Development of e-government in Slovenia

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Abstract. E-government has been a hot topic in the public administration research community for some time now. While still considered by some to be merely a technological phenomenon, it also includes organisational changes in public administration, development and implementation of new business processes, discovering better and faster ways of providing public services and offering entirely new services, not known before. In this article we try to look at the development of e-government in Slovenia from both perspectives, technological and organisational. We explore the public administration presence on the Internet, the services it provides and the back-office systems that support them. The current state of electronic services provided by various public administration bodies is examined, both from the end user’s perspective and from a technological point of view. We present the current state of e-government with respect to the action plans it has committed itself, while relying on well-known methodology adopted by the European Commission.

Keywords: E-government, information technology, public administration

1. Introduction

Internet and electronic business experts claim that electronic business is still only in its early stage of development. Compared to the Universe, it is at a point in development of ten milliseconds after the Big Bang, in a phase of an explosive expansion and nobody knows where it will go and how it will end, if it ends. A similar analogy could be made for the development of e-government in Slovenia. At the moment, the phenomenon is more like a big jumbo jet, already bravely waiting on the runway, ready to take off, shaking everything in sight, but with great problems when it comes to actually getting off the ground. The development of what is termed e-government and its importance for the further evolution of the public sector have been discussed a great deal in recent years, although the phenomenon itself is, even among experts relatively vaguely understood and therefore often misinterpreted or underestimated.

It should be stressed that the introduction of e-government is not merely the next step in the computerisation and informatisation of public administration, i.e. a continuation of the technological development of administration that began some time in the 1970’s. In fact we are introducing a new type of administration, entirely based on the use of information technology and the Internet. That means the development of new mechanisms of administration, new procedures and especially new services that did not exist in the past. The necessity of radical restructuring, which had for example affected the banking sector some years ago mostly due to the expansion of non-cash payments and the introduction of telecommunication services, is now affecting public administration.

According to [10], the explosive use of the Internet in the public sector with all its technological, sociological and economic consequences and changes, is becoming a strategically political issue and

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Table 1

Main development trends and communication paths of e-government

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<tr>
<th>Citizens</th>
<th>Public sector</th>
<th>Corporate Sector</th>
<th>Non-government organisations</th>
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naturally an issue of administration. The changes that have already started will call for major efforts to amend the entire structure of the administrative systems.

This paper will attempt to present the approach to development and implementation of e-government in Slovenia. In order to be able to evaluate the current state of e-government in Slovenia and compare it with some other countries, we will start with some early findings concerning the development of e-government in the EU. Afterwards we will try to describe how the Slovenian government shaped its strategy in this area. Later on we will present the findings of our own research focused on the use of the Internet and the development of e-services in different segments of Slovenian administration. We will conclude with a critical analysis and an evaluation of the progress achieved so far.

2. E-government in the EU and references to Slovenia

The term ‘e-government’ is only a few years old and still rather vaguely defined. It generally means the extensive use of IT and Internet in the administration internally, in communication between administrative bodies and externally in relations with the citizens, businesses and other customers. The development trends and dimensions of e-government are most commonly represented by a “x2y” matrix (see [10, 11]), which has been simplified for this presentation (see Table 1). The most important asset of e-government is, as we understand, its e-services, which are to change drastically the relations between the administration and its most important users – citizens and businesses.

Despite a short time period, the concept of e-government and its development has been paid great attention in most countries of the world, however, as a multidimensional phenomenon which will demand profound changes in the whole machinery of public administration it is still by and large un-researched. Nevertheless, a great number of research efforts so far has been carried out with the aim to establish the development level of individual countries in this field (so called e-gov index).

2.1. Framework for evaluating and measuring progress

The development of a common framework, which would enable reliable evaluation and measurement of development in the field in individual countries, is still in its infancy phase. EU has adopted a model of indicators and a list of services used for establishing the advancement level of e-government in individual countries [32,33]. Within this framework a model for classification of the e-services into four difficulty categories according to the complexity has been defined:

Stage 1 – Information: online information about public service;
Stage 2 – Interaction: downloading forms;
Stage 3 – Two-way interaction: processing of forms, including authentication;
Stage 4 – Transaction: full case handling (decision and delivery with payment).

According to this model, the most simple are so called information services (Stage 1) which means in practice that for this particular service, only information is available via the Internet while the service
itself is offered classically. On the other hand, Stage 4 means that for this particular service all activities are developed so far that everything can be processed and handled electronically.

Furthermore, in order to be able to compare the stage of development in individual countries in the EU and candidate countries and to do some benchmarking, a provisional list of the twenty most usual and typical services was defined (see Fig. 1) [32]. We will use (where possible) this framework as a reference point for our further discussion and evaluation of the progress in Slovenia.

