How to Cite:
Dermaku, H., & Shala, X. (2022). Digitalization challenges in the Kosovo administration. International Journal of Health Sciences, 6(S6), 11654–11660.
https://doi.org/10.53730/ijhs.v6nS6.13246

Digitalization challenges in the Kosovo administration

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Abstract---The current status of the digitalization process in Kosovo has begun to show the first clear signs of contradictory phenomena. A considerable number of document management systems have been entered, especially in the state administration system. Along with evident benefits, there are problems with the compatibility of the new systems with the existing paper work system. Harmonizing the availability of documents and work methods is not an easy task. Some documents, in spite of being in a digital version, must remain on paper. The digitalization costs are high and the said problems cause significant delays in implementation. This paper shows potential technological solutions that enable sustainability of the digitalization process through lower costs.

Keywords---digitalization, sustainability, digitalization methodology, state administration.

Introduction

The data analyses provided in the regulations for the description of digital documents showed that the digitalization strategy has been based on classical principles of paper work. The majority of regulation consists of regulations related to the protection of digital documents. The classical principle of grouping of documents using a hierarchical classification scheme was adopted. We have not seen anyone dealing with the content of documents, the semantics and the related aspects of the language. The intention of the focus of digitalization is meeting the needs of citizens and entrepreneurs. Significantly, greater efficiency and savings are required and expected from state authorities. The application of "best practices" is mentioned in great deal, but without specifying who the practice belongs to and

the context of that practice. The processes of creating state studies are performed/replaced by simple surveys. The study of complex, heterogeneous processes in state administration cannot be carried out through surveys. Unification of work processes is sometimes justified, but some properly analysed situations can lead to the loss of essential data and to the failure of generating new information. The designated digitalization goals do not sufficiently take into account the needs of work organization in state bodies.

The regulation is oriented towards digitalization as quickly as possible in the field of finance and banking. In that field, the largest percentage of documents are structured documents. While the state administration works mainly with unstructured documents, the work processes with structured and unstructured documents are fundamentally different. Work processes in state authorities often require them to organize complex data and metadata, which enable complex consolidation of information sources, to make rational and documented decisions. In such cases, it is often necessary to form an *ad-hoc* set of documents to see the content and scope of the problem. A simple example is to update the memory of a minister's visit made to a foreign country. In addition to new data, it is necessary to check and review archival data (history) to see them (whether displayed or not) in the context of the current events. These procedures require access to a much larger number of documents, in the temporal and thematic area. "Document management system" - DMS has been introduced massively in the state administration. By definition, DMS has the document itself in the centre of attention (Eng. Document Centric Approach), which means that it does not always correspond to important information processes in the state administration.

Contradictions of methods

The concept of centralized digitalization has been adopted. The problems arising in this context have long been known in foreign literature [1], [2]. We have not noted that the problem of data access was analysed separately in the context of the digital-paper document duality. The strategy and tactics are reduced in the mentioning of the law on archival materials, in the mandatory mentioning of the term "best practices", and the expectations of rapid digitalization of the entire system of state bodies. In the initial phase of the introduction of DMS, the importance of finding any document, anywhere, in a state body has constantly been discussed. In the later stages of implementation, the access of employees of state administration bodies will be restricted. Restrictions are introduced - filters for documents that can and must be seen by certain lower organizational units and certain collaborators. A subsequent analysis of access restrictions shows that instead of a comprehensive "wide-range" DMS, much simpler (i.e., cheaper) systems with the same functionality can often be implemented. We declare that:

- All DMS suppliers regularly emphasize the ability for everyone to see all the documents in the DMS as the "main" advantage of using a DMS. There is absolutely no need for anyone to see all the documents in the DMS. The DMS administrator may have access to all documents by function, but only for technical reasons of document repository management.

