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THE IMPACT OF APPLYING THE CONCEPT OF THE SEMANTIC WEB IN E-GOVERNMENT

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Abstract

Together with the development of science and technology demands of society as well as people's needs are changing. These changes affect all areas of human activity in particular those related to electronic business. One aspect of interaction that has been affected by these changes is the interaction within the government. It is precisely these requirements which imply the development of an E-government. This Web based technology which is being used by the government as a communication channel is becoming more and more advanced. The complexity and the amount of information included in the communication channels requires the application of a new business concept used by the E-government. It is in these systems that the Semantic Web found it's use. This paper explores the impact of innovative concepts of the Semantic Web in E-government systems. The importance of Semantic Web technology, in this context, is to provide a basis for effective and efficient exchange of

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knowledge and information in order to coordinate business processes. Research results show that the Semantic Web promotes and improves communication between citizens and the E-government through interoperability. It is the ability of heterogeneous systems to work together, so that the information could be shared without the requirement of additional operations so the two systems could communicate, which is an essential element of any E-government. The lack of interoperability is a source of unnecessary costs well as monopoly. On the other hand the results show that potential problems may arise due to application of services based on the Semantic Web, but also that these shortcomings can be regulated with further development of E-government. The results of this paper may form the basis for further development of E-government and its services. Guidelines are given for the enhancement of quality of the processes in the usage of Semantic Web in E-Government but also in the improvement of potential negative impacts the application of this concept may have on business.

Key words: e-government, semantic web, interoperability, services, communication

Introduction

In parallel with the development of the Internet different ideas emerged on combining the latest technological developments and their sophisticated application, in order to use the maximum potential of World Wide Web. When implemented these ideas yield exceptional realizations and the Internet becomes the foundation and basis of organized life. The rapid development of the Web causes an exponential increase in the amount of information available online. Ideas, plans, administration, operations of various entities, transportation, contacts with databases of even the remotest correspondents become unimaginable without the Internet. The above mentioned caused the development of electronic commerce in public administration. The essence of the concept of E-government is that through a single point of access it can enable a faster, simpler and cheaper interaction between interested parties.

The use of electronic sources, such as data and information, depends precisely on the possibility of successful search results. Due to the volume of information available on the Web, it is all the more complex to select relevant information from irrelevant from the search results. This procedure significantly increases the time necessary for finding information but also decreases the quality of search results. Featured reasons have implied the development of Semantic Web which aims to create standards and technologies that support the development and

understanding of the detailed information concerning any given search term, thus resulting in better search results, integration, navigation and automation of the tasks.

Hence the need for introducing the concept of the Semantic Web within e-government services. In this way it enables the provision of information, whose format and methods of delivery are adapted to users and situations.

The significance of E-government in modern society

The term E-government refers to the use of ICT in information sharing, service delivery and operations of state agencies and institutions to individuals and corporate entities as well as in between the branches of the government itself (Brown, 2003). Apart from the abbreviation E-government, the terms digital management and on-line or Internet administration are used (Hai @Ibrahim, 2007).

E-government indicates a way of organizing public management in order to increase efficiency, transparency, ease of access and responsiveness to the demands of citizens and businesses. It represents a form of state administration e-business and it refers to the provision of electronic services to different target groups within the public, respectively to the business relationships as well as transactions that the state administration has with a variety of corporate entities such as other government services, agencies or partners.

E-government is a transformation of public-sector internal and external relationships through the use of Information and Communication Technology (ICT) to promote greater accountability, efficiency, cost-effectiveness and create greater constituency participation (Asian Development Bank Institute, 2004). It is an effort by government to provide people with more convenient access to government information and services, improve the quality of services and province greater opportunities to participate in the democratic institution and processes (Stiglitz, 2000).

E-government is based on the 3a principle (services provided anytime, anyhow, anywhere in the world), that is, users can address the government at any time, for any need from any place. This type of administration is fully operational and constantly assumes the integration of information systems as well as subsystems.

