

## eDocument in eGovernment

STANISLAVA ŠIMONOVÁ, HANA KOPÁČKOVÁ

Institute of System Engineering and Informatics

Faculty of Economics and Administration,

University of Pardubice

Studentská 84, 532 10 Pardubice

CZECH REPUBLIC

Stanislava.Simonova@upce.cz

Hana.Kopackova@upce.cz

*Abstract:* This article focuses on the electronic documents in Czech eGovernment. The utilization of so called data boxes for communication between public administration and third parties (citizens, juristic persons) means significant step of the complex project. Aim of this project is – the pure electronic performance of Czech public administration. The prepared and realized technological changes in Czech public administration are huge; they affect state local and municipality authorities, legal entities and also citizens. On the one side are new possibilities of friendly public administration; on the other side are preparedness and informedness of future users.

*Key-words:* data box, smart government, Czech POINT, eGON, e-document

### 1 Introduction

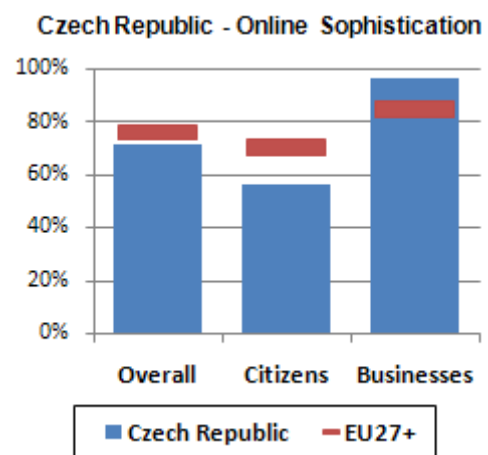
Rising of e-government in the Czech Republic had been started in 1996 by establishing of the State Information System Office, responsible for the implementation of unified information system. State Information Policy (SIP), which was the first strategy for development of information society, was adopted in 1999 [24]. Year 2003 was the milestone in two aspects. A pilot project of Public Administration Portal [19] was launched and Ministry of Informatics was established. Electronization of publication administration was thereby promoted. Although, Ministry of Informatics was in 2007 put together with Ministry of Interior, development of e-government services still continue.

**Tab. 1:** E-Government Readiness for Eastern Europe [2]

Country	2008 Index	2005 Index	2008 Ranking	2005 Ranking
Czech Rep.	0.6696	0.6396	25	29
Hungary	0.6494	0.6536	30	27
Poland	0.6134	0.5872	33	38
Slovakia	0.5889	0.5887	38	36
Ukraine	0.5728	0.5456	41	48
Bulgaria	0.5719	0.5605	43	45
Romania	0.5383	0.5704	51	44
Belarus	0.5213	0.5318	56	51
Russian Federation	0.5120	0.5329	60	50
Republic of Moldova	0.4510	0.3459	93	109

According to E-government survey 2008 [2], the state of e-government implementation in the Czech Republic is relatively high. This survey uses e-

government readiness index, which is a composite index comprising the web measure index, the telecommunication infrastructure index and the human capital index.



**Fig. 1:** Online sophistication of the Czech Republic [2]

The Czech Republic (0.6696) has taken the lead in the Eastern European region, followed by Hungary (0.6494) and Poland (0.6134). The overall rankings in 2008 do not differ too much from those in 2005.

In the view of survey called The User Challenge Benchmarking the Supply of Online Public Services [25], the Czech Republic is also evaluated very well.

EU Member countries were evaluated related to the progress of online public service delivery across the Europe. It features results from the two core measurements of sophistication and fully-online availability of online services, measured across a basket

of 20 services (12 services for citizens, and 8 for business). Each service had from 3 to 5 stages and was evaluated separately.

The results showed that e-government services are mainly used by business. G to B services is on the higher level than G to C services, which can be seen on the Fig. 1. Nevertheless, the Czech Republic stands up in the competition, being on the second place among new member countries (first place for Estonia).

