Abstract. A research paper presents that the overall goal in public sector is better governance. The answer lies with recognition of all factors: social, economic, technology. The creation of an accurate system for measuring intangible constituents is a challenging task that cannot be entirely done by direct means. Through the course of research a multidimensional method was introduced. Peoples dimension: knowledge (people’s and organization’s), sharing and networking knowledge and information, learning, and organizational issues encouraged with economic dimension (rewarding, budget, and financing) and driven by new technology solutions are the winning solutions.

Keywords: eGovernance, Knowledge Management, Learning Organization, Information Communication Technology, eGovernment, iGovernment

1. Introduction

The main characteristic when using the new technology is the introduction of so called digital environment where information creation and communication, as well as intercommunication within institution(s) and employees, can be provided through different technologies. This digital venue affects also a public sector and within it a public administration. Due to its importance, public governance strategic impact is somehow elaborated in a theory and a practice. However, very often when conceptualizing eGovernment we remain restricted only to technological aspects. But new services and applications of information society cannot be seen only from a detached technically prospective.

The term of eGovernment commonly implicit in today’s usage as representing all government procedures and tasks supported by digital means - it is merely a technological view. The application of government services supported by technology can thus be divided into three categories: access to information, transaction services and citizen participation. In the light of this, we are proposing to understand government procedures and tasks as a three-part practice (Berce 2004):

• **Information Communication Technology (ICT) infrastructure** where at the core of the current eGovernment model(s), there are two activities:
  - One, and frequently the first step, is iGovernment - converting existing processes and paper objects into digital form. The term was coined out within this research. It is frequently the first step that focuses mainly on the internal digitalization of documents and processes and is designed to contribute to the efficiency and effectiveness of public administrations. This kind of classification helps us in distinguishing rudimentary usage of ICT - digitalization from service based one.
  - The second activity is eGovernment - a digital services - building on the previous one represents the presentation of Internet-based digital services by the government administration to its non-government clients such as citizens and businesses. It means converting literal services into virtual services.

• **Knowledge Management (KM)** is an activity or a term with many meanings. It is of large potential importance as value added to administration, governance, and a sustainable application to citizens. The discussions of the possibility of managing knowledge as a resource put forward different views. If knowledge is explicit then it could perhaps be managed, measured, etc. but if we use a tacit (or flow of knowledge) then it “can only be learned”, shared, fostered etc.

• **Learning Organizations (LO)** is activity within organizations where people continually expand their knowledge and skills to create the results they truly desire, where new and
expansive patterns of thinking are nurtured, where collective aspiration is set free and where people are continually learning to see the whole together (Senge 1990).

![Diagram]

**Fig. 1.** Research model and relations

The outcome of upper activities is the framework of new organizational strategic culture – eGovernance. It is a next level to link the performance and behavior of the public sector to the goal of improved democracy to promote *inclusion*, *participation*, *literacy*, etc. Governance as understood in this paper is the strategic exercise of economical, of political and of administrative authority to manage the nation’s affairs at all levels. It comprises all the mechanisms, processes and institutions through which the citizens and groups articulate their interests, exercise their legal rights and obligations and mediate their differences. Governance is not the sole domain of government but it transcends government to encompass the business sector and civil society. eGovernance should be therefore seen as a composite made up of different blocks (see: The International Teledemocracy Centre, [http://itc.napier.ac.uk/](http://itc.napier.ac.uk/)):

- ICT that supports communication between government and civil society,
- Managing institution(s), governmental information and knowledge, and
- The societal effects of electronic democracy.

The public is asking for better performance on the part of public administrations. ICTs and digitalization, aided by the open movement of knowledge and ideas across the Internet, are pushing organizations away from a strictly hierarchically and rigid organizational ideology and towards a more networked structure. The pressure is on modern public organizations to adjust and to adapt to these new realities.

