



## **NEW PUBLIC ADMINISTRATION BASED ON KNOWLEDGE BASES**

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### **ABSTRACT**

*In this paper we present a new view of public administration as a service provider and users of their services. Part of the necessary activities that could lead to a satisfying public service user will be presented in knowledge bases updated with the use of Protégé editors. We will monitor the knowledge necessary for the development of the new e-m-Management and its impact on the satisfaction of users and service providers. The emphasis in the work is given to the necessary horizontal and vertical linking of all segments of the public administration and all public administrations with the users of its services. Knowledge bases and Semantic Web can not once again affect the way to a satisfied user of public services because it is neither easy nor easy, nor cheap, but can provide the appropriate knowledge to make it more visible and achievable. The application of a good governance model, which implies customer orientation, increasing the effectiveness, efficiency, transparency and citizen participation, can not even be imagined without the use of new technologies today. New technologies and new tools can help us make this path more visible and achievable by using knowledge and tools tools that can quickly provide this knowledge.*

**KEYWORDS** - public administration, effectiveness and efficiency, e-m-administration, knowledge base

## 1. INTRODUCTION

New tools, new rules, a new economy, new social relations, more sophisticated users - all this requires a whole new approach in the work of public administration. For a better service, for its transformation and offering on-line, the public administration must be transformed from the basis. These changes from the public administration require a new business strategy reduced to e-m-Management (electronic and mobile administration) or e-m-Service (service via a computer or mobile device). The new public administration and its services must be based on new technologies, new work and service processes, and new offers to a more demanding user.

Public administration provides legal services to legal and natural persons (citizens and business systems).

It must develop a quality infrastructure for e-m-Management, focused on continuous improvement and the search for new ways in operation and servicing. The new trends, setting the users of the service into focus, ask the public administration employees to ask themselves the following questions:

- How will e-m-Business change the behavior of service users?
- How to develop a service design that will meet the needs of the users?
- What investments in people and technology should be achieved in order to make progress in the new environment?

Public administrations in the developed world, nowadays leading the e-m-Management Revolution, are rapidly moving and effectively improving their work and services. Traditional, slow-moving public administrations will hardly reach them, and it is even more difficult to overcome them.

Management in public administration often fails to anticipate changes that arise due to the use of new technological solutions, and become aware of the resulting changes and successful wearing of them. Constant changes mean that public administration must build a healthy sense of disadvantage to the status quo. The ability to detect changes needs to be developed, and make quicker decisions and be energetic enough to create new service models. From now on, public administration will have to live in a state of permanent transformation. It will constantly implement changes, improve business, improve service and innovate.

If the business form is wrong or built on obsolete assumptions, even a larger number of patches will not bring anything good. Tapping in the same place and fantasizing about magic solutions that will emerge by itself, leads to great disappointment when it does not appear. Likewise, heavy work based on obsolete business models will lead to frustration and fear. None of these approaches is suitable for tackling problems and will not lead to development and progress.

Public administrations that want to efficiently and effectively serve their users, who want to be the best, must create complex models of services based on new technologies - the e-m-Services form. The e-m administration form (e-m-Services) is very complex and you should not even try to copy it from someone.

In order to be able to observe a different approach to monitoring and implementation of new ideas that need to be introduced in the work of public administration, we will introduce some more concepts that are necessary for us. These are primarily semantic web and knowledge base.

The term semantic web was introduced by Tim Berners Lee (2001) as a clear structure of the content of the website. It was created as a need for more efficient finding of certain information and knowledge. It is based on the idea that information on the web becomes machine-readable. Instead of documents related to hyperlinks, they should use interconnected data (information) that has the specified structure and meaning.

In order for the Semantic Web idea to work, computers should have access to information collections. He must provide rules for reasoning about data, and enable presentation of data and information (Radivojević, M., Ševo, I., 2016).

Here we use the Protégé editor, an open source code for updating knowledge that enables: reading and saving knowledge. Editor Protégé provides a rich set of modeling structures and activities that support the creation, visualization, and manipulation of data and information that are represented in different formats.

