KNOWLEDGE MAP AS A TOOL TO SUPPORT THE REUSE OF PROJECT RELATED INFORMATION

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In any organization, past experience plays a key role in improvement and management. How effectively past experience can be leveraged depends on how well this experience is captured and organized to enable learning and reuse. Systematically recording data from projects, deriving lessons from it, and then making the lessons available to other projects can enhance this reuse. In practice knowledge created in projects often is lost when the team splits up and the members return to their tasks in the organization. This leads to inefficiency as time and money is spent in inventing things, which are already known inside the organization. Knowledge mapping can be used as a tool to accumulate, transfer and utilize knowledge acquired in projects to improve future business. This paper aims to answer the question, how the organization's Knowledge Map has to be designed to support the reuse of project related solutions and knowledge. Based on related research on Knowledge Maps a concept is developed showing how to support the target group's information needs regarding project related information. In addition, the tool will be evaluated in view of the research question.

Keywords: Knowledge Map, Knowledge Management, Project Management.

1. INTRODUCTION

Theory and practice show that employees spend about 30 minutes per day to search for needed information to work effectively. This is approximately five per cent of the whole working time (Heck, 2002). Initiatives to share knowledge or to show ways how to use knowledge sources help to minimize this search time and the related costs.

Creating a knowledge map with a detailed understanding of information and knowledge needs is critical to any knowledge management initiative, whether enterprise wide or focused on a specific business process. Knowledge map focuses on the tactical steps and tools used to identify the information/knowledge gaps, to conduct an investigative process to find out where the Information/ knowledge is located, and to locate and prioritize how the information/knowledge can be used to enhance key areas of focus. We employ a knowledge map approach to represent explicit and tacit knowledge within an organization. A Knowledge map is "an association of items of information (e.g Process, network, policy, geography…) preferably visual, where the association itself creates new, actionable information". To be effective, the resulting knowledge map should be created with reference to four perspectives, known as the visual framework.

- The function of the map (including co-ordination, motivation and elaboration);

- The knowledge type (know what, know how, know why, know where, know who);

- The recipient(individual, group, organization, network); and

- The visualization type (sketch, diagram, image, and map).

The success of the knowledge mapping process depends to a great extent on the people who apply it; their ability to engage all the participants in the exercise, ensuring that people understand the process and are able to interpret the map; and the integration of all four perspectives in the visual framework.

2. CONCEPTUAL FRAMEWORK OF KNOWLEDGE MAP

We define a knowledge map as a diagrammatic representation of corporate knowledge, having nodes as knowledge and links as the relationships between knowledge, and knowledge specification. Figure 1 depicts a conceptual model of knowledge map. As shown in Figure, knowledge map consists of two components:

(1) Diagram: Graphical representation of knowledge, having node and linkage:

Node: Rectangular object denoting Knowledge captured from business process;

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Linkage: Arrow between nodes implying relationships among knowledge; and

(2) Specification: Descriptive representation of knowledge.

Knowledge map provides a knowledge worker with a robust cornerstone to capture, share, and use organizational knowledge. Advantages gaining from building the knowledge map can be summarized as follows:

- Formalization of all knowledge inventories within an organization;

- Perception of relationships between knowledge;

- Enables and speeds up research time;

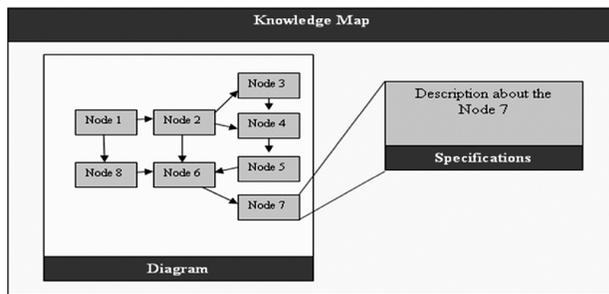- Efficient navigation of knowledge inventory.