## 2 E-government strategy

Published results of e-government surveys are very encouraging, however all principles of effective and friendly public administration were not achieved. It is also necessary to create equal conditions and opportunities to include all population groups in the information society; the public administration services and regional data sources have to offer their information in the suitable way for all user groups [22].

For these reasons, unified framework of modern public administration was adopted in 2007. This framework, called e-government hexagon, define functions of all aspects of public administration.

Comprehensible instrument for the achievement of well-balanced e-government functions is called eGON. Symbol of human being wants to explain what must be done to have really functioning e-government.

Following chapters will introduce system concept (hexagon) as well as the symbol eGON.

### 2.1 Effective and friendly public administration – hexagon of aspects

Utilization of information and communication technologies, in all domains of public affairs, is perceived as the matter-of course. However, intensive exploitation of technologies does not mean enhancement in quality or efficiency of public administration services. In recent years, public administration offices (from small villages to ministries) were accommodated with modern ICT equipment.

Despite of this fact, citizens did not perceived benefits in the form of simplification of public administration procedures. This situation was caused by overestimation of technologies at the expense of other aspects. It was necessary to review the whole process and possible instruments from the legislative, strategic, and organizational point of view. As the result was prepared system strategy, called e-government hexagon (Fig. 2) [23], that integrates all aspects influencing public

administration. Particular peaks of hexagon represent [1, 12]:

- Citizen:
  - involved in the process of preparation of government and legislative acts
  - possibility of electronic comment procedures
- Officer:
  - fight against corruption
  - enhancement of qualification
  - enforcement of a code of ethics of a Public Administration officer

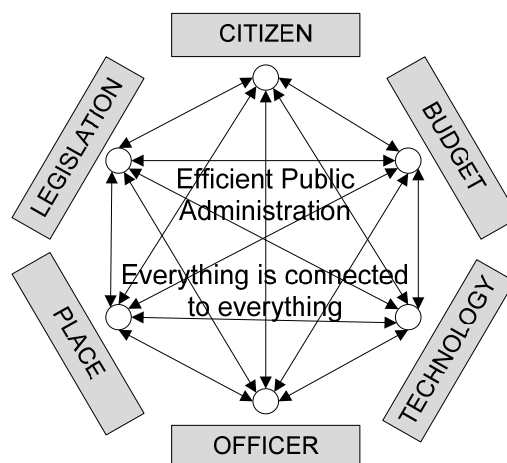


Fig. 2: Diagram of e-government hexagon (source: based on the [1, 11])

- Legislation:
  - complex analysis aimed to reduce excessive bureaucracy
  - obligatory evaluation of administrative, economic, social and environmental impacts of new legislative acts
- Technology:
  - fully electronic execution of selected agendas
- Budget:
  - determination of adequate costs of the execution of Public Administration agendas
  - economy measures
  - higher transparency and efficiency of expenditure
- Place:
  - network of contact places (one stop shops) of Public Administration – Czech POINTs
  - secured access through the Internet

Technology is only one part of this concept, dependent on other parts of hexagon.

## 2.2 Comprehensible instrument - eGON

The launching of „Europe without Barriers“ means also removing barriers related to eGovernment [16]. Smart administration wishes to collect and submit to the authorities all data available from various databases and other public information sources thus shifting this responsibility from the public to the government. Smart administration offers good services for citizens and near to citizens. Czech public administration goes through big changes (symbol of new eGovernment is small figure with the name eGON – Fig. 3) which consist of four basic projects.