Some indicative early conclusions based on the European experience so far, have already been drawn from the surveys carried out [3,5,32]:

– in most countries the G2B services are progressing faster than G2C services,
– a common strategy at high administration levels, best at the level of the whole state, seems to be a very important factor in boosting e-services development,
– development of public and government e-portals also enhances the progress of e-services,
– development of transaction services is linked to the radical reorganisation of the administration’s internal operations (back-office reorganisation).

Referring back to the four stage classification of the complexity of services it is important to point out that achieving the first two stages affects changes and new solutions in the front-office while achieving Stage 4 normally demands profound changes in the back office which is much more demanding to carry out.

Research showed that most of the e-services available today even in the most advanced countries fall into the first and second category of complexity from the above scale. Progress in introducing the third complexity level services is much slower, while even most leading countries in the field are still at the very beginning in developing the fourth category services. The explanation is rather simple. Introducing e-services of the first, second and partly third category requires no changes in the internal structures, ways
of operating or business processes of administration bodies. The changes only affect the front-office, i.e. external operations and communications of administrative bodies toward the users/clients, while the internal operations can remain completely unchanged. These services can be developed or introduced in parallel to classical services or as a replacement of them. Every administration body that sets up a website or portal to post basic information on the organisation and services and enables users to view and use (download) the main forms required for the services, is already on the doorstep or even one foot in on the third level of difficulty.

The next step, leading to the highest, fourth level of difficulty, requires much more effort. It demands radical changes in the internal operations of administrative bodies, i.e. in the back-office and the re-engineering of the great majority of all operations and the G2G relations between bodies as well as the integration of all major information systems and public databases. That is a huge step that will take several years in most administrations. Later on, the implementation of e-government should lead to important structural changes in administrative systems and their structures.

With some simplification we can observe progress in developing e-government through two perspectives, which were underlined above:

- **front-office perspective** which is focused on the new services and related changes in external communication between public agencies and their customers, and
- **back-office perspective**, focused on the necessary changes in internal operations, processes and information systems.

These early experiences from the EU were used as a guideline for shaping Slovenian e-government blueprints.

### 3. Strategy for the development of e-government in Slovenia

#### 3.1. Informatisation of public administration in Slovenia in the past

It is obvious that the development of e-government is not possible from scratch. As a matter of fact, e-government is a further, very advanced phase of the informatisation of public administration which in most countries started several decades ago and which need to be brought to a very high level of complexity in the first place, before we can start to think about introducing e-government. Slovenia has had a relatively good starting point for the development of e-government. The implementation of IT in the public sector in Slovenia started in the early seventies and was not much behind other, more developed EU countries. All basic public registries and databases starting with the citizens, land and public and private company databases were already computerised in the seventies and eighties. In the nineties practically all processes and activities on the operational level were computerised. Today we have nearly 300 PCs per one thousand inhabitants, which is according to data available a little less than the average in the EU and between 25–30% of the population has access to the Internet which is also relatively (taking into account the overall development level of the country) a good starting point for introducing e-services. Practically all public servants are equipped with PCs and other necessary IT equipment. In the early nineties the Slovenian government established a specialised Government Agency for informatics which is responsible for the development of a national IT infrastructure and development of e-government.
3.2. Plans for the future

As mentioned before, intensive informatisation in the nineties and the development of the IT infrastructure in the public sector served as a foundation for early e-government oriented projects, which were introduced in the late nineties. As a very important founding stone for further more intensive development, the Law on electronic commerce and digital signature was passed by parliament in the year 2000 [37].

In February 2001 the Slovenian Government passed the document titled “Strategy for the development of e-government until 2004” [40] in which it attempted to define the basic principles, activities and major projects which would have to be carried out in the future in order to develop e-government in Slovenia. The starting point of the document is understanding that implementing e-government means considerable changes to some basic principles of administration operations that have developed over decades, not to say centuries. According to this document, most of the e-services should have been introduced by the year 2004. However, today, a year and a half since the strategy was passed, this date has proved to be much too optimistic.

Having in mind the necessity for profound organizational changes in order to be able to develop an efficient and user-friendly e-government, we should be aware that rapid e-government development holds a number of hidden traps. At first glance, the fastest and easiest progress would be made if all the existing administrative procedures and services in the way they are carried out today were taken as a starting point. The dilemma is similar to that from one century ago, when the first automobiles appeared on cart-tracks of the time – to quickly modernize the beaten tracks or begin building real roads for cars so that the car can develop its full potential? What we are doing now in developing the first e-services is much closer to modernizing the cart-tracks than building real motorways. This is best illustrated by the services to issue various official record slips (register of births, population register, land register, etc.) that are still on the list of services in most countries, though we should ask ourselves what is the purpose of these documents in terms of real e-government. They are issued by administrative bodies, because the citizens have to submit them to other administrative bodies in order to prove they were born, that they live at a certain address, etc. The fastest and easiest way to implement e-government is to offer these slips in an electronic form. However, that only seems to be a short step forward.