The focus of presented research was the introduction of a multidimensional view on previously mentioned influences (see: Fig. 1. Research model and relations). iGovernment and digital services - eGovernment are examined as the first dimension of the model. KM practices are then taken into consideration as a second dimension. Last, a third dimension involves looking at the principles that govern the behavior of a LO. The ultimate goal is good public administration and eGovernance and through it better eDemocracy. It is our hope that the results of the research will assist public administrations in involving all stakeholders (private sector, public, nongovernmental organizations, etc.) in the pursuit of the benefits of greater eDemocracy within a Knowledge Society frame.

## 2. Background

### 2.1. Basic Research Terms

James Skok defines “Public administration” as “the carrying out of policies established by the political (or policy making) elements of the government” (Skok 1995). According to Rosenbloom, a public administration’s managerial approach is dependent on a structure arranged hierarchically: “Programs and functions are to be clearly assigned to organizational units. Overlap is to be minimized”
Public administration as a practice is best understood as a system, with multiple external and internal factors that shape the behavior of participants, activities of programs and ultimate outcomes (Johnson 2000). The term “public administration” (Skok 1995) is used here for public entities and their relationships with each other and with the larger world of customer and client stakeholders.

ICT can be defined as “electronic means of capturing, processing, storing, and communicating information” and is based on information stored in a digital format using facilities comprised of computer hardware, software, and networks (Ayala 2000). The marriage of two revolutionary inventions, computers and telecommunications, form the foundations of our emerging information society. Computers complement the intelligence of humans, freeing us from predictable, routine tasks. Telecommunications, in turn, ensure possible common access to, and the dissemination of, information via all computers connected to a network. The Internet brings the globalization of such networks. However, as communications command, control and service delivery mechanisms are enhanced, the focus on traditional processes and products is still undiminished.

Knowledge is a unique resource in that its use and benefits can expand if shared within (or beyond) an organization. Knowledge is defined as the remembering of previously learned material. Some argue, “To conceive of knowledge as a collection of information seems to rob the concept of all of its life ... Knowledge resides in the users and not in the collection. It is how users react to a collection of information that matters” (Churchman 1971). Some, such as Peter Drucker, go further and declare that: “Knowledge is just not another resource like labor, capital, but is the only important resource today”. Today knowledge is increasingly presented as the replacement for land, labor and capital as the source of competitive advantage (Pearce 2003). However, knowledge is difficult to distinguish, codify or measure in its generic or tacit demonstration or in its representation: content, process, procedures, infrastructures, networks, institutions, modus operandi, linkages, capacity to learn and evolutionary processes (Bengt-Åke Lundvall and Johnson, OECD 1994). It may also command monopoly profits if not shared. The proper application of knowledge in context requires the application of “wisdom”.

KM focuses on the issues related to managing the knowledge assets of an organization, including experts, lessons learned, documents, artifact templates, best practices and process improvement. While “knowledge assets” is a weakly defined term, and KM can have a variety of meanings, there is enough of a core of common understanding to use the terms in research and analysis. KM includes deliberate efforts to maximize an organization’s performance through creating, sharing, and leveraging knowledge and experience from internal and external sources. Therefore, the field of KM is commanding greater attention (e.g.: Drucker P.F.: Management Challenges for 21st Century; Sveiby K.E.: Managing and Measuring Knowledge-Based Assets; etc.).

Some argue that the technology has finally broken the insidious link between access to quality teaching and learning (eTeaching, eLearning) and exclusivity (John 1997). Given the importance of knowledge, the new technologies may allow the de-monopolization of teaching and broadening access to learning. This brings a new LO paradigm, to all aspects of organizational processes. In all its parts, at the individual and organizational level, a LO engages continuous learning. The literature shows that the extent to which an organization becomes an efficient and effective knowledge using organization depends ultimately on its internal governance, leadership, culture and trust (Kermally 2003) and not on the technologies used. The most critical task of top management, identified by different researchers, is: “To conceptualize a vision about what kind of knowledge should be developed and to operate it into a management system for implementation” (Nonaka, Takeuchi 1995). This knowledge vision fosters the personal commitment of middle management and frontline workers by providing ‘meaning’ to their daily tasks (Malhorta).