In this paper, we are reviewing the work of public administration in transition countries, because authors receive services in the public administration of one such country. Public administration consists of all administrations, administrative organizations and local self-government units.

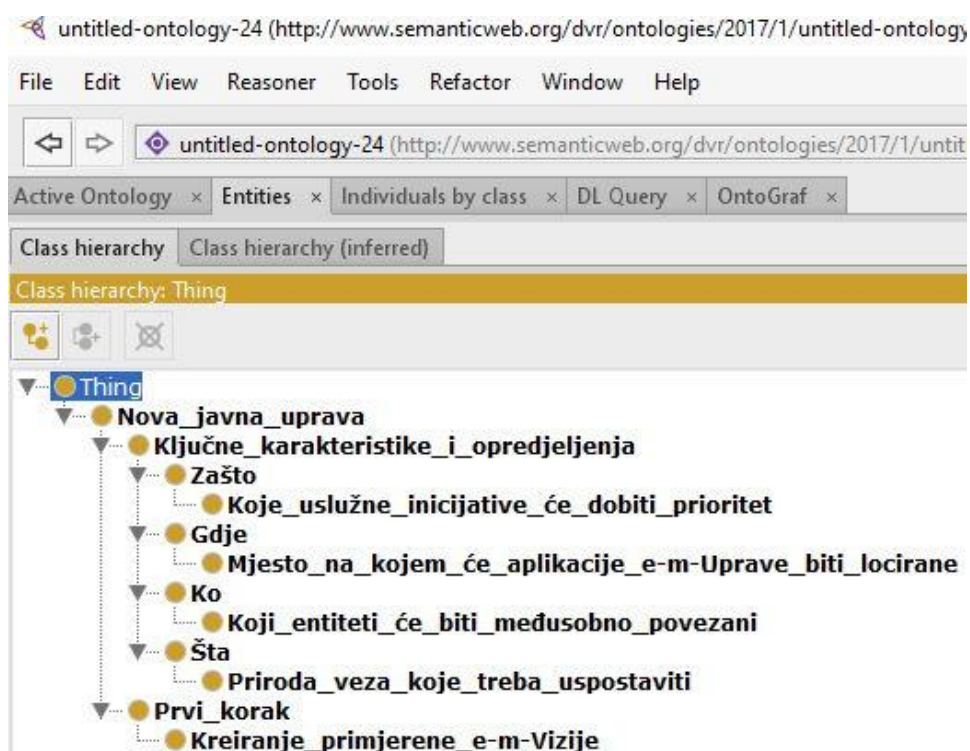
## 2. APPROPRIATE VISION OF E-BUSINESS

The first step in switching from classical e-m-service to classroom services to e-m-Business (e-m-Management) is to create an appropriate e-m-Vision.

In order to bring the vision of the em-administration into practice, it is necessary to define key characteristics and commitments in four dimensions - What (define the nature of connections to be established), Who (which entities will be interconnected), Where (defines a place on (which determines which em-business initiatives will be given priority in terms of the expected results, which will have an impact on the proper dimensioning of the other three dimensions) (Radivojevic, M., 2005). Within each dimension it can be thought narrow, wide and very wide.

E-m-Management allows you to easily overcome the borders that are traditionally defined in the work of public administration, and even to the extent that the notion of the border becomes meaningless. The first steps in this direction relate to firmer linking and demolition of barriers to service users.

We use the Protégé editor, an open source platform to update the first necessary knowledge (Figure 1): The first step is to create an appropriate e-m-Vision.



Slika 1. Ključne karakteristike i opredjeljenja

Key Characteristics and Commitments - What (the nature of the connections to be established), Who (which entities will be interconnected), Where (where the e-m Administration's apps will be located), and Why (which service initiatives will get priority).