The proper way is to ask the bodies to obtain their own data from the administration records, so that citizens need not concern themselves with proving facts related to their personal affairs, which the administration already knows. Of course, that requires a change in a mass of administrative procedures, legislation, etc., which is much harder and longer.

Organisational principles on which the whole business system of administration had been based in the past, such as the paper document as a basis for every administrative act, the hand-written signature as a guarantee for validity, authenticity and the expression of will, personal contact with a client as a basic means of identification, the location principle as a basic organizational principle in procedure implementation, etc. will have to be partly or fully done away with by e-government.

Therefore it is extremely important that e-government development is in accord with some basic guidelines, as that is the only way to in fact improve the quality of services.

The following basic guidelines were defined as leading principles for further development of e-government and e-services in Slovenia:

3.2.1. One-time registration of changes

Such a demand will enable citizens and institutions to report any change regarding their status towards the state (e.g. change of address) once only in one place, while all the relevant bodies that need or keep
the information will be notified of the change. Naturally, the maximum connectability and integration of all public databases and registers need to be ensured in the first place in order to be able to implement this principle within the e-government development.

3.2.2. Mandatory acquisition of opinions and approvals by official bodies

This requires that the state and its bodies that handle a certain case get all the necessary approvals, opinions and data in regard to the facts already known to the administration (and not the client in the procedure as is still often the case). For example, the request for a building permit requires a number of opinions and approvals of different bodies. These can be acquired by the administration itself much faster than by the client. Through the implementation of this principle most e-services related to issuing different personal documents, permits and licenses will become much more friendly for the users than they are today.

Of course, again, all bodies involved in a certain procedure must have connected information systems and the right to access information in another body’s database, which can be against the currently effective laws on personal data protection, so these would have to be amended as well, and so on.

3.2.3. Unified provision of services

As one of the leading principles of the strategy it was decided that all e-services should be provided through a common public e-portal which was established at an initial stage in 2001 and which will provide services according to the ‘life-event’ principles. This should enable all users of public e-services to have easy and friendly access to all necessary information related to the particular service and its realisation.

3.2.4. Provision of e-services according to the principles of ‘one-stop shops’

All services will be organised and provided for according to the principle of a ‘one-stop shop’. It means all the necessary information, forms, data and processes related to the particular service are integrated into one point. Users will have access to this point via the Internet or via public e-offices equipped with the necessary equipment for those who are not able to access these services from their homes (in order to bridge the so called ‘digital divide’).

4. An in-depth overview of introducing e-government in the most important administrative areas

4.1. Common Information infrastructure

4.1.1. Technological issues

Slovenia as a candidate country for the EU is well aware of the importance of developing an information society and within this context, e-government. At the lowest level, technological infrastructure is a precondition for the successful inauguration of e-government and its services. Since the early 90’s the country has been systematically developing a computer network, called HKOM, for the purposes of (central) public administration. This year, local governments are beginning to connect to the network as well. It is a private network with high level of security, it connects over 1000 LANs of different organisations within the public administration. It offers an infrastructure for numerous electronic services, data exchange and groupware applications. With high-speed lines, it offers a fast exchange of data and enough throughput for the development of e-services. End users or employees can use this infrastructure with relatively modern IT equipment. Those who are starting to use e-services are being provided with
digital certificates, smart cards and smart card readers. However, the use of these is still in the beginning phase right now. The average IT development level seems to be high enough but not in all departments and agencies, i.e. equipment is not evenly dispersed, as there are some departments and organisations that lag behind [17].

4.1.2. Legal framework

In the year 2000, parliament passed the Electronic Business and Electronic Signature act [37]. The law follows directions of the EU directive EU-COM(97) [38] that specify many aspects of e-business legislations. It is technologically neutral and there are two main aspects defined: firstly, the electronic form of data has become at least theoretically equally valid and legally binding as the paper form in all administrative procedures. Secondly, electronic signature has become a valid form of signature and is legally liable. Some other laws were also modified. One that is extremely important in the context of Slovenian public administration is the Administrative procedure act since it regulates the flow and phases of practically all administrative procedures [39]. With the novelty of this law and changes in the law on privacy and protection of personal data as well, administrative bodies got the right and are obliged to gain all the necessary data and/or documents from different public databases which are needed to solve the individual administrative case. According to the changes in the legislature, citizens by submitting an application automatically grant permission (or authorisation) to the administrative body to access her/his relevant private data that is stored in different public databases.

