

WEB CONTENT MANAGEMENT PLATFORMS AS ENABLERS FOR INCREASED PERFORMANCE*Adrian-Mihai ZAHARIA-RĂDULESCU¹**Ioan RADU²**Cleopatra ȘENDROIU³**Florin CAZACU⁴*

ABSTRACT

This paper aims to analyze the correlation between knowledge management and web content management platforms and how these can act as enablers for knowledge management. Types of knowledge and how information systems helps in gaining competitive advantage are also presented in the paper. The research done by the authors is partially theoretical and partially applied and extracted from a case study performed on a small number of public administration institutions.

KEYWORDS: *knowledge management enablers, web content management platforms, competitive advantage, explicit knowledge, performance.*

JEL CLASSIFICATION: D83, M15, O310, O32.

1. INTRODUCTION

The traditional organization is centered on the process of solving problems and issues in a systematic manner. This approach has several disadvantages ranging from being reactive to change not only in the market, but also at organizational level, the knowledge is available only to the players involved in that process, knowledge creation outside a problem solving process is hard to achieve.

The modern society became a knowledge society as Drucker stated (1968), thus leading to a higher importance given to knowledge creation, storage and conversion into competitive advantage. Modern days technological capabilities are very high compared to 20 years ago going beyond typical office usage and incorporating mobile gadgets either be it smartphones or tablets and up to social media tools and big data. The increase of information available to the employees of an organization and how it can actually be consumed and altered led to additional issues like how should the information be validated and/or reviewed, how should the information be aggregated for proper consumption. Being able to identify the sources of knowledge in the organization and convert it into information easily accessible by employees influences the success of the organization.

The knowledge in an organization is made out of: documents in different stages (drafts, multiple revisions) about work in progress in the organization, marketing related, products & services specifications, audio-video recordings related to internal training needs, commercials, conferences,

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operational and non-operational procedures, articles and best practices stored on the Intranet and other useful internal applications, in CRM, in databases with history of commercial transactions. All these can be stored on local drives, on servers, on memory sticks, on the Internet or in the cloud for hosted applications and services. Some of these are accessible to all employees of an organization and some others are restricted to qualified employees that meet specific security standards. The issue of having multiple information systems used for accessing, creating, editing, storing the knowledge is that it doesn't allow an overall view of the quantity and type of knowledge in the organization. When employees leave the company the handover of their tacit and explicit knowledge to their colleagues cannot be performed in controlled and measured manner so that all organization can have of benefit of it. In the diagram below you can see an aggregated view of the different sources of knowledge existing in an organization. Nevertheless is true that the diagram below does not represent the entire list of sources of knowledge existing in an organization.

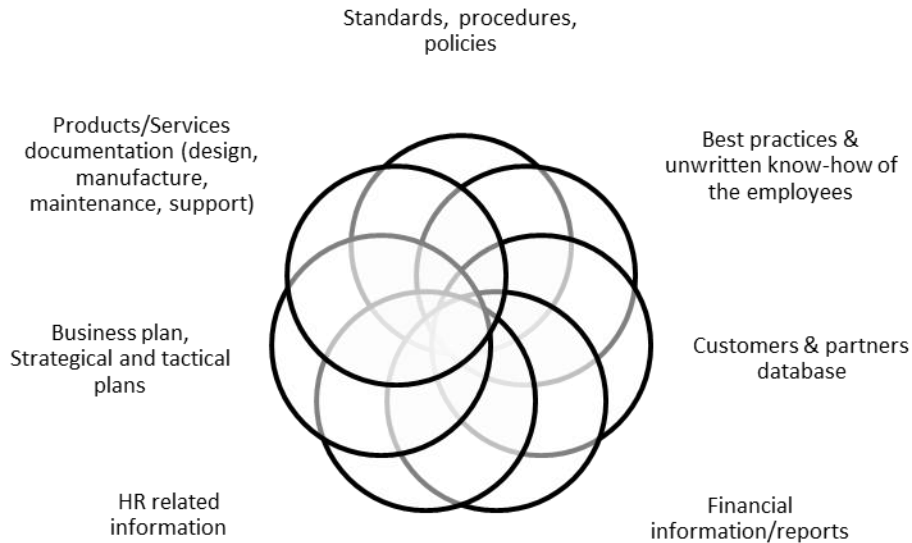


Figure 1. Knowledge sources in an organization

Source: adapted from Jed Cawthorne (2009)