## **2. 1. DEVELOPMENT AND CONSTRUCTION OF A CHAIN OF VALUE**

The value of each job in the public administration gives the needs they meet, not the services they offer. A new value chain degradation philosophy enables the public administration to recognize the necessary service and, at the right time, offer it to the user. The decommissioning requires the establishment, evaluation and fostering of a genuine core of service. This approach enables the decommissioning of old structures, a detailed overview of the basic possibilities of public administration and the identification of new forms and sources of service quality. Interpretation allows the rejection of old paradigms, systems, strategies, and classic services. The decision to reject a functional pattern of past service requires great courage because it is risky, but the reward for this will be great.

Public administration must learn to accept the benefits of new emerging technologies. They give, create and provide a new form of value, which service users will increasingly demand from them.

Service users will require the public administration to:

- Increased service speed. Service can never be too fast. In real terms, current, reassuring and flexible responses to the needs of service users are rewarded. Public administrations that have visions accept the need for constant change and accordingly demolish and re-shape their business processes and services, with the aim of faster service delivery.

- More comfort. Users value the convenience of obtaining a service in one place via any communication channel, at any time, and from any place. (Can the user imagine that the service is offered at the very moment when he needs it. Can he imagine that the public administration "thinks" about him, knows what he needs (maybe need) and what he should offer at the right moment (immediately)).

- Respect for reliability. Users want the public administration to treat them as a singularity. In the future, no services will be offered to give users little or no choice. New technology gives public administration the ability to give users exactly what they want and how they want it.

- Lower cost. There is no more talk about services at an "affordable price", only integrated services go at an affordable price.

The ability to view the world from the perspective of the users of the visionary public administration often saves the public administration from taking wrong steps and arriving at the wrong destination.

Being "best" means restructuring the process of providing services in order to increase their quality. Do not use new technology just to provide a service. They should be used to enhance and enrich all the activities that surround the service.

The activity of the classical service user has time and geographical constraints for it. The user must go to a particular administration body, at a given location and at a certain time interval. However, the activity of On-line service provision is fundamentally different - almost entirely virtual and independent of the site, and as such it must become known, informative and usable.

With the use of Protégé editors in the database, we introduce: What the users of services require (Figure 2) - Higher service speed (faster, more careful and flexible responses), Greater convenience (one-stop service via any communication channel), Respect for reliability individual peculiarity), Lower the price (services at an affordable price).