- The decision maker realizes the problem from point 1 too late and then introduces access restrictions, which are actually restrictions on the basic functions of the DMS. The cost of a wrong primary decision is very high.
- The problem of finding any document in the classic paper documentation system directly indicates the poor work organization in the state body. It is not the duty of DMS to correct poor work organization. A wrongly placed document in DMS is very difficult to find (for example, a file with the wrong name in the wrong folder).

Specifics of digital documents

This is not the place to analyse the difference between structured and unstructured documents. Documents in the field of finance and personnel management are mainly structured. Documents in other areas are not structured (notes, memoranda, information, analyses, etc.). As a rule, the DMS software which is currently being implemented in the state administration does not consider this change. To the best of our knowledge, computer programme vendors insist on SAP (Systems Applications and Products in Data Processing) software system experiences, which require extensive, substantial customization and unification of operations in the observed organizational unit. As a rule, state administration is organized thematically (judiciary, finance, health, etc.). Practice has shown that the implementation of a "universal" DMS, by definition, focused on working with documents as underlying elements, generates new and unexpected problems. The thematic-driven organization of a state body requires a significantly more precise feasibility study.

DMS vendors avoid conducting a status survey because it is costly in terms of time and requires experienced human resources. An attempt to replace the status study with a survey cannot provide a reliable overview of work organization in a state body or identify important problems. The user-centred approach to DMS implementation is fundamentally true. However, the organization of document space in the state administration and individual agencies cannot be user-oriented but is a thematic-centric approach. The insistence on meeting the needs of citizens and savings in the state administration is one aspect of the problem. The second and a more significant aspect is that digitalization should provide conditions for solving the needs of state authorities so that they are in reality more efficient. This is a key contradiction that appears in the adopted digitalization process in the state administration. A user-oriented approach to digitization and a subject-oriented approach to digitization are fundamentally different. The ease of work for users using DMS should not be reduced to "saving paper" and "replacing walking up and down the corridors". DMS should provide the user with efficient availability of information resources of the state authority, that is, of each lower organizational unit. An efficient, flexible, multi-aspects document linking is required. It is a condition for generating new information from available documents.

Practical experience indicates that vendors do not consider important elements: The quality of scanned documents, they use the product to largely reduce their implementation and maintenance organization costs. The suppliers of this type of software claim to perform the OCR (Optical Character Recognition) process on the

entered documents, but in some cases it has been found that it is not done. This is another important contradiction of digitalization in the state bodies. There is still circulation of paper documents, which under the current conditions cannot be used only in the digital form. The OCR process generates certain smaller percentage of errors in the recognized textual content of the document. Times New Roman font is usually used in our state administration, which is clearly unfavourable for the OCR process. In addition, vendors do not engage in the quality of the digitalization process of paper documents.

As a rule, images of scanned documents serially deviate from the vertical axis, which requires the application of automatic linearity correction of text lines. Image brightness and contrast are kept at average values. Vendors apply the text content obtained by OCR directly to a PDF document, without checking the correctness of the text with a spell checker. Since the text obtained by OCR is embedded in the PDF, it is not even possible to check it visually. Such digital documents cannot be recognized as valid archival materials. Suppliers of software tools within DMS are cautiously silent when it comes to these issues. The metadata implemented in a PDF document are still minimal, although there is an effective software for generating stand-alone documents with a significantly larger amount of metadata.

In the business of the state administration office, it is a custom to submit a letter containing the description of the content of the document, the reason for presenting the document, the identification of the document, etc., along with the outgoing document. The forwarded document itself is usually an attachment. In practice, a document often has several attachments. Vendors usually accompany a document identification description with a document (most often in a PDF format in government administration). This is already creating significant technical and administrative problems. Multiple attachments are packed into a PDF document, which is losing the document's package structure. Links between documents are lost or subsequent data are inserted into the link. The problem is that current DMS system implementations do not allow the formation of *ad-hoc* groups of documents from one or more topics.