Of course citizens can also refuse this authorisation and can provide all the documents by him/herself. This would normally mean the very time-consuming task of collecting documents from different administrative bodies, a task that most of us would prefer to be done by the administration itself.

This innovation is definitely one step forward in the direction of changing authoritative and norm-executing public administration toward a businesslike service provider. Many other innovations are also included in this and other important process and material acts. But there are still many legal obstacles that have to be overcome to allow a legally valid e-business. Most of them could be solved quite easily but there is a problem of lengthy procedures of legislative institutions.

4.1.3. Organisational framework

At the organisational level, most of the changes and organisational instruments and solutions are still in a very early state of development. It is obvious that we will need profound changes in the organisational setting of administrative bodies, a new division of authority between the institutions and within institutions itself. On the practical level, in order to be able to provide an e-service in an efficient and uniform manner several new instruments and solutions will be needed, let as mention just a few of them.

– a registry of life-events, services, official forms and administrative procedures will have to be created practically from scratch,
– a public key infrastructure will have to be established,
– the reorganisation of services according to the concept of e-‘one-stop shop’ will have to be carried out,
– strategies for overcoming of ‘digital divide’ problems and the transition from the old to the new ways of providing administrative services will have to be developed,
– the business process re-engineering (BPR) of practically all administrative processes in public administration will have to be carried out, etc.
4.2. Front-office perspective

4.2.1. Public administration bodies on the web

In this section we will try to focus on services offered by different administrative bodies and survey this area with respect to the aforementioned 4-stage model.

The services that the government provides to its customers (citizens and businesses) are in the forefront of the most recent e-government efforts in the EU as well as in Slovenia. The main technology used in providing e-government services to citizens and businesses is the Internet. The level of the Internet presence in Slovenian public administration bodies is quite high, although bodies at the central level are somewhat better represented than bodies at the local level. The majority of main public administration bodies have their own websites from The President of the Republic [28], National Assembly [25], National Council [30], Government [21] with the Prime Minister and Governmental offices, all Ministries with their agencies and institutes, 72% of Administrative Districts and 58% of Municipalities to the Constitutional Court [19], Supreme Court [27] and Human Rights Ombudsman [29]. The list of links to all public administration bodies on the Internet is available at [31].

While most websites contain basic information about an organisation (addresses, telephone numbers, e-mail addresses (central and from individual persons), official hours, organisational schemes, basic competences and duties and sometimes also the main legal basis for the work), the other contents of websites differ according to the competences and duties of the individual bodies. Most times search options, links to other relevant pages and some information in foreign languages (usually English) are also available. In the following, some of the distinct contents of particular bodies are presented.

Looking forward, we can conclude that the majority of services provided are first-stage services (information only). Some of them are stage 2 and 3 (interaction) and almost none are fourth-stage services (transactions). More will have to be done in order to achieve the desired status of e-services in Slovenian practice and to keep up with the best practices observed around the world.

The National Assembly

The National Assembly is one of the best computerised institutions in the country and among the first in Europe. It offers several services to the interested public. Citizens can, for example, follow the phases and changes of each bill through its proceedings in the National Assembly on the Internet. Its web pages receive 14,000 demands per day [12]. Users can also search through the database of passed laws and other legal acts, agendas and word-to-word reports of the National Assembly sessions that are put online 48 hours after each session [12]. Full text search and alphabetical index are also available. The Slovenian National Assembly is one of the few assemblies in the world that enables the broadcast of sessions on the Internet. In addition, each member of the National Assembly has his own web page with basic data and an e-mail address.

Central government

On the Government website there are also government press releases and other information given by ministries and government services on current government sessions, government projects, events and Prime Minister’s speeches, issued daily. Interested parties can subscribe to the news. The website also provides general information on Slovenia, explains relations with the National Assembly and gives some historical data on the composition of past government. Also a special layout is provided for users with palmtop computers.
Ministries

Regarding the nature of their activities, many ministries publish various public tenders with corresponding documentation and forms, mostly in .doc or .pdf format. Information and downloadable documentation of current projects are also frequent. Some pages also offer interactive forms or forums, where citizens can participate in discussions about different subjects that are of concern to a particular ministry, or send their comments and suggestions about legislation, public tenders etc.

One of the key activities of the ministries is the preparation of legal drafts, which are then submitted to the Government and the National Assembly. Unfortunately, the ministries’ web pages offer almost no information about these activities. Some ministries publish lists of drafts in the procedure, but only one offered the possibility to the citizens to participate in the drafts’ preparation by means of an interactive forum. As legal acts, passed on the basis of these drafts, might have a large influence on everyday life of the citizens, it would be desirable that this information be published on ministries’ web pages.