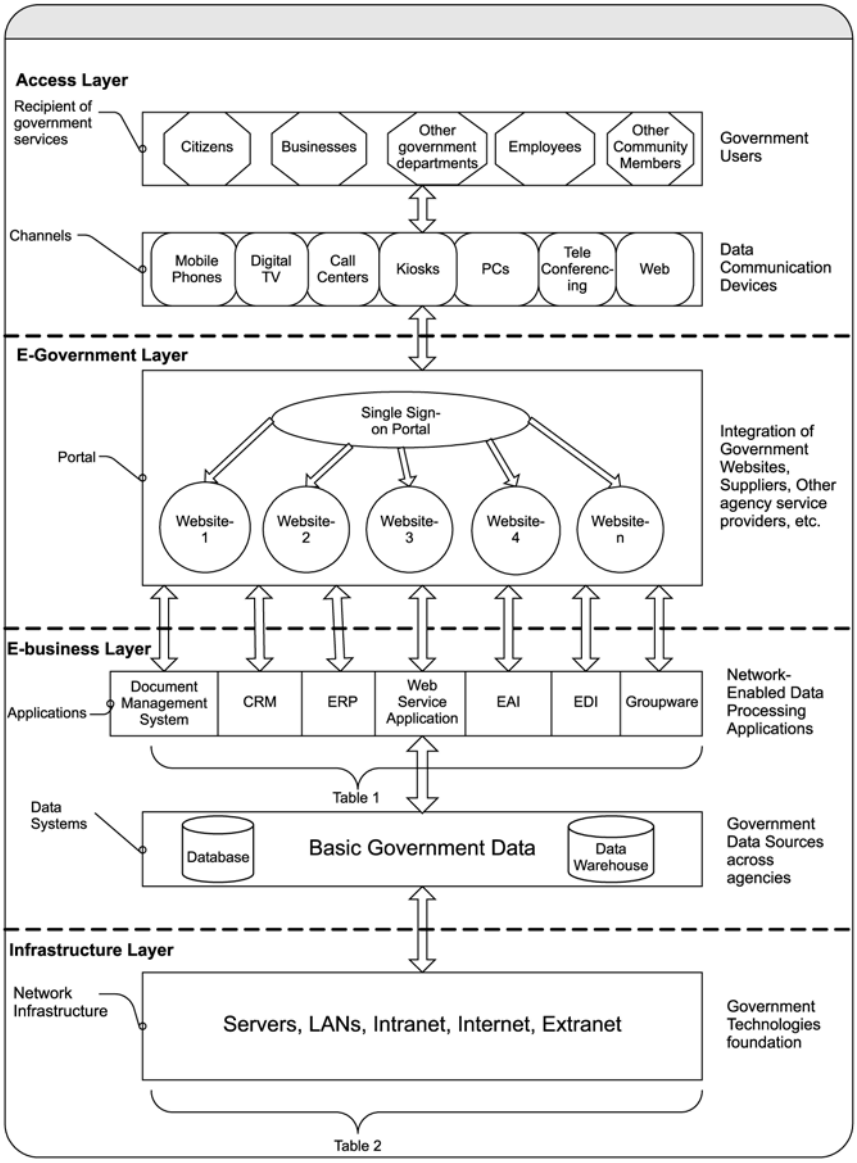
The concept of e-government, in which it is possible to distinguish four main target groups (Government, Employee, Business, Citizen) is very

complex and what is quite certain is that the e-government as a whole is far more than the sum of individual programs for automation of public administration.

Figure 1 shows the architecture of E-government, which consists of four layers which are connected by two-way protocol information. There is an evident hierarchical structure and a logical connection between the layers, which allows two-way flow of data and services. These layers are:

- Access Layer
- E-Government Layer
- E-Business Layer
- Infrastructure Layer

Figure 1: Architecture system of E-government



The first or top level of the architecture represents the users who can use the services of government, but channels of access. Through these channels, e-government portal should integrate all the administrative information and services from different departments and organizations. This layer represents the layer of E-government. In connection with this layer there is a layer of e-business, whose role is to manipulate and

integrate prompted resources from all parts of the administration as id and permit access to information and services portal in real time. The last layer is the infrastructure layer whose role is to oversee all areas of management, support the operations management and provide an effective and reliable service. This layer represents some kind of technical support.

