

## DOCUMENT MANAGEMENT SYSTEMS AS A TOOL WHICH IMPROVE ADMINISTRATIVE PROCEDURES OF THE LOCAL GOVERNMENT UNITS

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### Abstract:

This paper presents the overview of the costs incurred by the traditional record-keeping. This was followed by characteristics of document management systems. It also presents the current state of implementation of such systems and presents the benefits of their implementation.

Presented tool seems to be a good alternative that meets the expectations of both – clerks and applicants. The paper describes essential characteristics of such systems. There are also important aspects, that have to be considered before the implementation of this type of system.

**Key words:** *electronic workflow, e-government, IT systems of local government units, streamlining administrative procedures, DMS*

### ADMISSION

Particularly rapid development of information technology, observed in the last decade, improving the functioning of units both organizations on a commercial basis, as well as offices in the local government units in terms of document circulation resulted in reducing the cost of their implementation, and increased the opportunities for effective execution of tasks of these units aimed at better serving the needs of local communities. In addition, a stream of European money in the perspective years of 2007-2013 and in the current perspective for the period 2014-2020 has been providing the opportunity to their implementation even in the poor financial condition of these units.

The development of the Internet reflects the systematic increase of the number of users of this medium and constant increase in speed of data transfer, opens up new perspectives of interaction between local government units and the community. In this case, the key factor for improvement and increase the efficiency of this interaction is the selection of appropriate technologies and implement it in the daily practice of functioning of the local government units. Due to the relatively complicated character of such systems, it is also important to introduce appropriate legal conditions which on the one hand will guarantee safety, on the other hand will try to simplify as much as possible for the users of such systems.

This article covers the issues of information technology tools improving the efficiency of the electronic document circulation. This includes an analysis of the current state of the functioning of the electronic document circulation (DMS – Document Management System) units of this type. It also presents overview of the instruments possible to use and their synthetic characteristics.

### DMS SYSTEMS CHARACTERISTIC

Document management systems (DMS) are divided into two types. One is a system, that supports in electronic way the service and circulation of documents on paper. The second system, which is discussed in this publication is a system, which electronically supports management of electronic documents [8].

The documents are divided into what is the place of their production. These are external documents that local government receives from applicants and internal, which are generated for internal purposes [8]. Before the documents in paper form will be placed in the DMS System, they must be digitalized. It is possible by the rewrite of the data from the document (also partial rewriting of data with a scanned image of the document) or the use of software supporting this action. A good solution seems to be the use of OCR (called Optical Character Recognition), which is able to correctly interpretate the scanned bitmap image and save it as editable format or other form desired by the user, for example .pdf file [8].

Analyzing the cost of licensing and implementation, we find a variety of tools both commercial and free, usually based on the GPL license. They differ among themselves, however, they have certain convergent characteristics. These are mainly:

#### *Document Identifiers*

In any computer system, which serves to manage information, it is important that there are connection between some objects themselves. These connections may exist in the databases, bibliographies, hyper textual links as well as in many other places [7]. Most document management systems have implemented an identification system and the links between documents.

*The metadata*

In the document management, digital libraries, or even in the Internet there is a general need to describe the document with the information that are not necessarily part of its content. These descriptions are sometimes called attributes, and sometimes metadata. Metadata facilitates description, organization, retrieval and access to information resources [7]. Some systems have the ability to generate or suggest metadata on the basis of the content of the document.

*AAA protocol*

There are many important issues relating to the safety, privacy rights, confidentiality and access that arose in all areas of application. Authentication, which confirms the identity of the person or system, and is considered to be reliable. Authorization is a process during which it determines whether the operation is allowed, such as reading or editing a document. Accounting is the process of recording all payments and their associated transactions.

In the document management system, a critical issue is the privileges management system of access to the information in the document collection in maintaining the integrity of these documents. Some documents are confidential, some are public, others belong to the individual working groups.

Particularly important issue is the safety of the DMS that users have over the Internet. The Internet community has a large number of separate actions defining security standards. The most common are two terms. HHTTPS (Hypertext Transfer Protocol Secure) and SSL (Secure Socket Layer). Hhttps is encrypted, using SSL protocol, version of the http protocol. If you use the HHTTPS client-server communication is encrypted with 128-bit key and more [11].