Administrative districts

The main task of the administrative districts is to carry out different administrative procedures on behalf of ministries at the local level (e.g. issuing personal documents, different permits, licences etc.). Therefore, administrative districts are those that have most contact with citizens. Their websites are differently designed, but their contents are understandably similar. For citizens, information about administrative procedures is particularly important. Many administrative districts have descriptions of some of them. Sometimes descriptions are very short and insufficient, but sometimes they include everything from guidelines for filling in and sending applications, a list of all necessary additions to applications, the legal basis for procedure execution, to application forms. In most cases forms are prepared for printing or downloading in .doc or .pdf format.

Municipalities

Municipal web pages differ a lot in their design as well as their contents. On the whole, municipalities devote most attention to the services relating to tourism (history, places, people, culture, events, offers, etc.) and much less to the administrative activities (mayor, local administration, municipal council, etc). Many municipal web pages feature calls for sessions, materials and minutes of municipal council meetings, results of municipal elections, municipal regulations, official notices, public tenders, information for businesses, etc. Some web pages also include interactive visitors’ books and forums, citizens can use them to send questions, remarks and suggestions about the contents of web pages and more importantly about activities, policies and strategies of municipalities. Their messages and corresponding answers from municipalities are then published. Citizens can also discuss different topics in interactive discussions and debates. Such services can improve the partnership between citizens and the municipality and we hope that they will be more frequent in the future.

It is surprising that municipalities’ web pages publish almost no information about administrative procedures, although this is an important part of their activities. Only some bigger ones devote attention to them to a greater extent.

Courts

In general, courts are very poorly represented on the Internet. Only Constitutional and Supreme courts have their own websites. Web pages of the Constitutional Court feature constitutional court jurisdictions, press releases and the latest events and news. Some forms are available online, for example, forms for petition and constitutional complaint. An online database of most important constitutional court cases with a search facility is also available. Rulings and decisions are accessible in Slovene and English
languages with case abstracts provided. Web pages of the Supreme Court abound in information. Supreme court jurisdiction and an organigram of the judicial system can be found here. A special database with cases regarding indemnities is also available. Some forms are also available online.

E-government portal ‘E-Uprava’

Government portal E-Uprava [20] was introduced in the beginning of 2001 and enabled access from one place to some government services that were previously dispersed throughout different government websites. Portal covers all four segments of e-government: G2C, G2G, G2B, G2N. It mainly provides information and interaction services, which are arranged throughout different topics. For example in the G2B segment, e-services are offered in connection with public tenders. They are information services with some downloadable application forms and e-mail possibilities. Two-way interaction services are few, mainly due to legal and organisational problems. Examples of such services are the issuing of birth, marriage and death certificates. Unfortunately, at the moment there are no transactional services. As it looks today, the portal will gradually take the responsibility for all types of electronic government services.

In accordance with development trends of government portals, where individual services are going to integrate on the basis of life-events, the Slovenian portal also features some services based on a life-event approach. Examples of life-events are travelling abroad, looking for a job, matriculation etc. But it has to be stressed that at the moment these life-events are incomplete and as such, present only seeds of real life-event based services.

The general government portal is a good idea, hot on the trail of government portals around the world, but much is left to be desired at the present stage. Portal needs some serious restructuring and polishing to become fully functional and fulfil its ambitions. Above all, well-organised transactional services must be introduced.

4.2.2. Online sophistication of the 20 basic public services in Slovenia and the EU

In order to provide some direct comparison with EU countries, the analysis of 20 basic public services is separately presented in this section. The already mentioned methodology, adopted by the European Commission (EC), was used for the measurement [32]. It relates to the 17th indicator from a set of 23 within the Europe 2002 programme [33]. The indicator named ‘The percentage of basic public services available online’ covers the measurement of 20 services, defined by the EC, from which 12 are aimed at individual citizens and 8 are aimed at businesses. Services are measured by means of a 4-stage model of e-services online sophistication (Table 2). If there are multiple service providers for one particular service, the calculated percentage for the service is an aggregate of the average scores of the websites. As, for some services, due to their current characteristics, the highest possible development stage is stage 3 (personal documents, declaration to the police, birth and marriage certificates, announcement of moving and submission of data to statistical offices), stage 4 not being relevant, the score per service is recalculated as a percentage of the maximum. The percentage indicates the extent to which each service has progressed towards full electronic case handling. In the end, the final percentage for the country is calculated as the average of the percentages of all twenty services.