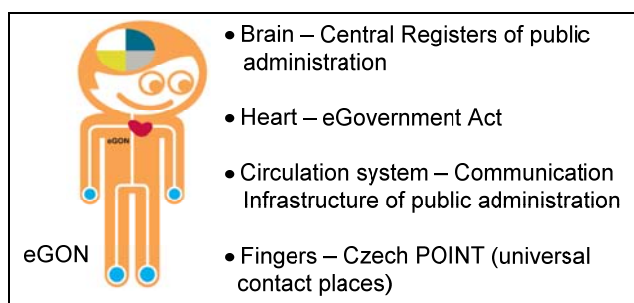


Fig. 3: Meaning of the eGON symbol [14]

The first e-project is the Czech POINT, it deals with universal contact points between citizen and public administration. The second e-project is KIVS, it deals with the public administration communication infrastructure. The other e-project of eBoxes (also called Data boxes) is connected with the special eGovernment Act. It was decided to introduce the eBoxes in order to accelerate the services provided to the public and to make them cheaper and more efficient. The last project from this group will deal with the central registers. The registers will keep up-to-date information only and such entries will be considered correct.

The characteristics of eGON are [12]:

- eGovernment Act
  - unified system of electronic delivery
  - delivery through “data boxes”
  - unified system of identification of persons using electronic communication
  - authorized conversion of documents from paper to electronic and vice versa
- Communication infrastructure of Public Administration
  - interconnection between PA authorities - unity
  - connection between PA authorities and the public
  - access to information according to the level of authorization
  - concrete savings for the first year of operation, Data – 5%, Voice – 7%

- Czech POINTs (one stop shops)
  - verified copies of entries in registers kept by state
  - in all larger municipalities, at Regional Authorities, Czech Post Offices and offices of the Chamber of Commerce (the total of more than 2, 200 counters)
  - under preparation: authorized conversion of paper documents, all kinds of submissions to public administration authorities, acquisition of verified information from other PA agendas
- Basic registers of Public Administration
  - an umbrella law on the basic registers currently subject to interministerial comment procedure
  - amendments to laws regarding particular basic registers are under preparation
    - Register of Inabitants
    - Register of Persons (all entities with legal personality)
    - Register of Territorial Identification, Addresses and Real Estate Property
    - Register of Rights and Duties

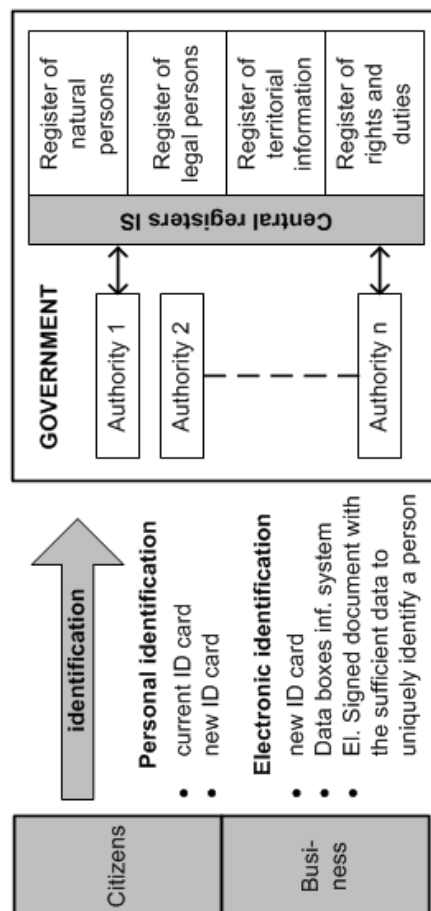


Fig. 4: Meaning of the eGON symbol [3]

New approach to basic new registers and connection / communication to citizens and business on the one side and to authorities of government on the other side are shown on the Fig. 4.

EGON is the symbol of the way how to reach public administration available and accessible for all.

### 3 Current state of the exploitation of e-government services in the Czech Republic

E-government services can be beneficial only if there is someone using them. From the previously mentioned surveys it is evident that business sector is much more willing to use e-gov services than citizens. Citizens are more conservative, which is the problem in all countries [28].