The introduction of e-government aims to reduce administrative barriers, increase efficiency and accessibility of public services as well as to improve the quality of work that relates to the automation and optimization service, whose users are individuals or legal entities (Marković, 2008). Objectives can be summarized as:

- **Cost reduction**: setting up services which are available on-line has significantly reduced costs of different transactions, increased speed and accuracy in relation to the management of securities.
- **Economic development** – technology allows the government to simplify and develop better relationships with business organizations, creating a positive climate in all spheres of business. Direct impact on the development of the economy and markets is evident in e-procurement.
- **Increase of transparency and accessibility**: necessary information-budgets, revenues, expenses, debate, decisions are published.
- **Increase of the availability of services**: various services are provided, availability and content are increased.
- **Improved performance of administration**: computerization, integration of finance, personnel, cost management and control, data analysis increases efficiency.
- **Establishment of an e-society**: perhaps the most important segment of the development of e-government, the overall progress of society, the integration of all citizens toward a common goal.

The main objective of an E-government is an optical connection of all city institutions into a single telecommunications network, which would enable a better functioning within the administration, better connection with the citizens as well as development and improvement of the relationships E-government has with various organizations.

E-administration provides a decisive contribution to accelerating the process of transition to a knowledge-based economy, by encouraging access to and use of on-line electronic services.

By using tools and systems based on ICT better public services are provided. Users are allowed to use public services through the Internet, with the possibility of electronic data interchange between information systems of business entities and government bodies.

The introduction of E-government improves the quality, availability and speed of operation, increases transparency, efficiency, two-way exchange of information between users and service providers, local government, cantons, entities and the state, improving dialogue with citizens and others.

By expanding and enriching communication channels and creating the entity-oriented applications e - government significantly improves the effectiveness and efficiency of key business processes of the organization. Efficiency is a measure of how resources are used to achieve the set goal. Improvement of efficiency often results in significant savings.

Thus, the importance of introducing e-government is reflected in the fact that public administration is using Internet services to bring its business closer to citizens and enterprises, through easier access to and use of services of public administration. Communication of public administration with the citizens allows participation of citizens in different social processes while enabling the businesses to reduce as well as speed up administrative work and to speed up and make business development more efficient. The importance of introducing e-government is manifold:
For citizens:

- Saving of time and money.
- Transparency and fairness within the functioning of public administration.
- Improved access to information and improvement of services.
- Reduced pressure at the counters.
- For employees:
- A simpler and more efficient operation.
- For state administration:
- Reduction in operating costs.
- Reduction of the number of employees in state
- The elimination of corruption.
- The elimination of abuses in the procurement process.
- For the economy:
- Increased access to information and services.
- Reduction of costs of communication and transactions.

Based on the foregoing, it is possible to conclude that the introduction of E-government leads to changes in:

- Management methods
- Way of conversing and communication
- How decisions are made
- Ways to access services
- Ways of business transactions
- Ways of education
- Ways of accept feedback
- The organization and delivery of information

Semantic Web

Semantic Web was created as a result of the search for effective solutions for information retrieval on the Web and it represents a continuation, expansion of the existing Web, where information has a precisely defined meaning which allows better cooperation between computers and users (Berners-Lee, 2001). It represents the idea of extending the Web (Shadbolt, 2006), which has precisely defined semantics of the information and services on the Web, which would allow a deeper analysis of computer data - the content, links and transactions between people and computers.

Semantic Web as a concept allows sources of information available to the Web to be organized and used by semantic, not syntactic or structural methods. It represents the synergy of programs that collect content from the Web using different sources, then process the information and share results with other programs on a global level. Unlike the existing Web, the Semantic Web gives the information precisely defined meaning and allows better cooperation between computers and users. It allows a special way of presenting information that can be viewed on the Web as a set of globally connected online data. In this way it contributes to efficient searching. In order to function, computers must have access to structured collections of information and the ability to establish defined rules of automated management.