There is only one predefined classification in use, which is clear from the viewpoint of the external user of the state body's services. The need to organize the document space according to the real and dynamic needs of the internal user has nowhere been considered. This DMS concept unnecessarily reduces the usability of document repositories. Experience shows that some open source programmes enable these options. The use of new methods of keywords extracting, independent of the language of the document and without a verified dictionary, has created somewhat greater opportunity for logical connection of documents in the search process. Its importance is reflected in the fact that it does not require the work of a professional indexer of documents, which are not intended for work in the state administration. The hierarchical classification of documents provided by the Regulation on the operation of the office is below the level of work needs with digital document repository.

Possible directions of implementation of digitalization

A practical examination of the possibilities of current software packages showed potential directions of development. The logic of assigning access privileges showed that Wordpress [6] can be used in the role of micro DMS for segments restricted by the responsibilities of organizational units. For example, archive files can be represented in the form of a Wordpress Website. When cooperating with remote branches (for example, diplomatic consular offices), they can effectively use the options in WordPress posting, ensuring secure communication. The reasons for failing to find the document in the state administration body lie primarily in the poor work organization. The work rules (regulations) are either not up to date, or poorly defined, or simply not abided by. Applying large and very expensive DMS systems can certainly not solve the said problems. List of tested software modules that can implement DMS functionality in smaller organizational units:

- WordPress - open source CMS software [2] [6] nuBuilder - Fast applications developer, now has an attachment for Wordpress. Uses the MySQL relational database [6]
- TemaTres - software for creating thesaurus and taxonomies and displaying the structure of document repositories [7] Tesseract open source software for OCR (Optical Character Recognition) [8] ScreenReader (a component of ABBYY Fine Reader) is used to download text from the screen YAKE Algorithm for extracting keywords from documents (an unsupervised method). A very important feature for us is that the operation of the algorithm does not depend on the language of the algorithm. It is used in a version of the Python programming language without additional programming. [3] Spell checker for the Albanian language (every implementation, it is recommended to use the NoSQL version of the database, for example, MySQL v.8 and beyond). Certain characteristics adjustment can be achieved by changing the list of so-called stop words.

KNIME (an open source data analytics, reporting and integration platform) an extremely useful "free of charge machine learning" software in the field of visual programming (topic aggregation, document aggregation for information consolidation, workflow automation, etc.) [4] Practical experiments show that now with a minimal programming capacity (two to three programmers of medium level of training in PHP and Javascript programming languages), the mentioned group of open code software can generate prototypes of DMS with smaller dimensions, but better adapted with the needs of the state administration from the aspect of document space organization. In fact, these are micro DMS systems or micro CMS systems, which can form a network for data exchange in case of need. The author's to date practical experience shows that the comprehensive (Eng. large-scale) DMS systems that are currently implemented in the state administration do not meet the essential conditions for a reliable organization of the document space in the state administration. In particular, we noted that research activity is practically impossible. Changes can only be made by the vendor. In the short term, serious problems will appear in the functionality of the implemented DMS. Large aggregations of documents will not be flexible and subject to reorganization due to the fixed structure of the DMS. The "scaling" mantra is repeated over and over again, but nowhere is it mentioned that it is the aspect of "physical scalability" (according to the physical dimensions of document repositories) and not "logical scaling" the problem of generating new information, the problem of consolidating

information [8]. Companies that produce and supply this type of software products regularly protect their products by copyright. The issue of data ownership protection and especially the possibility of data management by state authorities is laid down.