The main current problem results from the unreadiness and unawareness of all subjects. STEM/MARK realized investigation named "Analysis and survey about accepting of new trends in public information services" [21]. According to published results eGON, which is the symbol of friendly public administration, is not known to the public. Only 10 % of inhabitants know what it means. Mostly are informed young people (18 – 44 years) and people with university education. Though expression of public administration as a living organism is very simple and could be accepted as understandable, promotion among people is insufficient. The same survey also made an inquiry about CzechPOINTS. In this case, the situation is better. In 2008, 50 % of inhabitants heard about this phenomenon, what represent more than doubled increase. The knowledge about Czech POINT had predominantly young people (18-44 years) with university education and Internet users. Awareness about nearest Czech POINT had 28 % of respondents (in comparison with year 2007 – only 10 %). Three fifths of informed respondents know which institutions offer Czech POINT services. Significantly more often are informed people with university education, Prague inhabitants and Internet population. However, real utilization of Czech POINT services is lower – only 10 % of inhabitants used this facility. Data boxes are perceived as something new and inexperienced.

Nevertheless, some awareness about data boxes had one quarter of population, mainly people with university degree and entrepreneurs. The possibility of delivery of official documents through data box is accepted as useful by 36 % of respondents but the willingness to use data box when the letter is after some time taken as delivered is lower (only 26%).

Results of the survey "Citizen preparedness for electronic communication with public administration offices" [20] show that citizens are still sceptical about the e-government but the situation moved forward (Fig. 5).

Mostly young people (15-29) with university degree are leaders in electronic communication.

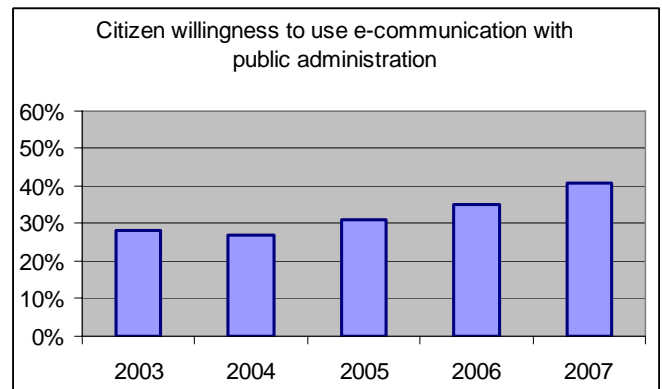


Fig. 5: Citizen willingness to use e-communication with public administration

Electronic application for document is popular also among young people, 25% of respondents would prefer this kind of communication. Moreover, the fear from misuse of electronic communications is much lower; the results went under 50% (49% compared with 57% in 2006).

### 4 Spatial decision making - the opportunity to use e-gov services

Public acceptance of e-government services would be much higher if the public administration had informed citizens on the basis of real examples. This chapter will discuss such real example. Spatial decision making, more precisely selection of suitable location for used car dump, is given as the example.

Solving spatially oriented problems and making spatially influenced decisions have been recognized as highly important for several years [8, 9]. In reality, many natural phenomena and socio-economic activities take place in space, or have a spatial context. The corresponding decision making is considered as spatial decision making since it is characterized by solving spatial problems using spatial means to achieve desired spatial ends [4]. So, the interest of managers and users in utilization of spatial information and services increases rapidly. The environment impact assessment [6], environment protection [5, 18] and route planning belong to significant branches of spatial decision making. Crisis management is also a very important issue, e.g. problem of manage flooding was solved in

[13]. Previously described problems are topical; nevertheless the most activity is focused on finding optimal location. Making decisions on where to locate objects intended for particular purposes is a very complex process bearing high responsibility. Since these decisions may refer to plans for constructing and exploiting objects over a longer time period, they also involve the allocation of considerable amounts of financial resources [26].

