting was provided on 25% (Vintar *et al*., 2003) of Slovenian municipal websites, while in the same period only 5% of municipal websites presented any form of on-line public opinion poll, voting etc. in Norway (Baldersheim and Øgård *et al*. in: Haug and Jansen, 2004); 20% (Vintar *et al*., 2003) of Slovenian municipalities provided forums or discussions in real time (chat) on their web sites, while 14% of Norwegian municipal web sites provided any form of discussion boards etc. and only 1% presented any form of chat (Baldersheim and Øgård *et al*. in: Haug and Jansen, 2004); at that time only 8,6% of Hungarian municipalities had a generic e-mail box or forum for suggestions (Regional IST, 2003).

Still, in the information society era we should not be satisfied with any of these results. E-forums, e-chats, e-polls etc. should be considered to be "must-have" tools each municipality should provide if they want to create politics and decisions that suit the majority of residents.

4.6 Application forms and their classification

At least one application form is placed on 57% of municipal websites (Figure 2), which is only 5% more than in 2003 (Vintar *et al*., 2003). The correlation between this variable and the size of municipalities is moderate and positive (coefficient value is +0,57). The highest number of application forms within one municipal website is 44.

The larger the number of application forms, the more important their classification. Classification of forms according to different municipal offices or by different social fields can be observed in merely 29% of municipal websites (Figure 2), which is an issue of concern, since residents already have problems distinguishing between municipal and state responsibilities and functions and they often refer to the wrong one when starting a specific procedure. On some websites application forms are hard to follow, in some cases some of them can even be found in the "news" section. Only two municipalities provided execution of services with digital certificates.

4.7 Publication of regulations

In the 8th article of the Decree on Communication and Re-use of Information of Public Character it is determined that "local authorities shall publish on the world-wide web the official or unofficial consolidated texts of their regulations and a register of local authority regulations"[6].

The survey revealed that only 52%[7] municipalities publish regulations (or at least links to them) and only 44% of them publish their statutes. Some of them list the link to the Catalogue of Public Information in 'Lex loca-

[5] It is possible that the percentage is so low because we were only collecting information published in 2005 and according to the Local Self-Government Act mayors should convene the council meetings at least four times a year.

[6] The Decree on the Provision of Public Information was in force before the Decree mentioned above; in its 7th article it also contained this provision; an English version is available on http://www.ip-rs.si/index.php?id=162.

[7] In this place we did not take into consideration municipalities that: merely list regulations or official gazette issues in which the regulations are published or/and lists of links to the official gazettes but not to the texts of the regulations.

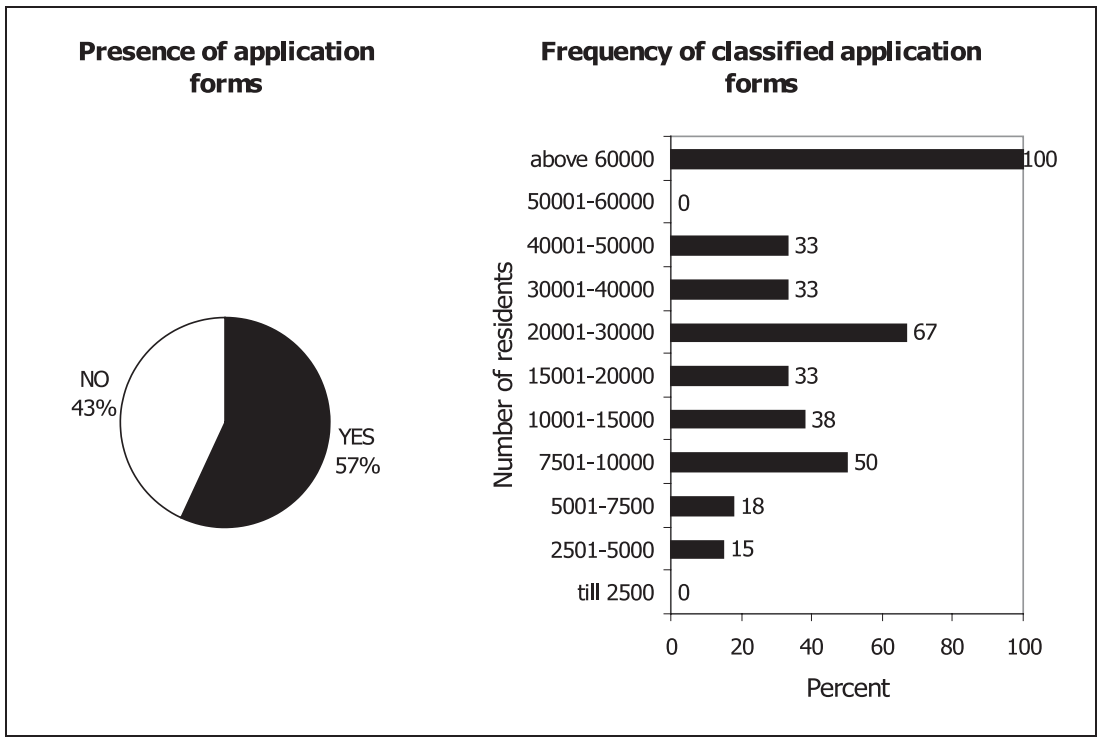


Figure 2: Presence of application forms and their classification on municipal websites regarding the number of residents

lis' information network (legal information system containing full text documents), which has been established by the Institute for Local Self-government and Public Procurement Maribor[8].

4.8 Presence of search engines

A complete search engine is present on 46% of municipal website, while 12%[9] of websites have partial search capabilities, enabling searching only through news, articles etc. The extenuating circumstance is that this variable is moderately and positive correlated to the size of municipalities (value of coefficient is +0,66); since larger municipalities have more content on their websites, such search systems are vital in these cases.

4.9 Final estimation of municipal websites

After all indicators were measured, every website was given an 1-5 estimation in accordance to established criteria. Afterwards, the average for every category of municipalities was reckoned regarding the number of residents and the average for all websites being observed.

The average estimation of all websites is 2,2; 4 (4,5%) websites were given the highest estimation (5) and 35 (39%) websites were given the lowest (1).

There is strong and positive correlation between average estimations and the size of municipal populations (coefficient value is +0,76). The category of municipalities with the number of residents above 60,000 reached the highest estimation, while the lowest estimation was given to municipalities with the number of residents to 2,500 (Figure 3). These estimations refer merely to observed indicators, which is, in fact, not enough for developing a basis for strategic planning. In spite of this, we can maintain that municipal web services are weak.

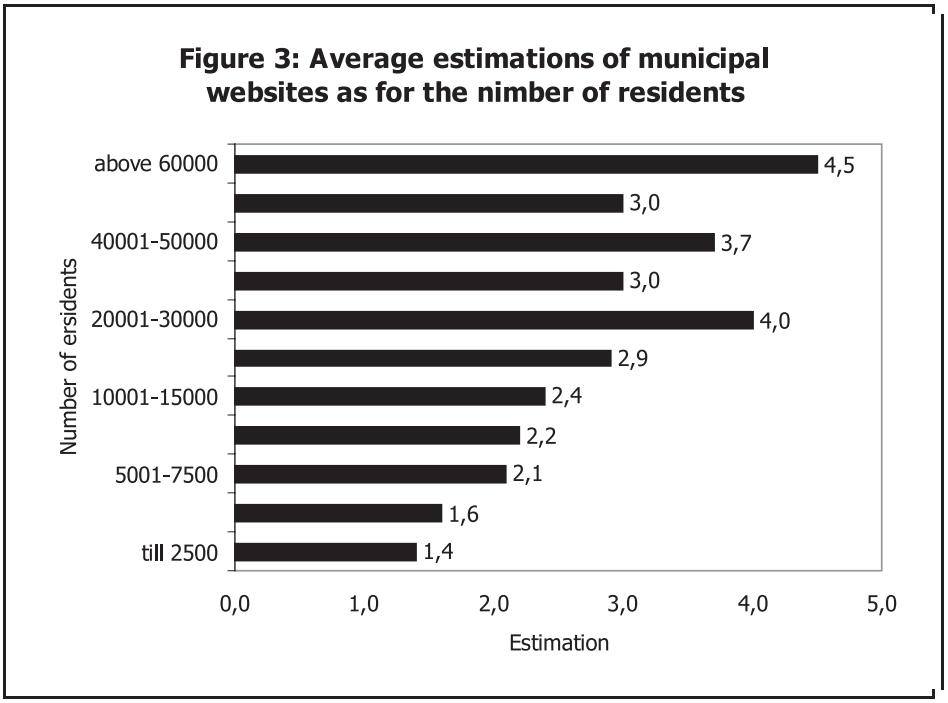
5 Evaluation of the results

Results of the research confirm our hypothesis about poor municipal web services. Many municipalities have not even disclosed their complete contact data, while the possibility of accomplishment of more complex e-services seems to be a real luxury. We can also confirm hypothesis about the poorer web services of smaller municipalities.

Comparison with other countries shows the following:

[8] We included municipalities that list direct links to the municipality's regulations.

[9] Seven municipalities which are present within the portals 'Goričko.net' and 'Pomurje.net', where only searching among entire portals is enabled and searching within one municipality is not possible. The Selnica ob Dravi Municipality also has a partial search engine, because it is presented within information portal 'Sraka.com' which only enables searching within the entire portal. Other partial search engines enable limited searching only (among articles, news etc.).



- in 2001 49% of Polish municipalities and 72% of Polish counties had websites (Glomb in: Sakowicz, 2001), while at the same time 57% of Slovenian municipalities were present on the web (Vintar *et al*., 2003) and 83% of US local governments had websites as early as 2000 (PTI/ICMA, 2001); in 2002 58% of Slovenian municipalities had a website (Vintar *et al*., 2003), while in Finland 99% of municipalities were present on the web (Socitm & IDeA, 2002); 88% of Slovenian municipalities were present on the web in 2005 and 98% of US cities had a website in 2004 (Taylor and Grenslitt, 2005);
- 91% of Slovenian municipal websites had address data in 2005 and 77% in 2003 (Vintar *et al*., 2003), while this type of information was part of 95% of American city government websites as early as 2002 (West, 2004);
- in 2005 72% of Slovenian municipal websites contained tourist information and 88% of Polish cities' websites already contained this information in 2002 (Sakowicz, 2004);
- Application forms were available on 57% of Slovenian municipal websites in 2005, while in 2002 87% of US cities offered downloadable forms (PSI Group, 2002) and 36% Polish cities offered this service in the same period (2002) (Sakowicz, 2004);
- 3% of Finnish municipalities were providing services with the electronic signature/digital certificate in 2002 (Socitm & IDeA, 2002), while 3 years later (2005) 2% of Slovenian municipalities (or 2,2% if we only take into account municipalities that had a website) offered that kind of service; 40% of American city government websites offered fully executable online services in 2004 (West, 2004);

Local e-democracy is in the early stages of development. Twenty percent of municipal websites provided forums or chat in Slovenia in 2003 (Vintar *et al*., 2003); in the same period 8,6% of Hungarian municipalities had generic e-mail or forum for suggestions (Regional IST, 2003). Five percent of Norwegian municipal web sites presented some form of on-line public opinion poll, voting etc. in 2003 (Baldersheim and Øgård *et al*. in: Haug and Jansen, 2004), while e-polling was provided on 25% of Slovenian municipal websites in the same period (Vintar *et al*., 2003).

6 Conclusion

It seems that carrying out e-local self-government in the way in which every municipality takes its own approach is not the right one. We believe that there are two main reasons for relatively slow development of e-local self-government in comparison to other segments of public administration in Slovenia: (1) local authorities being left to their own scant resources and willingness in this field and (2) absence of coordinated action, guidelines and support from the central level (see section 2).

In order to improve the current situation, outlined in the paper, we can foresee two better possibilities in organizing further web supply of e-services at the local level:

- integration of all local e-government services at the central e-government portal. That would mean that e-local self-government is equally important segment of the e-government system in the country as a whole;
- establishment of a separate municipal portal which would be a united entrance point for all municipalities; this solution is easier, but still does not solve the problem of distinguishing between responsibilities of

municipalities and state bodies. Introduction of intermediate levels – that is regions, which formally still do not exist in Slovenia – could help to a great extent since cooperation between 193 municipalities would be much easier.

Since the general strategy of further e-government development is still under preparation, right now would be a very convenient moment to reconsider the policy concerning e-government development at the local level. Further disharmonious realization of e-local self-government might cause real chaos and dramatically decrease the level of efficiency and usefulness of e-services.

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SAP ERP Case Study at University of Maribor, Slovenia and at University of Economics, Prague, Czech Republic

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The paper describes two cases of Enterprise Resource Planning (ERP) systems integration into the educational process. Case studies used at the University of Maribor, Faculty of Organizational Sciences, Slovenia and at the University of Economics Prague, Czech Republic are presented and explained with regards to where and how they are used. The lectures and seminars on the ERP systems and the market share leader ERP system SAP are available for students at both universities. Both universities have gained much practical experience with the teaching of ERP based on exercises and practical experience with the SAP product done by students. As a next step, both universities plan to prepare a common international e-business course based on scenarios running on the SAP application accessible for students from both universities. This kind of cooperation could give student projects a new international dimension.

Key words: case, education, Enterprise Resource Planning (ERP), process, procurement, SAP, teaching, selling

V pedagoškem procesu uporabljena primera celovite programske rešitve SAP na Univerzi v Mariboru, Fakulteti za organizacijske vede in na Ekonomski univerzi v Pragi

Članek opisuje dva primera uporabe celovite programske rešitve (ERP) znotraj pedagoškega procesa. Opisana sta učna primera uporabe na Univerzi v Mariboru, Fakulteti za organizacijske vede in na Ekonomski univerzi v Prag, Češka. Na obeh univerzah je v okviru predavanj in vaj predstavljena na trgu ena od vodilnih celovitih programskih rešitev SAP. Študentje obeh univerz so tekom svojega izobraževanja pridobili veliko praktičnih izkušenj na tem področju. Obe univerzi se zavedata pomembnosti e-regijskega sodelovanja in v prihodnosti načrtujeta skupno izobraževanje na področju celovitih programskih rešitev vključno s praktično izvedbo vaj iz SAP-a, ki bodo temeljile na skupno zastavljenem scenariju. Tak način e-regijskega sodelovanja bo študentom v okviru njihovega študija prinesel popolnoma nove dimenzije mednarodnega povezovanja.

Ključne besede: študija primera, izobraževanje, učenje, celovita programska rešitev, ERP, proces, oskrbovanje, prodajanje

1 Introduction

According to Wallace & Kremzar, Enterprise Resource Planning systems (ERP) can be described as:

- An enterprise-wide set of management tools that balance demand and supply,
- Containing the ability to link customers and suppliers into a complete supply chain,
- Employing proven business processes for decision-making, and
- Providing high degrees of cross-functional integration among sales, marketing, manufacturing, operations, logistics, purchasing, finance, new product development, and human resources, thereby
- Enabling people to run their business with high level of customer service and productivity, and simultaneously lowering costs and inventories and providing the foundation for effective e-commerce (Wallace & Kremzar 2001: 5).

Currently, enterprises are not willing to wait the typical one to three years time needed for past implementations of large software systems. To meet rapidly changing business needs, enterprises have to find ways to implement most or parts of ERP systems in a matter of months, not years. Knowledge sharing is a critical activity for rapid

implementation (Shields 2001). We can achieve such knowledge sharing in different ways. This assistance can come from someone within the enterprise who has prior experience implementing such systems or it can come from an adviser from the package vendor (Shields 2001) or from students who acquire knowledge during their studies. ERP themes have become important components of higher-education curricula.

In the following paper, two cases of Enterprise Resource Planning (ERP) systems integration into the educational process are described. Case studies used at the University of Maribor, Faculty of Organizational Sciences, Slovenia and at the University of Economics Prague, Czech Republic, are presented and explained. Lectures and seminars on ERP systems and the market leading ERP system, SAP (Boyson *et al* 2004: 151-155), are offered for students at both Universities.

Today, in business to business e-commerce, procurement and selling processes are of strategic importance to enterprises' business processes and present a central part of changes. Different studies predict that between 30 to 40 % of all enterprises will sell goods via the internet and 80 to 90 % will procure goods in this way. Global markets demand quick responses to customers' demands. E-commerce in procurement and selling processes reduces costs, saves time and simplifies processes (Podlogar & Pucihar 2003: 352-366). These reasons lead us to choose procurement and selling process for our teaching ERP systems cases.

Because of ERP system complexity, knowledge transmission as a part of the educational process is a critical activity. The knowledge transfer has to be done firstly in the field of process re-engineering as basis of e-commerce and as a field that enterprises are faced with all the time. Secondly, it has to be done in the field of ERP systems adoption. Students will understand ERP systems operations only with knowledge of both of the above fields.

An enterprise can be competitive only with very well organized internal and external processes with all business partners. It is important to have on one side customers who are able to create orders on-line and on the other side suppliers who are able to deliver goods in cooperation with external logistics partners who are able to deliver the ordered goods in time to the right place (Lesničar 2002, Poirer and Bauer 2001). All these facts are foundational to our teaching ERP cases.

2 ERP systems at Universities

wIntegrating ERP systems in the curriculum of not only universities but all types of institutions of higher learning has been a major challenge for over nearly ten years. The tremendous complexity of ERP systems posed a significant challenge for many institutions. It took until 1997 until a wider integration of ERP systems in the curricula of business, information technology/information systems and engineering schools could be globally observed (Roseman 2004).

ERP systems education is an area requiring special attention for a number of reasons. Students have a strong interest in this subject hoping to gain market-driven skills. While this often ensures high attendance, student perceptions and expectations must be managed carefully in that it is not the objective of such initiatives strictly to enhance student skills via training activities. Managing ERP systems is typically comprehensive and complex. The frequency of upgrades and innovations from one software release to the next characterizes the rapidly evolving nature of these Information Systems (IS) solutions. It is often difficult for the lecturer to stay abreast of these changes and to understand the implications of these changes to business practices, not to mention to research and education in general. By the time current textbooks of satisfying quality are available, there are new system upgrades and innovation cycles to address (Roseman 2004).

Most of the market-leading enterprise systems vendors established University Alliances with regional relationship managers. These alliance programs have enabled curriculum innovations at the undergraduate and postgraduate levels often under a certain subject, such as Information Systems (IS). A number of academics contributed to the area of ERP systems education with case studies (Roseman 2004).

The willingness to gain insight into the rich system functionality requires, first of all, hands-on experiences and material appropriate for tertiary education is still a bottleneck. However, the successful uptake of reliable application hosting solutions seems to relieve at least the burden related to the technical system support. The data also indicate that increased collaboration and global knowledge exchange will be the next wave, which could be observed in this market (Roseman 2004).

The study (Roseman 2004) shows that the students regard gaining practical experience, good learning approaches, helpful class materials, promising job prospects, and good instructors as key success factors for learning SAP solutions.

From our point of view, ERP systems affords a unique opportunity to learn concepts through process analysis. In an ideal situation, when ERP is implemented and integrated across courses, students are better able to visualize the business process view of enterprise, identify and eliminate non-value-added activities, and enrich value-added processes (Bradford *et al.* 2003: 437-456).