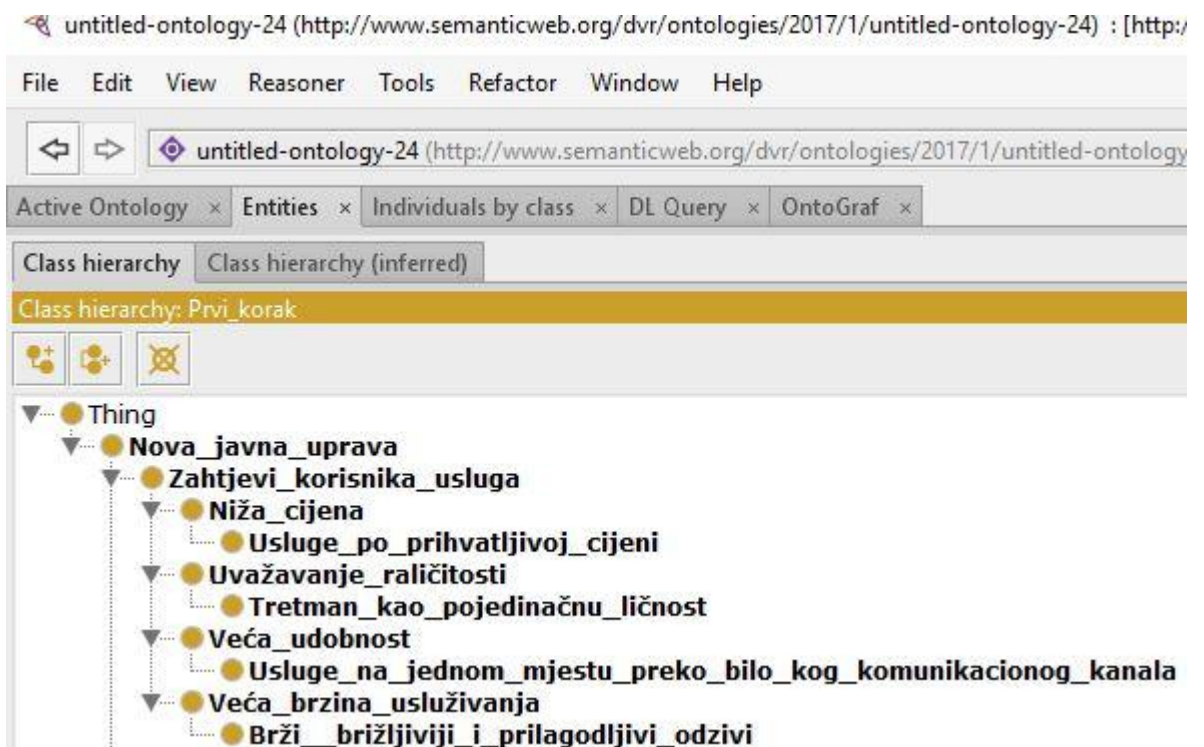


Figure 2. Customer service requirements

The basis of e-m-Service is integration. If a public service provides a service through Web access points (portals, nodes), then Web applications must run all other applications in the service chain. Full integration of service processes is not easy as it does at first glance. Successful integration requires the redesign of existing applications and processes in order to develop an integrated infrastructure that connects service applications with applications in the internal processes. A good part of public administrations still do not have a fully integrated infrastructure and therefore everywhere encounters inefficient processes and inflexible applications. The lack of an integrated application architecture is not new, but the emergence of e-m Services becomes crucial. In the traditional model of service, the service user had no choice, so the public administration did not have the incentive to do its work differently. In the new era, new forms of services leave users a much larger choice.

Problems of integrated infrastructure must be a priority for serving in public administration. The growth and development of new technology solutions require the need to redefine the service architecture. Public administrations that think ahead are beginning to understand the problems ahead of them, and have to solve a number of problems before they are ready to use all the opportunities offered by new technological solutions.

A good part of public administrations has reached the upper limit in automating isolated functional processes, which in turn is becoming an e-m-service brake.

The new service climate requires that public administrations in their dealings with their customers exude flexibility, zeal and show their internal connections.

### **3. VISION OF e-m ADMINISTRATION**

A good part of public administration in the world has already implemented some segments of electronic and mobile services. How should research be continued in this area?

It is necessary to look for ways to anticipate user and technology trends and imagine new organizational forms that would optimally meet the needs of service users. Much of what we find surprising and unpredictable is actually a series of events that are almost the same in some public administrations. Once this pattern is met, we will be able to understand and anticipate changes. Based on this understanding, we will be able to build a different e-m-Strategy. Appropriate knowledge of social, economic and technical trends is also needed here.

Service users quickly change their search habits, especially using new technologies. Recognizing the trend is not only a new possibility of the e-m-Rada public administration, but also the recognition of new services and service ideas.

Here we suggest some trends (Radivojević M., 2012) that could lead public administration to e-m-Management. The ability to look at these trends gives a better chance of a better understanding of the opportunities ahead of the public administration. The most important thing for public officials to look at is: what is the common thread that runs through all these trends. We follow the "Trends and Trends Categories" within certain categories (Figure 3).

Service user: Faster services, Self-service, Larger selection of services, Integrated solutions

Self-service: Integrated Services, Flexible compliance, Greater transparency of the process.

Employees: Looking for the best and the smartest, Retaining talented staff.

Technology: Integrated applications, Integration of multiple channels, Mediation applications between old and new software and equipment.