The main idea of the Semantic Web is to simplify information search, or to assist users and intelligent software agents to find hidden information on the Web with better standardization of metadata. Standards must be defined not only for the syntactic form of documents, but also for their semantic content, which allows search engines to contact all available resources and automatically find the requested content themselves. The programs, which are being used in this case, must understand the semantics of information they are browsing. The understanding the semantics is achieved by using specific programming languages that

are used for making accurate semantic annotation of data and sources of the data, meta-data. Selected data is given a definition for each label, resulting in a "meaning" (Damjanović, 2003).

Architecture of the Semantic Web

While HTML (HyperText Markup Language) enables representation of data and its appearance on the Web and by formatting tags it describes how that information looks on a Web page, the Semantic Web architecture is composed of two major information technology standards, as well as a third that bears a crucial role (Radovanović, 2003):

XML (eXtensible Markup Language) - an extensible markup language which defines the data structure. It is used for describing and exchanging data on the Web. Data display mode is determined by specific tags or labels. XML enables developers to create their own markup, syntax, which carries within itself a part of the semantic. It represents a mechanism for exchanging structured data on the WWW. XML is a language that has no predefined set of key words (elements and attributes) but a language for defining other languages. It shows the structure of the data, but it is not powerful enough to display their meaning as well, which is why a new language was created, RDF.

RDF (Resource Description Framework) - a central protocol on the Web based as the W3C standard, describes semantic relationships between electronic resources; it integrates various applications. RDF specifications provide an ontological system that supports the information on the Web describing the semantics of the structure in a triplet - subject, predicate, object. All three component parts are called Resource, and are identified by using the URI (Uniform Resource Indentifinder). The subject (resource) is connected to another resource (object) through a relationship that is determined by a third resource (predicate). The RDF model provides a standard description of the facts of the web resources, which gives a particular interpretation of the data. In order to be usable the RDF needs to be able to describe any kind of information, to describe the design of structured data sets and to describe the relationships between this data.

Ontology - the most important and the most difficult to achieve factor of the Semantic Web. It represents sets of concepts and their interconnections. Web designers use ontologies for recording the relationship, relations as well as characteristics of objects. Ontology systems define the terms, concepts and their mutual relationship. Ontology is a description of concepts and relationships that can exist within a hierarchy of concepts in the system. In order to allow

implementation of ontologies on the Web, certain linguistic support is required, for example, OIL (Ontology Inference Layer) and DAML (DARPA Agent Markup Language). Figure 2 shows the architecture of the layers of the Semantic Web.

Figure 2: Architecture of layers of the Semantic Web

In the first layer, there are standards for the display of text: Unicode and URI (Uniform Resource Identifier). Meaning URI is wider than the meaning of the URL (Uniform Resource Locator). The second layer is the XML which represents the basis for achieving interoperability on the Internet.

The next level is reserved for RDF and RDF outline. These are standards for describing the metadata and the concept vocabulary on the Web. In the fourth layer contains all ontological languages that are made based on RDF and RDF outlines. These can be: OIL (Ontology Inference Layer), DMAL + OIL (DARPA Agent Markup Language + OIL), OWL (Web Ontology Language). The fifth, sixth and seventh layers are responsible for the logic, evidence and credibility of the data.

The vision of the semantic data search is the ability of the software algorithm to improve the procurement of the results for the average person, by converting a natural query and returning semantically relevant results.

The concept of the Semantic Web and E-Government

Application of the concept of the Semantic Web in E-Government is becoming more and more important. Semantic-based architecture of the portal E-administration as a single point of access for all service users, aims to quickly and easily find relevant information and services, enabling interoperability, integration of existing services and so on.

The Semantic Web provides a much better search options and clear indications of what the particular document is and what it is about. It contributes to efficient searching by allowing a special way of presenting information on the Web that can also be seen as a set of globally connected online databases.