More than ever, nowadays innovation is a key factor for organizations willing not only to survive but to generate constant value and traction on the market. According to Nonaka (1994) “innovation, which is a key form of organizational knowledge creation, cannot be explained sufficiently in terms of information processing or problem solving”. There are two types of knowledge “explicit” and “tacit” knowledge. According to Michael Polanyi (2009) “explicit” or codified knowledge refers to knowledge that is transmittable in formal, systematic language. On the other hand, "tacit" knowledge has a personal quality, which makes it hard to formalize and communicate.“

There are four processes for converting knowledge according to Nonaka(1994) as we can see in the diagram below. This model is named the SECI model.

	Tacit knowledge	To	Explicit knowledge
Tacit knowledge			
<i>From</i>	Socialization		Externalization
Explicit knowledge	Internalization		Combination

Figure 2. The SECI model

Source: adapted from Nonaka (1994)

By meanings of socialization one can acquire tacit knowledge through direct work rapport and collaboration with an expert or even by chatting in a break. On the other hand best practices of one workgroup can be well explained and documented and most of the tacit knowledge will be converted into explicit knowledge that becomes available to a wider audience. Externalization converts tacit knowledge into explicit concepts. Internalization embodies explicit knowledge into tacit knowledge. Combination covers the conversion of explicit knowledge into more clear and well documented knowledge by combining existing pieces of explicit knowledge.

Tacit knowledge is at the heart of the knowledge creation process as Nonaka stated (1994) however the benefits of this knowledge are maximized at organizational level while being converted into explicit knowledge.

Research studies have been conducted for knowledge management elements like enablers, processes and performance. The organizations that use the knowledge of their employees can adjust faster to the market and can innovate more as stated by Ng Sin Pei (2008).

Research studies have also showed that in the list of enablers for knowledge creation we can find organizational culture, organizational structure, and IT support.

Organizational culture includes in its definition shared beliefs, accepted behavior norms, myths. As knowledge creation according to the SECI model presumes the need for strong collaboration it is important how collaboration is sustained or discouraged by organizational culture. It is the organizational culture that recognizes trust as an important value in the organization thus empowering people to share and create knowledge. The organizational culture is also a big factor in attracting people with different competencies and skills than those that are already members of it. T-shaped skills are important for disseminating knowledge and encourage synergies between employees according to Lee and Choi (2003).

Organizational structure includes not only the hierarchy of the organization but also how people perceive the distance from the power center, centralization in decision-making process and the level of bureaucracy in forms of formalized processes and procedures that one must apply to submit an idea or refine one. All these elements of organizational culture can help or suppress collaboration that is a key factor for knowledge creation. IT support comes only after the first two layers are well adjusted. IT support refers to IT technology allowing knowledge creation. According to Jeng D. J. and Dunk N. (2013) IT support is essential for knowledge. IT technology allows creation, storage and distribution of knowledge across the organization and also facilitates integration of different sources of information available in the organization.

From a process point of view knowledge management can be described through four processes: creation, storage, transfer and application. These are not running sequentially but are mostly concurrent and continuously repeated.

