Organizational Learning is a benefit of Knowledge Management Externalization

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Abstract:

As knowledge emerges as an important feature of competitive organizational advantage, the issue lies in how to collect, transfer, and reuse this knowledge. The externalization of tacit knowledge is a critical procedure in knowledge management, especially with turnover in resources. The externalization of knowledge will be explored through a case study by looking at knowledge management processes and organizational learning processes. Knowledge and process control will be a key component to enhancing knowledge management.

Key Words:

Conversational Knowledge is the creation of knowledge by means of dialogue between individuals.

is formal or codified. It can be verbalized and transferred.

Externalization is the conversion of tacit knowledge into explicit knowledge.

Knowledge Management (KM) is an on-going process of transforming information into actionable knowledge that drives results. Alternate definition from Wikipedia: "KM is the process of capturing, developing, sharing, and effectively using organizational knowledge. It refers to a multi-disciplined approach to achieving organizational objectives by making the best use of knowledge [1]."

Knowledge Management System (KMS) incorporates technology into KM processes. KMS are technologies that serve as a repository, communication, or collaboration tool for transferring and retaining knowledge. KMS alone are not in themselves successful, but as communication tools they can tangibly reinforce one's ability to spread and reinforce their knowledge [2].

Knowledge Transfer is the process in which knowledge is passed on from one individual to another. Information is spread throughout an organization.

Organizational Learning is the process of creating, retaining, and transferring knowledge within an organization. An organization improves over time as it gains experience. From this experience, it is able to create knowledge. This knowledge is broad, covering any topic that could better an organization [1].

Tacit knowledge is that is difficult to transfer from one individual by means of verbalizing or writing it down.

Introduction

As knowledge emerges as an important feature of competitive organizational advantage, the issue lies in how to collect this knowledge. In the last 15–20 years, a distinct field called "knowledge management" (KM) has arisen. Knowledge management organizations have established a knowledge management system, which consists of three elements:

1. Acquisition
2. Sharing
3. Utilization

Figure 1 shows the relationship of the three elements, which are intertwined within the knowledge management system.

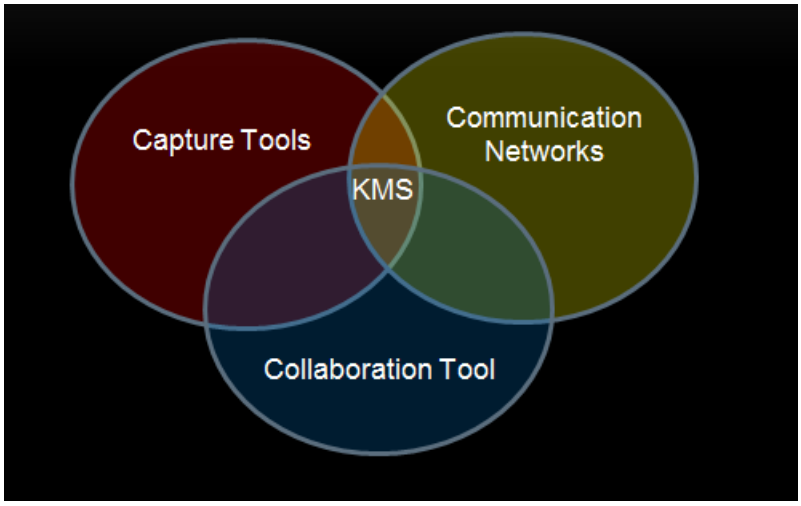


Figure 1: Knowledge Management System [3]

The conversion of tacit knowledge into explicit knowledge is known as externalization. Externalization can be realized through conversational knowledge. Socialization enables an organization to convert tacit knowledge through interaction between individuals. According to Nonaka, tacit knowledge is shared through the

deep socialization of a project team, or what he calls a micro-community of knowledge [4]. Socialization means that members of the community not only come to understand each other's definition of shared situations but also agree on a common definition and 'justified true belief' about how to act in that situation. Knowledge then is created in the process of working together, benefiting largely from the mutual insight of organizational members to formulate an organizational advancement strategy [4].

In some organizations, technological information needs to be transferred into everyday verbiage. Into language that is broken down into meaningful information for the end users in order to be value added for the organization. Often times, information does not get translated into verbiage that is easily understood. The externalization of tacit knowledge is a critical procedure in the knowledge management, especially with turnover in resources. As a case study, the knowledge transfer gap that exists in the DAIMLER Trucks North America (DTNA) Service Systems Diagnostic Service Literature will be explored. Potential solutions to close the gap will be discussed, such as implementing better documentation process, maintenance and transfer of information through organizational learning. Knowledge and process control will be a key component to enhancing knowledge management.