One benefit of incorporating ERP systems into curricula through process analysis is to expose students to important concepts of ERP systems and their business process focus. ERP systems enable today's enterprises to transform themselves from a functional orientation towards a business process orientation. Therefore, one of the main reasons for introducing ERP systems into curricula is to expose students to the ways business processes extend across the enterprise and the enterprise's information value chain. Students need to gain a broader understanding of the strategic goals of an enterprise and the business processes that support these goals. Students

should be aware of the problems enterprises experience as they undertake a major ERP system implementation and how, as a business or systems professional, they can help minimize threats to successful projects. As students interact with the vendor-provided database (IDES in SAP is such system) that serves as a hypothetical company, they can see first-hand how complex and truly integrated these systems are (Bradford *et al.* 2003, 437-456).

By incorporating ERP into higher education, students can identify better with the real world as they transfer learned concepts and principles from the classroom into real-life business practices and complexities. Only if universities are aware of the many challenges and undertake a thoughtful and directed approach to ERP dissemination within their schools can the benefits begin to accrue. Overall, there seems to be an eagerness on the part of academia to embrace this technology (Bradford *et al.* 2003, 437-456).

In some cases, the integration of ERP systems into the curricula triggered innovative international collaborations (Roseman 2004). We would like to present two ERP case studies used at the Faculty of Organizational Sciences, University of Maribor, Slovenia and at the University of Economics, Prague, Czech Republic. In the context of SAP-based supply chain, a short explanation of an idea of our next steps for preparing common international scenarios on ERP fields, is also briefly described.

3 SAP ERP Case study at Faculty of Organizational Sciences, University of Maribor, Slovenia

Since 2001, the Faculty of Organizational Sciences University of Maribor, together with two enterprises ,SAP Slovenia and IDS Scheer Slovenia, has been implementing SAP into its teaching process. SAP is included mostly inside the following subjects: Information Systems, Organizational Process Design, eCommerce and the Information System Project. SAP is also presented to students from the non-IT fields of study within these subjects: Production Information System and Human Resource Information System.

As a learning institution, our mission is to identify the necessary business environment knowledge, to create it and to transfer it to our customers – students and enterprises (Gricar *et al.* 2005, 103-108). In this teaching model, we see the possibility of creating awareness about enterprise resource planning systems (ERP) and their integration inside the whole supply chain in the context of above mission.

At the University of Maribor, Faculty of Organizational Sciences, ERP teaching is done by use of different ERP systems for hands-on experience and through students' prototype development projects for use in interested enterprises. Students present results from seminar papers and prototypes to these enterprises. This new information creates opportunities for enterprises to achieve competitive advantages by using ERP systems and their integration through the supply chain.

The ERP case study at the Faculty of Organizational Sciences, University of Maribor is based on two models:

- ERP case studies based on the processes inside one enterprise,
- Two different ERP systems integrations based on the processes between two or more enterprises that are in business partnership.

In both models, students firstly form project teams consisting of three students. Then they go to an enterprise and investigate a problem inside the process, which is proposed by their subscriber from an enterprise.

Usually the problem and process that students analyze in both models, is from either the procurement or selling side. The main reason for mostly choosing these two processes is that business-to-business e-commerce, including e-procurement and e-selling, promises great benefits in terms of cost and time savings, as well as business opportunities in these processes. These two processes are two of the most important processes for each enterprise business (Podlogar 2002).

In our ERP case study, students analyze the real life process, problems inside the process and then try to find suggestions/solutions and means of successfully implementing an ERP system into the chosen process in practical environment,. Students develop different prototypes as a result of the seminar. Parallel to work at the enterprise and prototype developing, students also have lectures, where they gain theoretical knowledge and understanding of IS development methods, IS elements and the use of information technology for better organizational effectiveness.

3.1 ERP case study based on the processes inside one enterprise

The ERP case study is based on the internal processes of one enterprise and consists of two scenarios. The first one is related to procurement process and second to the selling process. Both cases/scenarios consist of different steps. Students go through them and gain practical experience about SAP ERP (IDES) system usage, based on the two cases. In some cases, if the enterprises are small and/or middle sized, students can also chose MS Navision, a widely used ERP system among SMEs in Slovenia.

Following, both scenarios are demonstrated on the figure 1 and 2 and their steps are listed.

Steps of procurement process scenario:

- Material Master Data
  - Review Material Master Data
  - Create Material Master Data
- Supplier Master Data
  - Create Supplier Master Data
  - Change Supplier Master Data
- Create Info Record (supplier & material)
  - Create Conditions
  - Goods Purchase in Stock
  - Create Purchase Requisition
- Supplier Selecting
- Ordering
  - Create Purchase Order
  - Display Purchase Order
  - Purchase Order Print Preview
  - Save Purchase Order
- Goods Receipt
  - Goods Receipt Purchase Order
  - Suppliers' opened purchase orders list
  - Delivery Order Posting
- Stock Overview
  - Review Temporary Quantity Stock
  - Review Stock-requirements List
  - Review Stock Value
- Goods Purchase in Cost Center
  - Create into Order
- Payment to Vendor

Figure 1: Procurement process scenario

Steps of selling process scenario:

- Customer Master Data
- Create Info Record (customer & material)
- Stock Overview
- Create Inquiry
- Create Quotation
- Create Sale Order
- Outbound Delivery with Reference to Sales Order
- Create Transfer Order
- Goods Posting
- Create Billing Document
- Incoming Payments Posting

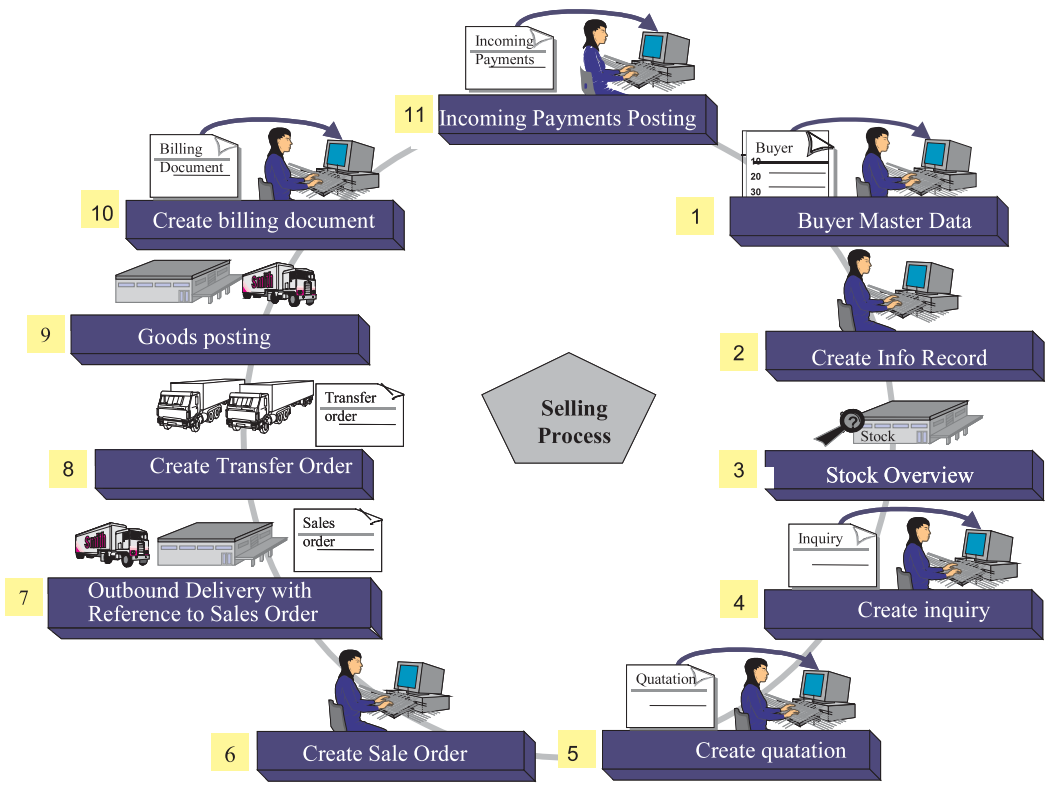

Figure 2: Selling process scenario

Both of the above cases give students basic knowledge about implementing one of selected processes from the business environment, inside an ERP system such is SAP.

3.2 Two different ERP systems integration based on the processes between two or more enterprises in partnership.

The case study of ERP and e-procurement integration is further discussed in "Connecting Two Different ERP-s: Microsoft Business Solutions—Navision and SAP" (Valjavec 2003, Valjavec *et al.*, 2003). This case is a good example of how to integrate two different ERP systems and achieve e-procurement integration between customer and supplier (Figure 3).

The case explains how enterprises proceed. The students work with two enterprises: one is a supplier and the other is a customer. In this step, students gain knowledge about e-procurement problems between two or more enterprises. Problem and process analyzes are connected to the latest information technology such as ERP.

Following is the short description of this case. E-Procurement requires enterprises to communicate, despite using different ERP systems. A prototype was developed by a student, for his thesis, for two Slovenian enterprises (Valjavec 2003, Valjavec *et al.*, 2003). One enterprise represented the customer's perspective and used SAP ERP for internal business. The other enterprise represented supplier's perspective and used Microsoft Business Solutions – Navision ERP for internal business. E-Transactions between businesses require the sender and receiver to understand the message in the same way. XML-based procurement documents in one enterprise must be acceptable for another enterprise. The greatest problem is that the enterprises use different ERP software, which can't communicate with each other unless there some sort of common connection is established. In the prototype , the customer and supplier exchanged purchase orders, purchase invoices, purchase receipts, sales orders, sales invoices and shipment notifications in electronic form. The interaction between two different ERP systems was established by using BizTalk Server, which enables e-procurement document exchange based on an XML format that is understandable to different ERP systems.

In this project, students learned about ERP and e-procurement integration, which can not be made without business process analysis. This is one reason we are trying to establish a strong connection between students and enterprises.

4 SAP ERP Case study at University of Economics, Prague, Czech Republic

The lectures and seminars on ERP application software and SAP products are mainly offered for two categories of students at the University of Economics in Prague. In the first group there are the students from the Faculty of Informatics and Statistics, i.e. the students of IT-fields of study. The second group consists of students from non-IT fields of study. The SAP application is therefore used in education processes at the different levels:

- on-line presentation of the main functionalities to students during lectures done by teachers
- practical exercises with the SAP application based on the predefined scenarios done by students
- practical exercises with SAP parameters and customization of the application done by students.

The first two levels are applicable for the education of non-IT students as well as for undergraduate students.

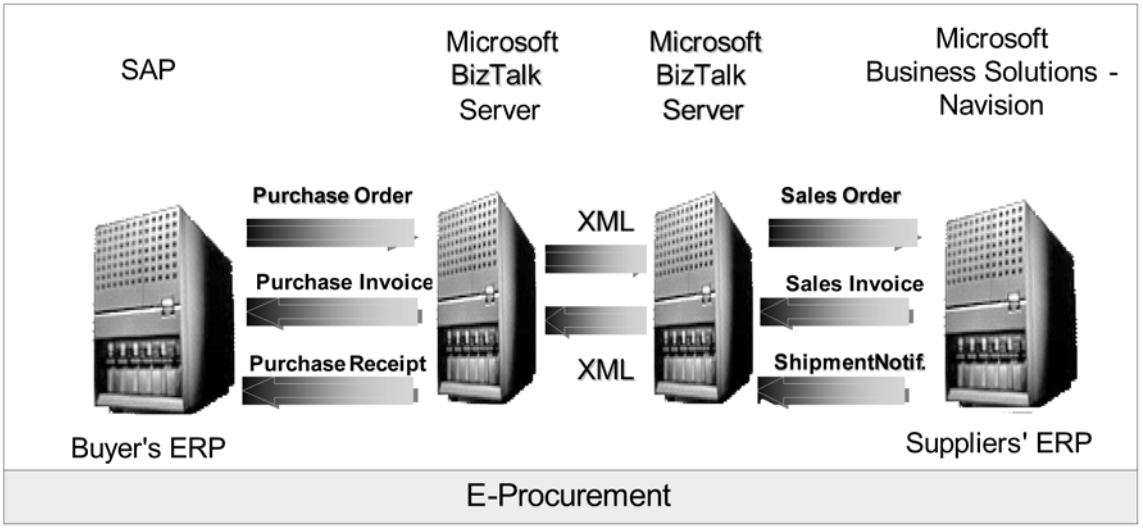

Figure 3: Case of Connecting Two Different ERP systems: Microsoft Business Solutions—Navision and SAP

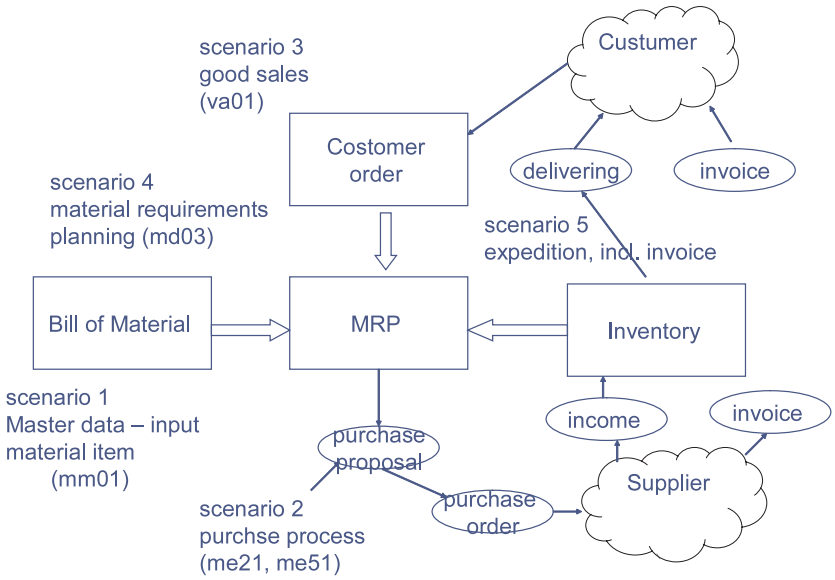

Figure 4: The structure of five logistics scenarios in SAP R/3

The second and most of the third level are the basis for IT students and post-graduate students.

Students have to complete the tasks of the six scenarios during the semester. There are in fact five scenarios plus one as introduction. They complete these tasks in each scenario by following instructions from the prepared documents.

Students work step by step on the tasks described in scenario using the ERP application. Each scenario (Figure 4) is dedicated to one important business process:

- Scenario 1: master data process - input and maintenance of master data
- Scenario 2: purchase process – manual input of purchase proposal, purchase order, material income and invoice
- Scenario 3: sales process – sales order with control of goods availability
- Scenario 4: planning process – MRP procedure run with discussion
- Scenario 5: delivering process – distribution of goods plus invoice.

These business processes are then used as a platform for process optimization and the starting point for e-business.

Each scenario ends with the control point. It is mainly the result from the MD04 transaction (control of availability of material). Besides these five logistics scenarios ,the students have the opportunity to try similar functionality within finance and human resource modules.

The currently used version of the SAP product family on both Universities is SAP R/3 version 4.6c. This platform enables the showing of main features from the enterprise logistics, finance and human resource areas. The current, important feature is, of course, the on-line database integrating both main enterprise pillars; this means the customer order life cycle with appropriate documents (such as customer order, purchase order, production order, material income etc.) as well as invoices.

In addition to the above-mentioned ERP courses (where SAP application is used), there is one special SAP course offered at the University of Economics in Prague: "Business process supported by SAP products". This course runs every week during semester as 2+2 course (it means 2 hours of lecture and 2 hours of practical exercise in computer lab). The lectures are held by specialist from SAP the Czech Republic and specialists from two SAP implementation firms.

5 Conclusions

Both universities have recently gained much practical experience with the teaching of the ERP topic based on exercises and practical experience with the SAP product done by students. Therefore, it seems very useful and effective to expand the cooperation to similar subjects at both universities. This means:

- changing the texts for students to exercises
- changing the experience of teaching ERP to students (especially with regards to practical projects in cooperation with practice and firms).

As a next step, we plan to prepare an international e-business course based on scenarios running on the SAP application accessible for students from both universities. It could give the students' projects a new international dimension. Our future plans are to make an innovative international collaboration on the field of ERP systems education. We already have an international network, "eBusiness ALADIN" – ALpe ADria Initiative (www.aladin.units.it) at the regional level that shares

common ideas and knowledge in teaching and research activities in the field of e-commerce. The intention of the cooperation is to create mobility of students and professors, setting common lectures, creating virtual teams of students from different universities and professors lecturing at different universities, in order to harmonize global and international activities of e-commerce.

We currently have permission from SAP Slovenia to allow other students from the eBusiness ALADIN university group to use the SAP system we have installed at University of Maribor, Faculty of Organizational Sciences; limited to educational purposes. For the future, we are optimistic and we can expect that lecturers and students will more frequently exchange ideas about ERP systems operating. Through joint teaching at different universities, the teaching of ERP systems will become more effective and more understandable to students and to lecturers.

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Knowledge Sharing in Regional Digital Ecosystems

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The knowledge-based networked business ecosystem represents a geographical (or virtual) area where specific regional policy initiatives could foster growth and improve innovation, productivity and social aspects through the optimal use of local assets empowered by information and communication systems (ICT). Effective human interaction with ICT within such a regional digital ecosystem depends on access methods, suitability and form of content and knowledge sharing. A network of digital ecosystems, as public common resource, offers to regions and to less-developed areas opportunities to participate in the global economy.

Key words: digital ecosystem, regional business digital ecosystem, integrated business information, electronic content management, document management system, knowledge sharing and management;

Posredovanje znanja v regionalnih digitalnih ekosistemih

Na znanju temelječ in mrežno povezan poslovni ekosistem predstavlja geografsko (ali virtualno) področje, kjer bi lahko specifične regionalne politične pobude spodbujale rast in izboljšale inoviranje, produktivnost ter družbene vidike s pomočjo optimalne uporabe lokalnih virov, ki so okrepljeni z informacijskimi in komunikacijskimi sistemi. Učinkovita človeška interakcija z informacijskimi in komunikacijskimi sistemi, kot je na primer regionalni digitalni ekosistem, je odvisna od pristopnih metod, ustreznosti in oblike vsebine ter posredovanja znanja. Mreža digitalnih ekosistemov kot skupni javni vir ponuja regijam in manj razvitim področjem priložnost, da sodelujejo v globalnem gospodarstvu.

Ključne besede: digitalni ekosistem, regionalni poslovni digitalni ekosistem, integrirano poslovno informiranje, upravljanje elektronskih vsebin, upravljanje s sistemom dokumentov, posredovanje znanja in upravljanje;

1 Introduction

The support of knowledge sharing, of the establishment of worldwide value chains and of business networking promotes global co-operation and alternative ways of developing software applications and conducting business (Nachiava 2004, www.digital-ecosystem.org)

Generally, it is known that a natural life ecosystem is defined as a biological community of interacting organisms plus their physical environment. In the same way, a regional ecosystem is "the network of consumers, buyers, suppliers and makers of related products or services" plus the socio-economic environment, including the institutional and regulatory framework.

The digital ecosystem approach transposes the concept to the digital world, exploiting the mechanisms of natural ecosystems. A digital ecosystem is an "evolutionary self-organising system aimed at creating a software environment for networked organisations" that supports the development of open and adaptive technologies and evolutionary business models (see Fig. 1).