*Searching for data and creating search rules*

One of the most important advantages of the implementation of the DMS, which is dedicated to the second last point, is a saving of time that you have to spend to find the document. Typically, this can be done in several ways. One of them is to find the searched document by browsing the folder structure. Another way, particularly useful in the developed system is to use the search engine. Usually, the more developed the system describing the document is, the easier it becomes later to search the needed document. An example of such system is Knowledge Tree being until recently under the GPL license [6]. Search results can be obtained by where the file is located, who is the user doing the edition, or the process in which he is participating. Using this tool in the right way, you can create detailed reports from documents that have "for consideration status", are

linked to given clerk and include in the content a specified word. In addition, you can use the save as a template function for all selected search options.

*Workflow Processes*

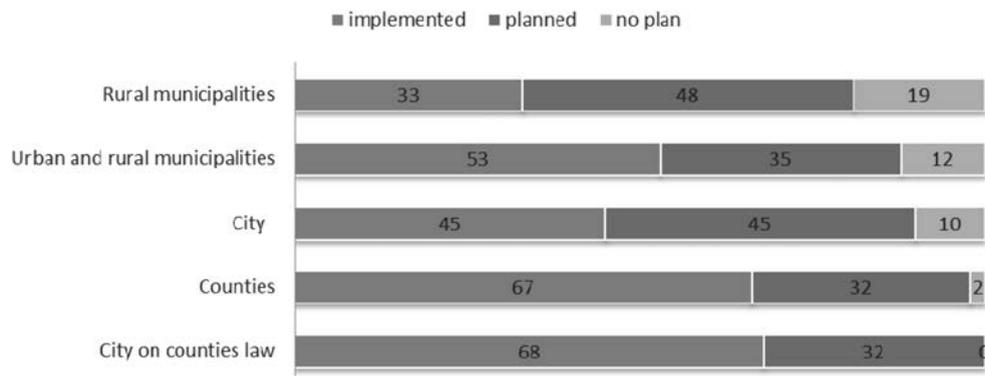
Discussed earlier in this publication Knowledge Tree system has got the tools to manage workflow processes. These are the tools for task and processes management. They allow defining the life cycle of the selected documents. Configuring workflows allows to automate certain processes in local government units. For example, an invoice (bill) was created, transmitted and then paid, the report can thus be created, reviewed and edited, and then published. Each workflow process describes a series of tasks that must be carried out on the document and specifies a user or a group, who are responsible for these tasks. At the end of each task, the document is moved to the next stage in the cycle, and then informs the next level of user about starting a new job [7].

**THE CURRENT STATE OF FUNCTIONING OF THE ELECTRONIC DOCUMENT CIRCULATION SYSTEMS**

According to the European Commission's report about e-government [9], In the study of the extent of e-services provided by public administrations, Poland was ranked only at 19th place. The study was attended by 32 countries from the European Economic Area, including the 27 EU countries plus Croatia, Iceland, Norway, Switzerland and Turkey. The report assessed the process of set up a business difficulties for the degree of simplification of bureaucratic procedures that inhibit entrepreneurship in the countries in the review. It was examined 21 common steps, that according to the law, the entrepreneur assuming the company must pass. It turned out that only few countries in Europe have got all 21 stages available on-line, and in most countries, including Poland, it is not currently possible to run a business in one place with online tools. About the scale of the problems have to be overcome in order to catch up countries that lead in the area of e-government may provide that in Poland only 20% of services related to the establishment of the company is available on-line, while the remaining 80% of services are only available information.

The report is not very favorable for Poland, but much more alarming is the fact that IT service is not a priority for municipalities [10]. Without proper human resources implementation of innovative solutions in local government will not be possible.

Unlike municipalities, divided into types of offices in Poland, counties are at a much more advanced stage of the use of electronic document circulation system (Fig. 1).



**Fig. 1 Workflow systems by types governments**

The reason of this condition is the savings vision in both material eg reducing the cost of purchasing paper and time, means the faster settlement of the bureaucratic formalities. At the municipal level, this system is not implemented at the same high level as in the counties, although most of them declare their willingness to implement this system in the future. Problems with the implementation of electronic solutions can be caused by "paper habit" because for many years the citizens and officials filled the heap of paper forms and the state became to such an extent that it appears advisable to introduce training courses etc. in the use of E-Offices.