This paper will highlight:

- Organizational Learning
- Organizational Knowledge Gaps
- Knowledge and Process Control

Research methodology will include literature review to show that this is not a unique case and solutions suggested will aid in the external information becoming internal information that is useable. Interviews with employees who are involved in the knowledge management procedure will be conducted to get firsthand insight into the problem and resolution.

Research Methodology includes:

- Key Words
- Literary research
    - Journals
    - Books
    - Articles
    - Internet
- Case Study
    - Interviews

Organizational Learning

Individual learning is different from organizational learning. Acquiring individual learning is the first phase in making it valuable to an organization. Therefore, the fundamental characteristic of organizational learning is the conversations, which take place among individuals. An organization is a collective, with individuals, groups, departments, and larger units in various functions and roles that involve different perspectives and values, passing information. Organizational learning is centered on the relationship of knowledge to a purpose and learning from the procedure/process and from the results. An organization

learns successfully when it is able to retain this knowledge and transfer it to, or spread it throughout, the various divisions within an organization.

Knowledge management processes can benefit an organization's processes. This can lead to intermediate outcomes and to improved organizational performance. Figure 2 shows the relationship between knowledge management and organizational learning. The KM and organizational processes, which can lead to improvements within the organization that gives them a competitive advantage.

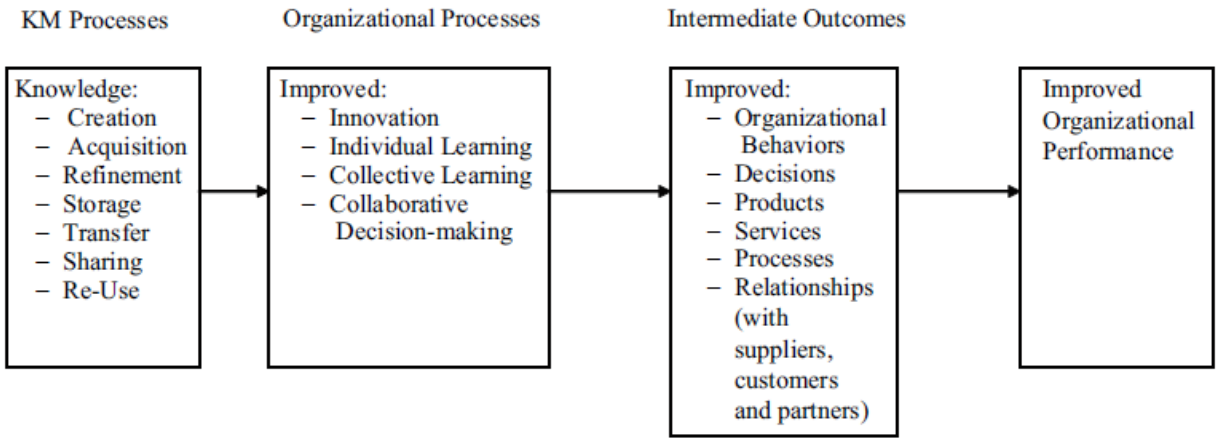


Figure 2: Knowledge Management Process Cycle Model [5]

KM processes include knowledge creation, acquisition, refinement, storage, transfer, sharing, and re-use. The objectives of KM are to improve the organization's knowledge base by improving business practices, decisions, behaviors, products, relationship, and services leading to improved organizational performance. KM is collectively an organizational movement that concentrates on what organization can do to allow KM goals to be reached.

In an organization there are multiple methods used to acquire knowledge. Various means can include and are not limited to literature, interviews, reports,

presentations, and lessons learned. Once documentation has taken place the knowledge should be organized and stored in libraries, databases, or some sort of repository that can be accessed when necessary. This is often referred to as Knowledge Transfer. It is imperative that knowledge, which is to be transferred is presented in a way that users can understand it. Knowledge must suit the needs of the user in order to be deemed acceptable and become internalized. This is critical when knowledge is externalized. Otherwise, the knowledge is useless.

Externalization refers to the transfer of knowledge from the minds of its holders into an external repository, in the most efficient way possible. The function of externalization is to provide the sharing of knowledge. This is where Competitive Intelligence/Business Intelligence comes in [6]. The main role of KM then becomes making sure that experts can be found so that tacit knowledge can be passed on through practice, , and networking (socialization), and that the firm supports and encourages the networking that is necessary for these functions to occur. Therefore, it becomes essential that organizations engage in promoting socialization in order to extract tacit knowledge and convert it into explicit knowledge.