Fig. 1: Components of Knowledge Map

Reusing the Project Experience in New Projects: The objective of knowledge mapping for project management is to represent diagrammatically the processes and related process assets. Processes describe how the sequence of tasks is to be executed and encapsulate the knowledge the organization has for efficiently performing that task. A process-oriented approach for project execution forms the foundation, the backbone, of any knowledge management system. Without defined processes for executing different tasks, it is not even possible for a project manager to ask the question "how can I use past experience to perform this task better?" This is because implicit in this question is the existence of some method which the project manager is to use and which he wants to improve! Hence the centerpiece of any knowledge management system for project execution is the processes defined to perform different tasks in a project. Process assets are documents that represent the knowledge that we have. The main purpose of these process assets, which capture specific aspects of organizational knowledge, is to facilitate the use of processes and to save effort. For example, creating a document with a template can be so much easier and less time consuming than creating it from scratch. These assets also help improve the quality by minimizing the number of defects injected by providing proper guidelines and activity checklists, and by catching the injected defects early by aiding reviews. Besides process and process assets, metrics knowledge from past projects is

invaluable for new projects – both for planning and project monitoring. Hence, another key element in knowledge mapping for project execution is the process database which keeps the summary of the past projects. The summary of past projects is important because of the following reasons:

- It highlights the islands of expertise and suggests ways to build bridges to increase knowledge sharing and exchange.

- It reduces the burden on experts by helping staff to find critical solutions & information quickly.

- It also helpful in the analysis of the knowledge gap in the project management.

- It improves decision making and problem solving by providing access to applicable information, internal and external experts.

- It encourages re-use and prevent re-invention, saving search time and acquisition costs

- It helps in designing knowledge architecture, making key strategic choices, selecting suitable software or a building corporate memory.

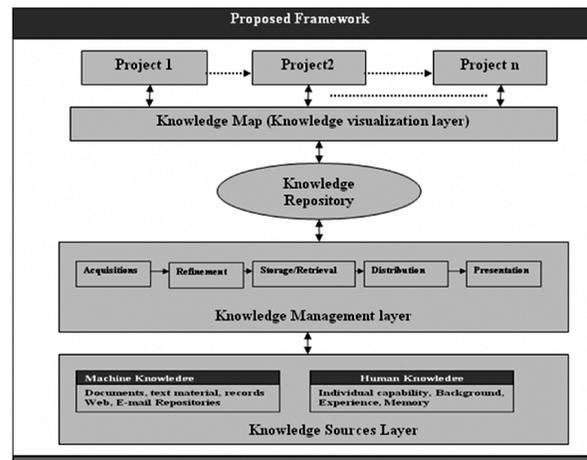Proposed Framework of Knowledge Mapping as Reusing Tool:

Fig. 2: Proposed Framework of Knowledge Mapping as Reusing Tool

The figure above describes an architecture of knowledge management system where the past project experiences are reused. For every new project the knowledge map is searched to fetch the relevant knowledge from the knowledge repository and used as and when required in the current project.

Knowledge Sources Layer

Knowledge sources layer collects knowledge from various sources. Human knowledge and machine knowledge are the

main objects of knowledge management, but the distinction between them is not clear. Although there is the difficulty to distinguish them, we try to limit and make them act as the different knowledge resource. Herein, human knowledge means personal skills which are not easy to express, communicate, and share with other people, such as, individual capability, understanding, cognition, memory, background, learning, experience and reactivity. Machine knowledge is defined that the knowledge can be recorded or encoded easily by computer language or other means expediently and identified and intercommunicated by computer and users, such as, books, records, videos, handbooks, patents, criterion and programs. Human knowledge can be the comments of experts at different point of time on different events.

Knowledge Management Layer

In knowledge management layer all the knowledge management processes are carried out. Knowledge acquisition is used to distill the related knowledge to store in the knowledge base which is the knowledge resource of knowledge utilization and knowledge interaction. Knowledge refinement process selects the relevant information related to current project and prepares the knowledge base. After creating the knowledge base, collected knowledge is distributed and presented in a proper manner so that it can be reused as and when required.

Knowledge Visualization Layer

Knowledge map in the knowledge visualization layer works as a reusing tool for searching any reusable knowledge in the knowledge repository. As any new project comes then knowledge repository is searched by the type of knowledge that project requires. After collecting every necessary knowledge from the knowledge repository knowledge mapping is also modified so that the knowledge saved at this point can be reused by future projects.

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