Innovative way of administration in Poland is being in the process of continuous development and improvement. Poland is still very negative[3]. Entering facilities for applicants is designed to improve both the work of local and errands by petitioners themselves, it should also improve the quality of service. Despite many advantages e-services are not very popular in society. It turns out that the small number of Polish citizens uses this kind of facilities. The reasons for this phenomenon may be "freshness" of this kind of service. The problem could also be that such solutions are not comprehensive, that means they not prevent visiting office in order to fulfill bureaucratic requirements. The reason for this situation may be the fact that information about e-services are not sufficiently disseminated, it often happens that people who want to start their own business do not know about this kind of service. Another obstacle may be a natural reluctance on the part of both officials and entrepreneurs, to new and innovative solutions, being more inclined to solving problems in the traditional manner but often time-consuming for both sides [12].

One major barrier for people who want to use of the benefits of e-government is the fact that e-forms are often written in the official language, very often the language is incomprehensible to the ordinary citizen. It seems that the simplification of construction of e-forms with the relevant commentary and promotion of e-government should bring an improvement in the future and make the use of electronic office will be for ordinary people who want to start a business will be intuitive.

The problem is the state of legislative system. There is a lot in this matter to do. Poland is still missing adequate provisions to issue regulations and dissemination of e-government among Internet users [4].

#### **THE BENEFITS OF THE IMPLEMENTATION OF ELECTRONIC DOCUMENT CIRCULATION IN LOCAL GOVERNMENT UNITS**

The paper has so far emphasized especially aspect of convenience, for officials and applicants. It is undisputed advantage of electronic document circulation, however, the implementation of this system in the units of the local government also has many other benefits, and the greatest of these is saving: time, prints, faxes, etc. Other benefits they are raise of credibility, improve the prestige, improve the flow of information, and many other [2]. What are the amounts it can be estimated using the ROI calculator implementation of DMS. In the ROI analysis assume the following assumptions:

- The cost of handling all incoming letters was calculated as the approximate cost of photocopying, taking

into account the paper, consumables, maintenance of equipment and the cost of handling and storing paper.

- The cost of handling all outgoing letters was calculated as the estimated additional cost of printing for the agreement/approval before printing to shipping.
- The cost of the fax was calculated as the approximate cost of paper and toner into machine
- Search costs are calculated according to the lowest possible estimate assumes that 10% of the work time is for office workers to look up information.
- Lost incomes were calculated as the minimum 3% of the amount of income that would be greater assuming increasing employee productivity using an appropriate tool such systems are DMS/CRM/Workflow [5].

The following average data were adopted, that may be true for a small community:

- Number of incoming documents per month: 1 000 PLN
- Number of outgoing documents per month: 1 000 PLN
- Number of faxes per month: 100 PLN
- Number of employees: 20
- Average gross annual salary: 3 822 PLN
- Monthly revenues month: 1 750 000 PLN

The following results were obtained:

- Unnecessary printing costs: 500 PLN
- Unnecessary photocopying costs: 750 PLN
- Unnecessary fax printing costs: 40 PLN
- Unnecessary search costs: 7 644 PLN
- Lost revenues due to a lack of information and control: 52 500 PLN
- TOTAL: 61 434 PLN

These amounts are monthly. As you can see from the above, quite simplified simulation, despite their very underpricing assumptions, the implementation of electronic document circulation system can result in significant savings, in this case up to about 60 thousand PLN per month. Especially for small communities there are very large amount, but in an era of ever greater indebtedness of local government units where savings are searched in almost every field, it seems to make sense in economic terms, striving to maximize automate and informatization the work of offices and their interaction with the local population, especially that propagation and development of e-government is particularly important for local communities [1].

#### **CONCLUSION**

The use of different types of Internet tools – computers, mobile devices and any other terminals in order to use the HTTP and FTP made that contact official to the applicant in the ordinary, often repetitive formalities makes it more direct and takes place at a time convenient to the petitioner. An important advantage is that the DMS systems are organized and automated as far as possible, which facilitates and speeds up the work of the office. In addition to the benefits of optimizing the organization of work, DMS systems affect the decrease in paper consumption, which is important both ecological and economical.

Perhaps in the near future, the development of electronic document circulation system will be sufficiently dynamic that entrepreneurs and individuals not established will find this form of formalities. Technology has been developing

with each passing year more and more, and country is trying to adjust the legislation in such way as to facilitate the work not only to employees of the office but also to create a friendly administration for existing and future applicants.

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