Digitalization and language

Language aspects of digitalization have been left out of digitalization strategies. The problem of obtaining information is not mentioned at all in the strategy and is directly related to language and writing, especially in the field of state administration. To date, the methods of automatic indexing of researched documents have not yielded satisfactory - positive results. In the corpus of documents in the field of state administration, language is used in a form that is most likely not suitable for the indexing process ("administrative language"). The tests were performed on open code software, but there is a very high probability that even commercial solutions cannot yield a better result. The main problem is that the existing language tools for the Albanian language; for example, there is a grammar module in Microsoft Word that is extremely good at correcting the spelling and grammar mistakes of English language users and some other languages represented in the world. The lack of key software components from the field of linguistics and appropriate linguistic corporations means that the entire digitalization system will not be able to continue with the dynamics that has been foreseen. In general, the visibility of documents and information is drastically restricted, lagging behind the so-called world language industry. This is a segment in which innovations in the domain of dedicated software are required, in a very short period of time, and new researchers have already emerged [5], but they need rapid support from the state.

Conclusion

Taking into account multi-year experience in working on partial digitalization processes in state bodies, the modern trend in the development of informatics, the tendency to separate software from hardware, the application of artificial intelligence methods in research and other ongoing phenomena in the development of society of information, it can be concluded that it is necessary to respect the following essential points:

- digitalization within the concept of sustainable development,
- digitalization should be implemented in open code software platforms,
- digitalization should be accompanied by the development of IT instruments for the domain of Albanian language and writing.

This requires the commitment of several software and hardware specialists, but makes it much easier to solve the problem of interoperability of IT support over a long period of time and on different hardware platforms. Digitalization in state administration is a complex process.

The paper shows the observations made based on experience and practical knowledge during the introduction of DMS in several institutions. Remarks refer to processes generating new problems. Expectations that saving and accelerating of

work will be achieved only with hasty digitalization in state bodies are not realistic. The correctness of the long-known approach to the evolutionary development of the system has been confirmed. Transferring the development of IT systems is still of a high price. The trend of separating software from hardware, data security and open software solutions adapted to the growing needs of users must remain the postulate of digitalization development. Irregular compliance with this fact leads to significant delays in the implementation of the system and in an uncontrolled increase in the prices of the project as a whole.

Bibliography

1. David C. G. Brown, Sandra Toze, Information governance in digitized public administration, CANADIAN PUBLIC ADMINISTRATION / ADMINISTRATION PUBLIQUE DU CANADAVOLUME 60, NO. 4 (DECEMBER/DECEMBRE 2017), PP. 581–604;
2. Grupi për Hulumtimin e Politikave në Ballkan (BPRG), REFORMA E ADMINISTRATËS PUBLIKE NË KOSOVË: NJË PËRPJEKJE E VAZHDUESHME, Analiza e Politikave, Balkans Policy Research Group, Gusht 2020, (Balkans Policy Research Group [BPRG], KOSOVO PUBLIC ADMINISTRATION REFORMS: AN ONGOING ATTEMPT, Policy Analysis, Balkans Policy Research Group, August 2020);
3. LAW NO.03/L –189 ON THE STATE ADMINISTRATION OF THE REPUBLIC OF KOSOVO, https://gzk.rks-gov.net/ActDocumentDetail.aspx?ActID=2706 ;
4. Päivi Parviainen, Jukka Kääriäinen, Maarit Tihinen, Susanna Teppola, Tackling the digitalization challenge: how to benefit from digitalization in practice, International Journal of Information Systems and Project Management, Vol. 5, No. 1, 2017, 63-77;
5. Rowland, Wade. 2006.Spirit of the Web: The Age of Information from Telegraph to Internet. Toronto: Thomas Allen Publishers;
6. Sinh Van Nguyen; Dung Anh Nguyen; Lam Son Quoc Pham, Digitalization of Administrative Documents A Digital Transformation Step in Practice, 2021 8th NAFOSTED Conference on Information and Computer Science (NICS), Hanoi, Vietnam, Date Added to IEEE Xplore: 08 February 2022;
7. Tassabehji, Rana, Ray Hackney, and Ales Popovic˘. 2016. “Emergent digital era governance: Enacting the role of the ‘institutional entrepreneur’ in transformational change.” Government Information Quarterly33 (2): 223–36.