Results form the first two measurements in EU countries, Norway, Iceland and Swiss were already presented in October 2001 [3] and April 2002 [32]. The Slovenian Ministry of information society also performed the first attempt of such analysis in Slovenia [34]. But, the results are, due to unreconciliated methodologies, only partially comparable with European ones and also a little bit out-of-date. Therefore, we performed the analysis for our own. The results, compared with averages of EU countries, are presented in Fig. 1.
It can be seen that most services (55%) are associated with stage 1. This means that only information about these services is available online. However, the actual quality of that information was not tested. Three services (15%) are also downloadable or are available as printable forms (stage 2).

Two services (10%) have reached the stage 3 of online sophistication. The first enables the request for birth and marriage certificates. Electronic forms, available on the central e-government portal [20], enable the submission of applications. Citizens can also get notifications about the progress of procedures. But, payment of administrative fees and the delivery of final documents are not yet implemented. The final documents are sent to the citizen by ordinary mail. However, in the opinion of the EC, this is not necessary, as the maximum stage for this service is stage 3. The second service facilitates enrolment in higher education/university. Both Slovenian universities offer the possibility of electronic submission of enrolment forms. Applications are then printed and sent to all registered persons to check the correctness of the submitted data. After the selection process the selected persons get the decision on paper, with which they are invited to the actual enrolment at the approved faculty.

Taking into account the definitions of the individual services provided in the methodology of the second EU measurement [32], two services (10%) get to the stage 4. These are job search and public libraries services. On the Employment Service of Slovenia website [35] there are two sets of job search services, one for job seekers and the second for employers. Job seekers can search through the database of available jobs, which is daily updated. They can also subscribe to available jobs, weekly mailed to their e-mails, and register as a job seeker. Employers can then search through the database and contact the selected seeker by e-mail.

Public libraries’ services are accessible on the COBISS website [36]. Users can search through the union bibliographic/catalogue database of Slovenian public libraries. Bibliographic data, data on libraries’ holdings, loan periods as well as electronic copies of some materials are available. Users can also view material on loan, renew or reserve the material.

The final score for all twenty public services is 42% that put Slovenia into 16th place among eighteen measured countries in the report [32]. The first three places belong to Ireland, Sweden and Finland with 85%, 81% and 70% respectively.

4.3. Back-office perspective

Different areas of Slovenian public administration have had developed in the past, due to historical and practical reasons, different information systems through which back-office operations of public administration bodies were more and more supported over the years. A great number of autonomous,
non-integrated information systems have been developed over the last 30 years. Each of them performed specially designed role(s). They were often not compatible with one another, either on technological, organizational or both levels. In the recent past, efforts were made to integrate these systems, thus enhancing their functionality. These systems were basically developed using relational database technologies. Numerous applications were developed on top of this platform to support public administration bodies’ work, most notably document writing, designing, distributing and storage as well as various registries and filing systems.

Through numerous e-government development and implementation projects, profound redesign of all these systems has become one of the most important tasks. Further on we will try to point out current development and ‘technological status’ in some of the most important public bodies concerning back-office perspective.

**Government agency for informatics**

In the early nineties Government of Slovenia set up Government agency Centre for informatics responsible for the computerisation of public administration in general, the development of the public information infrastructure, and most recently to take care of strategies and action plans of the Slovenian e-government. Its job is to draft proposals for e-strategies and plans, pass them and then supervise their implementation on the ground.

The Government agency Centre for informatics is also charged with creating policies regarding the computerisation of individual public administration bodies and it takes care of both the systematic implementation and maintenance of ICT and training of central government’s employees. Municipalities are in this regard much more on their own.

**Central government and ministries**

Many of central government’s systems are legacy systems, introduced in the past and then sporadically modernised. Some of them, however, were introduced only recently. Many of the earlier systems and some of the newer systems are being integrated at the present time to yield a better overall performance of the government’s IT.

Among many others, the government’s information systems comprise [1]:

- IS for legislation drafting,
- IS for government decision support,
- Collaboration and groupware IS

IS for legislation drafting is a system that enables steps of (government) legislation changes to be taken in an electronic form. It is a document management system, based on IBM Lotus Notes and it is a shared application with the National Assembly. The Government uses it when passing its own legislation. Documents can be tracked from the earliest versions as drafts to proposals and all changes thereto. All subsequent amendments are recorded, when a proposal goes through more parliament readings. Proposals for amendments can be tracked to their originator [6].

IS for collaboration and groupware support is also based on IBM Lotus Notes. It provides for groupware collaboration in government and it is the backbone of all government systems. It permits the exchange of mail and documents in government, allows access to shared resources, schedules automatic jobs etc. It supports the cabinet ministers and their work (government sessions in an electronic form, virtual presence in sessions and remote voting).

