

CRITICAL SUCCESS FACTORS OF DOCUMENT MANAGEMENT SYSTEMS CONSIDERING THE MATURITY OF THE ORGANISATION

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Abstract The paper addresses the introduction of paperless business, which is one of the important steps for organisations to accelerate the implementation of business processes, achieve better control over documents and ensure safer operations. The basis for the transition to paperless business is a good information solution called Document Management System(s) (DMS), which allows users to work more quickly, easily and save time. At the same time, there are many examples of unsuccessful or partially successful implementation of DMS in all areas of business information solutions. The key purpose of this paper is to evaluate the critical success factors and to what extent they affect paperless business as well as to evaluate the extent to which the implementation of paperless business is influenced by an organisation's maturity. The authors of this paper researched the critical success factors when introducing DMS in connection with the assessment of the maturity of an organisation. Since the field of DMS is highly present and to date relatively little research has been carried out, the authors believe that research in this field will contribute to more successful implementation and use of DMS by organisations and to reducing the number of unsuccessful or partially successful implementations.

Keywords:

document management system(s) (DMS), maturity, critical success factors (CSF), digitalisation, paper-less work

1 Introduction

Digitalisation trends are key for companies to remain competitive. Every organisation that introduces a digital way of doing business uses different methodologies to introduce modern business models, systems and processes to facilitate the work of employees and speed up existing processes. Advances in this area allow organisations to transform the entire business of the organisation so that they start generating higher revenues, are more efficient and are much more competitive on the market (Sternad Zabukovšek et al., 2021).

The development of various information technologies enables faster and more efficient generation of various documents. The modern environment forces organisations to increase efficiency, therefore the digitisation of as many documents as possible is crucial. This was the main reason why organisations began to realise that the only way they can maintain and increase their successful operations is through reorganisation of work and changes in business, which requires better management of information and processes (Šverko, 2006). Documents are certainly the basis of almost every process, therefore the management of documentary systems also means the management of the organisation's processes (Jakovljević, 2003). Today, one of the effective ways to manage an organisation's documents is the use of Document Management System(s) (DMS), as this allows paper to lose its importance. The use of DMS supports the organisation as well as the employees in the efficient management of structured and unstructured data (Šverko, 2006).

However, a lot of business information solution implementations (including DMS) have not been successfully implemented in the past (Sternad Zabukovšek et al., 2021). It is not all about the processes, but also the people (employees), their attitude towards the organisation, the environment and the maturity of the organisation, which is transforming and changing its work processes. The implementation of a DMS can only succeed if employees accept the changes as positive, as something they understand and they are thus unified. In this paper, the authors examine the critical success factors (CSF) of the implementation of DMS and the impact of the organisational maturity level on the CSF of the implementation of DMS.

2 Document management system

The amount of documentation in organisations is increasing from year to year, as each document represents the beginning and end of a particular process. Paper documents are often stored in drawers, shared archives or in-office cupboards. Duplication of copied versions of documents is also a frequent occurrence, as different processes require the same documentation, which leads users to reprint documents, even though they are already stored in archives. This method of storing documentation is very time-consuming and, above all, wasteful. The organisations Pricewaterhouse Coopers, Gartner Group Consultancy, Laserfiche, and eCOPY, Inc. researched paper document management in companies and obtained the following statistical facts (Zebec, 2010):

- Employees spend almost 70% of their time processing paper documents.
- At least 15% of paper documents are incorrectly stored.
- The number of documents is growing by at least 25% every year.
- The cost of storing documentation in paper form is almost 7 times higher than the cost of storing it in electronic form.
- Most companies do not have copies of documents, which means permanent destruction in the event of an accident.
- Processes that work with paper documentation are more difficult to adapt to legal requirements.
- On average, 90% of documents are mixed.
- Organisations make an average of 19 copies of the same document.

Document Management Systems (DMS) are electronic document management information systems that monitor documents throughout the lifecycle of documents from their creation to archiving (Hrašovec, 2011). A DMS is an information system that enables the capture, management and storage of data. The key task of a DMS is to make it easier for users to use and access information quickly and efficiently. It also allows the easy flow of documents within the organisation and long-term storage of documentation (Odobašić, 2016).