Spatial decision making can be significantly simplified in these days by geographic information systems (GIS). GIS integrate spatial and alphanumeric data, allows utilization of new processing methods and provides high-quality presentations of processed data. Unfortunately, classic GIS software packages (desktop or professional GIS) are too sophisticated so they limit users at least because of the complicated user interface and the necessity of using the given computer. That is the reason why GIS software is infrequently utilized by citizens and managers. High price should be mentioned too [7]. This situation has resulted into rapid spreading of web-based solutions [27]. Web GIS applications are easily accessible, and their functionality is limited so the knowledge demands are not so high.

As long as spatial decision makers (citizens, managers, officials) do not have software, skills or data, they have to use ordinary way of gathering information – walking about administrative departments. As an example of spatial decision making, without any support, can be finding of optimal location of used car dump. Basic information about the territory can be obtained from the Internet sources like Google maps (municipalities, roads, railways, woods, lakes and rivers and so on). Based on this information, initial selection of possible places can be done. Nevertheless, other information must be obtained from officials. Is the selected place determined as building land? Is there any real burden? How far is the nearest water source and can it be endangered by the existence of the dump? What are the possibilities of waste management in that place? There are many questions to be answered in the process of decision making. Writing applications, going to the relevant authorities, visiting its registry, correcting submitted forms, waiting for the clerk, getting all the required stamps, queuing at the post-office can easily lose ones enthusiasm even before starting of building project.

In the face of given facts, governments in all countries try to change the way of communication between public administration and other parties. E-government projects promise simplification and acceleration of this communication.

To clearly see the benefits of using e-government services in spatial decision making, the example will be

taken again with different scenario. The applicant, (no matter which subject it is) will no longer experience most of the difficulties mentioned above. Searching for the right parcel should start on the web-gis application, operating by local public administration office. There should be also information about available building land. The example is given at the Fig. 6.

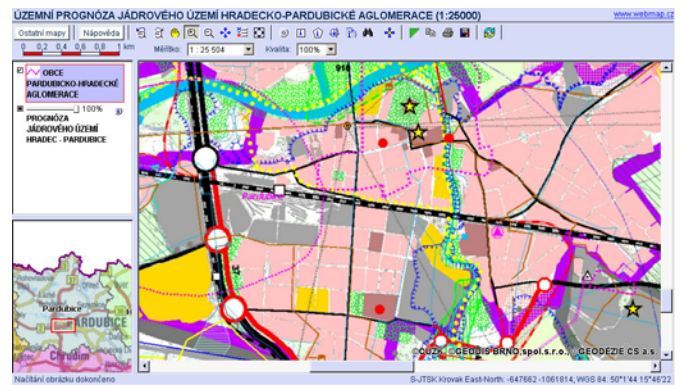


Fig. 6: Web-gis application of Pardubice regional office [10]

Real estate register (accessible through the Internet) have the information about real burden, current proceedings, owners, and so on. Even in the small town, it will be possible to go to the post-office with the local branch of Czech POINT, where an assistant will help fill in an electronic application for building permission. Its attachments will be digitalized and everything will be sent off for processing. It will no longer be necessary to go to the nearby village or town to a Building Control Department, Land Registry or Commercial Court for required documents. Relevant authorities are supposed to receive and handle the application. If the application is processed for too long, current status can be checked at the Czech POINT. Official documents as the result of administrative procedure will be delivered into user's data box and the notice will be send by SMS or e-mail.

## 5 Necessary conditions for successful service delivery

Preceding example showed optimistic version of utilization of e-government services. To move this example into reality, public administration needs to strengthen three important tools. Credible place (Czech point) for presenting application forms and requests is the first necessary tool. Data boxes are necessary to obtain response from public administration offices. As the third component, must be mentioned electronic way of document, which is now the most problematic. All parts will be now described in more detail.