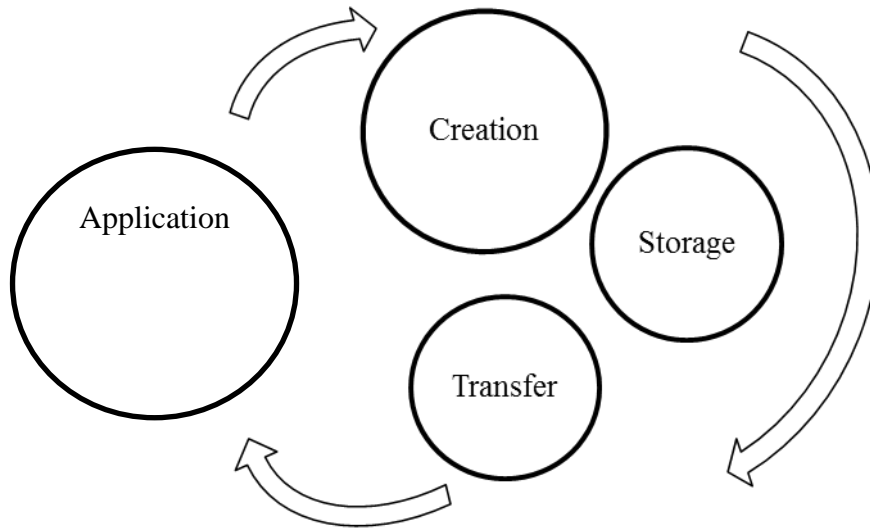


Figure 3. Knowledge Management processes

2. WEB CONTENT MANAGEMENT PLATFORMS

Web Content Management platforms (WCM hereinafter) are web information systems designed to allow creation, storage, retrieval and search of content. They are an evolution of the traditional Document Management Systems (DMS hereinafter) that allows only creation and storage of electronic documents. Traditional DMS allows creation of electronic documents by scanning physical documents and archives, by writing a document in a text editor. Traditional DMS allows organizing documents into libraries based on typical and static criteria.

A short comparison of the features and capabilities of typical DMS and WCM, relevant for this paper, is needed for further understanding of WCM and therefore presented in the table below.

Table 1. Relevant features for Knowledge Management applied to WCM and DMS

Feature	DMS	WCM
Content capture	Yes, using capture software and scanning devices	Yes, using capture software and scanning devices
Content creation	Yes, using proprietary tools and integration with typical text editors	Yes, using plugins for typical text editors and online editors
Organization	By type or other static criteria in libraries of documents	By type or other static criteria in libraries or views of documents
Content type	Structured content (electronic documents)	Structured and unstructured content - Electronic documents, electronic forms, external sources of data (other applications and websites), audio and visual recordings
Classification	Able to edit metadata and	Able to edit metadata and

	properties for documents stored in the system	properties for content stored in the system
Content editing	Able to edit documents stored in the system using proprietary tools or integration with typical text editors	Able to edit content directly from web browser
Updates & review process	Updates take place periodically and the process is potentially bureaucratic as it needs to follow internal company procedures and regulations (review of content added is an important step)	Updates take place periodically and every employee can contribute with content. Colleagues using or marking added content as adequate serve as a democratic process for reviewing content
Access to the system	By using proprietary software client, typically inside LAN network	By using web browser securely from potentially any location and any type of device
Search	Specific keywords and content type, limited functionality	Keywords, content type, feedback or review given by colleagues, relevance, free form search
Conversion of knowledge to information	Only explicit knowledge that follows company procedures and guidelines is added in the system	Both explicit knowledge and tacit knowledge can be added to the system with proper training

As we can see there are some differences that make WCM solutions more suitable for knowledge management and especially for storing and creating knowledge.

3. CASE STUDY

We wanted to analyze the impact of a WCM solution at local public administration level as enablers for knowledge sharing. Both managers and regular employees were asked to fill in a survey and the data gathered has been analyzed.

The following questionnaire was addressed to the management level from the public administration:

Table 2. Questionnaire addressed to the members of the management level regarding WCM

No.	Question
1	Do you have a Web Content Management solution implemented in your organization?
2	Does the Web Content Management solution allow the creation, storage of unsupervised content or do the employees need to follow a process or to have their content reviewed by peers or managers? Please provide some details.
3	Does the Web Content Management solution allow the employees to add any type of content or references (i.e.: spreadsheets, text documents, URLs, audio-video recordings)? Please provide some details.
4	Is your organization using the Web Content Management solution for storing and distributing internal procedures or also as a knowledge base generally available

	to the employees? Please provide some details.
5	Have you seen a change of the number of internal requests associated with knowledge related to a process, project or procedures after the Web Content Management solution was implemented in your organization? Please provide some details.
6	Have you seen a change of the level of commitment from employees' side after the Web Content Management solution has been implemented? Please provide some details.
7	Did you observe a change of the quality of services provided by the organization after the Web Content Management solution has been implemented? Please provide some details.
8	If you answer to the first question is "No" would you consider that a Web Content Management solution would be a desired information system for the operations in your organization?

The feedback has been collected, analyzed, aggregated and presented in a quantitative view in the chart below.