Documentary systems are divided into two groups (Sutton, 1996):

1. Archival documentary systems, which are exclusively limited to document management. This means that they capture documents, equip them with metadata, archive them and enable basic search and viewing (Bjork, 2003).
2. Systems for electronic management of documents and processes named DMS enables, in addition to everything that the archival documentary system enables, the creation of documents, editing documents, tracking changes and managing the course of events.

The DMS process supports the capturing, storing, managing and sharing of documents. Capturing documents represents the entry or processing of received documentation. If the documents are not in electronic form, they must be converted to electronic form (scanning). Once the documents are scanned, conversion to a text document is required, followed by indexing. The document is then saved to the DMS. Sharing of documents means defining a security policy, i.e. access to documents, which includes rights, how long the document will be kept, traceability of the document, etc. Storage is the final stage in the whole process. DMS allows the storage of large amounts of data, which can be defined as access rights and retention period (Hrašovec, 2011).

DMS is a very complex project that requires the involvement of many people and a huge amount of time. The key to the successful implementation of a DMS project is a competent and thoughtfully chosen project manager, correctly selected participants (both internal and external experts), the appropriate method of implementing a DMS, as well as an appropriately chosen digitisation strategy.

Above all, a project that covers the entire organisation must be well planned. In the beginning, it is necessary to prepare a project charter document, which includes all the key project information, i.e. the starting points of the project, project organisation, project timeline by individual phases, financial plan of the project, project supervision, the team that will lead the project, and project supervision.

Raynes (2020) pointed out that for the successful implementation of a DMS project, the following basic guidelines should be considered: clear definition of the project objective; the project team should not be too large and should include members with knowledge and experience in all necessary fields; a clear definition of responsible persons; clearly defined deadlines for project implementation; a clear definition of financial resources; the project must not be too large (the project must be divided into individual phases); and the implementation of a DMS must not be outsourced, as the outsourced organisation does not know the internal system, the needs of the users, the work of the organisation and its culture.

A very important challenge of the implementation of a DMS for an organisation is to adapt it to the existing information systems. Adaptation is not only a systemic change but also a change in the organisation's existing processes to make it DMS compliant. According to the Association for Information and Image Management (AIIM), 50% of implementations are unsuccessful and the main reasons are (Patel, 2010):

- Incomplete implementation, which allows only partial use of the DMS.
- Users do not want to use the DMS at an advanced level (full functionalities) or do not know how to use it. Therefore, users must be involved in the implementation of the system very early.
- Incorrect classification of documents, therefore it is important to harmonise the organisation's system and DMS.
- Problems with the integration of information solutions because they are not compatible with each other.
- Information solutions are often implemented in stages, therefore the system technology must be modular.
- The people performing integration are not sufficiently trained to work with new technology.
- The process was not properly and fully described during the preparation for the DMS implementation.

Many of the unsuccessful or partially successful implementations of DMS could be prevented. This can be achieved through by sufficient preparation prior to implementation of the system, the early involvement of users in the implementation of a DMS, correctly defined compatibility of the organisation's system with the DMS, a good project manager and experts in system integration and understanding, as well as good DMS management, etc.

3 Critical success factors

Critical success factors (CSF) come from an organisation's strategic goals and mission and are important because they show what the key goals are and how to achieve them, i.e. the factors that determine the success or failure of the organisation (Mind Tools Content Team, 2021). Tanis and Markus (2000) state that success is defined through the person who defines it. For managers, success is the timely completion of a project, while for users, success is a smooth business. The authors believe that success is defined primarily through business results.

Esteves-Sousa and Pastor-Collado (2000) researched the CSF of implementation of a Enterprise Resource Planning (ERP) business information solution system and classified them into the four following groups of CSF:

- strategic factors, which are: ongoing leadership support, effective management of organisational change, determining the scope of the project, appropriate project team composition, business process redesign, appropriate role of the project sponsor, user cooperation, trust between partners
- tactical factors, which are: dedicated collaborators and consultants, good communication, formalised project team, appropriate training method, preventive problem solving, preventive troubleshooting, appropriate use of consulting services, the project team has appropriate powers
- organisational factors, which are: an appropriate strategy for the implementation of an enterprise resource planning (ERP) solution, avoidance of technically demanding system adjustments, the appropriate version of ERP

- technological factors, which are: appropriate configuration, software, knowledge of the existing version of ERP

ERP systems support operations at the operational level and are the main information system in most organisations. A substantial amount of research has been done into the CSF of the implementation of ERP (Sternad Zabukovšek et al., 2021), while research into the CSF of the implementation of DMS is rare. One of the studies connected to the CSF of DMS is by Downing (2006), who identifies the following critical success factors of the implementation of DMS: (1) transparent implementation of DMS, (2) users' expectations, (3) focus on users and processes, (4) education of users, (5) a holistic view of the project, (6) understanding change, and (7) proper communication.