### 5.1 Contact places of public administration

The most comfortable way of communication with the authorities and institutions is from a single place as well as from a near place. The solution is development of a dense network of universal contact places where anyone can simply communicate with all the authorities and institutions by electronic way. This contact place is called Czech POINT and it means the Czech Submission, Verification, and Information National Terminal. It is an assisted public administration facility where assistants help the members of the public apply for and receive excerpts from registers or submit applications or documents. These contact places will be subsequently extended to add other services. They are a part of e-Government and as such they facilitate streamlined communication with the public authorities from one point. Their added value is in reducing excess bureaucracy. Their services and functions will expand gradually. At the moment, contact places facilitate access to data from both public and non-public information systems, including their verification or notarization of documents and certificates (excerpts from the Real estate Register, Criminal Record Register, Business Register, etc.). One may use this service to submit documents to the Register of Entrepreneurs. As a new service, the project facilitates excerpts to prove qualification for those wishing to bid in a public procurement process and distribute excerpts from the Register of Driver Points [14]. The facilities are to be found at municipal offices, post offices, Czech embassies abroad, notary offices, and Economic Chambers as an ideal public administration contact point. In the future, its administrators will allow for access to the services not only from the Czech POINT facilities, but also via the Internet wherever convenient [15]. Most people are aware of these places for basic excerpts from various registers. Citizens should no longer have to go round different authorities, quite unnecessarily, spending long hours waiting or travelling to such places. Nobody will have to take a day off when needing a document from the Land Registry in a district town. The citizen has to appear in person at the one universal contact place (at the post office or at the local authority building) and here to request the excerpts from particular register.

### 5.2 Data boxes

Project of data boxes deals with other electronic tool of public [17]. Data boxes were first introduced on July 1, 2009 pursuant to the Act on “Electronic operations and authorized document conversion” No. 300/2008 Coll. From this date on, data boxes are compulsory for all legal persons – the public administration and businesses

registered in the Business Register. Physical persons and physical person registered as entrepreneurs will get their boxes only upon request.

The data box is different from an electronic mail box. It allows its user to communicate solely with the administration as such and it is not possible to use it for communication with particular officials or physical / legal persons. The data box is an electronic storage designed to help users to communicate with the public authorities. It will allow for an electronic submission and reception of documents from the public administration. The electronic communication will therefore replace the old system of hard copy delivery thus making the public administration more efficient, cheaper, and expedient.

Who can send me the electronic document by help of data box (eBox)?	Physical person (owning data box)	✓	×	×	×
	Self-employed physic. person (owning data box)	✓	×	×	×
	Juristic person	✓	×	×	×
	Competent public authority (central/local)	✓	✓	✓	✓
	Competent public authority				
	Juristic person				
	Self-employed physical person				
	Physical person				
	am:				

Fig. 7: Ways of communication through data boxes [17]

Data boxes are intended to streamline, improve, and economize the public administration. They will expedite proceedings thanks to a new system of serviced delivery, i.e. a system under which all deliveries placed in the data box are rendered serviced 10 days after the placement. The above Act also stipulates that both paper and electronic documents will be considered equal. The data box is connected to other electronic tool, that will make authorized conversions of written documents into

their electronic form and vice versa. This will be performed by notaries and regional and local authorities using the electronic signature. Such digitalized documents will be granted the same legal status as the originals they have been converted from. This special e-Document will also solve the problem of granting access to information, its circulation, handling, archive-keeping or eventual loss. The project involve about 7.000 data boxes for local and central authorities, and about 250.000 boxes for juristic persons and self-employed physical persons. From public administration point of view, there is new form of communication mainly among competent public authorities.

Future risks associated with data boxes can be arranged into the risk diagram (Fig. 8), which is used for categorizing risks in the form of hierarchies. Each risk may be subordinate to exactly one risk category and each risk category to exactly one other risk category. It is possible though that a risk category is superior to one or more risks/risk categories at the same time.

The model can contain various circumstances in relation to one particular risk; it is possible to assign key performance indicators and initiatives to be carried out to a risk. In addition, organizational responsibilities for objectives, critical factors, initiatives or risks are added.