The Semantic Web has an enormous potential for improving the search mechanisms on the Web, by using annotations and descriptions of services, particularly in relation to the current search mode. Semantic annotation enables the detection and retrieval of services, and provides advanced solutions for the selection, composition and cooperation between different services.

Semantic technologies add a whole new dimension to the Web, and therefore to the e-portals by adding meaning to certain entities, that is their descriptions in a way readable and understandable not only to people, but also services, computers. Semantic web is actually credited for the emergence of machine dialogue, which is significant in terms of further automation as well as communication between man and machine.

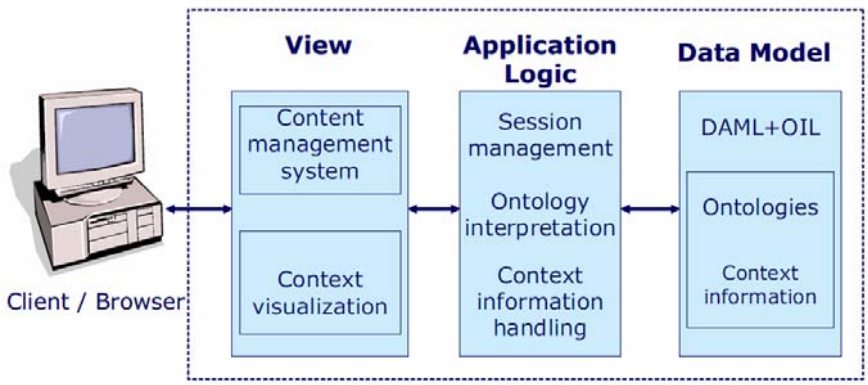
The contribution of the semantic web to modern running of e-government can be defined through an efficient search and providing a special way of presenting information that can be viewed as a set of globally connected on-line databases. In order for the Semantic Web to function computers should be able to have access to structured collections of information and to establish defined rules of automated management.

One of the main objectives of introducing this concept in E-Government is to achieve semantic interoperability of resources. Semantic interoperability means the existence of infrastructure which should

enable mechanical interpretation and reasoning concerning the content on the Web.

In the context of the Semantic Web, Web services should be described using ontologies, which means that they are machine-readable and interoperable in such a way that intelligent agents can find, create and execute them automatically (Devedžić, 2004). As already mentioned, the second layer of the architecture of the Semantic Web is XML, which is fundamental for achieving interoperability on the Internet. Based on XML, a host of other languages have been designed to represent knowledge on the Web as well as enhanced interoperability. This implies measures to understand the meaning of data. The use of semantically rich data increases the interoperability between different Web applications, and allows programs to understand the meaning of data. Systems that enable the creation of structured data (ontology) usually allow their search by using one of the query languages.