The digital regional ecosystem aims to become the ICT-enabling technology for the regional ecosystem.

The knowledge-based networked regional ecosystem represents a community, which, in order to exploit the synergies of the systemic sharing of community's resources, should cooperate and share the following aspects:

- **Regional services**: sharing vision, decisions and solutions that are able to share the real-time infrastructure: Secure Broadband Wireless, Low-Power-Consumption Mobile/Display Devices, and transition to SOA – Service Oriented Architecture.
- **Regional business**: aggregating the offer, procurement, customer management, etc.
- **Community knowledge**: shared knowledge facilities to support a virtual learning community with training and competence centres, knowledge bases, e-learning modules, benchmarking, etc.

This article will present the evolution of the ideas related to the knowledge-based networked community as well as those ideas connected with the regional business digital ecosystem conception.

2 Digital ecosystem developing models[1]

From an initial analysis, several models seems the most suitable for the implementation to be used for different layers of the ecosystem:

- for the real-time infrastructure: an **open source model** adopting multiple business models;
- for the specialised digital ecosystem: encouraging the maximum coexistence and diversity of models and licences, supporting as much as possible the equal opportunities of "**service / solution publishing**" and fair competition;
- for the local instances of the ecosystem: the models are decided by the local community on the basis of the local conditions.
- P2P network model (autonomous nodes)

The basic principles, which inspire the common infrastructure, are linked to basic guarantees, such as:

- Equal opportunities of access to the infrastructure, affordability for small communities
- Self-sustainability
- Independence from a specific provider, technology, license
- Critical mass of services and of users
- Maximising the number of digital forms populating the ecosystem, maximizing their evolution

To ensure the open access, and the largest population of the digital ecosystem, it is indispensable that protocols and data formats are open and not dependant on a unique provider in order to guarantee independence from ICT platforms, the highest interoperability and the possibility of reusing the pre-existing information and services.

2.1 Open source, basic real-time infrastructure

To guarantee that the ecosystems attracts a critical mass of developers of services, and therefore of users, it is criti-

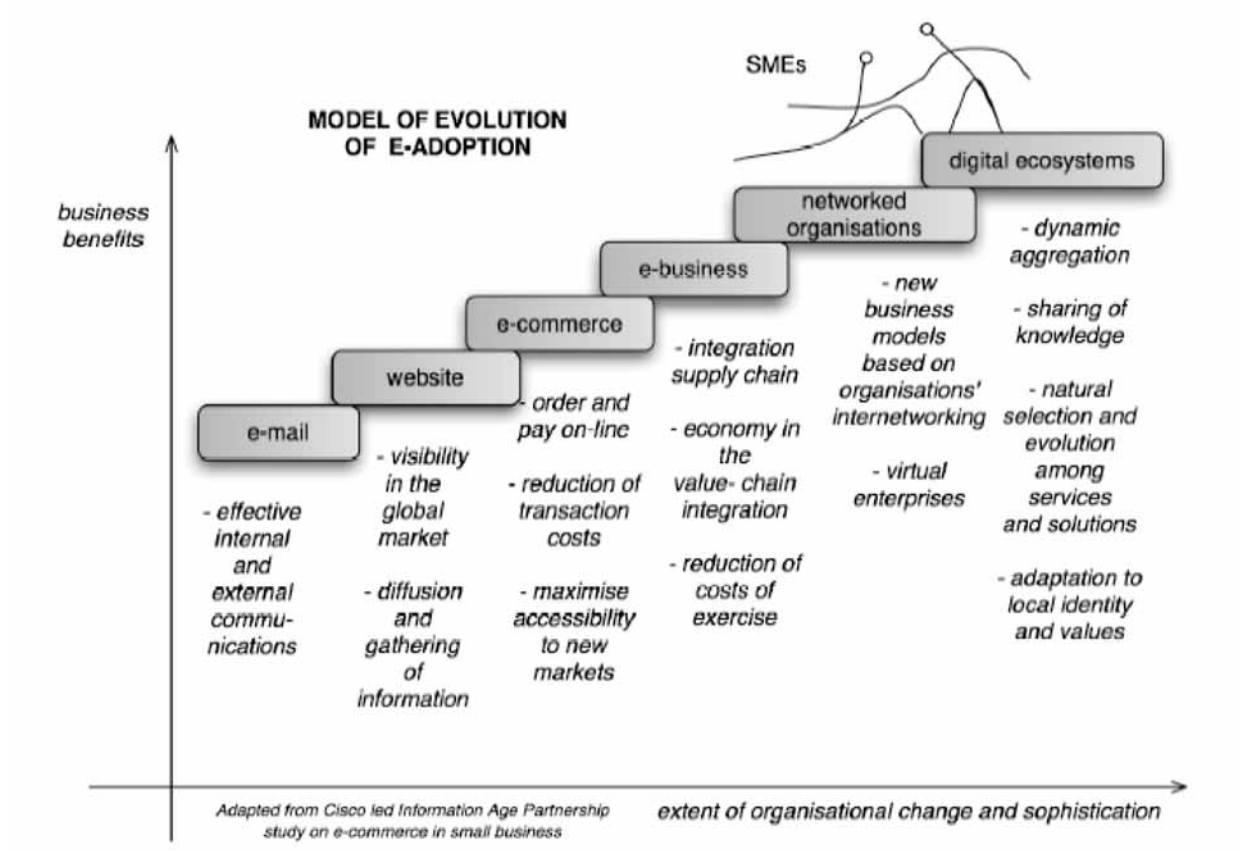

Figure 1. Evolution of ICT adoption (Nachiava 2004)

[1] Section 2 and 3 follow interpretation of the Digital Ecosystem – principles in accordance with the publication (Nachiava 2004) and www.digital-ecosystem.org.

cal to guarantee the evolution and continuity of services in time within an open infrastructure. **The basic real-time infrastructure represents an ecosystem that connects the applications and the services of the community; it should provide the equal opportunities of business and visibility to all participants, and therefore its mechanisms should be transparent and able to be inspected.** The basic infrastructure could not be tied to a single provider or a unique technology; it is necessary that the usability and maintenance of the infrastructure does not depend on the goodwill of the suppliers. For these reasons, the ecosystem needs a basic infrastructure the development of **which can be guaranteed due to the availability of the source code (open source).**

The digital infrastructure of the common ecosystem environment is composed of the infrastructure of P2P network and by architectural modules, but also provides some basic eservices (e.g. electronic payment, interoperability modules, etc.), which could be used as components for developing solutions for different business sectors. These basic e-services provided by the ecosystem, could exist in different versions, with different level of complexity and sophistication, following different license models and costs.

2.2 Models for sector-specific ecosystems

The user could select the more appropriate service or component (open source or proprietary), could substitute it as soon a more adequate one appears on the ecosystem, or adapt it to his needs. The broad use and the diffusion of a network of local digital ecosystems:

- provides the digital support for the economical development of regions
- fosters the private entrepreneurship on the sector of production of software components and services.

Any player could produce components or solutions, not being forced to adapt a specific business or license mode -- such market forces would promote a continuous evolution of components and solutions.

2.3 National and regional implementation

In order to support the evolution of use of ICT and entrepreneurship, European Member States have deployed a wide range of ambitious policies and instruments and have launched many different actions and initiatives aiming at fostering:

- support networks supported by national or regional authorities,
- common commitment from industrial and sector associations,
- cooperation among local SMEs, public bodies, local and regional authorities and institutions,
- consensus on standards and technical interoperability, sharing of solutions and of technical systems

To reach the goals defined by the Council of Lisbon, with regards to information / knowledge society development, it is crucial to define and implement in each region a specific strategy of innovation and local development, focused on the identity and the strong points of the local area, in synergy with an common European global strategy, keeping in consideration the global environment. **The success of the implementation depends at local level on the consensus and the active participation of the local players:**

- universities, research organizations, innovation centres;
- enterprises (in particular SMEs and enterprise organizations);
- government and of public administration

The regions (or local areas) which succeed in the application of digital sector ecosystems, will be the ones where the above players:

- are fully committed
- work together forming a community
- a critical mass of enterprises/communities (including the small organizations) use the ecosystem as business tool.

The regional business digital ecosystem will be an effective instrument for business when critical mass will be reached in terms of:

- coverage of the territory (with potential to create critical mass for S/M businesses)
- number of applications and relevant services present
- diffusion and availability of the infrastructure.

2.3 Stimulus for small and local ICT software and service providers

Regional digital ecosystems stimulate the innovation and the competition, providing the small providers equal opportunities to offer their services and products as well as stimulating local technological knowledge and development. **A new component, although produced by a small producer in a remote area, is visible on the ecosystem and, thanks to the seamless interoperability, could replace a component in a solution.** Competitiveness and innovation is then increased, generating a supply of software with better conditions of usability, in a model of continuous improvement (Nachiava 2004):

The set-up of regional digital ecosystems, therefore offers the possibility to communities operating in the ICT field of proposing their solution to a critical mass of users. Today the jobs generated by ICT industry in most European regions, mainly concern technical tasks of little aggregate value; at the local level, the technicians who provide support for proprietary software produced by multinational companies do not have the knowledge and the possibility of high-level development.

3 ICT for Regional Digital Ecosystems

Some of today's ICT solutions will be the most transformational in their impact in the two-to-five year time fra-

me in terms of achieving goals of regional digital ecosystems. Section 4 is devoted to attractive technologies for regional digital ecosystem – Enterprise Content Management (ECM) and Section 5 to Knowledge Management; perhaps in the very near future one of most attractive technologies. In this section, let us focus on some others, which are equally important (Nachiava 2004):

(a) **Secure Broadband Wireless**
Presently is one direction clear: networks are moving to wireless broadband. There are three gating factors to widespread deployment of wireless/broadband for mission-critical applications:
   a. End-to-end security,
   b. Standardized endpoints – PCs and personal digital assistants (PDAs)
   c. Wide robust coverage areas

(b) **Low-Power-Consumption Mobile/Display Devices**
The mobile and wireless area is continue to be a strong source of innovation, including two technologies at the peak: Wi-Media – an ultra-wideband technology that operates at very low power levels, and Worldwide Interoperability for Microwave Access – an emerging high-speed wireless standard.

(c) **Real-Time Infrastructure**
If an ICT infrastructure is a collection of client devices, servers, storage, networks, databases and middleware supporting the delivery of business applications and ICT-enabled business processes, then a Real-Time Infrastructure is an ICT infrastructure shared across customers, business units or applications where business policies and service-level agreements drive dynamic and automatic optimization of the ICT infrastructure, thus reducing costs while increasing agility and quality of service.

(d) **Service-Oriented Architecture**
One feature characterizes these next-generation applications:the service-oriented architecture (SOA), which enterprises require an end-to-end view and integration across processes. These fusion principles are used like provision (build or acquire) applications software and business services. User and vendor communities must integrate these principles into three aspects of their technical environment: **architecture, infrastructure and application software.**

(e) **Collaborative commerce (c-commerce)**
Web services provide a path to Collaborative Commerce. In that case, **c-commerce** is an expansive model for business applications:
   - It is driven by e-business demands and opportunities and is enabled by Internet and service-oriented technologies.
   - C-commerce is the most advanced support for e-business because it achieves dynamic collaboration among and between an enterprise's employees, business partners and customers.
   - In c-commerce, digital ecosystems harness the full power of the Internet by extending business relationships beyond rigid value chains, simple information sharing and unified communications.
   - C-commerce includes inter-community Internet connections and goes a step further by enabling multiple ecosystems to work interactively, often by dynamically restructuring their relationships in near real time.
   - C-commerce will be enabled by Web services – functional units of application software made available through the Internet for use by other software systems.

4 Content Management and Regional Digital Ecosystems

The vision of Enterprise Content Management (ECM) from its initial sense fits very well to exploit the synergies of the community resources systemic sharing in a regional digital ecosystem. Users across the community will be able to create, retrieve, manage, and archive all of their content, including electronic and paper documents, email, and computer reports throughout their business and knowledge processes. We could simply see the E in ECM, as Ecosystem instead of Enterprise. Then "Enterprise/Ecosystem" content management (E/ECM) will include the needs of an entire regional business digital ecosystem rather than just the business processes of a single organization. E/ECM will support the records retention policies of the community so that regulatory systems, audit and compliance requirements are satisfied for both physical and electronic documents. Additionally, document content will be re-purposed for presentation via regional ecosystem portals and websites.

Today's "classic" ECM infrastructure technologies **evolved from the primary ECM application categories towards integration**. Let's summarize the main milestones (Burton 199).

1. Document Management (DM) - include both imaging and electronic document management. The rapid evolution of client-server and Web presentation technologies prevented DM solutions from achieving the platform stability that enterprise resource planning (ERP) applications achieved. The concepts of DM were appealing, but the tools were inflexible and the ECM infrastructure technologies didn't readily scale to the needs of the enterprise. There are a large number of departmental DM solutions that have been implemented, but very few systems that support the document management requirements of thousands of users.
2. Web Content Management (WCM) - because the initial websites had relatively small numbers of static pages, the WCM tools were more focused on the presentation than the management of content. As a result, these tools had only limited integration with the existing DM or records management (RM) repositories.
3. Records Management (RM) policies and procedures were standardized long ago. In the generation of pa-

per-based processes, RM was a very successful function. Many organizations evolved to manage records tracking and retrieval, records retention and disposition, and the user interface with file rooms and offsite storage. However, since the advent of electronic documents, RM has been dysfunctional.

4. Email has not always been considered an ECM technology, but it is clearly a content type that needs to be managed. Today there are clear consequences for not managing email with the same urgency that is applied to RM for paper and electronic documents. There are clear advantages to managing email using the same infrastructure technologies that are used for the other ECM categories.
5. Information Life-cycle Management (ILM) is a recent development in enterprise storage management. ILM takes advantage of the dramatic improvements in the price/performance of magnetic storage to enable organizations and networked communities to manage all of their structured and unstructured information based on business or regional policies.

Each of the ECM application categories has been gaining momentum, especially at a workgroup or departmental levels. **However without integration, each of the ECM categories is unable to fulfill its true enterprise/community potential. Enterprise content management includes an entire ecosystem's needs. At the community level, each of these elements takes on additional complexity, as the focus becomes all users, processes, applications, and documents in regional digital ecosystem**. The benefits of a community-wide approach to E/ECM are clear. Some of these benefits include:

- searching multiple repositories of documents
- sharing and re-using documents across community
- controlling documents on an community-wide basis
- establishing consistent document types and an community-wide taxonomy
- rationalizing and enforcing processes and policies

The new generation of E/ECM products provides a basis for the community - level integration of DM, RM, WCM, and email repositories. This integration allows people to search across repositories, present integrated information from multiple repositories in response to user queries, and personalize these responses based on the relationship of the inquirer to the community. **Collaboration, knowledge management, and work-flow management applications are able to be established based on these E/ECM products; this is becoming a strategic business requirement**. The whole of E/ECM is greater than the sum of the individual ECM application categories. But, there are important E/ECM challenges that remain to be solved. **While the trend towards E/ECM is clear, each investment needs to be justified, and especially in the regional digital ecosystems area.**

5 Knowledge-based management

5.1 The dividing line between information and knowledge

It is the distinction between information and knowledge that makes the difference. The distinction is real, substantive, and widely accepted. We want to **turn that information into knowledge**. So what are the characteristics of knowledge in the regions? The subject of "knowledge" has been treated frequently mostly in analyses of the role of intellectual assets and knowledge in community.

Let us focus on the characteristics of knowledge in regional business digital ecosystem, especially with regard to how it may influence the application of ECM technology. There are two kinds of knowledge: **tacit and explicit.** Some authors emphasize the difference between **explicit knowledge**, which can be articulated in formal language and transmitted among individuals, and **tacit knowledge**, personal knowledge embedded in individual experience and involving such intangible factors as personal belief, perspective, and values[2] (Nonaka 1995). They stress that **the interaction between these two forms of knowledge is the key dynamic of knowledge creation in business administration.**

Tacit knowledge must be recorded - made formal, in order to become an organizational or community resource and not just individual proficiency. What is internal must be articulated and made explicit.

Knowledge is typically complex, often associated with "why" and "how", not just "what" (simply "know – how"). It is not a list of facts or compilation of data nor is it a description of products or services. **It is based on an understanding of what the knowledge-seeker needs to or wants to know**. It is constructed for effective and efficient communication within regional digital ecosystems. As such, recorded knowledge is not always associated with specific job roles and work processes. It addresses tasks that may be performed by many people in the community.

In the business environment in particular, knowledge is sufficient. It may have many information components, but is held together by knowledge of consequences and an awareness of completeness. Especially in networked community environments, we consider knowledge as a dynamic human process of justifying personal belief toward the truth.

Explicit knowledge may take two forms: recorded knowledge and knowledge in action. Technical communication experts (knowledge management professionals) are concerned with both. For example, trainers are more concerned with knowledge in action, because they interact with knowledge-seekers, help them develop mastery, observe the achievement of that mastery, and serve as

[2] AIIM, ARMA, and COHASSED (2004) published a detailed survey of the status of Electronic Records Management in January of 2004. The complete survey can be viewed at www.aiim.org/industrywatch.

competent observers. Technical writers are typically more concerned with recorded knowledge.

5.2 Characteristics/effects of a knowledge interchange

What happens in a knowledge interchange within a regional digital ecosystem - in the transfer of knowledge from a subject matter expert or recorded knowledge resource to the knowledge-seeker? The traditional model of acquiring knowledge includes:

- **practice or usage** (action itself) - and thereby confirmation of the correctness of the knowledge and competence of the performance
- **a process of dialog**

Knowledge solves a problem, so it produces competence leading to effective action. Building a store of information is not the desired result in most cases, although identifying the relative importance of information often is. Pointers to additional information resources are also often an important part of the interchange. The interchange results in confidence in the truth of the knowledge transferred.

5.3 Managing knowledge in dynamic, interactive environment of regional digital ecosystems

Does ICT for regional digital ecosystems change the characteristics of explicit, recorded knowledge in particular? Most of the discussion about knowledge appears to be conducted without consideration for the impact of the all-pervasive networked ICT environment on the development, management, and transfer of knowledge itself. Similarly, much of the academic discussion about computers and knowledge seems to be conducted with little consideration for the imperatives of the business environment. Inter-personal contacts as a method of conveying knowledge are not diminishing either**.** However, it seems certain that the shift to ICT as a way of delivering information and knowledge resources within regional digital ecosystems has already changed the way in which we create, record, supplies, and use knowledge resources. **We are moving to interactive relationship between knowledge-holders and knowledge-seekers** (Strong 2005, Heeks and Duncombe, 2001).

In some ways, we are moving back to a so-called pre-print model of transferring explicit knowledge model that is not dependent on publications or documents. This is happening in part because of a need (the complexity and pace of change of our work environments) and in part because of a compensating opportunity (people and information are increasingly available on line.) and this movement is good for knowledge-seekers.

Print-based literacy fostered a publishing model while ICT does not. ICT breaks the publishing model - just in time for the just-in-time business organization / community.