Although Downing did not expose top management as one of the most critical factors of the implementation of DMS, a lot of other researchers in the field of implementation of business information solutions point out that extended top management support is one of the most important factors (Sternad Zabukovšek et al., 2021). Therefore, a project will only be successful if it has a project sponsor in the ranks of the top management. This sponsor must be fully committed to this function and must know how to properly communicate it. The worst thing that can happen is if the sponsor is a project manager who only leads the project but does not believe in it. When analysing the CSFs, the authors of this paper also researched the connection between the implementation of a DMS, the CSF and the maturity of an organisation, because they believe that the maturity of an organisation also influences the implementation of a DMS and its CSFs.

4 Maturity of the organisation

Maturity can be defined as a state, fact, or period of maturity (Oxford Dictionaries, 2022). Blondiau, Mettler, & Winter (2016) state that maturity models are recognised as a tool to demonstrate the gradual and systematic development and/or improvement of an organisation's overall skills, processes, structures or conditions. According to Helgesson, Host, & Weyns (2012), it is the organisation that decides what improvements it will implement, which is one of the reasons why maturity models are used when process changes are implemented. In other words, maturity models are used as a multi-stage planning tool to determine which improvements

need to be implemented into the process and when. In 1986, at the request of the US Department of Defense, the Carnegie Mellon University Institute of Software Engineering developed a performance maturity model based on the principles and practices of perfect quality originally developed by Crosby (1979). Since then, maturity models have become an important tool for assessing the excellence of business processes, while at the same time offering the possibility of improving them (Roglinger et al., 2012). Cronemyr & Danielsson (2013) state that maturity models are beneficial for organisations, especially in terms of understanding their current level of maturity, and offer organisations the opportunity to further develop their processes.

The most often used maturity models (MM) are the Process and Enterprise MM (PEMM), the Capability Maturity Model (CMM), and the Capability Maturity Model Integration (CMMI). The specialty of the PEMM model is that it differs between the maturity of the organisation and the maturity of the process (Hammer, 2007). The CMM model has been built to help developers choose strategies to improve processes by determining their current process maturity and identifying the most critical issues to improve the quality of their software and process as such (Paulk et al., 1993). The CMMI model is the successor of the CMM model and is designed to improve and evaluate processes to develop much better products (Sekulovska, 2014). Most of the maturity models have four to five maturity levels/phases that an organisation goes through in its development.

From this research, it can be concluded that knowledge of the organisation's maturity levels, as well as knowledge of CSF, is key to the successful implementation of a DMS, as this is the only way to assess what is crucial for the success implementation.

5 Conclusion

Organisations that strive to meet their needs without compromising the needs of future generations and those that focus on their business policy in addition to the basic concern for profit are able to more quickly accept the introduction of change in the organisation, and they are more aware of the importance of digitalisation, not only for the benefit of the organisation as such but also for its employees and the environment.

Those organisations are increasingly striving for digitalisation, as they have found that this is the only way to be competitive in today's market. Paperless business is crucial for any business nowadays, not only to reduce costs but also to enable work from different locations, to store documents in one place, and to control access to documentation. The implementation of a DMS allows organisations to have documents in one place and makes it easier for users of the system. It also requires good preparation, which includes a well-prepared strategy, as well as the active participation of users (Šverko, 2006). Organisations are therefore working hard to implement DMS. The field of DMS is very broad, however, to date it is still relatively unexplored, as the authors found only one CSF survey for the field of DMS (Downing, 2006).

When implementing innovations, organisations often mainly focus on change at the process level but often forget about employees, i.e. users. Users are the key to the successful implementation of DMS in organisations (Downing, 2006). It is therefore important to include them in the desired change at a very early stage, as this is the only way they will feel a part of the whole change. Only users who can unify with a change will eventually be able to successfully use the desired system.

This research shows that synergies between the CSF, the phases of the maturity model, and the success of the implementation of DMS are visible, however, to date this field has not researched in detail. The authors therefore believe that there is a big gap for the successful implementation of DMS which needs to be explored.

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