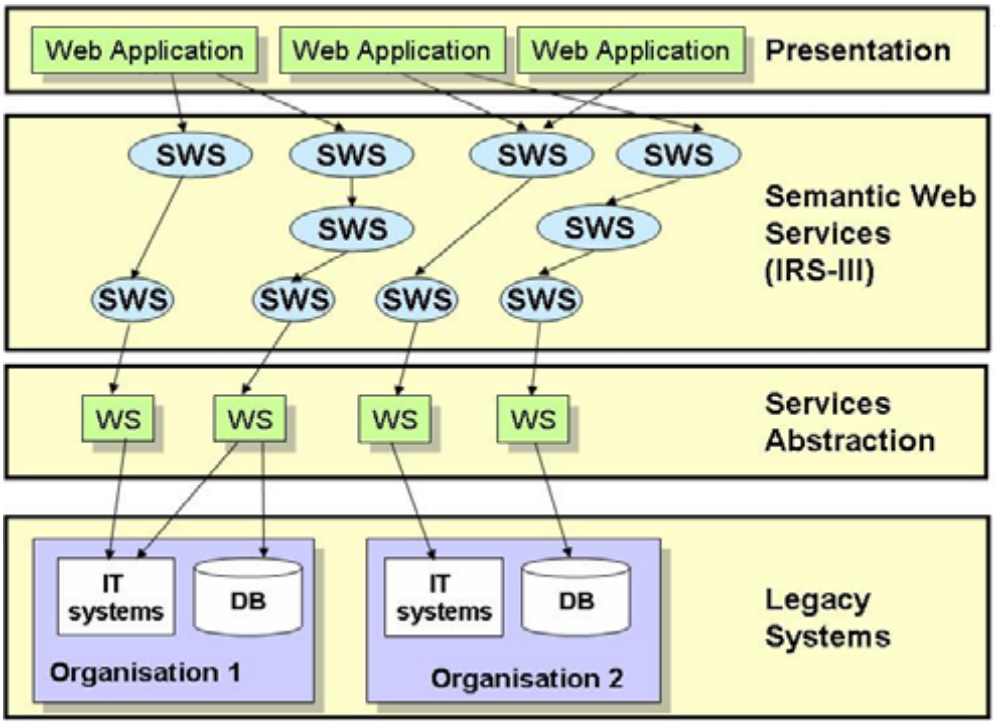
Figure 3: The system architecture for the e-government application based on Semantic Web technologies



To support the vision of the Semantic Web which is making machine-readable content available
on the Web, several software platforms and application interfaces (APIs) have been developed to permit the automatic creation and use of RDF(S) and OWL ontologies.

Figure 4 of authors (Gugliotta, 2006) shows an example of semantic web services infrastructure and architecture of e-government applications basedon semantic web services.

Figure 4: The generic architecture used when creating IRS-III based e-Government applications



This picture shows four kinds of layers more precisely Legacy Systems layer, Service Abstraction layer, Semantic Web Service layer and Presentation layer.

Legacy System layer: this layer consists of the existing data sources and IT systems available from each of the parties involved in the integrated application.

Service Abstraction layer: exposes functionality or micro-functionality of the legacy systems as WS, abstracting from the hardware and software platforms. In general existing Enterprise Application Integration (EAI) software will assist in the creation of required WS. It should be noted that for standard databases the necessary functionalities of the WS can simply be implemented as SQL query functions.

Semantic Web Service layer: if given a goal request this layer, implemented in IRS-III, will discover a candidate set of Web services, select the most appropriate, mediate any mismatches at the data, ontological or business process level, and invoke the selected Web

services while adhering to any data, control flow and Web service invocation requirements. To achieve this, IRS-III uses a set of SWS descriptions, which are composed of goals, mediators, and Web services, supported by relevant ontologies. There are two main sets of SWS descriptions:

- Basic SWS (bottom of the layer) that simply wrap the WS to fulfill goals.
- Complex SWS (top of the layer) that require a composition of basic or complex SWS to fulfill complex goals.

Presentation layer: this layer is a Web application accessible through a standard Web browser. The goals defined within the SWS layer are reflected in the structure of the interface and can be invoked either through the IRS-III API or as an HTTP GET request. The goal requests are filled with data provided by the user and sent to the Semantic Web Service layer. It is important to note, that the presentation layer may be comprised of a set of Web applications to support distinct user communities. In this case, each community would be represented by a set of goals supported by community related ontologies.

As shown, the architecture can be compared with well known service oriented architectures. The added value is introduced at the Semantic Web Service layer where integration and interoperability of existing heterogeneous services are accomplished at run-time.

Interoperability represents the ability of exchanging information between two or more systems, networks, devices, applications or components, after which this same information can be used. There must be some degree of compatibility between systems that share information in order to minimize the transformation of the exchange of data and to provide conditions for the interpretation of transferred data. Compatibility is achieved by using an abstraction that can hide an implementation detail and complexity. It would be best if the systems that participate in the exchange have been harmonized with the standards of the appropriate application domains. So, interoperability points to the possibility of different systems, techniques and organizations working together.