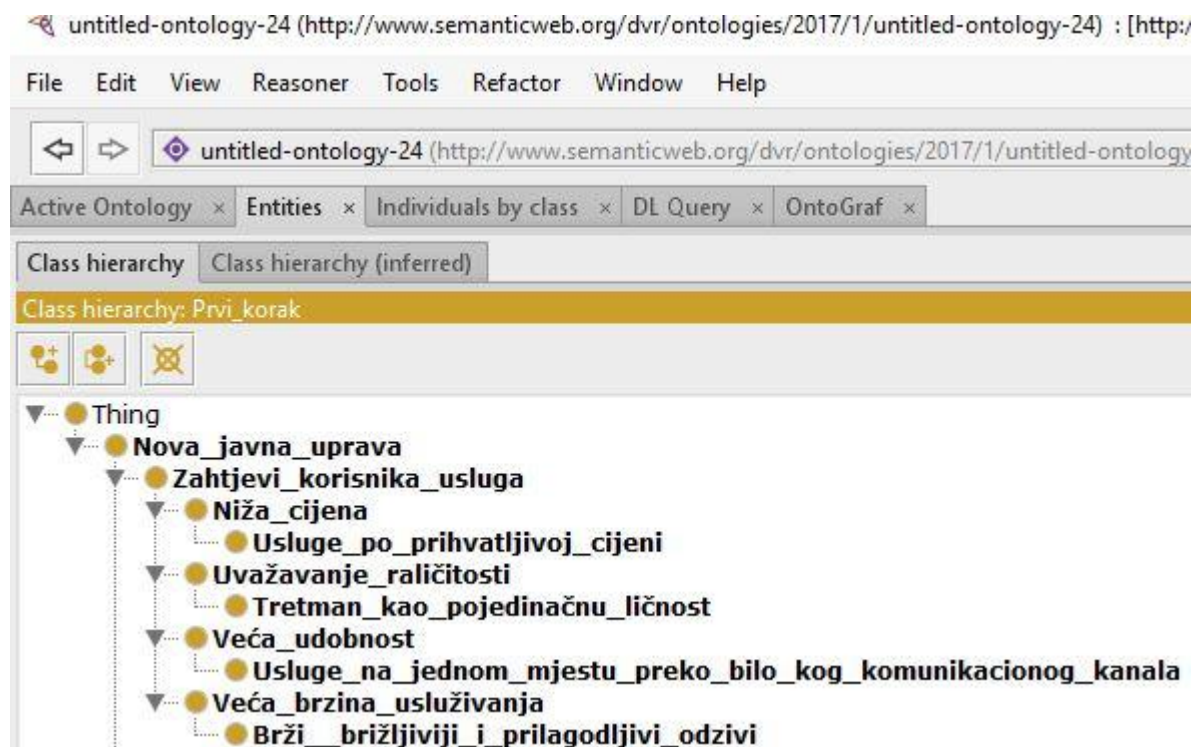


Figure 3. The categories of trends



### **3.1 TURN TO USER TRENDS - fast service**

Users value the prices of services that are cheap and obtained on time (fast). Such services can be achieved by reducing the number of steps required to serve users. Users do not like postponing services or waiting in line. As the available time of the user decreases, he begins to crave more quickly on the On-line service. The message is clear: Public administration must reduce the processing time of the service. Delay in any step of this process is unacceptable, and it is most often due to poorly designed processes that contain a lot of unnecessary ones.

The trend of e-m-Service is a change in the complete business model and this is the only acceptable strategy.

In order to create innovative business solutions for e-m-Management, the first one must be able to answer the following questions:

- What business solutions can contribute to making the service unusable and unforgettable? While this is not easy, users have to offer new satisfaction and better service. By evaluating each service process it is necessary to ask whether they meet the priority needs of the users, not only today, but also in the near future and in the future.

- How to structure management to make service processes more efficient? To what extent does public service itself provide services, and to what extent does the service shift to reduce the service cycle? How do you deliver your service?

The preconditions that are placed before the efficient development of electronic and mobile administration in order to operate it efficiently, ie providing complete electronic and mobile services to citizens, business systems and other entities, are the following: Internet access, adequate communication and information infrastructure of administration; databases in electronic form; applications for processing, accessing and exchanging data; access points for service execution; the security system that is viewed in accessing the service through the appropriate security mechanisms (smart card sl.).

Fulfillment of the above prerequisites is, in fact, a list of activities that need to be performed to enable the establishment and functioning of e-m-Management.