6[3] Case Study of a Regional Services

Essential **business information and knowledge resources**, supported by ICT (Information and Communication Technologies), thus far are currently used by multinational and large corporate enterprises, and **not** by regional communities. To gain market shares or to survive in this environment, regions are equally challenged to take advantage of **ICT-driven** business process related to information, knowledge, advisory and services. Compared to large enterprises, regions only recently have begun to realize the **commercial value** of externally validated business information sources. So far they have relied on information circulated among known business partners / associations, neighbors or friends. The above-mentioned issues were stimuli for creation and raisingdemands for on-line access to validated **Integrated Regional Business Information, Advisory and Development Services (IRBIADS)** – For providing IRBIAD-like services, some kind of ICT-based "VIRTUAL AREA" accessible at appropriate costs for all applicants is needed.

IRBIADS are generally types of **market, business and region development services that present information, knowledge, advice and interpretations to individual or institutional clients in response to the market and a regional business-related issue.** IRBIADS create market transparency on business opportunities and other BDS (Business Development Services) and contribute to rational decision making for entrepreneurial and development issues. To create adequate IRBIADS, environment, raw data, information and knowledge are retrieved from different on line accessible resources; they are processed and tailored to commercial information products. **For the ability to provide advisories considering demand of clients it is necessary to ensure on line access to appropriate regional marketplace.** IRBIADS address a number of client groups; including SMEs and regional stakeholders of IRBIADS (see fig. 1):

- **Private Regional Enterprises** (including SMEs) – clients / knowledge and opportunity seekers
- **Regional market places and market services** providers or owners
- **Suppliers of BDS - Business Development Services** (financial and legal advisory, research, training, engineering etc.) for improved targeting of services
- **Public, government and communal authorities** to develop policies and identify, create and support programs for regional economic development.
- **Regional Utility/Subscription Computing (UC)** to provide charge-by-use practices enabling regional

[3] Lavrin & Delina, 2006; Lavrin et al., 2004; Lavrin & Zalko 2003

stakeholders to increase profitability, increase infrastructure reliability, protect crucial information assets, hosting services, and focus on their core business.

- **Business Process Outsourcing** (BPO) to enable regional partners to delegate an ICT-intensive business process to an external provider, who owns, administers and manages it according to a defined set of metrics.
- **Contact units of Agencies and Funds owners accessible for national and international programs/projects** to whom they are providing targeted technological, technical and financial assistance in the area of the projects oriented on market and business promotion, R&D projects (including support fro technology transfer and innovation).

The significance for IRBIADS and virtual regional area creation is the design and establishment of state-of-the-art ICT-based virtual environment in such a way that it would be able to adequately achieve the required features and objectives of IRBIADS. It also involves the development of relevant tools for database and knowledge base management, information processing and adequate SW solutions for interactive regional communication and services sharing in a complex promotional venture. **The previously-mentioned involved approaches are fully consistent with ideas and principles of the regional business digital ecosystem mission and the adequate ICT provision**.

The most essential (regional) element is continuous on-line communication between the IRBIADS' bases and the regional marketplace and the stakeholders as well. It satisfies continual update of information and knowledge in accordance to real-time data generated by activities running in the framework of e-region. Each component of IRBAIDS is constantly influenced by each other and these real-time interactions are very important when we want to provide adequate advisory services to a region. However, to be able to provide such services, it is also important to have a connection to adequate knowledge, which is mostly missed by the stakeholders of region. **The information and knowledge management are open to content management that is in the background while considering providing relevant (regional) services to regions.**

To stay competitive in the global knowledge-based economy, organizations and regions increasingly need to be part of the economy-wide evolution of business clusters, from informal alliances of regional business partners to collaborative networks of regional stakeholders. To

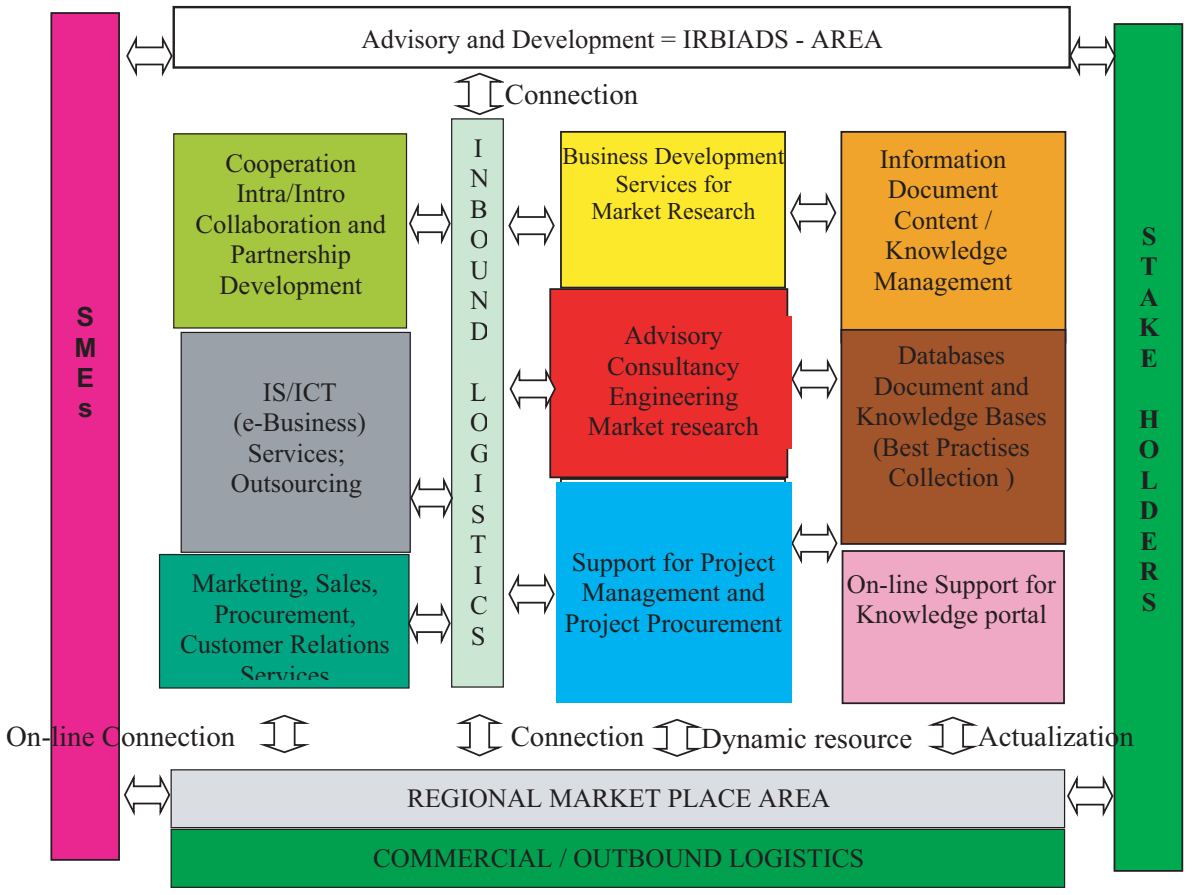

Figure 2 System Structure for IRBIADS

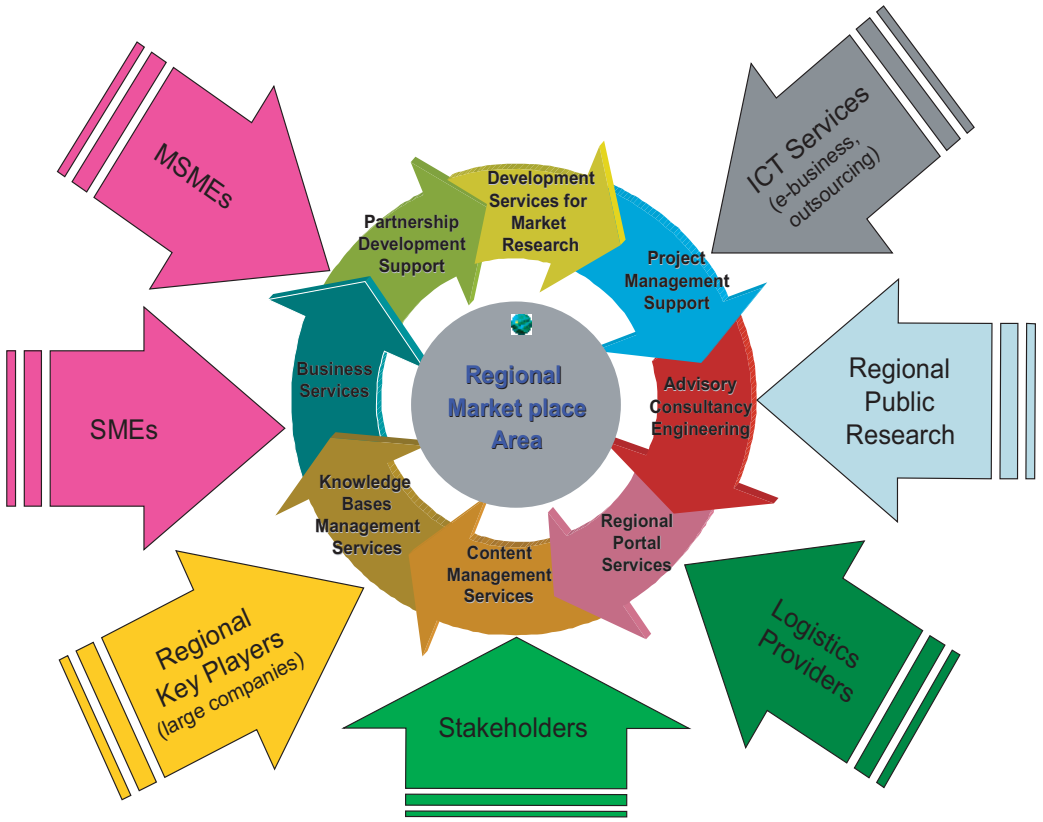

Figure 3. Concept of a development and business virtual environment based on the IRBIADS and the Regional Market Place with business networking principles

move towards more open standards in digital information systems architecture enables regions to integrate their existing information sources and by reducing costs and by multiplying connectivity, to dramatically extend their reach across regional boundaries and national borders.

The use of advanced IS/ICT can enhance the scope for experimenting with knowledge exchange among multiple network participants at distant locations. Enterprise networks and the "virtual regional network organizations" (see Fig. 2) that emerge from them have the highly inter-linked infrastructures and business processes needed to supply value-adding goods and services on demand. Small participants can contribute their specific strengths, and access the competitive advantages of a large business network.

Regions working through flexible business networks (with IRBIADSs' functionality) will benefit from a collaborative environment, shared resources, and from the knowledge created and exchanged among stakeholders. This will contribute to increased innovation and competitiveness of European regions and industry.

Finally, the concept of such a regional (eco) e-business networking infrastructure is presented at Fig. 3. The concept is relevant to development ideas summarized by foregoing figure (2) and are displayed functional relation between both pictures by different colors.

7 Conclusion

When delivering solutions or services to regional digital ecosystems of communities and sharing information with partner organizations, communities, and within local ecosystems, the following and common sets of issues often arises. These include:

- **Information Supply Chains** – clustering and networking of regions, which involve delivery ERP, CRM and SCM solutions as well.
- **Content Life-cycle Management** - increasing the effectiveness of regions throughout its life-cycle and dramatically improving their business performance through its life-cycle and better management of their content.
- **E-Commerce environment** – effecting collaborative content/knowledge creation and management on such a services-oriented deliveries (SOA).
- **Knowledge management** - increasing the effectiveness of community valuable asset – information and knowledge.

On other side, the regional business digital ecosystems concept fully supports EU ideas for development of sustainable SMEs business networking activities in less-developed regions and thereby creates opportunities for regional SMEs for successful participation in the global economic environment. RTD support for above-mentio-

ned activities can be financing from the structural funds as well (Doucek 2004).

In conclusion, it is possible to say that the concept of the IRBIADS-area is a potential experimental playground for the "Regional Business Digital Ecosystem" ideas application. On other side, for successful SMEs network business activities, the concept presented by Fig. 2 and 3 is basically also concept of a relevant "living laboratory".

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Anton Lavrin, Associate Professor has been working as a researcher and lecturer at several faculties/institutions at the Technical University in Kosice (in the areas of: control engineering, information systems development and management, TQM and software quality, innovation management and distance education). He held several managerial positions like: Vice-rector for informatics, Director of the Institute of Life-long Education. Dr. Lavrin has participated in several international projects (Tempus Phare, Leonardo da Vinci, Socrates, 5FP and 6FP). Currently he is the delegate / member of the ISTC / on behalf of the Slovak Republic.

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Reflections

ALADIN - ALpe ADria INitiative Universities' Network

http://www.aladin.units.it

ALADIN - ALpe ADria INitiative Universities' Network - was initiated after a very well supported Business and Government Executive Meeting: Regional Cooperation in eCommerce Development: Business & Government Executive Meeting of the 14th Bled eCommerce Conference: eEverything: eCommerce, eGovernment, eHousehold, eDemocracy on June 25, 2001.

The idea of a cross-border eRegion was encouraged by the presentation "Building A Mega-Portal For Regional Economic Development" by Dr. Sandor Boyson, Chief of Information Strategy, Co-director Supply Chain Management Center, Robert H. Smith School of Business, University of Maryland, College Park, United States. The presentation was in Ljubljana, sponsored by the Electronic Commerce Center, Faculty of Organizational Sciences, University of Maribor and Government Center for Informatics, Republic of Slovenia on March 4, 2002. Representatives of the Universities of Graz, Maribor, Rijeka, and Trieste had a preliminary meeting in the afternoon of the same day.

The name ALADIN was proposed by the representatives of the University in Trieste and quickly accepted at the first formal meeting of a group of professors at the University in Rijeka on September 5, 2002. As a result of the meeting, letters of invitation were mailed to the rectors of the University Graz, Maribor, and Trieste by Dr. Danijel Rukavina, professor and rector, University of Rijeka and Croatian Academy of Sciences and Arts.

The ALADIN Network was formally created by signing a Letter of Intent in Ljubljana, Slovenia on October 23, 2002 by:

- Dr. Paolo Inchingolo, Professor and Deputy Rector, Università degli Studi di Trieste, Italy;
- Dr. Željko Knez, Professor and Acting Rector, Univerza v Mariboru, Slovenia;
- Dr. Pero Lučin, Professor and Vice Rector, Sveučilište u Rijeci, Croatia;
- Dr. Friedrich M. Zimmermann, Professor and Vice Rector, Karl Franzens Universität Graz, Austria.

The Universities desiring to strengthen the friendship and cooperation between themselves, recognizing the importance of developments in electronic commerce and the information economy, have reached the following understandings:

The Universities will create an international network, at the regional level, sharing common ideas and knowledge in teaching and research activities in the field of e-commerce.

The intention of the cooperation is to create mobility of students and professors, promoting common lectures, creating virtual teams of students from different universities and professors lecturing at different universities, in order to harmonize global and international activities of e-commerce.

In order to coordinate cooperative activities, a Steering Committee will be created, and each University will designate two representatives to be responsible for determining the particular directions of cooperation and for ensuring the effectiveness of all cooperation and exchange activities.

On June 5th, 2005 in Bled, Slovenia, a second version of the ALADIN Letter of Intent was cosigned by four additional universities joining the Network: Corvinus University Budapest, Hungary; Technical University Košice, Slovakia; BW University München, Germany; Novi Sad Business School, Serbia and Montenegro (see a copy of the Letter of Intent). After that, the Prague University of Economics, Czech Republic expressed interest in joining ALADIN. Presently nine universities of nine countries are active in ALADIN, recognizing the importance of developments in eIntegration, particularly in eBusiness, eGeomatics, eGovernment, eHealth, eLearning, eLogistics, and in eManagement of Disaster Relief. The effort is about the applications of the Information and Communication Technology (ICT) for the benefits of the European Citizens.

ALADIN is an initiative, not a project. The initiative is enough for creation of ideas, mobilization of goodwill, highlighting of issues, triggering of actions, and more. In next few years we may see research projects created in the ALADIN environment mobilizing the required cooperation and funding. The ALADIN Network is a valuable contributor to eRegion development and open to inter-regional cooperation.

András Gábor[1]

The ALADIN initiative is a framework for the strategic renewal of Corvinus University of Budapest

March 1, 2006 is an important date in the history of the Hungarian Higher Education, as the new LXXX/2005 Act on Higher Education is effective from this date. The new act is the final step of approximately 15 years of reform, which has accelerated in the last five years. A large part of the system renewal originates from the Bologna Agreement, adopted by the Ministers of Education in 1999, but the reform covers a much broader area than just the system of education and training. One of the main objectives of the reform is to give opportunities to Higher Education Institutes (HEI) to be more competitive, responsive as well as being constructive members of the European Education (and Research) Area.

Under the framework of the National Development Plan, the Human Resource Development Program of nine universities in two consortia has developed a normative process model in order to focus on organisational and procedural innovation. In the first phase of the project, more than 40 innovative solution we developed. The second phase was devoted to normative model development. Since the HEIs are in a competitive situation, the adaptive phase will be conducted separately based on a common model.. The common model will guide not only the adaptation, but also serves as a basis for decision support to the Ministry of Education.

The overall objective of the development is complex. First, Hungarian higher education has several positive traditions, which are worth preserving. Second, the competition assumes sustainable growth. Third, a dynamic equilibrium is also an achievable objective. The financing of resources on one hand, and the task-oriented income on the other need a dynamic equilibrium. The overall strategic focus will be applied to performance management, organisational innovation, ERP, innovative technologies in education, strategic human resource management and the link between academia and the labour sector. The key strategic action is active portfolio management.

Portfolio management covers a mix of educational programmes and research projects, including building the life cycle of innovation. An integral part of portfolio management is dynamic international co-operation. ALADIN is a very good initiative under which educational and research activities can be organically implemented in the strategy of the Corvinus University of Budapest. The regional aspect will be enhanced in the feedback of the labour sector to academia; innovative technologies will be used in the development and use of joint curricula.

Corvinus University of Budapest is fully engaged in the co-operation on a win-win basis, and ALADIN gives an excellent example and basis for doing this.

Otto Petrovic[2], **Christian Kittl**[3]

Contributions of ALADIN to eRegion Development: The University of Graz Perspective

Karl-Franzens-University Graz was among the four founding Universities of the ALADIN network in October 2002. At that time the group could already look back upon a long-standing history of joint conferences and events, but it became clear that a more formal co-operation would be needed for the following steps of strengthening and deepening the until then very informal collaboration. Through the formal act of singing the 'ALADIN Universities' Network' foundation charter by the respective vice rectors and the consecutive steady process of enlargement the network soon became a very important platform for joint projects.

Ever since the beginning of the cross-border co-operation of ALADIN members in joint projects there have been two major success factors:

Firstly, the complementary competencies of the platform participants: Within the network and its common focus on 'e' a big variety of different areas of expertise can be found, e.g. e-Business, e-Geomatics, e-Government, e-Health, e-Logistics to name only a few. Being able to rapidly identify and access people and organizations with excellent know-how in certain domains is a huge advantage in projects, and especially also in forming consortia for EU proposals.