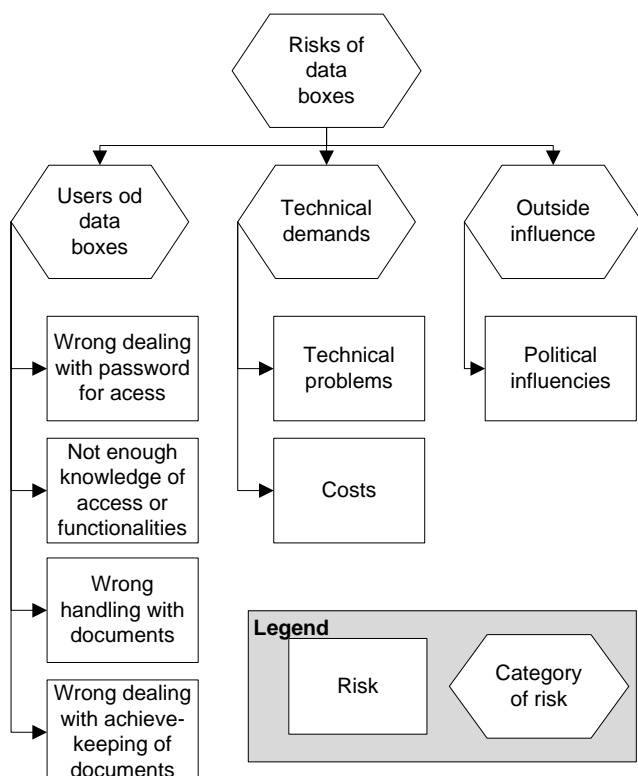


Fig. 8: Risk model for data boxes

More detailed view on particular risk "not enough knowledge of service access or service functionalities" is depicted in risk submodel (Fig. 9).

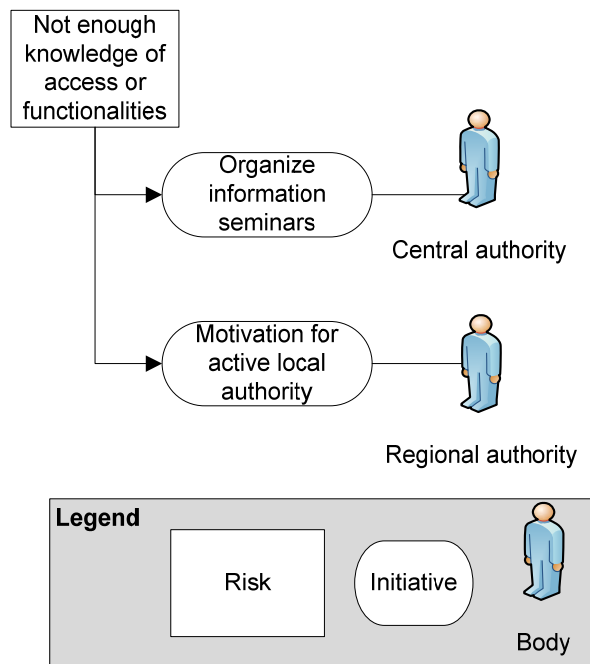


Fig. 9: Submodel for particular risk (submodel is linked to main risk model)

The model can contain various circumstances in relation to one particular risk; it is possible to assign key performance indicators and initiatives to be carried out to a risk. In addition, organizational responsibilities for objectives, critical factors, initiatives or risks are added.

### 5.3 E-documents

New treatment of documents, as the electronic media, covers 5 different aspects that must be taken into account. Technological aspect comprises usage of ICT technologies for the creation, delivery and storage. Human aspect interferes with the willingness and the ability to use new methods of work. From the organizational point of view, the organization has to define rules for handling of e-documents. Legal aspect covers acceptance of e-document to be the same quality as paper document with the same legal validity. Political interest, which is the last aspect, is able to affect all previously mentioned aspects, since it can change the e-government policy.