The Knowledge Society is where the older measures of competitiveness such as labor costs, resource endowments and infrastructure become superseded by dimensions such as knowledge generation, patents, research and development and the availability of knowledge to citizens (Nath 2003) (or their ability to afford it) and their capacity to learn. Mansell and Barnett note in their paper that “poor countries differ from rich not only because they have less capital but also because they have less knowledge”, or at least less “relevant” knowledge (Mansell 1998).
2.2. The Data Used

Slovenia is a small European country (2 million inhabitants) situated between Italy, Austria, Hungary, and Croatia. It joined the European Union (EU) in 2004. We applied the described multidimensional conceptual model to data gathered from within Slovenian public administration institutions and organizations in the first five months of 2003. A survey sample of 288 different organizations, selected from the public sector in Slovenia, was chosen for the survey. A fifty percent response rate, for a total of 143 organizations, replied to the questionnaires. The statistical representations of the population surveyed that replied are as follows:

- From ministries the reply rate was 100%.
- Replies from Government offices totaled 83.3%.
- Replies from local government offices totaled 94.6%.
- The municipalities are known to have poor response rates to surveys, so more waves of survey were carried out with the end result of 22.9%.

Data were collected by means of a questionnaire containing 27 distinctive inquiry clusters, in four sections, and totaling 185 distinctive questions. The majority of these were dichotomous response (YES/NO) questions. Some were one-dimensional and others multi-dimensional. Others were cumulative-scaling items; the research uses a Likert scale, and some Thurstone scaling methods. In the questionnaire, “environmental scan” questions about factual information, such as the number of employees or the number of training days, were also asked. Not all respondents answered all the questions and some were excluded because of errors.

Benchmarking Slovenian data against the OECD survey data (OECD - KM survey in the public sector - Draft report on Total results*, September, 2002; * The results exclude open-ended questions in the OECD survey. That contains conclusions from the results of the survey of KM practices for ministries/departments/agencies of central government in OECD member countries, February, 2003; GOV/PUMA /HRM(2002)2) Unclassified) gives us an opportunity to “measure” and compare the social, economic and technical aspects of the Slovenian public administration sector with the broader environment of the EU and OECD countries.

2.3. Research Question

Based upon the evidence from available previous research, and the general literature on eGovernance this research addressed public administration institutions from the point of view of the broad strategic impacts of effective eGovernance, with its scope focused on the roles of Information Communication Technology, Knowledge Management, and Learning Organization behavior. The research strategy used in this study enables us to engage all the knowledge and organizational dimensions to form a new multidimensional perspective.

3. Research Reflection and Interpretation

The creation of an accurate system for measuring intangible constituents is a challenging task that cannot be entirely done by direct means. In this research, the task it was carried out by the means of two distinguished approximation methods. One involved the qualitative dimension: policies, programs and implementation strategies to promote KM&N and LO activities with the help of ICT. Other involved the quantitative dimension: the creation of statistical measures in monitoring and evaluating eGovernance development initiatives based on ICT, KM and LO practices. The questionnaire survey method and other resources (observations, administrative resources) were used to collect the data required.
3.1. ICT Role

The data show that within the Slovenian administration ICT is well applied. The notion of its importance and use is well perceived. Slovenian public organizations are better equipped, than those in the OECD countries.

An important tool for communicating with citizens nowadays is the Internet, which is a “transforming technology”. Slovenian institutions at ministry level reported 100% Internet availability. Other organizations are two percentage points behind.

We can deduct from the survey data that more local connectivity may be accompanied by a reduced willingness to use that electronic doorway to open public sector services to the "outside world" - fear of becoming more transparent. This means that the opening-up of the Slovenian administration, enabling it to become more user-friendly, is still in its infancy.

Budgetary support within administrations is strong in the case of “hard-core” ICT: purchase, construction, maintenance, etc. This gives an impression of information technology as being a strong enabler of human communications, information and knowledge sharing. Representatives of an institutional information centre are not regular partners at board meetings, implying that decisions on the usability of new technologies are left to those who do not have proper professional knowledge.