Secondly, but at least as important as the first point of having easy and fast access to know-how in com-

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plementary domains, maintaining good personal relationships between the network members proved to be a major success factor for ALADIN. There is a big difference between collaborating with people you have never met before via the Internet and doing so with friends you meet regularly in cross-border workshops or at conferences. Here, being members of one region is a big advantage for the ALADIN Network universities. Holding joint lessons, exchanging students, and providing students with the possibilities to gain practical work experience from internships (as it is for example the case between University of Trieste and evolaris research lab, Graz) helps building long-lasting relationships and on a higher level even aids in building social cohesion within the Alpe Adria region.

Currently, one of the biggest success stories of the ALADIN network so far is being developed over the platform: mGBL, which stands for mobile game-based learning and is an EU funded project under the Framework Program 6 (see www.mg-bl.com). The specific targeted research project (so called STREP) was approved in late summer 2005 and is co-financed by the European Commission with approximately □ 2.3 million. The core project consortium is formed by the original ALADIN network members, namely the Universities of Maribor, Rijeka, Trieste, and the evolaris research lab, which is closely related to Karl-Franzens-University, Graz. The main goal of mGBL is to research on the possibilities of new learning models built around games on mobile phones. Traditional learning methods, such as the pure "Tell-Test Teaching" don't manage to evoke a high involvement from the student, as he is not engaged as an active participant in the learning process[4]. Interactive learning methods, which are supported by digital games, can put things right. In general, digital games are considered to involve the participants very much; however, commercial games often lack the pedagogically desired learning content. Digital Game-Based Learning – the combination of digital games and high-quality learning content – is in this context a valuable pedagogical-didactic medium, which activates the student. Especially the combination of digital games with the real world, e.g., in the form of pervasive games, offers big chances, but represents at the same time also a challenge.

The core idea of the mGBL project is to trigger social interaction with the aid of the mobile telephone, which result in learning processes. The mobile telephone is used to trigger interactions with other game participants in a playful way, but also with the real world, which is integrated in the games as "stage". In order to realize this core idea, three fundamental characteristics are implemented: ubiquity of the interaction, integration of the real world as interaction area and basic ideas. Throughout the 30 month duration of the project the consortium will develop a platform for practically implementing and empirically evaluating these ideas in mobile game-based learning models.

For the future the Graz members of the ALADIN network hope for further strengthened co-operation with all network partners. The key will be real projects, ideally on a multilateral basis as it is the case in EU programs, which enable the participants to build upon the success factors of the past: Bringing together complementary competencies in the 'e'-domain and building and keeping good personal relationships, which form the basis for a successful Europe.

Jože Gričar[5], Miroljub Klajić[6]

Contributions of ALADIN to eRegion Development: The Faculty of Organizational Sciences, University of Maribor Perspective

Cooperation in ALADIN is very valuable to the Faculty of Organizational Sciences, University of Maribor. Several activities of the faculty and students are closely working with ALADIN members. For example:

- **The Executive Meetings on Cross-border eRegion Development** (twice a year), http://www.bledconference.org/executive-meeting.
- **The eUniversity Forum** - eIntegration Challenges for Rectors and Deans: Cross-border Cooperation in eRegion and Ambassadors Involvement, a component of the annual Bled e-Conference, http://www.bled conference.org/euniversityforum.
- **The ALADIN Meeting** of the annual Bled eConference, http://www.bledconference.org.
- **Merkur Day** – annual Undergraduate and Graduate Students eConference, Merkur Ltd., Trade and Services, Naklo, Slovenia, http://ecenter.fov.uni-mb.si/merkurday.
- **The Workshops on LivingLabs**:
  - **The 1st Workshop on Innovation and Collaboration for Productive Economy**: Changing the growth curve, sponsored by the eCommerce Center, Faculty of Organizational Sciences, Univer-

[4] Prensky, M., 2001. Digital Game-Based Learning. McGraw-Hill, New York, USA.

[5] University of Maribor, Faculty of Organizational Science eCenter, gricar@fov.uni-mb.si
[6] University of Maribor, Faculty of Organizational Sciences, Laboratory of Cybernetics and Decision Support Systems, miroljub.kljajic@fov.uni-mb.si

sity of Maribor, and hosted by the Training Center SRC.SI, Grimsce-Bled, Slovenia on October 21, 2004, http://ecenter.fov.uni-mb.si/dogodki/innovation-seminar.htm.

- **The 2nd International Workshop on LivingLabs in eRegion**, November 10, 2005, http://ecenter.fov.uni-mb.si/elivinglabworkshop, sponsored and hosted by the Faculty of Organizational Sciences, University of Maribor.

- **The Workshop on Safe and Secure eRegion LivingLab**, sponsored by eCenter, Faculty of Organizational Sciences, University of Maribor and Directorate for Information Society, Ministry of Higher Education, Science, and Technology, Republic of Slovenia in the University Medical Centre, Ljubljana, Slovenia on April 22, 2005, http://ecenter.fov.uni-mb.si/safesecureregion/index.htm.
- **Cooperation in the EU funded research projects**, for example mGBL – Mobile Game Based Learning, Coordinator: Karl-Franzens University, Graz, Austria, http://mg-bl.com.
- **Cooperation in the Finland and Slovenia eInvoicing LivingLab Initiative**: http://www.elivinglab.org/invoicing.
- **Cooperation in CEI** - Central European Initiative: http://www.ceinet.org/index.php.
- **Cooperation in the Oracle Mentoring Consortium**, http://www.elivinglab.org/markets.

The Ministerial Conference Towards a Knowledge Society - the Nordic Experience (Gothenburg, November 14-15, 2005, Sweden),

http://europa.eu.int/comm/regional_policy/sources/docconf/gothenburg/index.cfm,

had important messages about relevance of cross-border cooperation between regions of the European Union.

The success of the Nordic countries in developing a Knowledge Society has been based on sustained and long-term investments into basic ICT infrastructure, research, and technology dissemination. It shows the importance of and substantial benefits from a well- organized effective public private partnership, set up in a triple-helix of co-operation between enterprises, academia, and public authorities. The conference presented this experience to different participating regions and discussed ways and means of transferring this experience to other regions. It focused on three basic elements: ICT development, eGovernment, and innovation clusters. The Nordic example, in promoting infrastructure and education, and especially the triple-helix approach can be considered a good practical example.

Several measures are being proposed as objectives to best transfer the Nordic experience and disseminate this prospective strategy. These objectives aim at integrating the regions into a European Network, at the facilitation of the transfer of expertise, and at disseminating information about the opportunities offered by the EU in the ICT and the regional development fields to promote sustained regional growth via ICT. The European Commission promotes these approaches via the fruitful co-operation between the Information Society Policies and Structural Fund interventions. An idea of the ICT-Powered eRegion, http://ecenter.fov.uni-mb.si/ict-powered_eregion.pdf is a visible example of that in which the ALADIN Network may be very valuable.

From a larger research perspective, it is expected that the LivingLabs will be important vehicles for an accelerated cooperation between researchers, developers, and users. See for example the following reports:

- ISTAG - Information Society Technologies Advisory Board Reports, Information Society Directorate-General, September 2004, http://www.cordis.lu/ist/istag.htm
- European Policy Framework for ICT and New Working Environments. CollaborationŽWork. The 2005 report on new working environments and practices. Information Society and Media, European Commission, October 2005, http://www.mosaic-network.org/amiatwork.
- Barrett, Craig R. & Brody, William R. (editors): Where In The World Will The Next Big Idea Come From? Council on Competitiveness and the National Innovation Initiative, Washington DC, Wall Street Journal, February 8, 2006, http://www.innovateamerica.org.

ALADIN as a cross-border regional university network is very well-positioned in that direction.

Based on our very positive experience in collaborating with colleagues at the universities of the ALADIN Network, we are looking forward to future areas of cooperation and further innovative actions.

Bernhard R. Katzy[7]

Contributions of ALADIN to eRegion Development: Research and Innovation in a Regional "Living Laboratory"

CeTIM is a research centre at the University Bw Munich and has created the Virtual Enterprise-Lab (VE-Lab) which in its core is a research environment that allows

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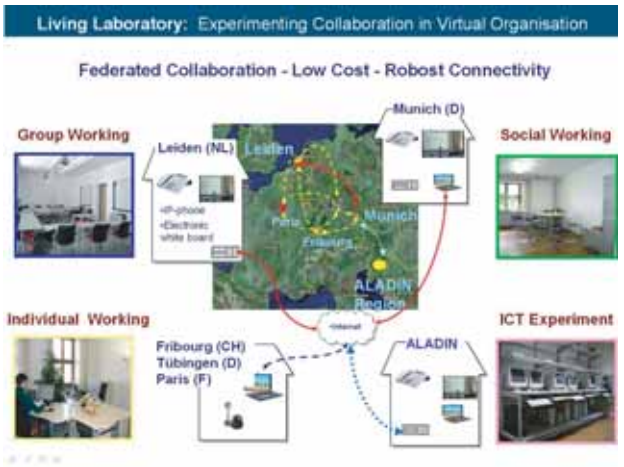

combining real-life (the "living") people and organizations in innovative business scenarios and work environment one the one side, with rigorous experimentation methodologies (the "laboratory") for new technologies, work methods and organizational designs.

VE-Lab is not windowless clean room in the basement of a university but extends across researchers and industrial partners across the ALADIN region, with the aim to study and research on how to fast configure and coordinate networks of resources be it for business opportunities, collaborative research projects, or for disaster relief. As part of this initiative, CeTIM @ UniBW and eCenter @ UniMaribor are closely collaborating on several European level research and network community building activities. For example, VE-Forum is a European initiative to establish an open science platform and community of experts in the domain of virtual and network organisation. Through this activity, the ALADIN region has the potential to exchange and share its experiences with EU experts. Concrete examples of activities are workshops on "Managing Collaborative and Distributed Team & Project Works" to address the collaboration challenges and role of ICT when a project team is assembled from network of organizations to respond to occurring instance.

VE-Lab was initially set up in 1998 in order to support ongoing research in virtual organisations and enterprise networks. It obviously offers a critical mass of emerging technologies, especially real-time communication and collaboration support that could have positive impact on the innovativeness and productivity in networked organisational forms. More important however is the accumulated experience in designing research studies and coordinating the cooperation multiple partners like universities, technology suppliers from industry, industrial user companies. So far the CeTIM VE-Lab has been extended to four European countries, and has contributed its methodological experience to several EU and industry funded research programs like the **Castle Project** (EU Innova Funded) on entrepreneurial innovation in satellite navigation clusters, **Foundation Productive Schweiz** (Industry Funded) on productivity of knowledge workers, **Ecospace Project** (EU Funded) on new collaboration environments for knowledge workers, and **CPIM** (Industry funded) on collaborative product innovation management.

VE-Lab is part of a new initiative of creating a regional cluster on "Security" where it contributes its real-time collaboration experience. Already after the Cuba crisis in the early 1960ies the USA and USSR

Figure 1: Example of Virtual Collaboration Scenario developed in the Living-Lab

trusted the security enhancing impact of collaboration when they installed the red telephone between their governments. This rudimentary instrument of crisis and emergency management had to be fast, flexible, and reliable, requirements that still guide the design of much extended contemporary eSecurity processes and systems: "Fast" because terrorist attacks, natural disasters and other crisis need immediate response. "Flexible" because every crisis is different, thus, different agencies, companies, and organizations need to be integrated in the management process quickly. "Reliable" because cross-national and flexible management processes involving different hierarchical levels in different organizations where people do not know each other have to work properly.

Together with regional partners like IABG in Munich, DLR in Oberpfaffenhofen, Siemens Security in Munich, and the University BW the **Security Cluster** is proposed to the Bavarian prime minister for inclusion in the overall Bavarian cluster initiative, which is a future focus of the Bavarian Innovation policy – and a complement to the ALADIN eSecurity initiative.

Danica Bačanović[8], Borislav Jošanov[9]

Contributions of ALADIN to eRegion Development: The Novi Sad Business School Perspective, Department for Informatics

When observing ALADIN members, one can find that there are seven universities from Central Europe and one business school. That business school is, of course, the Novi Sad Business School (NBS), located on the university campus in Novi Sad (the capital city of the Vojvodina region). Although it is not a part of that university, there is a good will on both sides to integrate the school into the university in this year, during the reform process of Serbia's higher education. NBS is in the newest member of the ALADIN family, but with the prospect of fast growth, as a part of University in Novi Sad.

When you put a frog in the water and slowly raise the temperature to boiling, the frog can not feel it and it does not jump out. When contemplating writing about ALADIN, we realised how we are living with 'frog effect' and does not see how things are changing all the time. The first author of this text counted 115 emails received in last year that are connected with ALADIN. Among the activities of ALADIN, the most interesting are: Workshop on Ensuring a Safe and Secure eRegion, e-Region Development, eInvoicing LivingLab Initiative, eCommerce Conference, Undergraduate and Graduate Students eConference, Association for Information Systems, EU-Wide Study on Trust and Confidence, Oracle iLearning System, eSilk & eAmber Road Regions Meeting, e-Tourism in the Aladin Area, Academic Electronic Marketplace Workshop and eInovation Ph.D. Study. At this moment, we will try to analyze the state of our region for the first of the mentioned activities, as a small contribution of those excellent ALADIN ideas.

Vojvodina has been involved in cross border and regional cooperation since 2001. Before that, the development of some important sectors, especially environment protection and environmental management was disregarded. However, in recent years some progress has been made in these fields. The Strategy for development of Vojvodina was created in 2002. Different economic, political and social subjects took part in this process and NBS gave its effort and support. We made the assessment of the level of sustainability for Vojvodina and compared it with other counties in region. Following that, we assessed the sustainability level in the economy and environment in the main municipalities in Vojvodina. The main problem in this work was a lack of systematic and standardized data. The development strategy of Vojvodina defines two main goals:

- agricultural development and organic food production (agriculture represent 82% of land use in Vojvodina) and
- the development of the small and medium enterprises sector.

Intensive agricultural development has already had significant environmental impact including restriction of renewable water resources and access to safe drinking water. Among other environmental problems (environmental problems in urban area, energy uses, cross-border environment impact, low level of environmental risk management, etc.) the development of small and medium enterprises may be one of the new risks for the environment in Vojvodina, because they have significant environmental impact. The nominal impact of enterprise is not necessary a risk for the environment, but increasing number of enterprises in one area can determine territorial consequences. At this level of development, enterprise requests for sustainability were not implemented in creation of business strategies. That is why we pay attention to the importance of environmental management and standard implementation in this sector. Environmental management becomes a core business issue for small and medium enterprises. However, there is a lack of environmental knowledge among the experts included in decision-making processes in the private

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sector. An important task is to ensure consistency between development and growth.

According to this, we show the necessity of establishing the Center for Sustainable Development Indicators, Education and Public Information in order to prevent those bad influences. This Center should observe and collect data about possible influences between economy and environment, based on territorial criteria. Territorial aspects of environmental impact are crucial for successful environment risk management and minimizing of cross-border impact. The aims of the impact assessment are to improve and simplify regulatory environment.

Collecting the data for territorial impact assessments is the first step in developing the Geoinformatic Environmental and Economic Center. NBS is the leader in promoting this idea in Vojvodina. Building this Center represents the effort of NBS in involving Vojvodina in e–E&E (economy and environmental) region.

Petr Doucek[10]

Contributions of ALADIN to eRegion Development - The University of Economics - Prague Perspectives

The University of Economics - Prague, established in 1953, is currently the leading economics university in the Czech Republic. It has six faculties: Finance and Accounting, International Relations, Informatics and Statistics, Business Administration, Economics and Public Administration, Management; at this time there are more then 12,000 undergraduate students. Approximately 200 students are currently pursuing doctorates and University staff is represented by about 930 academics and 1,020 support staff.

The University of Economics - Prague grants to its students degrees in economics, management and informatics at the bachelor's, master's and doctoral levels. This number represents 45 % of all students studying economics at institutions of higher learning in the Czech Republic, which is the sixth largest in terms of student enrollment. The University, which offers tuition and training comparable to well-known academic institutions abroad and occupies the leading position among schools of its kind in the Czech Republic.

The University of Economics - Prague has long been involved in international co-operation. It has participated in a large number of projects in positions of coordinator, contractor or project partner in several international programs including Aktion, Konrad Adenauer Stiftung, Tempus, Phare, Socrates, Leonardo da Vinci, Esprit, Copernicus, Eureca, FP6 and FP 7 and others. The University is a member of the CEMS (Community of European Management Schools Programme) universities community and PIM (Partnership in International Management).

One part of the University's activities, especially activities in area of structural sciences (mathematic, statistic, operation research) and informatics, are performed at the Faculty of Informatics and Statistics. Its departments and study programmes focus on certain fields of informatics (information systems, state and public administration systems, e-government, e- business, information technologies, information management, and knowledge systems) as well as on mathematically oriented disciplines (statistics, econometrics, operations research, and demography). The research and development work at the faculty corresponds with the specialization of individual departments and is targeted at fulfilling the research aims of the faculty and at receiving and solving the projects of various grant agencies, mainly the Grant Agency of the Czech Republic, the Development Fund, and several foreign agencies. The Cupertino with a number of important subjects, i.e. MFF UK, ÚTIA, ČVUT, the Czech Statistical Office and foreign universities is also considered to be very important. All the research activities' results are supported by many publications, presentations at international conferences, organizing conferences and seminars for a wide professional public, publishing specialized magazines and collections, running various projects and writing expert reports. The science and research activities ensure the high quality of academic staff and further development of the study programmes at the faculty.

One type of co-operation is relatively new, having started about one year ago (on May 2005), when the University of Economics - Prague became the member university in ALADIN group. The ALADIN activity framework represents a wide range of potential collaborations for our university. There are three main streams on our university, in which we have serious interest to start joint actions. These are:

- research and development work,
- PhD student education,
- a general platform for starting and realizing of common projects and preparing publications with our newly found partners.

What are our expectations in the above-mentioned areas?

Research and development work is one of the integral parts of everyday university life. Each of us performs this work and occasionally it is a burden. However, we need to meet new colleagues, to hear new opinions, to change our paradigms and to try to find out new added value in our work. So the main goal of this

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part of co-operation is to bring new people into our research and development teams and to send our employees to partner universities, where they can get more practical and theoretical experience, more flexibility and adaptability in their work.

PhD student education – it is the second important part of work at the University of Economics - Prague. What is the main goal in this part in the framework of ALADIN group for our school? It is to offer the chance to our PhD students at first to present and to discuss their ideas on the international field, then to be members of international research and development teams (for example in living laboratories) and in the last level to take part on educational process not only at the home university, but also at other partner universities of the ALADIN group.

The **General platform for** starting and realizing of **common projects** and preparing publications with our newly found partners is the most important of co-operation. Here all previously described activities in the form of common projects could be integrated, supported either by EU or by local authorities. The Faculty of Informatics and Statistics offers practical experience for finding partners for common projects in following areas:

- general concepts of information society, research of complexity theory, chaos theory etc.,
- e-commerce, e-business, e-healthcare,
- information and communication technology security – also in various modification as e-society safe and stable, safe e-region, Web services security etc.,
- e-government and public information services,
- information systems for enterprises – ERP systems improvement, business processes, information system architecture, principles of outsourcing, service level agreements,
- information systems (IS) project management – development new methodologies for IS programming, testing and improvement, new concepts of project management, IS reference models with special accent to processes identification, their metrics definition and measurement and evaluation criteria of processes and system effectiveness, etc.
- artificial intelligence, data-mining, knowledge engineering.