The importance of interoperability of e-government is reflected in the modernization and re-engineering of work processes. Thus networked government introduces the following integration function groups:

- Unified communication of the individual user with the system, and people involved in the system, while he through that communication provides all services of the networked government for which the Interoperability of the system is authorized, which includes the legal, organizational, semantic and technical level
- Common (shared) systems and functions that are obtained at the system level
- Social, business, operational and technical management of the system, with rights, duties, authorizations, risks and safety: rationalization, virtualization and cost of common infrastructure and its maintenance, then the construction and maintenance of an integrated system of knowledge and information, transparency and legality, communication with other users and systems, analysis, planning, monitoring and active operation of the system, as well as continuous development and adaptation to new social and systemic needs

By establishing the function of interoperability an interoperability of office operations, systems for authorization and authentication, registries and electronic services must be established.

The table shows the key factors of interoperability of e-government at a local and regional level.

Table 1: Key factors for E-government interoperability at local and regional level (Tambouris, 2007)

Technical Interoperability	Semantic Interoperability	Organizational Interoperability	Interoperability governance
Structure/ Information technologies Structure/Service technologies Semantic/Information technologies Semantic/Service technologies Accessibility Multilingualism and multiplatform devices Security and Privacy Open Source Software Open Standards	Common and global definitions/representations for e-government semantics Modeling perspective and formalism for documenting the common definitions Administrative level of definitions development Promotion/dissemination and maturity of common definitions Trust, reality and the supportive technical interoperability layer Maintenance and evolution of common definitions	Clear link between cross-organizational processes/services and the business strategies of the broader agencies Modeling and visualization of PA services/processes Involvement of the users by setting up communities of practice in the process of new service design Reuse of knowledge and execution related to the execution of internal and cross-agency business processes/services from the private sector Identification and documentation and features across PA agencies Support of multi-channel service delivery Consensus on and visibility of the ownership, management, and responsibility of cross-organizational processes or services	Development of national e-government Interoperability strategy Promotion of organizational federalism as a model for organizing the divergent administrative space into a cooperative environment Significance of International Interoperability aspects Legal alignment to address the new requirements posed by intensive cooperation of PA agencies Protection of intellectual properties in projects and developments Diffusion of digital signature and electronic identity Citizen privacy and data protection Clear Interoperability leadership/ownership/sponsorship/management Adoption of any relevant available standard and proposal of new standards in areas where standardization is missing Board commitment, participation and communication Flexibility/transferability of the interoperability solutions Willingness for cultural change at all partners Staff training related to interoperability projects Adoption costs inherent to interoperability solutions Public procurement policies and financing for interoperability projects Partnering with the private sector in interoperability projects

The results of the applying the concept of the Semantic Web

Application of the concept the Semantic Web in E-government leads to increases in customer satisfaction because the presentation of information is driven by a unique structure, style and principles. Standardization enables easier document management as well as information retrieval by users. Services based on the semantics allow interoperability. This way it is possible to overcome the semantic differences in the technical data and the operational level.

The Semantic Web has huge potential to improve the mechanisms of web search, using annotations and descriptions of services, particularly in relation to the current search mode. This advantage is apparent in the field of application of e-government, where finding relevant information and the like is facilitated.

Also, the Semantic Web can be used in the process of integration of ontologies in order to concretize the terminology of heterogeneous systems. Ontological maps can resolve "misunderstandings" between systems.

The advantage of the Semantic Web is also the creation of complex systems. By using the ontological and semantic means it is possible to create a more complex system from simpler systems. Information filtering is also possible, counterpart filtering via keywords. Separating useful from useless information, again, is much easier with the meaning attached to it. Semantic web enables machine dialogue which is important in terms of further automation as well as communication between man and machine.

By using the Semantic Web it comes to fast and accurate search results, leading to increased revenue. The deviation space of the results obtained from those that are accepted as true is minimized, while the importance and applicability of the obtained results is extremely increasing. The time needed for the classification of documents is reduced. In proportion to the increase of the number of ontologies, the efforts needed to categorize and classify documents are reduced.
With the careful implementation of services such as these, it is possible to achieve formalization of government business processes to enable the creation of interoperability services transparently to the users, to enable a simplified data and information search process, interoperability but also to minimize the risk as well as cost of services etc.