Inter ISPO is a governmental information system for decision support. Part of it is public and can be found on the Internet [22]. Statistics are provided online for historic and current major economic data.
(prices, wages, employment, export/import, disaggregated by regions) and other important data, which is being constantly updated. Datasets can be visualized online. It was conceived as a kind of diagnostic system for decision makers. Most of the data is static, however, users on the government intranet can install a java-based client with a real-time flow of data.

A project started in 1998, which would allow the government to have electronic sessions, which were started by the government in the beginning of 2001. All preparatory materials were made available to ministers in an electronic form on a common server. The system went fully functional some months ago [1]. Calls for sessions, agendas, protocols, reports, resolutions and preparatory materials are all available in an electronic form in this system. It enables an insight into the current state of any government or working bodies session. The flow of documents begins in the main office, where materials for government sessions are submitted. Materials are registered and saved into document repositories of a document management system. Call for sessions are then generated automatically. Topics and topic titles are drawn directly from preparatory materials and the agenda is created automatically. Relevant materials are made available online for identification. Ministers, equipped with laptop computers, can access sessions and vote remotely. After the end of the session, the report is generated automatically about sessions with the results of the voting and agenda debates [13]. Security is of special importance in this system. The system has built-in security mechanisms at the level of the data-communication network. Identification of users and the encryption of sensitive data (e.g. confidential reports) is assured through one-time passwords and digital certificates of governmental certificate authority SIGOV-CA [18, 19]. Electronic transactions are conformant to the Law on e-commerce and digital signatures, which is based on the UNCITRAL model law. More transactions are planned to be performed electronically by the end of this year.

Ministries use tailor-made document management systems based on IBM Lotus Notes that support paperwork and internal processes.

Administrative districts

Public servants of local governments can access common databases and applications from central government, such as ISPO (information system for supporting decision making), MFERAC (information system for supporting financial operations and accounting of budget users; electronic signature is used for data interchange), FORM (information system supporting internal administrative affairs which necessitate access to the population register) and other applications supporting access to different common databases such as land register and company register. The main drawback of all these solutions is their partiality, which causes duplication of work and inconsistency of databases.

In addition, public servants also use local applications, installed on their local network servers. Most important among them is SPIS, a document management system based on Lotus Notes technology. Its functionality is unfortunately not fully exploited, since it is only used in the receiving office. If this system was also used by trained officials, there would be much less paper work and work duplication.

National Assembly

The National Assembly’s information system is connected to the information system of the central government. This database is synchronized with government webservice databases, Government agency Centre of informatics and other bodies. The system is based on an electronic document system (Lotus Notes) that is integrated with other systems of government, ministries and other agencies of the Slovenian administration. On their computers, members of the National Assembly can follow what is happening with a particular legal act throughout the enacting procedure. They can see the changes, the current phase of law execution, etc. There are also lots of other documents attached to the proposal that are
hierarchically organized and stored in a database and easily accessible. The word-by-word session report is put into an electronic form and made available to members of the National Assembly as well. Their CD-ROM system offers up to 500 CD-ROMs with different data, among them the complete contents of the Official Gazette of the Republic of Slovenia from 1995 and the EU law database (CELEX). In the near future, a German law database (JURIS) and all rulings of the Slovenian constitutional court will also be available [8].

The National Assembly receives drafts from Government in an electronic and paper form, where the paper form is official and signed. But these two forms are often different in some minor details. In most cases, the electronic form is corrected, but in cases of comprehensive documents this is hard to achieve. Another problem is the form of the electronic documents, usually received on floppy disk. They are written in Microsoft Word or Excel, which is not compatible with Lotus Notes format [7]. All the documents that are received only in paper form are scanned and put into an electronic form that can be used by users of the National Assembly’s information system.

Municipalities

Municipalities (Slovenia has 192) are very independent in the performance of local functions and services. This is also reflected in the level of their technological sophistication. Until recently municipalities lagged behind central government bodies with respect to technological advance. There were many reasons for this. According to the latest research [15,17] it is evident that municipalities have improved compared with other government bodies and institutions. Their small size and autonomy is even becoming advantageous, because they are more flexible and innovative in implementing new solutions. Municipalities also differ a lot in the use of different applications. An average municipality uses standard office tools, document management systems, applications supporting accounting and applications supporting work with GIS data.

Courts

We also take a look at courts, although they are not part of public administration in the narrow sense of the word. Courts are interesting because their systems differ from public administration bodies’ systems. Courts are the least sophisticated users of IT in Slovenia. They don’t employ sophisticated document management systems; in fact, most of their documents are still in a paper form.