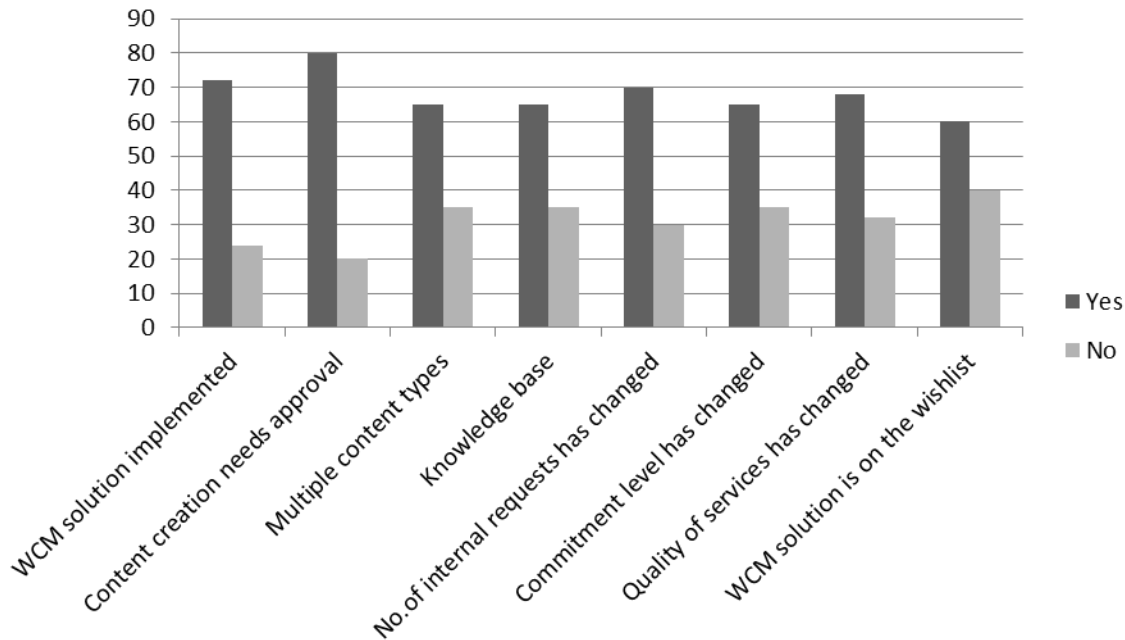


Figure 4. A quantitative view of the feedback received from the management level

Content creation in most cases follows an automatic workflow that has as one of the stages the approval or review from a supervisor. Typical content supported is represented by text documents, spreadsheets, images. Binary, audio-video content and URLs are not on the list of supported content in most cases which might be a sign that additional training is needed to increase awareness on the large list of content types.

The knowledge base is associated in most cases with a collection of internal documentation, process and project documentation, with explicit knowledge. Tacit knowledge is hard to be converted into

explicit knowledge and the details of the feedback might be a sign that additional training is also needed on this area.

The number of internal requests has decreased after a WCM solution has been implemented as the content previously stored in physical format or on different computers has been moved to a central and organized location, generally accessible to the employees. The implementation of the WCM has been well perceived by the employees from the management perspective. Quality of the services provided has increased with a special note on the velocity of the operations performed by employees that has increased after the WCM implementation. Most of the managers that answered to the questionnaire that don't have such a solution implemented have heard about it and would like to have such a platform implemented in their organization.

A perspective on the same topics has been requested in a second questionnaire that has been addressed to the employees from the same organizations and is presented in the table below.

Table 3. Questionnaire addressed to the employees regarding WCM

No.	Question
1	Do you have a Web Content Management solution implemented in the organization?
2	Does the Web Content Management solution allow you to add unsupervised content or do you need review from your peers or approval from your manager? Please provide some details.
3	Does the Web Content Management solution allow you to add any type of content (i.e.: text documents, spreadsheets, URLs, audio-video recordings)? Please provide some details.
4	Do you use the Web Content Management solution as a knowledge base or only for procedures and process documents? Please provide some details.
5	What is your perception about the access to information and knowledge in your organization after the moment when the Web Content Management solution has been implemented?
6	Do you feel that you can involve more in the activities in your organization after the Web Content Management solution has been implemented? Please provide some details.
7	How does the Web Content Management solution influence your activity? Please provide some details.
8	If you answer to the first question is "No" would you consider that a Web Content Management solution would be a desired information system for your activity in the organization?