Through common international projects we - all citizens of ALADIN member states – have the chance to build a new character of the Europe – to constitute new Europeans.

Paolo Inchingolo[11], Walter Ukovich[12]

Contributions of ALADIN to eRegion Development: The Perspective of the University of Trieste

Due to its particular geographical position and to the very long tradition of Trieste as an "European integrator", in recent decades the University of Trieste (www.units.it) has reinforced its specialization toward research and education as well as training excellence, particularly in the fields of greatest interest for the development of an enlarged Europe, with particular attention to the transformation and integration of the transitional countries of Central and South-East Europe. In this action, a strongly synergistic effect has arisen and it has the continuous growing of national and international institutions and high-tech companies around the University of Trieste and its Area Research Park www.area.ts.it, which are globally known as the "Trieste System":

- the National Institute for Nuclear Physics - INFN (section of Trieste) www.ts.infn.it
- the International Center for Theoretical Physics – ICTP www.ictp.ts.it
- the International School for Advanced Studies – ISAS (currently an independent University) www.sissa.it
- the International Center for Genetic Engineering and Biotechnology – ICGEB www.icgeb.ts.it
- the International Center for Science and High Technology – ICS www.ics.trieste.it
- the Elettra Synchrotron www.elettra.ts.it
- the National Institute for the Physics of Matter – INFM (sections of Trieste) www-dft.ts.infn.it/INFM
- the National Institute for Oceanography and Experimental Geophysics – OGS www.ogs.trieste.it
- the CNR Talassographic Institute – ITT www.itt.ts.cnr.it
- the Trieste Astronomic Observatory – OAT www.ts.astro.it
- and many other institutions and hi-tech companies (see www.area.ts.it "companies, institutions & labs")

These institutes are active in the fields of biotechnology, bioengineering, neuro-science, information and communication technology, agriculture, sustainable development, economics and other fields.

Currently, external researchers and professors and researchers from the University work together in all the institutions of Trieste. This unique feature of the Trieste System allows a high level of research, but also a strong range of academic education and training in most of the

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fields covered by the research, either for professional or R&D formation.

The work of the University of Trieste in fostering the cooperation and the integration within Central and Eastern European Countries has been focused, started from 2000, with the creation of some transnational centers and networks. These include:

- the International Center for Transitional Countries (ICETS) www.icets.org (2000)
- the Central and Eastern European University Network (CEEUN) www.icets.org/ceeun (2001)
- the Virtual University of the Adriatic-Ionian Basin (UNIADRION) www.uniadrion.net (2001)
- the Adriatic Balcanic Ionian Cooperation in Biomedical Engineering (ABIC-BME) www.bioing.units.it/ABIC-BME (2001)
- the Higher Education in Clinical Engineering Network www.ssic.units.it (2001)
- the Central European Initiative University Network (CEI-UN) www.ceinet.org/main.php?pageID=81 (2002-2004)
- the Alpe Adria Initiative Universities' network (ALADIN) www.aladin.units.it (2002-2005).

If all these initiatives have given an important contribution to the development of the Region, and have been started and grown with many interactions and synergies each other, it is without doubt that the most significant one, ALADIN, has been the driving force for cooperation and growth in the Region under the multiple and integrated view of the universities, governments, diplomacies and industries.

Started the 23rd October 2002 with an agreement on e-business cooperation between the Universities of Graz (Austria), Maribor (Slovenia), Rijeka (Croatia) and Trieste (Italy), signed in Ljubljana during a meeting of trans-border e-commerce cooperation in the Region organized by Prof. Jože Gričar, ALADIN has grown every year during the annual Bled Conference. On the 8th of June 2003, it was extended to Novi Sad Business School (Serbia & Montenegro) and to the cooperation fields of e-Geomatics, e-Logistics and e-Medicine. On the 20th of June, 2004, it was recognized by the Medical University of Graz, created from the Medical Faculty of the Karl-Franzens University. On the 5th of June 2005, it was further extended to University BW München (Germany), Corvinus University of Budapest (Hungary) and Technical University of Košice (Slovakia), to cooperate in the ICT fields which are crucial for the development of the Enlarged Europe, particularly e-Business, e-Geomatics, e-Government, e-Health, e-Learning and e-Logistics and the interactions among them (e-Integration); It continues to grow with the formal membership in 2006 of Prague (Czech Republic) and of Krakow (Poland) and the external membership (e-ALADIN) of China, Finland, Ireland and USA.

There are many formal activities started and running at the University of Trieste within the cooperation of ALADIN, including:

- The Higher Education in Clinical Engineering Program (SSIC-HECE) www.ssic.units.it, with its three masters: the 1-year level Master in Clinical Engineering www. ssic.units.it/MIC; the 2-year *Laurea Magistralis* in Clinical Engineering www.ssic. units.it/LSIC, with three curricula (hospital, information and management), the 1-year Master-post-Master in Management in Clinical Engineering www.ssic.units.it/ SMMCE
- The 2-year *Laurea Magistralis* in Management Engineering and Integrated Logistics www.ssic.units.it/ LSIG
- The ALADIN e-learning Agreement with ORACLE
- The multimedia platform of e-learning of SSIC-HECE (E-HECE) elearning.units.it
- The CEI-UN Spring School "ICT, economical and organizational issues for e-health integration in the enlarged Europe", www.ssic.units.it/ICT-SpringSchool in the frame of SSIC-HECE (held in Italy, Slovenia and Croatia)
- The "Open Three (O3) Consortium" www.o3consortium.org
- The "Integrating the Healthcare Enterprise" (IHE) Transnational Committee for Central & Eastern Europe www.bioing. units.it/IHE-TCCEE
- The INTERREG III A Italia-Slovenia "Italian-Slovenian Cooperative E-learning Space (ISCELS) iscels.units.it
- The STREP-IST FP6 Project "Mobile-Game-Based Learning" (MGBL) http://mg-bl.com
- The Excellence Research Center of Telegeomatics (GEONE-TLAB) http://www. units.it/čtelegeom/
- The FP6 European Coordination Action "COllaborative DEmand and Supply NETworks" (CODESNET) www.codesnet.polito.it
- The EuroPACS-MIR in the Enlarged Europe International Meeting http://www.tbs.ts.it/ europacs2004/
- The Innovaction Fair (Udine) www.innovactionfair.com with the participation of O3 Consortium
- An international ALADIN PhD program on e-integration (work in progress)
- Participation to the academic activities off many ALADIN Universities

Furthermore, the University of Trieste participates in and contributes to the organization of many other activities, sponsored by the other ALADIN Universities, including:

- Merkur Day
- Workshops on LivingLabs
- the Workshop on Safe and Secure eRegion LivingLab
- Cooperation in the Finland & Slovenia eInvoicing LivingLab Initiative
- the MIPRO Conference, the e-BIZ Conference.

In conclusion, in the vision of the University of Trieste, ALADIN has been, is and will be the key cooperative network to develop the Alpe-Adria-Danubian EuroRegion.

Cene Bavec[13]

Policy Vision of eRegions – the Case of EU and non-EU Countries

Positive political, economic, and social implications make the eRegion concept attractive for a wide spectrum of stakeholders and players. We are focusing on eRegions created from EU and non-EU countries. We introduce wider definition of eRegion and assess some benefits and obstacles for implementation. An extension of e-Regions concept from geographically neighboring countries to Virtual eRegions with engaging countries that are not necessary geographically neighboring opens up new views and possibilities. The concept could be easily extended to Eastern Europe and Mediterranean countries. We could foresee similar development that has been already seen in business world introducing virtual organizations.

1 Introduction

A universal character of Information and Knowledge Society makes national strategies interdependent on a global scale, as well as regionally. The EU Information Society policy is an example of search for synergy at the European level. However, even Europe is too diverse for unified approach, so the European Commission also promotes regional cooperation. This policy has already proved to be efficient for old and new EU member states. Evidence shows that some regions are more enthusiastic and ready to cooperate than others. Obviously, it all depends on economic, political, and even historical causes.

Nordic countries [9] [20] are very successful and are seen as champions in this area. The Gothenburg Ministerial Conference in 2005, organized by DG INFSO and DG REGIO in co-operation with West Sweden, was an opportunity to share Nordic experience with others [4]. They presented an efficient public private partnership, set up in co-operation between enterprises, academia, and public authorities, based on ICT development, eGovernment [14], and innovative clusters. Can this approach be equally efficient for all regions? Is their experience limited only to EU member states and EU regions? What about regions that are crossing EU borders? These are some questions and dilemmas that we address in the paper.

Should EU extend its regional cooperation on Information Society on regions that are crossing its borders? Such areas are occasionally a source of instability that harms much wider geographical area. Whatever brings cooperation is politically welcome. It would be interesting to discuss eRegions from a political point of view, but in this article we will concentrate on more practical issues. Our view of eRegions will be general. We will limit our interest to the countries that are politically and economically less bonded to EU than candidate countries. We could mention Western Balkan [1], Eastern Europe [11] [15], or even Mediterranean countries [17]. How to promote and impose regional cooperation in such cases? What benefits could there be from eRegions for EU and non-EU countries? Many ideas are already in place, but there is still much room for new ideas and approaches.

Present activities dealing with e-Regions are mainly politically and academia initiated and driven [5]. Their effect is limited and often even academically naïve. Author can illustrate this issue through his two years of involvement in advising one of the Governments in the Balkan region on Information Society strategies and eGovernment projects. EU strategies that have proved to be efficient in new member states were not appealing to their political and economic environment. Their motivation for cross-border cooperation was low. At the end it was obvious that we could convince mainly our academic partners. Similar experience has forced many international consultant groups to retreat from this region, which was not a wanted outcome for the country, international community or the EU. Can we do better?

2 What could be an eRegion?

A view of eRegion is still pragmatic with ambiguous understanding of basic definitions. How could we describe eRegion? For example, from official EU documents and academic papers we could deduct an indirect definition: "In the eRegion, engaging countries or local communities share some common ICT applications and services". This definition could be good enough for practical use, but it is also misleading. Many countries could qualify for eRegions just because they use e-commerce applications or Internet shopping. At the end, the whole World could be seen as one eRegion. It is obviously that we have to limit this term to something less ambiguous.

We could try with the following definition: "In the eRegion, engaging countries or regions within countries share coordinated design, development, promotion and application of selected ICT services or data". It means that eRegion is more proactive and it shares common and coordinated efforts.

This definition indirectly implies that we do not need to build eRegions with countries in a continuous geographical space - with countries neighboring to each another. Technology can provide all means needed to extend eRegions over a wider geographical area, including geographically scattered non-bordering countries. The "glue" that bonds countries into one eRegion would be common interest and common effort to develop and implement selected ICT services. Physical vicinity could be just one of benefits. Of course, there are many applications that have rationale only for neighboring countries. That is the reason we

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always assume that countries in the eRegion are neighboring. However, it is not necessary.

To distinguish contiguous and noncontiguous eRegions we could introduce a "Virtual eRegion" which implies all that we understand under fashionable term "virtual". In the broadest sense we are forming regions in the Cyber Space. How far can we go with so extensive definition is another question.

Virtual eRegions could bring many benefits. As analogy, we could compare benefits of virtual organizations in comparison to traditional organizations. In Virtual eRegions it would be significantly easier to:

- find a critical mass of motivated partners;
- focus on common benefits and relevant issues;
- build cooperation between partners with different core competences;
- find experts regardless of their geographical location;
- introduce flexible organizational forms;
- include new partners.

Virtual eRegions are generalization of the current idea of eRegions and open new possibilities, but they also bring new challenges and complications. We have to keep in mind the EU regional policy is based on common interests that are direct result of "neighborhoodness". Partners know one another and usually share some common history and common economical and social interests. These motivations could be lost in virtual eRegions spreading over larger geographical area. The mutual trust would be lower, while less direct contacts could even bring political and personal alienation. We have to balance pros and cons carefully.

What we favor in this paper is a wider and open-minded view of e-Regions. As we see, even virtual e-Regions could fit well into EU regional policy and even wider EU policy.

3 Opportunities, benefits, and challenges

Setting up a regional cooperation could be difficult. It is rather easy and cost-effective to attract EU regions, even EU funds are there. Introduction of eRegion idea in politically and economically diverse regions like Balkan or Eastern Europe is a much greater challenge. Armed with broader understanding of eRegion we could try to identify and assess some challenges, opportunities and possible benefits. Based on these definitions we could set up some hypotheses about effects of eRegions:

- E-cooperation contains strong political, economical, and social cohesion force, going far beyond e-business (we would appreciate a more holistic approach and assessment criteria which considers wide range of issues);
- It is easier, more cost-effective and less risky to start e-cooperation than a "real world" cooperation (eRegions projects could be very flexible, extendible and open to new partners);
- Procedures are more flexible and could be based on "just try it" approach (prototyping), seizing benefits of flexible organization and project management based on ICT;
- It offers an access to human expertise in countries or regions that would be otherwise difficult to notice (for example, ICT and business expertise from economically less developed regions);
- eRegions could dramatically improve networking on personal and organizational level increasing Social capital and Trust in the region (higher Social Capital has positive effects on social life, economy and development potentials);
- If we extend the idea to Virtual eRegions we could integrate countries with similar challenges, regardless of their geographical position (concept of eRegions spreading over Eastern Europe and Mediterranean countries could be very appealing).

It is difficult to discuss opportunities offered by eRegion in general. We described potential benefits in the previous chapters; what we can add is an effect of networking and consecutively on the rise of Social Capital. This issue is almost always overlooked. Social Capital is at the same time a generator and a result of political stability, economic development and democracy in general. Regions with higher Social Capital are more opened for cooperation and will introduce business and technological innovations faster and more efficiently. We should not be surprised to see how successful Nordic region is. Their Social Capital is among the highest, if not the highest in the World.

Influence of Social Capital on e-Region projects and vice versa could be a matter of academic discussions, but we can easily set up a hypothesis that e-projects significantly raise Social Capital in the eRegion because they:

- promote and stimulate regional networking on personal and institutional levels;
- increase Trust (interpersonal trust and trust into institutions) and decrease social tensions;
- stimulate exchange of ideas and common values, making regions more open to new ideas and innovations.

High Social Capital "greases" cooperation that is needed in all innovative and particularly eRegion projects. There is no doubt that Social Capital in academic community is already higher than in surrounding societies and we can count on leading role of academia. Universities are nearly always the first involved in regional cooperation because they are by definition neutral and they have access to human resources. Another group of motivated and networked persons are experts from less developed regions. For them, e-Region projects offer a unique personal opportunity which is highly motivating.

Other rarely discussed issues are consequences of combination of partners with different motivations, goals, and commitments. If we add unavoidable cultural and economic differences, such as significant differences in salaries of participating experts, than we face serious managerial challenges. We could argue that project management issues are always underestimated. From the aut-

hor's experience, many projects fail because of the inability to manage projects with participants from different cultural and economic environments. To successfully run eRegion projects, we have to recognize these differences and find a way to cohabitation. This is nothing new for multinational companies operating in these regions, but for many others it is a new challenge.

4 Where to start?

There are many reasons, possible approaches and scenarios how to implement eRegion projects. We will conclude this brief reflection on challenges and opportunities of e-Region concepts with some comments on potential applications. Our basic assumption remains that partners are coming from EU member states and non-EU countries.

Many applications and services are suitable for cross-border cooperation and bring value-added to regional, national and EU efforts. Some applications are business oriented, but there are many others that have strong international dimension [10]. Business oriented e-Region application could count on EU and government support, but they will be left to entrepreneurial initiatives and even self-investments. We can already see successful business project running on the EU borders, driven by different motivations – for example, lower cost of skilled professionals from neighboring non-EU countries.

Bigger challenges are non-business applications that serve wider national and local interests. It is unlikely that such projects would start without significant EU or governments push and support. There are many ways to finance and implement eRegion cooperation. Nordic experience shows that main players are local and state governments, SME's and universities. We could assume that this will be true in other regions as well. All three groups of players have their own mechanisms for international and cross-border cooperation. A challenge for eRegion projects lies in a search for synergy between different EU and national programs and funding possibilities (EU Structural funds, EU Framework programs, national and local budgets, private resources).

There are some interesting and exciting initiatives and start-ups, one of them being LivingLabs [5] initiative in Slovenia. Is not a surprise that Slovenia initiated many ideas on e-Regions, because it lies on an EU border with Western Balkan region, which has many characteristics described in previous chapters. From Slovenian perspective, potential and benefits of eRegion approach are clear.

5 Conclusions

Regional cooperation in building Information Society has many advantages which are going far beyond implementation of ICT and innovative services [7] [16] [17] [18]. It has positive political, economic, and social implications that make this concept attractive for a wide spectrum of stakeholders and players. For the EU, it is a captivating possibility for a wider implementation of eRegion concepts with countries that are politically and economically less bonded to the EU and are geographically positioned in its vicinity. There are many regions that are good candidates; for example Balkans, Eastern Europe and Mediterranean countries. But it needs careful planning and implementation, customized for every single situation.

Rationale behind eRegions is a common interest which would easily lead to a win-win situation for all. The EU could solve many problems in its bordering regions and neighboring countries. These countries could benefit from the EU financial support, expertise, and even political push to solve problems that affect both sides. Cost of e-cooperation could be low enough to attract local communities and small businesses, offering excellent start-up business possibilities.

Another important issue, often overlooked in eRegion concepts, is a role of Social Capital in development of Information Society [3] [6]. Social values, trust, and networking are crucial ingredients and enablers of Information Society and thus e-Region projects.

An extension of eRegions concept from geographically neighboring countries to Virtual eRegions with engaging countries that are not necessary geographically neighboring offers new and exiting opportunities. The virtual regions could be easily extended to many countries surrounding Europe and Mediterranean, and even to regions that EU is not considering at the moment. We could foresee similar development that is already seen in business world, which is an introduction of virtual organizations on global scale [2] [13].

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ALADIN - ALpe ADria INitiative Universities' Network: Cooperation in e-Integration Research & Teaching in the Region

Letter of Intent

Karl-Franzens University Graz (Austria), University of Rijeka (Croatia), University BW München (Germany), Corvinus University of Budapest (Hungary), University of Trieste (Italy), Novi Sad Business School (Serbia & Montenegro), Technical University of Košice (Slovakia) and University of Maribor (Slovenia), desiring to strengthen the friendship and cooperation between them, recognising the importance of developments in e-Integration, particularly in e-Business, e-Geomatics, e-Government, e-Health, e-Learning and e-Logistics, and in all the applications of the Information & Communication Technology (ICT) for the benefits of the European Citizens, have reached the following understandings:

- ALADIN – the "ALpe ADria INitiative" Universities' Network,
- created in Ljubljana the 23rd October 2002 by Karl-Franzens University Graz (Austria), University of Rijeka (Croatia), University of Trieste (Italy) and University of Maribor (Slovenia) as an international network working at regional level to share common ideas and knowledge in teaching and research activities in the field of e-Commerce and to cooperate creating mobility of students and professors, offering common lectures, creating virtual teams of students from different Universities and professors lecturing at different Universities, in order to harmonize with global and international activities of e-Commerce,
- extended in Bled the 8th June 2003 to Novi Sad Business School (Serbia & Montenegro) and to the cooperation fields of e-Geomatics, e-Logistics and e-Medicine,
- recognized in Bled the 20th June of 2004 by the Medical University of Graz, created from the Medical Faculty of the Karl-Franzens University,
- will extend to University BW München (Germany), Corvinus University of Budapest (Hungary) and Technical University of Košice (Slovakia), to cooperate in the ICT fields which are crucial for the development of the Enlarged Europe, particularly e-Business, e-Geomatics, e-Government, e-Health, e-Learning and e-Logistics and the interactions among them (e-Integration).