In order to fully implement the concept of e-m-Management, it is necessary to start activities in two directions: increase of information literacy of citizens and construction of appropriate information infrastructure.

#### **4. MODERNIZATION OF LABOR**

New technologies form the basis on which the development of modern administration and society as a whole is based. They open up new opportunities for solving problems in the provision of services, thus directly influencing the organization, the development of service processes and their reengineering, and operational and strategic planning in public administration. Among other things, new technologies enable:

- automation of service processes, which facilitates work, and increases the efficiency and quality of services;
- providing services through new distribution channels (Internet, digital television, mobile telephony), thus destroying spatial barriers;
- Improving communication within administration and administration with service users;
- Strengthening democracy through new and more suitable possibilities for expressing citizens' attitudes and opinions, etc.

One way to encourage active participation in exercising citizens' rights is to improve access to information and services, this is one of the goals of the new e-m administration.

The model of the e-m administration should be developed in order to improve the quality of the work of the administrative bodies and local self-government units, and to enable greater participation of citizens in local issues and the economic development of the local community.

The application of the good governance model, which implies customer orientation, increasing the effectiveness, efficiency, transparency and citizen participation, can not even be imagined today without the use of new technological solutions. Increased use of these technologies and the advancement of the Internet have put powerful powerful tools at your disposal to citizens, businesses, and local governments. Using new technologies, public administration can improve services, making them faster, more accessible and more efficient, and bringing business closer to citizens, business systems and other stakeholders.

Some of the opportunities provided by new technologies are presented in the knowledge base (Lee, T. T., 2001) and given in Figure 4.