The feedback received from the employees has been collected, analyzed, aggregated and presented in a quantitative view in the chart below.

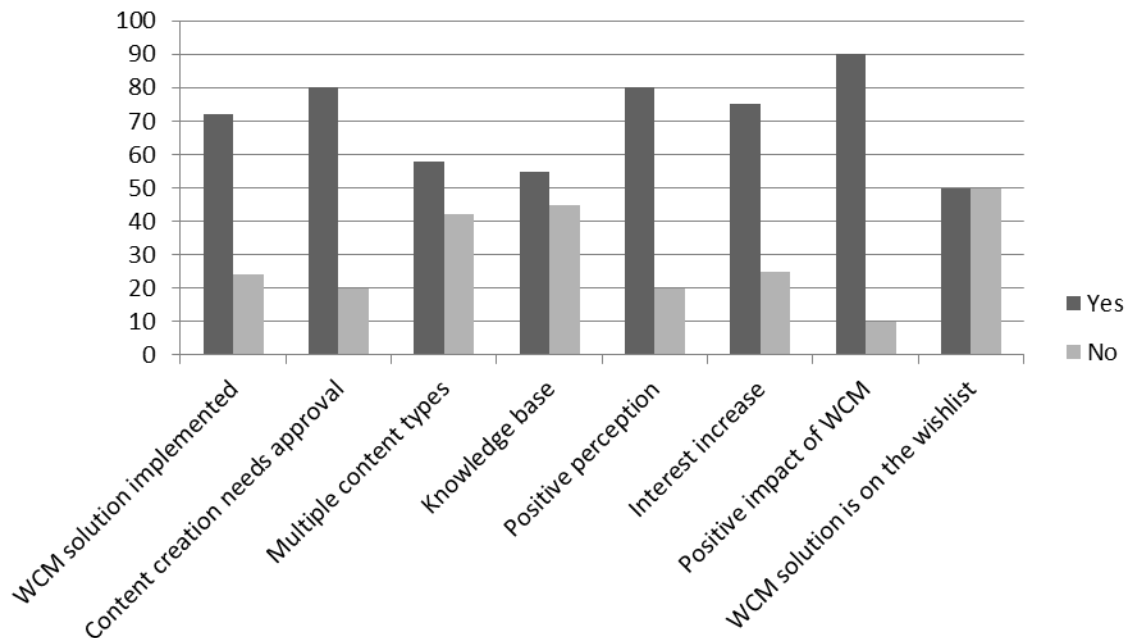


Figure 5. A quantitative view of the feedback received from the employees

A similar perception can be observed from the feedback received from the employees. Content creation in most cases follows an automatic workflow that includes approval or review from a supervisor. The lower results on multiple content types supported might be a sign that employees feel the need for a higher list of content types supported by the WCM solution. Also the lower results on the knowledge base question might be a sign that employees need a solution with higher collaboration features. Having an increased and easier access to information is perceived as highly positive by employees, thus leading to a higher degree of involvement from their side and a higher increase in doing more at work.

4. CONCLUSIONS

WCM solutions facilitate the transition from an organization where knowledge is mostly tacit knowledge to an organization where access to information is generally available and some parts of the tacit knowledge is converted into explicit knowledge. Having a WCM solution implemented is associated with a positive perception from all the levels of an organization. A larger list of content types would increase the utility of such solutions and having an unsupervised content creation process would be perceived as constructive. Higher efficiency in performing work activities has been identified as an outcome of having a WCM solution implemented.

5. FUTURE RESEARCH DIRECTIONS

The rise of social media is a good direction for future studies as social media tools well-advertised and implemented can lead to an increased level of collaboration and a higher level of involvement of the employees in the life of the organization as analyzed by Ulla de Stricker (2014) considering gamification in the design of the information system. Well understood and used social media can serve business strategy.

Adoption of Business Process Management tools that allows automation and digitalization of processes across an organization are another direction of research as these can help the management of an

organization to automate its processes, identify what activities are blocking others, what are the most frequent exceptions and focus on its core products and services.

The growth of data mining tools gives us a third direction for future studies as it may help us to extract knowledge from unstructured content and convert it into relevant information.

All these can be integrated with WCM to cover more facets of the knowledge in an organization.

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