Document can be written, audio or visual, or in any other way saved information. Each document, however analogue or digital, has its author. Durability and consistency are the key features of document. System of paper documents had been developed for hundreds of years. Signed paper document with stamp is considered to be authentic and credible in all civilized communities. Paper documents stay readable for long time so the only problem of paper document is its safe archiving.

Elementary requirements on the document can be easily fulfilled in paper form:

- Availability: document has to be available any time.
- Confidentiality: it is possible to ensure that document stay confident.
- Integrity: it must be sure that the document was not changed.
- Authenticity: the author of the document has to be known and certified.

In the case of electronic document, these requirements are difficult to fulfil, hence some legal and technological barriers still remain and have to be resolved.

### 5.3.1 Availability, readability and confidentiality

Available document must be saved in proper data format, on the appropriate data medium, so that all information is readable.

Confidentiality of e-document is related to user permissions to the database with requested information. The problem is that the database with user accounts is not time resistant. In the future can happen such situation that the protection of the document expires and the document will be free to public. It is necessary to ensure placing of user permissions inside of the document.

### 5.3.2 Integrity, authenticity and legal validity

In order to introduce online transactions, governments must consider whether their laws recognize the validity of electronic documents. According to the law, the document is accepted to be original if it is signed by verified digital signature or is marked by verified digital organization stamp and at the same time is also marked by digital time stamp. In this case, there can be problem over time. Certificates expire after some time and also certification authority can be disestablished. Problem of document activity over the time is very complicated. Documents can be opened e.g. after 20 years and it must be clear that the document was signed by signature valid in that time. There are discussed different possibilities how to secure this condition. One version prefers creation of confidential repositories that will serve as data safe. Electronic documents will be then administered by certified institution. This institution accepts the document at the time when the signature is valid and verifies it. During the examination of authenticity of electronic document this institution guarantee by its certificate that the document is original without any changes.

Other possibility can be resigning of the document, which means that the document has to resign before the expiration of the certificate. This procedure is called active preservation.

### 5.3.3 Information overload

Another important question is what information is worth to be saved. The huge volume of information and changes make it difficult for administrators to maintain their productivity and to ensure they have taken all current factors into account when making decisions. Particular documents have to be saved based on the law but there are many other documents with the operational character that lose their significance after some time. In the traditional world, useless information goes under spontaneously. Electronic documents are archived much easily, so the institutions have to undergo information audit that will define what information is necessary to store. Moreover, government agencies need to employ technologies for analyzing its data, and transforming it into actionable information. Since the information cannot contribute to knowledge unless it is presented in a systematic, transparent and accessible fashion. To create effective analytical capabilities, government leaders must not only invest in technology and data, but also in managerial innovations to transform their organizational cultures and business processes, as well as behaviors of their employees.

## 6 Conclusion

The citizens are willing to communicate with public administration authorities by help of electronic tools and this willingness grows up furthermore. It is useful and necessary to employ this trend. But on the one side is readiness of citizens and on the other side is really utilization of electronic tools and services for communication with public administration. Difference between willingness to communicate and really communication is roughly speaking triple. Presently, the successful tool of electronic way of communication between citizen and public administration authority is the service Czech POINT. It is important, that at the same time this service can act as propagator of eGovernment, as the intermediary of present as well as new functionalities, as the informer about advantages and benefits of eGovernments' services. The present projects of eGovernment, implementation of data boxes and reprocessing of central registers, have positive response by citizen. But these new functionalities are communicated mainly in the area of public administration employees, while informedness about this topic among citizens is low. It can slow down their usage by general public. The low informedness about these new services of public administration can be a reason that citizens are in fear of private data security in the framework of new public administration services. Utilization of data boxes in spatial decision making has



its role especially from local authority point of view, fewer from citizen point of view.

Legal validity of the electronic document is now the same as for the paper document. Nevertheless elementary features of paper documents can not be easily ensured in electronic documents. This situation is not clear but the solution is necessary for the real exploitation of e-government services.

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