Organizational Knowledge Road Blocks

Organizations experience various types of hindrances when it comes to organizational knowledge. If these road blocks can be overcome this can benefit the company allowing them to have a competitive advantage. Organizational learning can provide opportunities to maximize knowledge transfer of information. The examination of some of these hurdles will be discussed, as well as how knowledge management can assist.

Common pitfalls include the following [7]:

- Failure to align knowledge management efforts with the organization's strategic objectives
- Creation of repositories without addressing the need to manage content
- Failure to understand and connect knowledge management into individuals' daily work activities
- An overemphasis on formal learning efforts as a mechanism for sharing knowledge
- Focusing knowledge management efforts only within organizational boundaries

In order to allow an organization to benefit from knowledge management and organizational learning a tactical plan should be put into place. A strategy should include the loss of key personnel. Organizations more often than not experience turnover in personnel, which leaves gaps in organizational knowledge. Losing expertise and experience could significantly reduce efficiency, resulting in costly mistakes, unexpected quality problems, or significant disruptions in services and/or performance. KM can help reduce the loss of knowledge by offering a means to transfer knowledge. KM tools can be utilized to help in acquiring knowledge.

Secondly, once knowledge has been acquired, a repository that is accessible and content management should be implemented. What is the use of having collected the knowledge and putting it into a storage warehouse if it is not re-used? There is not an advantage. Therefore, organizations should establish again a

strategic plan for capture, storage and re-use of the knowledge to convert this into a competitive advantage and intellectual asset.

Third, formal learning efforts as a mechanism for sharing knowledge are not the only way to learn. Often organizations view failures as detrimental, when in fact it can become a learning opportunity. Learning from failure can lead to action, which suggests progression and development. In turn moves toward success.

Knowledge Management Tools

The goal of Knowledge Management is not to capture all knowledge, but rather manage the knowledge that is most important to the organization. It involves applying the collective knowledge and abilities of the entire workforce to achieve specific organizational objectives. Some corporations have failed because of their approach used in implementing knowledge management [8]. Therefore, a business case should be considered to strategize and formulate a knowledge management plan. After mapping the firm's competitive position, an organization can perform a gap analysis. The gap between what a firm must do to compete and what the firm is doing represents a strategic gap. The gap between what a firm must know and what the firm does know is the knowledge gap [8].

Knowledge management tools can be used to help implement the knowledge management strategy. KM tools "include various aspects of a certain organization. These tools include the working environment of the various organizations, their internal systems and cultures, and above the management of the man power in the organization. On the other hand, the managerial tools include the right type of leadership, leadership qualities, and managerial strategies [9]." Selecting the right

knowledge management tool for an organization to use can be complex. A wide variety of methodologies exist for knowledge management that different tools can accommodate. Key Criteria that has been identified for choosing a knowledge management tool are:

- **Ease of use**. A knowledge management tool isn't worth anything if you can't get people to use it [10].
- **Specialized knowledge**. In many industries, the types of knowledge that must be managed vary dramatically. Even something as small as the ability to upload video can make a world of difference for some industries [10].
- **Technical management**. Setup can be a crucial issue, especially for companies without large IT departments. So can connecting a knowledge management tool to the other software that an organization already uses [10].

There are two ways different ways to implement knowledge management: softer systems or technology based systems [11]. Softer systems include knowledge management tools such as meetings, mentoring, and instant messaging. Technology based systems includes an organization's intranet or wiki. Both encourage collaboration among colleagues.

Case Study: Daimler Trucks North America

Company Background

Daimler Trucks North America is a Portland, Oregon based organization. They are headquartered on Swan Island with several buildings within the vicinity

including one truck manufacturing plant. The company is the largest heavy duty truck manufacturer in North America and a leading producer of medium duty trucks and specialized vehicles. There are approximately 20,000 employees (including affiliated companies) and within the AfterSales department there are approximately 250 persons [12].

The AfterSales organization is responsible for supporting vehicles that have been sold to customers. A critical objective that aligns the various groups is the reduction in downtime of a vehicle. In order to meet the initiative, it is essential to understand the different systems and components that make the vehicle function. This knowledge is often housed in Service Literature in the form of Driver's Manuals, Workshop Manuals, and Service Bulletins. It has been identified, more often than not, that the information is lacking clarity to the end user. Technological information transferred should be converted into everyday verbiage. It needs to be broken down into meaningful information for the end users in order to be value added for the organization. Often times, information does not get translated into verbiage that is easily understood. Also, within an organization, there will always be changes in personnel. Technical experts or key information contributors don't always transfer the knowledge they have. Therefore, a knowledge gaps exist. A question arises from this dilemma, "What is causing the knowledge gap?" An analysis of the situation was conducted to determine key issues.