This is true of ordinary courts as well as high courts such as the Court of Appeal and the Supreme Court. High courts, however, archive their judgements in databases. The most important back-office systems are therefore various document databases with details of cases. Each specialized high court has in principle a special database with cases it has adjudicated. For example, USRS is a constitutional court database. It contains judgements, legal theory shaped by constitutional court, articles, opinions and dissenting opinions of constitutional judges. SODB is a database of the Supreme Court. RSPB is a database of the second level court for offences. All databases are integrated into the STAIRS system, which is a legacy IBM system and they are accessible from one entry point [2,9], but unfortunately not over the Internet.

To summarise, since the whole area of public administration is extremely wide, this was an attempt to give the reader some deeper insight into the state of informatisation and e-government development in some selected branches.

5. Evaluation of the current state

To summarize the findings about the current state of e-government development in Slovenia and compare it to the EU, we have come to the following conclusions:
On the declarative level (accepted strategies, polices etc.) Slovenia is relatively up-to-date compared with the trends in the EU. But, evidently it lags behind on the operative level at their realisation and implementation of specific services (for example the overall result of online sophistication of twenty public services for Slovenia is 42% and for the EU is 55%). It can be said, that the present state of e-government development in Slovenia is characterized by a number of plans, but lacking specific contents and terms.

The Internet presence of government bodies is growing very quickly. At the moment, the major parts of government bodies have their own websites. But, in general their contents and organisation need to be improved in order to provide easy-to-find, more unified and complete information that is required to answer particular users’ problems. Some advancement in this way was made by introduction to the central government portal and the decision to develop the services based on life-events. However, the portal is still in the first development stage and needs to go rather a long way to realize these demands.

While the provision of information services is rather abundant, there are very few two-way interaction services and almost none that are transactional, which only bring the real satisfaction to the users. It can be seen that the principal problem of e-government development is not technological, but legal and organisational – above all, it is in mutual connection in these areas. Therefore, the Slovenian government has to accelerate activities in this area.

Almost all government websites also provide e-mail addresses. The researches [15,16] show that the use of this communication possibility by citizens is growing from year to year, although the response level of public servants is low – too low if we consider that public servant responsibility is to answer every customer demand irrespective of the way it is conveyed.

Thus, most services are at the 1st–2nd stage of sophistication. This stage is rather easy to achieve, as the introduction of these services requires no changes in internal structures and procedures. Each government body, which establishes its own website to publish information about its organisation and services, and provide basic forms for applications, is already on the threshold of the 3rd stage of sophistication. It should also be stressed that most developed services are those with more simple procedures and those that do not require a lot of cooperation between different government bodies and institutions (for example birth and marriage certificates, job search and public libraries). This shows that the government wants to take advantage of the so-called quick-fixes. But, on the other side, the introduction of 3rd-stage services is more slow, mainly due to the implementation of the infrastructure, needed for authentication and electronic signing of documents.

Services at the 4th stage of sophistication are quite at the beginning of the development phase. The reasons are similar to other EU countries, in the fact that full electronic handling of procedures also requires their radical reengineering, internal reorganisation, cooperation between sectors, integration of databases and registers as well as changes in legislation and the determination of standards. But all these cannot be achieved over night. For the realisation of these objectives, an effective strategy, an exact action plan and the mechanism for the measurement of their fulfilment is needed.

In Slovenia the development of services for businesses still lags behind more than the development of services aimed at citizens. This is also shown in the comparison with the EU, which leads in the development of services for businesses. (while the average online sophistication of services for businesses in the EU is 68%, in Slovenia it is 28%).
6. Concluding remarks and recommendations for the future

We have tried to present the current state of e-government in Slovenia extensively. We took both perspectives, the front-office perspective (with the focus on users and e-services) and the back-office perspective (with the focus on technology issues). We have presented some legal and organisational backgrounds before delving deeper into e-government itself. E-government initiatives and action plans have been presented, as well as how they relate to corresponding European plans and strategies and how well they are implemented in the field.

We can say that action plans and strategies for the Slovenian e-government are well crafted and in line with the speedy developments of IT and public administration around the world. Also, it is fair to say that there are a few examples (such as the government information system and the information system of the National Assembly) that are at the forefront of such systems in Europe. Elsewhere, however, the picture differs. There are some delays in the informatisation of administrative districts and municipalities and the courts have poor IT support. The services provided are prevalently information services, thus preserving the organisational structure of old public administration, based on paper work. We expect this to change with the advent of electronic transactions, which will change business processes in public administration. We are still in the early stages with the implementation of these more demanding services and there will be a long wait in order to implement these principles in Slovenian practice. Legal and technical barriers to electronic transactions will have to be removed in order that this can come true. This is expected to happen in the next few years (3–5), as well as the reorganisation and streamlining of the public administration’s way of doing business. This will change the public administration landscape forever and make it more efficient and more user friendly. We are at the threshold of this brave new world today, but much needs still to be done in order to get us there.

References