3.2. Development of KM

The activities of public organizations are knowledge-intensive. KM requires organizational and cultural changes and not just the automation of processes. The survey indicates that many decision-makers still think that KM begins and ends with building sophisticated information technology systems. The KM literature often refers to the attribution of responsibilities to top management or to a special KM unit (different from human resources or information technology units). The survey data show that there is both a lack of understanding and of organizational initiative in Slovenian institutions. Very few processes are KM oriented. This can harm both Slovenia’s competitive position within the EU and reduce its benefits of membership. Challenges include:

- The absence of a responsible person (not even one positive answer) for knowledge and information management within Slovenian organizations.
- Slovenian institutions do not have organizationally defined system of rewards that can stimulate KM.
- For employees life-long-learning is a key element for acquiring new knowledge, irrespective of profession or the time span since the completion of the formal learning process:
  - Slovenian ministries tend to rely mainly on short training courses. Short courses are more suitable for seminars, symposia, and other professional gatherings where knowledge is updated rather than new knowledge acquired.
  - Unfortunately, the correlations between the educational level of Slovenian civil servants and their learning attitudes revealed by the survey gave a negative relationship. The lower the educational level of public employees, and probably the greater their need, the less likely they are to attend training courses.

Half of the organizations surveyed do not have a database of staff skills meaning that employees’ knowledge is not accurately monitored and appropriately applied. This hampers internal knowledge networking. This is emphasized even more by data showing that two-thirds of organizations stated that they do not have databases of staff presentations and shared documents, which means that the knowledge stored in these documents has to be reinvented from scratch for every new occasion.
3.3. Achieved level of LO Culture

One of the most important items within the public sector is its internal working processes -- i.e., how work is performed (procedures that comply with legislation), sources of knowledge, and knowledge use. Proper registering and tracking is therefore a need that has to be well documented. Respondents perceive that a paper format is the most important means for "storing" knowledge, followed by database applications for "storing" working processes. A minority of surveyed Slovenian public institutions answered positively to having and using the assistance of expert system applications.

According to both surveys, approximately half of the OECD organizations have reorganized offices versus less than one-third of those in Slovenia. A very important message from the OECD survey was that: "The role of hierarchy is redefined". Because the levels in the hierarchy are going to decrease precisely because those at the base of the pyramid have better information, thought should be given to what a hierarchical level means in terms of value added from knowledge networking. Information sharing and the comparison of interpretations that now belongs to the top of the hierarchy, and its power to use information on its own terms, will have to be changed and improve methods made to the quality of decision-making involving all staff.

The survey shows that compared to the OECD, less than one-quarter as many organizations in Slovenia, at the ministry level, have taken initiatives in the past years to decentralize and delegate authority to lower hierarchical levels.

Slovenian institutions are lagging 25% behind the OECD in training spending. If knowledge and employees are important for a LO, this trend should be corrected.

3.4. eGovernance

The complexity of supplying information and services on-line through the Internet reveals both the difficulty and the richness of the eGovernment concept. It is not about connecting and offering information and services on-line or electronically, but about how organized and networked the back-offices of government organizations are. It is hence more about internal changes in organizational structures. These changes bring together human networks and ICT networks (Intranet or Internet) as enablers. Only through a joint effort in the two fields of organization and technology can efficiency and effectiveness be improved.

If a poor organized system is digitalized, the efficiency gain is minimal. ICT will only produce the same outputs and productivity but with a digitalized "e-disorder". The survey data for Slovenian organizations unfortunately show a strong attachment for translating existing processes to technology support and leaving out the organizational change aspects. Unless all factors are taken into consideration, effectiveness through better and innovative work is hard to achieve.

The effectiveness and efficiency of the public sector in the digital venue can be as well monitored on the basis the number of responses to the e-mail. More than 78% of Slovenian ministries and 80% of government offices reported that the policy for responding to e-mails is similar to that for formal letters. The Ministry for Information Society carried out research in which more than 65% of respondents (government offices and ministries - population of 46) did not reply to e-mailed enquiries.