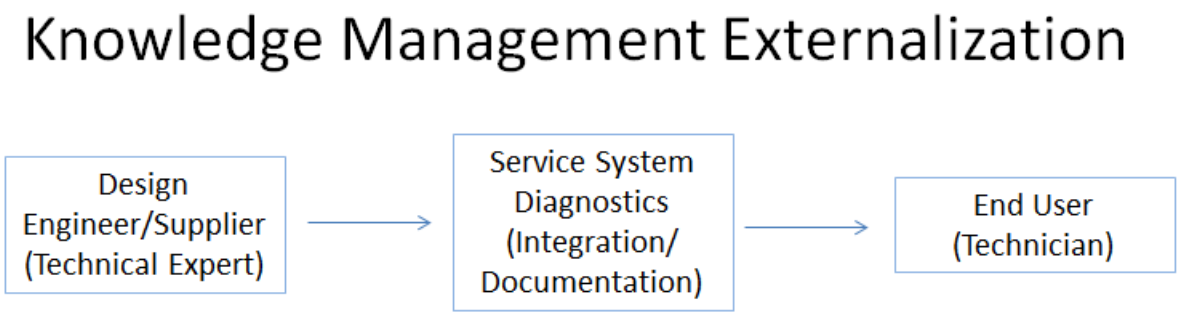
Case 1:

Diagnostic Trouble Codes (DTCs) are used to aid a Service Technician in diagnosing problems with a downed vehicle. These DTCs are often displayed

in the vehicle's instrument cluster or can be viewed with a diagnostic service tool that is connected to the vehicle. DTC's are usually referenced by a numeric Suspect Parameter Number (SPN) and Failure Mode Indicator (FMI). For Electronic Control Units (ECUs) the SPNs should be standardized whenever possible. This makes knowledge management clear and concise for reference to specific issues. DTNA uses these defined SPNs across model lines in a logical fashion, which simplifies the service tool maintenance and modification. In the case where there are proprietary DTCs a standard definition is not always understood by the end user. The problem, the description may be clear to the design engineer writing the specification, because he already understands the system. But, for the technician this may be the first time they are encountering the ECU, therefore, he does not have prior knowledge of the system, part, or functionality. The assumption that the brief description would be readily understood needs to be changed. Through this specific case, a knowledge gap in trouble shooting documentation is seen for electronic control units.

Externalization of tacit knowledge is an essential part of knowledge management. Therefore, "organizations seek to acquire or create potentially useful knowledge and to make it available to those who can use it at a time and place that is appropriate for them to achieve maximum effective usage in order to positively influence organizational performance [5]." The DAIMLER Service Systems Diagnostic Group has taken on the initiative to work with various internal & external groups to document diagnostic trouble shooting

information from the technical experts and create a knowledge base that is concise and easy to understand, in order to assist end user with a useful tool to aid them in finding a solution to their vehicle problems.



It was seen that there is a knowledge gap that exists between the technical experts and the end users when it comes to information transfer. Documentation of diagnostic trouble codes and their definitions needs to be translated into meaningful information for effective trouble shooting solutions. "The role of externalization is to make your captured knowledge available to knowledge seekers through internalization or intermediation [13]."

Case 2:

Within the AfterSales organization there is a group called the Customer Assistance Center (CAC). Their primary function is to help customers with their vehicle problems. In doing so, they use four different knowledge based applications [14]:

- Remedy-Used to log incoming issues from calls
- Service Solutions-Service Literature accessible online with permission

- TechTalk-Forum used by Service network
- Synchronize-Internal Service network WiKi with permission

The first, application is primarily for logging calls. It is a ticketing system. The call center documents vehicles issues from incoming customer calls. The problem with Remedy is that it is not a good searchable tool [14] especially since "90% of the calls are ad hoc, they do not fit a preset answer" [15]. The second application, information is not always updated with the latest information [15]. Service Literature is produced and released on a schedule. It also requires review by technical experts which can take time to route. Therefore, quick solutions are not published immediately. TechTalk has information that is not organized since it is a forum. Discussions are chronologically stored and not by topic, which makes it difficult to go straight to a solution. Lastly, Synchronized is a WiKi, a knowledge management tools used to initiate collaboration. Why the need for four different application? It was identified by the CAC that there is a knowledge information gap when it came to trouble shooting documentation. Through interviews conducted, the initial system Remedy was not set up in a way that is easy to search for comments or solutions to problem. It was set up to be a ticket numbering application. Service Solutions provides a searchable data base by key words and by systems. The problem remains that the information was not always being updated in a timely manner, therefore, solutions for trouble shooting was missing. TechTalk a forum where technicians could share information for repairs, but it was not organized in a way that is useful to the users. It