As already successfully experimented in the ALADIN network, common ideas and knowledge in teaching and research activities will be shared, cooperating to create mobility of students and professors, offering common lectures and educational programmes, creating virtual teams of students from different Universities and professors lecturing at different Universities, promoting research cooperation with SMEs and Governments, in order to harmonize with global and international activities of ICT in the Enlarged Europe.

In order to coordinate the cooperating activities, each University will designate an ALADIN delegate to be part of the ALADIN Coordinating Committee. Each Delegate will also designate up to two members of the Steering Committee for each branch (e-Business, E-Health, etc.) activated by his/her University.

In Bled, 5th June 2005

Tapio Reponen[1]

http://www.BledConference.org/
eUniversityForum

eUniversity Forum - eIntegration Challenges for Rectors & Deans: Cross-border Cooperation in eRegion & Ambassadors Involvement

eUniversity Forum Description

Information technology is having a dramatic impact on both the delivery of higher education and the operations of universities. During this Forum at the 19th Bled eConference, university rectors, deans and professors will share their perspectives related to the academic impact that Information and Communication Technology can have on the development of the University sector in Europe.

The Universities are facing global competition on the markets of both education and research. The competitiveness of European Universities should be strengthened to reach the leading edge in some fields of research and to offer more quality in all sectors of higher education. To meet these goals we have to deal with the challenge of combining collaboration and healthy competition between Universities. Information technology and eLearning play an important role in the development of both efficiency and effectiveness of the academic world. The following introduces some examples of the challenges that will be addressed by the panel.

1 Management challenges

We often hear that University research is a key issue in our future economic development. Rectors, deans and professors are confronted, however, in everyday life with multiple major problems, like University financing, structural development in Universities, cooperation with other Universities, possible mergers with other Universities, balance between theoretical and empirical research, knowledge vs. cultural values, creativity and innovation processes, promoting entrepreneurship in education and University management, etc.

Mobility of people, sharing knowledge and creating platforms for interorganizational information processes are necessary. Crossing organizational boundaries creates problems in the design and implementation of effective systems. The successful handling of academic integration issues is critical to the success of eManagement in higher education, both internally and externally.

2 Academic Challenges

Confronted by the future problems of under funding, fragmentation, and competition among researchers, Universities have to create programs that support science-based initiatives to develop societies. Research environments should have modern equipment and information technology to attract and support young researchers.

A significant academic challenge concerning the application and integration of ICT is to ascertain the value and feasibility of distance education within the university context. While certain universities and colleges, especially in Europe, have been in the forefront of delivering distance education for many years, the Internet and web-based technologies have had a dramatic impact on the marketplace allowing new entrants to become major competitors. These new entrants range from traditional universities to new profit-oriented entrants. While several of them have experienced difficult times, distance education will survive and probably flourish. Given a proper business model it can have a significant impact on economic development.

While distance education will be a challenge, curriculum issues will also be addressed. This century will experience a remarkable transformation in the transactions of business and commerce. eCommerce will be an enabler of this transformation, and eCurriculum must respond and contribute to these developments.

3 Administrative Challenges

The nature of academic life has changed during the past decades. More time is spent on preparing project proposals, sending applications to financers, reporting ongoing projects and securing continuity of the research. Bureaucracy has increased in the context of global, EU, national, regional and local decision making. Administrative processes have become more complicated and laborious than earlier. The time spent in key processes, education and research, is diminishing and leading to lower academic quality.

ICT will play a more significant role in the administrative operations of the university. Most universities are now aware of the importance of building strong administrative systems. For example, many universities and schools have a common system to support the functions of admissions, financial aid, enrolment management, course scheduling, finan-

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cial functions, and development activities. The use of an enterprise system has allowed institutions to increase their efficiency throughout the organization, a fact that many commercial organizations are now acting on. Others have adopted the best-of-breed approach and are willing to deal with multiple vendors and to build integrating links.

During the next decade, Internet and web-based technologies will provide a wide range of student services such as admissions, registration, and payment processes. Students are now able to view their records such as transcripts, tuition statements and other pertinent information concerning their status. Integrating these applications into academic processes will be critical.

Presenters to be announced.

Time and location: Sunday, June 4, 2006, Hotel Golf Bled, 16.00 - 19.30. Those interested in the eUniversity Forum are welcome to contact the Co-Chairs:

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Douglas R. Vogel[1] , Jože Gričar[2]

http://www.BledConference.org/eAmber&eSilkRoad

eSilk & eAmber Road Regions Meeting: Business & Government Executives & Professors

Commitment To Making a Difference

Objectives of the meeting are to:

- Establish contact with like-minded people: researchers, administrators, ‚policy makers and advisers, businessmen, and other stakeholders.
- Raise awareness among such people of contemporary issues related to eCommerce.
- Begin building a network of institutional links and researchers for further collaboration in joint activities.
- Obtain first hand experience with existing applications of eCommerce in the Region.
- Establish an indication of the level of awareness of eCommerce issues and opportunities in the Silk & Amber Road regions.
- Identify opportunities for continued collaborative research into problems and possibilities for expanding eCommerce in the region.
- Stimulate inter-university cooperation in eCommerce along the eAmber & eSilk Road.
- Suggest an agenda for future collaborative research and development activities intended to further the aims of the meeting.

The old Silk Road and Amber Route are historical artifacts with reborn contemporary significant. The Amber Route wound its way from the Baltic countries in Eastern Europe to Venice that, also, was a terminus of the Silk Road albeit in a somewhat different time frame. The Amber Route was a Roman-age commercial route in the general 200 BC - 200 AD timeframe. The old Silk Road was a historical trade route (with its zenith in the 7-9th century) linking Asia and Europe that changed the nature of commerce in the medieval and renaissance world. Today, as in ancient times, these roads are a study in contrasts. These historical trading routes have commonalities yet distinctions both in the past and present and, perhaps, on into the future. Re-establishment of business and government relations on the nodes of the Silk Road and Amber Route towards creation of eAmber & eSilk Roads presents both challenges and opportunities.

Challenges common to both the renewed Amber and Silk roads are many. Culture and tradition vary dramatically. Awareness of the past, much less future potential, requires attention. Infrastructure elements along some parts of the roads are mature and futuristic while, along other parts, have far to go to merely catch up with modern times. Economic viability needs to be carefully examined as multiple choices and alternatives now exist that, clearly, were not present in ancient times. Political conventions give way to numerous forms of governance. Business procedures vary widely under differing government rules and regulations. Overall feasibility comes into question as to the ability of individuals, organizations and countries to achieve a degree of cooperation necessary to facilitate effective establishment of eAmber and eSilk roads.

Although the challenges are many, however, the potential rewards

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are great. Common opportunities are based around the Internet - the fastest diffusing technology in the history of the world - with a presence in over 200 countries. The Internet provides an opportunity for us to regain our awareness of these regions and the goods and services that they can provide in a renaissance of the Silk Road and Amber Route. Based on the backbone of the Internet and associated telecommunications capability, aspects of intelligent logistics become reality. Numerous forms of collaboration exist. Some are oriented around business models whereby multiple partners win through cooperation and achieve synergy. Other collaborations between government agencies both within and between countries open new opportunities.

In the spirit of a revived Amber Route and Silk Road, we envision an eAmber & eSilk Road. Towards that end we will hold a series of meetings and sustained interactions to explore opportunities, remove uncertainties and addresses challenges. We expect to enable electronic commerce in those countries and cities that once were famous, and may prove again to be, through involvement of stakeholders with knowledge and an outlook towards the future.

Time and location: Monday, June 5, 2006, Hotel Golf Bled 14.00 - 17.30.

Information

ISLOVAR - Slovene Terminology Online Dictionary of Informatics

The terminology section of the Slovene Association INFOMATIKA has been publishing the online dictionary Islovar since April 2001. The dictionary was based upon the preceding Slovene computing and informatics lexicographical and other published works. From its modest beginnings, it has grown into a project of national importance, including cooperation of many experts in computing, informatics and linguistics, featuring as editors, consultants, contributors or users. The access to the dictionary is free at the address http://islovar.org. About 1000 users have registered until now, adding new items, commentaries or questions in forum. Up to 20.000 items are currently searched in the dictionary per month.

Islovar is a Slovene dictionary of informatics, including short definitions of terms, with grammar and usage labels, English equivalents, usually the American variety. The dictionary provides a comprehensive vocabulary of informatics terms in Slovene, related to information technology and telecommunications, and specialist areas such as database, user interface, business informatics, object programming technology, artificial perception, social issues. Words of general meaning are not included.

Users can search in both directions, from Slovene to English and vice versa, they may enter new terms, comment the existing ones, take part in discussions in forum. They can also browse for random terms, new terms and terms of the day or link to other dictionaries. All the unsuccessful searches are saved and entered, if considered appropriate for the dictionary. In this way, users are important actors in creating the dictionary and the content is made as up-to date as possible.

The dictionary content is provided by 25 editors, mostly university teachers, each of them responsible for an area, e.g. communications and networking, object programming, information security. The editors are responsible for choice and for definitions of terms. All the editorial work is done on-line in a separate part of the dictionary, following an agreed upon procedure.

In the creation of the dictionary the work of different groups is very important. Several groups are active:

1. Editorial managing board, meeting twice a year, discussing objectives and strategy.
2. Editorial working group, including editors of different profiles, discussing, correcting and finally editing the input items
3. Specialist working groups, meeting occasionally, discussing entries of a particular field.

The second release has introduced numerous changes, including user friendly design, advanced browser, audio pronunciation, additional functions for editors. It makes all the activities in the dictionary transparent to the editors, with possibility of immediate changing or adjusting the content.

Due to the open technology of the dictionary, the entries are labeled according to their reliability: suggested, reviewed, professionally advised, edited. Finally edited entries include definitions, grammar labels and usage labels. Pronunciation is presented in MRPA (machine readable alphabet) standard, with addition of audio application.

The web application takes advantage of numerous new information technologies. Its content is open to cooperation of users, free to public access, and constantly updated. In Slovenia, this project of engaging specialists and users in working online with the objective of creating o terminology dictionary of national importance is unique. Because of the advantages of the technology, Islovar might become a model for other terminology dictionaries.

Katarina Puc

eValues
19th Bled eConference
Bled, Slovenia, June 5-7, 2006

Sponsored by
Faculty of Organizational Sciences, University of Maribor
Government of the Republic of Slovenia
Organizations in Slovenia's eCommerce Project
Chamber of Commerce and Industry of Slovenia
European Commission

http://www.BledConference.org

CALL FOR PARTICIPATION

This conference attracts speakers and delegates from business, government, information technology providers and universities and is the major venue for researchers working in all aspects of "e". There will be a variety of keynote speakers from industry, government and academe.

The conference venue is the alpine village of Bled, 30 km south of the Austrian border - one of the most beautiful spots imaginable. Expect to learn and play and come away feeling that you have achieved more than you normally would at any conference.

The conference has a wide appeal, offering:

- A fully-refereed Research Track, devoted to researchers in all aspects of "e";
- A Business and Government Panel Track which attracts eminent business and government leaders from Europe, the Americas and Asia-Pacific;
- Business, Government and Academic Meetings offering opportunities to think and share with colleagues from around the world.

Conference Details

Registration fees
The full conference fee until May 5, 2006 is EUR 400,00. After May 5, the conference fee is EUR 450,00 (20% VAT included). Full-time student (recommended by his/her professor) is invited to apply for a grant to waive 50% of the conference fee.

On-line registration
http://www.BledConference.org/Registration.

Local transfers
Registration includes transfer from either Ljubljana International Airport or Lesce-Bled and Ljubljana railway stations.

Further information:

Jože Gričar, Professor & eCenter Director, Conference Chair, Gricar@FOV.Uni-Mb.si
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Research Track
Co-chairs:

Pirkko Walden, Professor & Research Director
Institute for Advanced Management Systems Research, Åbo Akademi University, Finland
Pirkko.Walden@abo.fi

M. Lynne Markus, John W. Poduska, Sr. Professor of Information Management
Management Department, Bentley College, United States, MLMarkus@Bentley.edu

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eSilk & eAmber Road Regions Meeting:
Business and Government Executives & Professors' Commitment To Making A Difference
http://www.BledConference.org/eAmber&eSilkRoad
Monday, June 5, 2006, Hotel Golf Bled 14.00 - 17.30.
Co-chairs:

Jiang Chianjian, Professor
The School of International Relations and Public Affairs, Fudan University, Shanghai, China
Jože Gričar, Professor & eCenter Director
Faculty of Organizational Sciences, University of Maribor, Slovenia

Andrew Pinder, Director
Entrust & Group President, Government Affairs, British Telecom & Chairman, British Educational Communications and Technology Agency, United Kingdom
Douglas R. Vogel, Professor & Chair of Information Systems
Department of Information Systems, City University of Hong Kong, SAR, China

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Business & Government Executive Meeting on Cross-border eRegion
http://www.BledConference.org/ExecutiveMeeting
Tuesday, June 6, 2006, Hotel Golf Bled 14.00 - 17.30.
Co-chairs:

Jože Zrimšek, Director General
Directorate for Information Society, Ministry of Higher Education, Science, and Technology, Republic of Slovenia

Ivan Žerko, President
SRC.SI, Systems Integration, Slovenia

eBusiness ALADIN - ALpe ADria INitiative Universities' Network Meeting: Universities of Corvinus Budapest, Hungary; Karl-Franzens Graz, Austria; Košice, Slovakia; Maribor, Slovenia; BW München, Germany; Novi Sad, Serbia & Montenegro; Prague, Czech Republic; Rijeka, Croatia; and Trieste, Italy, http://www.ALADIN.UniTs.it

Dragan Cišić, Associate Professor & Vice Dean
University of Rijeka, Croatia
Petr Doucek, Professor & Vice Dean
Prague University of Economics, Czech Republic
András Gábor, Associate Professor & Director
University of Corvinus Budapest, Hungary
Borislav Jošanov, Assistant Professor & Vice Dean
Novi Sad Business School, Serbia & Montenegro
Bernhard R. Katzy, Professor & Direcor of CeTIM GmbH
University BW München, Germany
Miroljub Kljajić, Professor & Head
University of Maribor, Slovenia
Paolo Inchingolo, Professor & Director
University of Trieste, Italy
Anton Lavrin, Associate Professor & Head, Technical *University of Košice, Slovak Republic*
Otto Petrovic, Professor & Chairman of evolaris
Karl-Franzens University of Graz, Austria

ePrototype Bazaar:
The Undergraduate and Graduate Students Prototype Presentation:
http://www.BledConference.org/ePrototypeBazaar
Co-chairs:

Andreja Pucihar, Assistant Professor & Head, eMarkets Laboratory
eCenter, Faculty of Organizational Sciences, University of Maribor, Slovenia
Matthias Glowatz, College Lecturer
Department of Management Information Systems, Quinn School of Business, Faculty of Commerce University College Dublin, Ireland

e-Challenges 2006 e-2006

25 - 27 October 2006, Barcelona, Spain, http://www.eChallenges.org

Introduction

The eChallenges e-2006 Conference Conference takes place in the beautiful city of Barcelona. This is the sixteenth in a series of Annual Conferences supported by the European Commission, which regularly attracts over 550 delegates from leading commercial, government & research organisations around the world to share knowledge and experience, lessons learnt and good practice.

eChallenges e-2006 will focus on topics in the area of applied Information Society Technologies (IST) research, addressing major societal and economic challenges. The programme combines strategic keynote presentations, technical and policy papers, business and government case studies, workshops, the exhibition as well as social activities.

eChallenges provides a collegiate setting for presentations and discussions of innovative developments in eBusiness, eGovernment, Knowledge Management, Collaborative Working Environments, Smart/Virtual Organisations, Mobility, SME Issues, eLearning and Digital Content in the emerging digital economy.

e-2006 provides an excellent networking environment to discuss problems and new ideas, share knowledge and obtain feedback from potential partners and users. e-2006 will provide a forum to showcase the achievements of FP6 and Regional, National and International ICT related initiatives, and look forward to the future by focusing on i2010 and the thematic priorities of FP7. The 'European Research Area' (ERA), International Cooperation and future research priorities and trends will also be discussed.

Thematic Priorities

The core thematic priorities for e-2006 are:

- eBusiness - Future forms of organisations,
- Technology and Applications
- eGovernment - Services to Citizens and Business, Organisational Transformation
- eLearning and ICT Skills
- Collaborative Working Environments
- International Cooperation on IST

Related themes include but are not restricted to:

- i2010 and ICT take-up by SMEs
- Digital Content & Digital Rights Management - issues, applications & technologies
- eDemocracy, eVoting, eParticipation
- o eHealth - issues, applications & technologies
- eInclusion and eAccessibility
- eTourism and Cultural Heritage
- eServices in the European Research Area
- Future Emerging Technologies
- GRID - issues, applications and technologies
- Knowledge management and technologies
- Interoperability and Standardisation
- Mobility - issues, applications & technologies
- Open Source Technologies and Applications
- Security - issues, applications & technologies
- Semantic and knowledge based systems
- Smart and Virtual Organisations

Related topics for papers or sessions may include:

- Best Practice Models - Lessons Learnt
- eAdoption - national and sectoral case studies and policy issues
- Future Workplace Design
- Identity Management and Authentication
- Innovation & Technology Transfer
- Legal and Regulatory Challenges for IST
- Measuring and Benchmarking
- Multimodal Working Environments

IST Event

21 - 23 November 2006, Helsinki, Finland

http://europa.eu.int/information_society/istevent/2006/conference/index_en.htm

The IST 2006 Conference Programme looks at one of the central questions facing European competitiveness today from two different angles.

"Creating a virtuous cycle between ICT research innovation and socio-economic benefits"

IST 2006 is being held as the Commission launches FP7, its Seventh Framework Programme for Research and Development, so one of the main themes of the event will be FP7's ICT objectives and procedures.

In today's EU, however, ICT research does not take place in isolation. Reflecting the central importance ICTs play in stimulating innovation and competitiveness in all areas of industry, the conference programme will also contribute to the creation of a virtuous cycle between ICT research innovation and socio-economic benefits.
Purely scientific and technical subjects, on the other hand, will be addressed in the networking and workshop sessions.

Programme at a Glance

Tuesday, 21 November 2006

After the opening plenary session and exhibition opening ceremony, the second plenary session will debate **how governments and public policy can help ICT contribute to an innovative Europe**. After lunch, parallel sessions will explore these and other policy issues in greater depth.
The final plenary session will be a panel session, and will start with four short presentations on "research needs" seen from four different perspectives: academia, large EU companies, SMEs & international companies. This will be followed by a presentation of FP7, providing a high-level introduction to Day Two.