Less than 30% of respondents reported reorganization efforts and/or changes in the delegation of authority to lower hierarchical levels. In addition, less than half reported (agree and strongly agree) that their institutions are using KM practices.

Nevertheless, our results show that the absence of new governance mechanisms, now made possible by digital venue, and the concomitant lack of changing responsibilities are still classic limitations within Slovenian organizations preventing the implementation of a good eGovernance.
3.5. Multidimensional Method

The graphical representation of the multidimensional model (see Fig. 2), built within research study, uses already mentioned items on each axis to represent level of achieved “stage” of ICT, KM and/or LO. The spatial representation of eGovernance that is combined with three-dimensional items is then presented as “gained” level of digitally supported governance within the Slovenian public institutions. It is a pooled index of all data and does not represent each institution. For that a spatial plane should be used. The arrows on axis show opportunities to improve for each dimension.

Fig. 2. eGovernance capability graph

The multidimensional method, as opposed to present-day models that describe only one dimension of government digitalization through usage of ICT, introduces two new dimensions: KM and LO behavior. According to the OECD (see: Table 1) service segmentation schema (stage 1 to 4) a prerequisite – the digitalization of documents and processes, is not among defined stages. These two stages introduce a new perspective on: a) an organizational digitalization of documents (a stage 1) and b) a digitalization of services (a stage 4) that has not yet been offered to users (e.g. through the Internet). The KM development could be presented by introduction of its awareness and finally implemented by knowledge network of all employees. As for LO a more precise definition has still to be build up nevertheless some important items should uncover: organizational resources, organizational change of culture, permanent learning etc.
The OECD eGovernment Project defines four possible stages of e-service delivery (based on an Electronic Service Delivery model developed by the Australian National Audit Office):

- **Stage 1: Information** – website that publishes information about service(s).
- **Stage 2: Interactive information** – stage 1 + the ability for users to access agency database(s), and to browse, explore and interact with that data.
- **Stage 3: Transactions** – stages 1 + 2 + the ability for users to enter secure information and engage in transactions with the agency.
- **Stage 4: Data sharing** – stages 1 + 2 + 3 + the ability for the agency, with the user’s prior approval, to share with other government agencies information provided by that user.

### Table 1. OECD eGovernment stages of e-services

#### 4. Conclusions

Through the course of research of Information Communication Technology, Knowledge Management and Learning Organization these activities were segmented to form a proposed (Slovenian) public administration “Action plan”. The action plan makes use of developed multidimensional approach to better eGovernance that could accelerate transition to the Knowledge Society. This method helps to capture all the human and organizational factors that are important for delivering good eGovernance, and goes beyond the formation of Information Communication Technology focused actions plans that are common nowadays.

The suggestions and recommendations for the (Slovenian) Public Administration sector are based on the results of the research study, on data modeling and on the literature and they break down as follows:

I. **Only a strong interconnection** between Social, Economic and Information Communication Technology factors can drive good eGovernance and in turn have an impact on the evolution of public administration itself. These interconnections involve:
   - Knowledge Management and networking
   - Learning Organization culture and behavior
   - Information Communication Technology and
   - Good eGovernance delivery

With upper defined targeted goals to achieve on implementation phase there are strategy and management devotion processes that are to be committed:

II. To achieve good eGovernance on the basis of better governance - decisions are: wisely, faster, timely, widely extended, and correctly – with the support of a digital venue the research work proposes an “eGovernance action plan” with the ensuing strategic decisions, measures and priorities:
   1. Commitment of top government officials
   2. An independent in-depth examination of current status
   3. Vision and goals to achieve eDemocracy through better eGovernance
   4. Predefined measurement system and priorities
   5. Responsibility of key actors to carry out select tasks
   6. A defined time-frame and budgetary support

The two previously described essential parts can then be more in detail clarified as operational procedures within:

III. The “eGovernance action plan” that should address (at least) the following issues:
   a. Information Communication Technology issues:
      1. Social process and organizational change sides of Information Communication Technology
      2. Collaboration between professions (Information Communication Technology-skilled staff and management) around Information
Communication Technology deployment and the social and organizational process issues.
3. An implementation strategy so as to move the change process from iGovernment to eGovernment
4. Adequate and sustained Information Communication Technology budget provision
5. Protecting against information overload during the change process.

b. Knowledge Management & Networking principles:
1. Clear communication of vision and scope for a Knowledge Management culture within an organizational structure that faces new and complex challenges and is supported by budgetary mechanisms
2. Building a culture and awareness among employees and across organizations of the value of creating, sharing and using knowledge to function properly in a transparent manner and regardless of proximity
3. Rewarding employees for knowledge and information networking and sharing (stimulate creativity in preference to the application of static knowledge)
4. Recognizing that organizations have more knowledge than the sum of individual knowledge within the organization, and that staff turnover means organizational knowledge is “walking out of the door” and should somehow be captured and retained within the organization (capture staff undocumented knowledge of staff, staff documents available to others, etc)
5. Structure changes to help organizations to:
   • Retain knowledge in the organization. Managers need to be aware of the importance of providing their qualified employees with challenging work and incentives
   • Recognition that for public organizations qualified employees are their most valuable resource (developing individual skills, delegation of authority to lower levels, etc)

6. Knowledge Management & Networking organization
c. Learning Organization culture:
1. Realization that organizations and institutions have to exploit not only their tangible resources but also their intangible resources (including tacit knowledge) in order to achieve their goals effectively and efficiently
2. Resistance to a changeable environment (an organization has to accurately follow changes closely with its organizational initiatives)
3. A successful Learning Organization culture is reflected in changes in the organizational behavior and the beliefs of all the organization’s members as related to:
   • A focus on personnel matters
   • The personal development of staff
   • The development and maintenance of human networks
4. Introduce a Learning Organization culture (not a simplistic extension of individual learning) that consists of: goals, plans, handbooks, manuals, procedures (strategic, tactical, operating), permanent individual life-long learning (an organization learns through continuous learning by its members (Chen et all 2003), training prepares people to act correctly in particular circumstances), and budget mechanism support
5. The quality of decision-making improves by involving all staff - Learning Organization culture
d. Good eGovernance:
1. A vision for a partnership of stakeholders and public administration
2. Facilitate the public administration to change from “old attitudes” with regard to:
   • Less internal resistance to change
   • Greater devolution of responsibilities
   • Authority versus competence in decision making
   • Greater governmental transparency
• Less risk aversion
• More willingness to confront mistakes
• Less time wasted in low-yield consultations

3. To have a literate population able to use Information Communication Technology

4. To have essential affordable basic access (on local, rural and community levels) to the Information Communication Technology required

5. The transition from passive information access to active stakeholder participation
   • Two-way communication and interaction
   • Increasing participation of stakeholders
   • Providing public information and feedback
   • To acquire (database) assembling by consequences produced by implementation of law(s)

6. To reduce the structure of hierarchy in government.

The Action plan suggests that it is not enough for public administration, or any other organization, to apply Knowledge Management to a static body of knowledge or only seeing Information Communication Technologies as a tool for managing that knowledge better. In the Knowledge Society old knowledge, information and skills can quickly become outdated as circumstances change and as new knowledge emerges. It follows that the good use of Information Communication Technologies in the pursuit of the work, mission and vision of any organization, including a public administration, requires the organization to combine a strategy of Knowledge Management with a favorable attitude toward learning culture as an integral component of its Knowledge Management strategy. Knowledge acquired through formal education and permanent life-long learning processes are extremely important in properly applying knowledge to use and in the proper use of authority. An organization must know what new things to embrace, and when to embrace them, what old things to discard and when to discard them. To do so, it must strive to become a Learning Organization. Only in this way can effective and efficient good eGovernance be fully applied to the pursuit of eDemocracy within Knowledge Society.

5. References


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