was primarily created to capture updated information and spark conversation between technicians. This solution worked well initially, but soon lost its steam because less and less were contributing information. Again, information was not updated. About a year ago, to help consolidate information into a searchable tool, Synchronize was created; a WiKi. It is an online collaboration tool where information can be shared and edited between colleagues in DTNA, especially the After Sales Organization. Is easy to use and edit with a browser and no add-ons, promotes topic association through easy editing and automated topic association and it has no implicit structure but evolves as people use it [16]. Implementation of knowledge management tools and organizational learning can aid in closing the knowledge transfer gaps seen in trouble shooting information available to the CAC within DTNA.

Case 3:

In the AfterSales Organization there is a Project Team that maintains several diagnostic applications or tools that are used by various people in the organization, such as Engineering, Diagnostics, Service Methods, Training, IT, Manufacturing, and Dealerships. The maintenance of the tools is essential, because it contributes to the minimization of downtime of vehicles in the field. Two out of five team members who are technical experts when it comes to maintaining these tools have been in their positions for 10 years, while the third has been their position 3 years, the other two have less than 2 years of experience with the tool. In a span of three month, the 3 persons

who had the most knowledge concerning the tool left their positions in the project team leaving a knowledge gap. Even though each person gave notice that they were transitioning onto a new position, this did not leave enough time to collect information that they knew. The tacit knowledge that they possessed was lost to the organization. Personnel turnover cannot be avoided. Therefore, resource turnover contributes to the organization's knowledge gap. Enactment of knowledge management tools and organizational learning can aid in closing the knowledge transfer gaps.

Analysis

As previously discussed, organizational learning combined with knowledge management can assist in making an organizational more effective, therefore, successful. Through the case studies we have seen that implementation of KM tools is beneficial to the company, but without proper management a good tool can become inadequate. One of the common pitfalls can be clearly seen. A repository was created, but with the lack of proper management its usefulness is diminished. The information knowledge transfer gap is slowly being filled with meaningful value added data that will improve the performance of the Service Technician through better documentation processes, maintenance and transfer of information through organizational learning. The execution of an online collaboration tool has helped capture tacit knowledge through conversational knowledge sharing via the inner company Wiki.

But, the question remains, "How sustainable is this solution?" I believe the answer lies within the organization to implement a knowledge management

strategic plan. When an organization makes collaboration part of the daily culture by setting up procedures and process for knowledge acquisition, the knowledge gap will surely be minimized. The AfterSales Organization is off to a good start, with the roll-out of Synchronize [17].

Through this tool service solutions are frequently document. Information is not limited to service solutions [14]. Users are informed through weekly emails that there is new information available. It is the recommendation of the groups to encourage other colleagues to join in the collaboration, in order to widen the knowledge base, which in turns helps acquire, document, transfer, and re-use information. Collaboration becomes most effective when a large number of people are participating.

Personnel turnover is inevitable. Therefore, an organization that has a strategic knowledge management to deal with this issue would be a key criterion in retaining valuable knowledge, which would decrease the knowledge gap. Organizational learning could include the implementation of knowledge sharing sessions, mentoring, and rotational programs to help acquire knowledge through conversations and collaboration.

Future Research

Future research can include the topic, "How to motivate individuals to contribute their knowledge to a KM system?" Due to the importance of capturing tacit knowledge it should be of utmost urgency that organizations emphasize the

transferring of tacit knowledge. More attention should be devoted to acquiring soft skills and development of cooperative partnerships since tacit knowledge is intuitive in nature and derived from experience. A knowledge management transfer plan should be implemented to avoid the pitfalls of knowledge acquisition and transfer, as well as knowledge content management.

Conclusion

Organizational learning is a collective process, involving exchanges and relations among many individuals leading to knowledgeable decision making. An organization that acquires and adjusts working practices to accommodate knowledge management is essential. Organizations, like individuals, can learn. Many of the fundamental phenomena of learning are the same for organizations, however, organizational learning also has distinctive characteristics with reference to what is learned, how it is learned, and the adjustments called for to enhance learning [18]. An organization must learn so that it can adapt to a changing environment. A learning organization actively promotes, facilitates, and rewards collective learning. Reprocessing or reusing collected knowledge should be rewarded as desirable behavior. New organizational activities that are aimed at improving knowledge, knowledge-related practices, organizational behaviors and decisions and organizational performance should be utilized. Knowledge and process control will be key to successful the knowledge management. Therefore, it is critical that organizational learning and adaptation are part of an organizations KM strategic plan. This contributes to an organization's relevance, success, and ultimate survival.

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