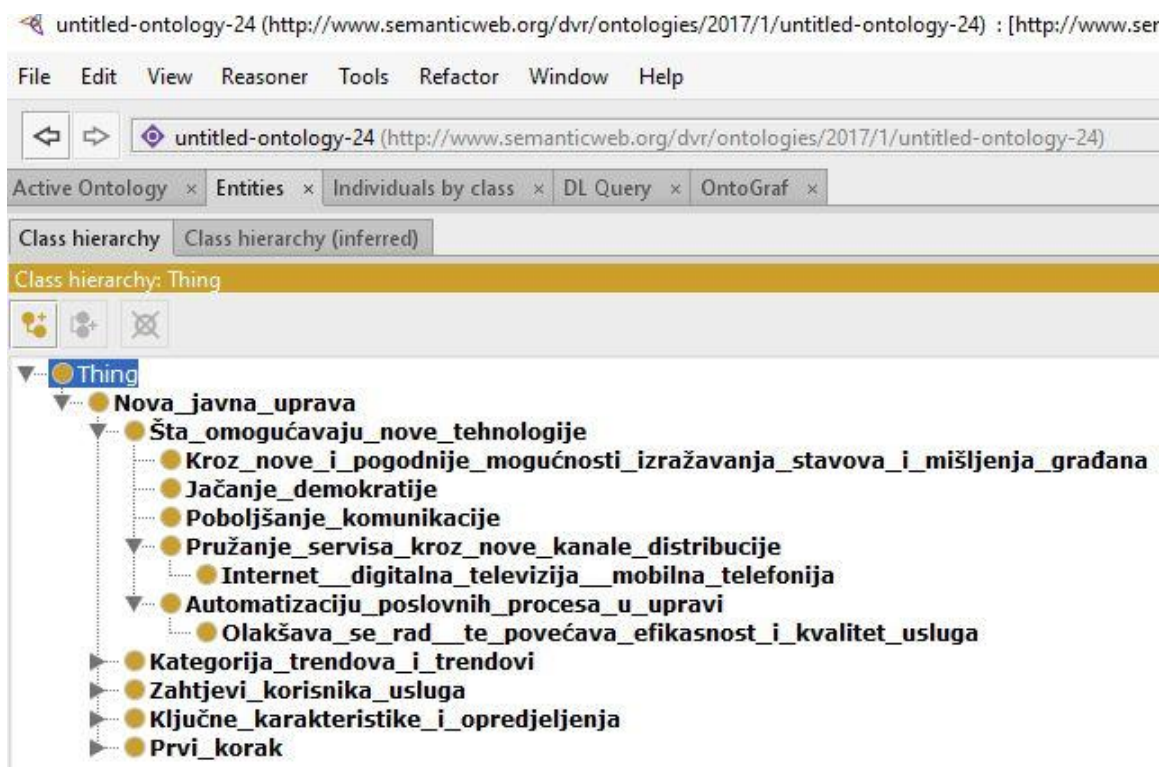


Figure 4. What new technologies allow

#### 4.1 IDENTIFYING PRIORITIES

The development of e-m-Management is a long-term, complex and costly process. It requires large investments in hardware infrastructure on the one hand, and in applications on the other. The development should take place according to the previously established priorities. First, it is necessary to determine the most important services and implement them, in order to develop lower priority services later.

Defining priorities involves evaluating broad opportunities and selecting the most promising goals (Specht P., 2003). Clearly defined priorities allow them to allocate resources and optimize service capabilities. They also enable the speed and development of services to be achieved, that citizens are satisfied, and that the relationship between development time and price is acceptable.

In order to properly evaluate the success of the project in the right way, it is necessary to find and adopt the criteria for measuring the results at the very beginning. Some of them are user satisfaction, quality of services, time and money savings, and citizens and public administrations.

The process of creating an e-m administration strategy is similar to the agreement of a huge puzzle. Each element you agree most often initiates a large number of new problems and solutions, which again need to be combined into a harmonious whole. Unlike a hypothetical puzzle, creating an e-m-Solution requires simultaneous combination of multiple disciplines:

- labor and service strategies,
- application to support work and service and
- introduction of technological solutions.

None of these disciplines is sufficient for itself. For the construction of high quality digital solutions for fragmented service problems, synergy of all these disciplines is needed.

#### **4. 2 SEL-SERVICE**

An increasing number of service users now no longer take car keys to go for a service, but increasingly take the computer keyboard or mobile device to do so. Users are looking for solutions that can offer them self-service, which will not only save them time, but also give them certain powers. If they seek information or service without the help of administrative staff, then they are self-service solutions that are available 24 hours, 7 days a week, and all 365 days. Under self-service, we mean the possibility for a user of the service to provide for himself (for example, for example), for example for sending his birth certificate to the authority or organization (where necessary).

This trend is expanding. Users want to get a service at any time and in any place, and they can get this if the public administration has developed such services and if the user has any way of accessing the Internet.

The lesson learned by the reform public administrations of the developed world, which has enabled self-service to its users, is: e-m-Management has to focus on the user rather than on technology. Public administrations that focus on e-m-administration strategy on technology rather than on the user have Web access points so confused that users can not guess how to get online services. In order to focus its attention on the needs of users, management in public administration must pay attention to "overall activities". This can be achieved if:

- the emphasis on simplicity, in joining each request with only one goal with removing disturbing factors,

- remove web pages that are slow to load,
- remove error messages during the service process.

To realize a self-service trend is to achieve the e-m administration strategy. The effects of the countries that adopted it (Canada, Singapore, USA, Estonia, ...) are good (West D. 2013.). In order for this to happen, public administration must build a new infrastructure and design new protocols that will modernize the self-service process. Integration of service processes at the level of the administration, administrative organization or local self-government unit is crucial for the quality service of users. The emergence of a smiling as a key user requirement means that public authorities need to work quickly to integrate existing applications, processes and equipment to enable this. However, it must be emphasized that this is a very complex and difficult task.

## **CONCLUSION:**

The way to a satisfied public service user is neither easy, nor simple, nor inexpensive. The application of the good governance model, which implies user orientation, increase of efficiency, efficiency, transparency and citizen participation, can not even be imagined today without the use of new technologies (computer and mobile devices).

In this paper, we proposed a new concept of using a knowledge base that could provide the necessary knowledge and public administration and users of its services. It was not our goal to encompass all the knowledge, but only to suggest a different way to their arrival. The next step would be to update the knowledge base and promote its greater use.

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