Wednesday, 22 November 2006

This day is devoted to FP7, with 20 sessions (five in parallel) covering the research content of the FP7 ICT Work Programme. The intention is to arrange these sessions to create vertical threads corresponding to particular industrial sectors or technology areas. In addition, a session on how to submit a FP7 proposal will be presented four times over the day.

Thursday, 23 November 2006

The first part of the day will be devoted to highlights of important research, innovation and accompanying activities of the IST Programme, with the closing session ending IST 2006 in the early afternoon.

United Growing Books of the World

(CONCEPTUAL PROJECT)

Slovenia became a full member of the European Union. It is therefore required that the country should act on an equal footing, by participating ideas and organizing actions on European level and even wider. In continuation, we are presenting what is in our opinion an interesting conceptual project that might promote Slovenia not only as a country of culture and knowledge, but also as an entity which cares about the quality of mutual relations in this new global world. We wish to say that we are anxious to make, in the next few years, an active contribution to focusing our world on more balanced, sustainable and harmonious development. Without any doubt the major role lies in science and research, education, innovation, economy and culture.

In this sense, we would be anxious to give the Growing Book project, which Slovenia met with at the turn of the third millennium, a wider and deeper international connotation. We have demonstrated in this project, how strongly our culture, science and art had been connected with other nations. What is underlined is the need to permanently increase our knowledge by tying to stimulate and motivate as many persons, companies and different organizations as possible. The power of these connections might yield exceptional synergy at on international community level. And this was the reason for starting to develop the conceptual project called »United Growing Books of the World«. We might say that this project is looking for making noble connections and establishing cooperation between different countries and nations.

Andre Gide wrote that ideas, and not train engines, are driving the world. The above described idea or the conceptual project will serve this goal, since it leads us to engage in reading and education, and to permanently increase our knowledge. We have chosen the Growing Book, as we want on international level, not only to imitate, but primarily to innovate and upgrade all the factors involved, and above all to improve them.

Within the scope of this pan-Slovene Growing Book project, an interesting statue has recently been erected in Ljubljana entitled the »Girl with a Growing Book«. It tries to demonstrate, in a symbolically active way, the contents and targets of this project. The girl is proudly and self-confidently looking into the future. Her poise is connected with the book, which she holds in her lap and which she will permanently grow with.

A lucky circumstance is that this statue of the »Girl with a Growing Book« is placed close to Navje, which is the final resting place of our big men of letters, scientists and artists, which were connected with the European events already in the past. Just opposite are high modern buildings growing into the sky, which indicates our capability of being integrated into current global economic flows. We could say that the »Girl with a Growing Book« links our past with the present and the future.

The »Girl with a Growing Book« carries a profound message about the necessity of mutual tolerance and coexistence. The girl conveys, with her graceful, well-intentioned and benevolent look, the following message: Let us grow in a community which builds its future on humane principles. Briefly, she would indicate our intentions to build together a new, attractive, friendly, but also efficacious international system.

The conceptual project would be brought into life by placing, around the »Girl with a Growing Book«, the most significant books of different countries, which is similar to the concept of introducing Slovenia through the Freising Manuscripts. The books would be made of bronze. Finance would be provided through sponsorship from domestic, and particularly foreign companies operating in Slovenia (Spar for Austria, Renault and SKB for France, etc. – a general consent about it has already been

reached). It should be noted however, that the expenses would be relatively low. (The cost estimate for one book in bronze is approx. 1 million SIT.) The idea would be implemented gradually. In this way, fifteen major books of a certain country and also the book that would later be placed next to our Freising Manuscripts and to the »Girl with a Growing Book« would be presented every year in the National Council hall of the Republic of Slovenia in Ljubljana (and possibly also in the Krka Gallery in Ljubljana). The selection will be made by each individual country according to its own criteria, but in compliance with the uniform technological concept of the »Growing Book«.

Our annual forums organized at Otočec might be related to the topic of the »Growing Book« and the »Girl with a Growing Book« who grows by two centimetres each year. At these scientific meetings held over the last 17 years we have been discussing the growth of science and researches and their interconnection with culture, economy, art and progress. We are also searching for a path towards excellence in the field of economy as well as in other fields. In this way, Slovenia is being actively included into searching new models for a tolerant cohabitation in the world, which is full of huge controversies and dangerous trends, as well as into searching, arousing and consolidating common global potentials in the field of development, research and education.

Let us conclude by saying that the »United Growing Books of the World« as well as the »Girl with a Growing Book« invite us to engage in comprehensive training, and expanding our knowledge and culture. The girl will grow on her pedestal by two centimetres each year, and similar to this trend, we as citizens of the world should enhance our knowledge, culture and values. This is a path leading to global success and universal excellence.

Ex nihilo nihil fit – nothing comes from nothing, is one of the basic principles and guidelines of sustainable development. By implementing the above described idea, Slovenia might considerably promote its reputation as a newly established cultural and scientific centre on international level. Our global company Krka d.d., tovarna zdravil, Novo mesto has already helped us so far with the promotion and implementation of this project.

We would like to mention in the end that the »Growing Book« exhibition, held in June 2004 in Brussels, the capital of new Europe, won public applause and was enthusiastically praised, which is a good starting point for our initiative. A similar situation has been observed in Vienna, Gent, Gorizia and recently also in Klagenfurt.

This year the largest exhibition of the »Growing Book« is being prepared in Muenchen. To celebrate the National Holiday, this creative Slovenian project will be introduced from 27 June to 24 August, in Stattsbibliothek – Marmorsaal, which is very close to the original Friesing Manuscripts. In this way, we shall be able to demonstrate our rich cultural and scientific heritage and our vision of being a nation of knowledge, culture and cooperation.

Several important persons have already expressed a positive opinion about this conceptual project. A positive position was also adopted by the Municipal Community of Ljubljana, the National Council of the Republic of Slovenia, SAZU (the Slovenian Academy of Sciences and Arts) and the Ministry of Culture. The relevant projects of the MOL (the Municipal Community of Ljubljana) were prepared in accordance with this tendency.

Conceptual project prepared by
Dr. Janez Gabrijelčič

Donatorji novogradnje Fakultete za organizacijske vede

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Letališka c. 17, 1001 LJUBLJANA

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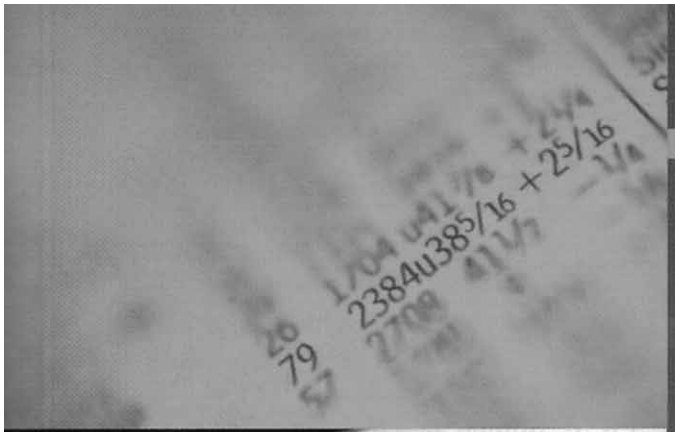

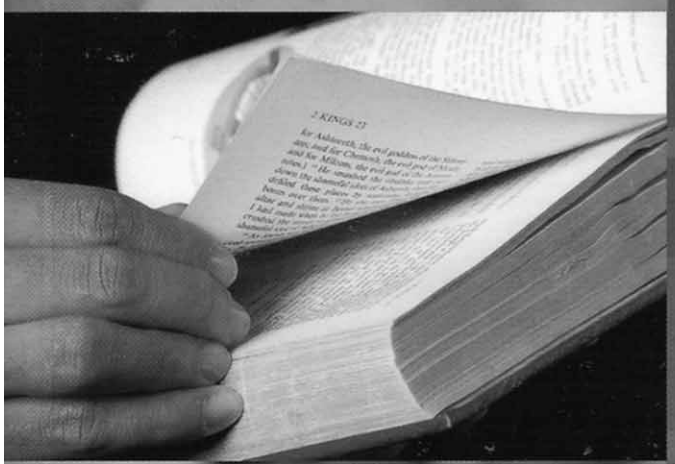

Založba Moderna organizacija

Marko Ferjan

Management izobraževalnih procesov

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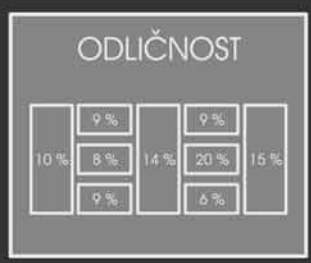

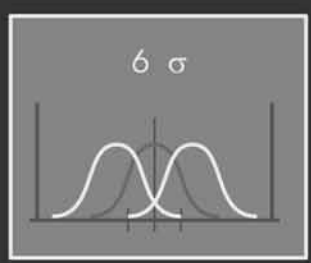

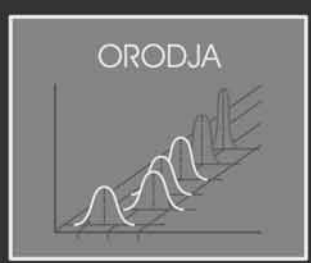

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Boštjan Gomišček

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Založba Moderna organizacija

Univerza v Mariboru - Fakulteta za organizacijske vede

dr. Goran Vukovič in dr. Gozdana Miglič

METODE USPOSABLJANJA KADROV

Navodila avtorjem prispevkov

V reviji Organizacija praviloma objavljamo dela s predmetnega področja revije, ki še niso bila objavljena in niso bila poslana v objavo v kakšni drugi reviji ali zborniku. Pisec je odgovoren za vse morebitne kršitve avtorskih pravic. Če je bil prispevek že natisnjen drugje, poslan v objavo ali predstavljen na strokovni konferenci, mora avtor to sporočiti, pridobiti soglasje založnika, če je potrebno, in navesti razloge za ponovno objavo. Avtorjem prispevkov ne plačujemo honorarjev.

V Organizaciji objavljamo **razprave** (znanstvene članke, rezultate raziskovalnega dela avtorjev, ali pregledne članke), **predloge za prakso** (strokovne članke, na primer prikaze in ocene pristopov in metod in njihove uporabe v praksi), **razmišljanja** (krajši prispevki), **informacije** in **knjižne ocene**. Občasno vključujemo tudi odmeve na objavljene prispevke, enciklopedične razlage, intervjuje s strokovnjaki s predmetnega področja revije in druga besedila. Približne omejitve dolžine prispevkov so naslednje:

- razprave in predlogi za prakso: največ **30.000 znakov,** vključno s presledki
- razmišljanja, informacije: do **10.000** znakov
- knjižne ocene, odmevi: do **5.000** znakov.

V reviji objavljamo prispevke v angleščini ali slovenščini. Razprave in predloge za prakso **ocenita vsaj dva recenzenta,** druge prispevke pa uredniški odbor ali urednik. Na osnovi mnenja recenzentov uredniški odbor ali urednik sprejmejo prispevek, zahtevajo manjše ali večje popravke ali ga zavrnejo. Če urednik oziroma recenzenti predlagajo večje popravke, se prispevek praviloma ponovno pošlje v recenzijo. Urednik lahko sprejeti prispevek pošlje v lektoriranje. Lektorirana besedila se lahko vrnejo avtorju v pregled.

Besedilo naj bo oblikovano za tiskanje na papirju formata A4 s presledkom med vrsticami **vsaj 1,5** levo poravnano. Razpravam in predlogom za prakso naj bo dodan **povzetek** (izvleček) dolg 10-20 vrstic, **ključne besede**, v končni – sprejeti verziji članka pa na koncu prispevka tudi kratek **strokovni življenjepis** vsakega od avtorjev (do 10 vrstic) in **letnica rojstva** (zaradi vnosa podatkov v knjižnični informacijski sistem COBISS, v reviji letnica ne bo objavljena). Na prvi strani besedila naj bodo napisani le naslov prispevka, imena in (poštni in elektronski) naslovi avtorjev članka, po možnosti tudi telefonska številka enega od avtorjev. Da bi zagotovili anonimnost recenziranja, naj se imena avtorjev ne pojavljajo v besedilu prispevka.

Članek naj bo razčlenjen v oštevilčena poglavja. Naslovi članka, poglavij in podpoglavij naj bodo napisani z malimi črkami, da so razvidne kratice. Povzetek naj na kratko opredeli temo, ki jo obravnava prispevek, predvsem pa naj na kratko, jasno in čimbolj preprosto povzame poglavitne rezultate, zaključke, ugotovitve..., prispevka. Splošne ugotovitve in misli ne sodijo v povzetek; uvrstite jih v uvod. Povzetek je namenjen predvsem bralcem, ki listajo po reviji (ali pregledujejo izbrane povzetke iz baze podatkov) z namenom, da rezultate Vašega članka uporabijo pri svojem delu, na primer v raziskavi, pri pisanju diplome, magisterija, doktorata, … Na osnovi povzetka naj bi bralec presodil, ali se mu splača prebrati (ali kopirati, natisniti, …) cel članek. Povzetek zato ne sme biti neke vrste »preduvod**«.**

Povzetek, **naslov članka** in **ključne besede** naj bodo tudi prevedene v angleščino.

Slike in tabele v elektronski obliki vključite kar v besedilo. Besedilu so lahko priložene slike in/ali tabele na papirju v obliki pripravljeni za preslikavo. V tem primeru naj bo vsaka slika na posebnem listu, oštevilčene naj bodo z arabskimi številkami, v besedilu naj bo označeno, kam približno je treba uvrstiti sliko: na tem mestu naj bo številka slike/tabele in njen podnapis. Slike bomo praviloma pomanjšali in jih vstavili v članek. Upoštevajte, da morajo biti oznake in besedila na vseh slikah naj bodo dovolj velika, da bo bodo čitljiva tudi pri velikosti slike, kot bo objavljena v reviji. Vse slike naj bodo črno-bele z belim ozadjem; barvnih slik ne moremo objaviti.

Pri sklicevanju na literaturo med besedilom navedite le priimek prvega avtorja, oziroma prvega in drugega (glej vzorec), letnico izdaje, lahko tudi stran. Popolni bibliografski podatki naj bodo v seznamu literature in / ali virov na koncu prispevka, urejeni po abecednem redu (prvih) avtorjev, literatura istega avtorja pa po kronološkem redu izida; če navajate dve ali več del nekega avtorja oziroma avtorjev, ki so izšla v istem letu, uporabite črkovno oznako pri letnici, na primer 2003a, 2003b, ... V seznamu literature in/ali virov ne navajajte del, ki jih ne omenjate v besedilu članka. Ne uporabljajte opomb za citiranje; eventualne opombe, ki naj bodo kratke, navedite na dnu strani. Označite jih z arabskimi številkami.

V seznamu lahko ločite literaturo (članki v revijah, knjige, zborniki konferenc, doktorske disertacije, …) in vire (dokumenti, zakoni, standardi, interni viri, …). Pri citiranju literature uporabite enega naslednjih načinov, ki so prikazani na naslednjih primerih:

"... v nasprotju z (Novak in Vajda, 1996:123) raziskava (Wilkinson et al., 2001: 234) nakazuje, da ..."

"... kot poročata Smith (2003) in Jankowski (2004) metodo uporabljajo za ..."

"... kot ugotavljajo nekateri drugi avtorji (Zima 1999; Novak in Vajda, 1996; Wilkinson et al., 1993), številna podjetja ....".

Bibliografske podatke v seznamu literature navajajte na »harvardski način«, kot to kažejo vzorci v nadaljevanju. Podroben opis tega načina najdete na http:// …

Članek v reviji:

Novak, A. & Vajda, B.M. (1996). Effect of surface runoff water on quality easurement, *European Journal of Information Systems*, **31**(4): 31 - 39.

Zraven letnika v oklepaju navedite številko v letniku le, če se vsaka številka začne s stranjo 1. Če revija nima letnika, lahko navedete mesec ali drugo ustrezno oznako, na primer **Poletje 1999.**

Članek v elektronski reviji:

Lynch T. & Szorenyi Z. (2005). Dilemmas surrounding information technology education in developing countries, *The Electronic Journal of Information Systems in Developing Countries*, **21**(4): 1-16, dosegljivo na: http:// www.ejisdc.org (22.8.2005).

Knjiga:

Smith, S.I. (2003). *Interpreting Information Systems in Organizations*, Elsevier Publishing, New York.

Poglavje v knjigi:

Zupan, N. & Leskovar, R. (2002). Pričakovanja v zvezi z elektronskim poslovanjem v malih organizacijah. *Organizacija in management – izbrana poglavja*. Uredila: Florjančič J., & Paape, B. Kranj: Založba Moderna organizacija.

Referat objavljen v zborniku konference:

Wilkinson, K.J., Kumar, R. & Kumar, S. (2001). We can do better: integrating theories of novel organizations, *Proceedings of the Twelfth European Conference on Information Systems*. Uredil: Johnson, M. Bled 12-14 jun. 2001. Berlin: Springer Verlag.

Diploma, magisterij ali doktorat:

Zima, B. (1999). Analiza potrebnih znanj diplomiranih informatikov v Sloveniji, magistrsko delo, Univerza v Mariboru, Fakulteta za organizacijske vede.

Poročila, interni dokumenti, zakoni:

ACM (1994). ACM SIGCHI Curricula for Human-Computer Interaction, The Association for Computing Machinery, New York.

Zakon o elektronskem poslovanju in elektronskem podpisu (ZEPEP), Ur. l. RS, št. 57/2000, 30/2001.

Pri **internetnih virih / literaturi** naj bo poleg (eventualnega avtorja in) naslova besedila naveden tudi internetni naslov vira (URL) in datum dostopa do dokumenta.

Banka Slovenije, Basel II – Nov kapitalski sporazum, dosegljivo na: http://www.bsi.si/html/basel2/default.htm (6.4.2005).

V literaturi ne navajajte internetnih naslovov (URL) brez drugih podatkov. Lahko pa se nanje sklicujete v besedilu ali v opombah na dnu strani.

Prispevek v elektronski obliki (po možnosti kot eno Word-ovo datoteko) pošljite na: **omik@fov.uni-mb.si** (uredništvo). Datoteko poimenujte z imenom (prvega) avtorja ali avtorice, na primer *Kopac.doc*. Ne pošiljajte disket ali zgoščenk.

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The 19th Bled eConference "eValues", June 5-7, 2006

http://www.BledConference.org

The 11th Business & Government Executive Meeting on Cross-border eRegion

http://www.BledConference.org/ExecutiveMeeting
Tuesday, June 6, 2006, Hotel Golf Bled 14.00 - 17.30

The objective of the Executive Meeting is to contribute to an accelerated cross-border exchange of e-documents between business and government organizations in the emerging eRegion of the neighboring countries. It is assumed that the region may become more competitive by innovative implementation of eTechnologies in business processes.

From a geographic perspective, eRegion is defined as an area of some 200-500 kilometers around a point of observation. In the eRegion business and government organizations extensively use eTechnologies for doing business. The eRegion relates to crossing of the European Transport Corridor No. 5 (Lisbon - Kiev) and No. 10 (Hamburg - Istanbul & Thessalonica).

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