For these possibilities to be realized, it is necessary to provide prerequisites, such as introducing the users to the possibilities of

Semantic Web, establishing a trust when it comes to automatised data sharing, raising awareness about the advantaged of the SWS ets and all of this with the aim of further development of E-government.

However, there are negative effects of using such a concept.

Disadvantages are the high costs of the reorganization of the portal on the web, because it is necessary to customize each portal to the architecture of the Semantic web. This disadvantage can be overcome by completely changing modes of work, further development, as well as further investments and testing.

One disadvantage is the potential "bulking due to a more complex structure of web documents." This is the most critical segment of semantic search, whose efficiency can not be properly compared with the conventional services of this type until the rights of the web 3.0 architecture and resources were not available in sufficient numbers.

Conclusion

Changes of the social-economic system, that came about due to development of technology, carry with them a demand for combining technological archievements and their sophisticated applications. Those demands exist to enhance people`s quality of living, with maximal utilization of the Web`s potential.

Up until now, the development of public administration included several phases, with the tendency toward further development and improvement. From the traditional way of doing business, through electronic business, the concept of public administration was ever changing.
With the development of the Semantic Web possibilities are created for applying a new concept of E-government.

In view of the aforementioned, adopting services of the Semantic Web represents a logical trial of events, it is necessary to carefully define both the possibilities SWS carries with it and the consequences of introducing it to society.

In this paper several benefits of introducing the SWS in E-government were introduced, but one of the most important would be interoperability, whose implication opens the possibility of further development of E-government.

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References

Asian Development Bank Institute (2004): Implementing e-Government: Report of the Regional Workshop. United Nation Publication, ISBN: 92-1-120407-0

Berners-Lee, Tim; Hendler, James; Lassila, Ora (2001): The Semantic Web, Scientific American, May

Brown, Mary Maureen (2003): Electronic government. Encyclopedia of Public Administration and Public Policy, Marcel Dekker, 2003, pp.427-443.

Damjanović, Violeta (2003): Semantički web, ontologije i agenti, specijalistički rad. FON, Beograd

Devedžić, Vladan (2004): Education and the Semantic Web. International Journal of Artificial Intelligence in Education 14, str 165-191

Gugliotta, Alessio; Tanasescu, Vlad; Domingue, John; Davies, Rob; Gutiez-Villar, Leticia; Rowlatt, Mary; Richardson, Marc and Stiničić, Sandra (2006): Benefits and challenges of applying Semantic Web Services in the e-Government domain. In: Semantics 20, Vienna, Austria.

Hai @Ibrahim, Jeong Chun (2007): Fundamental of Development Administration. Selangor: Scholar Press. ISBN 978-967-5-04508-0

Marković, Nataša; Stoimenov Leonid; Vojinović, Oliver; Milentijević, Ivan (2008): E-Uprava u Srbiji: Pregled postojećih stanja javnih servisa. 16. Telekomunikacioni forum TELFOR 2008, Srbija, Beograd

Radovanović, Danica (2003): Semantički web i elektronski izvori informacija. Infoteka 4 vol. 2, str 157-163

Shadbolt, Nigel; Hall, Wendy; T. Berners-Lee, Tim (2006): The Semantic Web Revisited. IEEE Intelligent Systems, 21 (3)., pp. 96-101.

Stiglitz, Joseph E.; Orszag, Peter E.; Orszag, Michael J. M. (2000): The Role of Government in a Digital Age. Computer and Communications Industry Association – CCIA http://unpan1.un.org/intradoc, (accessed on January, 2009).

Tambouris, Efthinios; Tarabanis, Konstantinos; Peristeras, Vassilios; Liotas, Naoum (2007): Study on Interoperability at Local and Regional Level - Final Version. MODINIS LOT 2 Program. Available at: http://www.epractice.eu/files/media/media1309.pdf