Challenge of knowledge sharing: Integrating customer in product development

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Abstract: - Development of products and services requires information on customer needs. In many cases there are several people interfacing with customers throughout the organization. Information can be highly shattered, unorganized and not codified. One of the key issues is that the people who are interacting with customers may be other than those who are involved with development of products and services. Here the challenge is to integrate information and knowledge from customer needs to the R&D process.

There are mechanisms for sharing information so that it can be effectively used in R&D process. Knowledge sharing mechanisms become especially important in a large organization which operates in multiple locations. These call for infrastructures, rules and procedures. In this paper we study mechanisms that empower the sharing of knowledge and information between individuals, especially customer feedback is the focus of this research.

Key-Words: - Knowledge sharing, R&D, Customer, Development

1 Introduction
Knowing what, why and when is needed in different activities and operations. Information sharing is important in all organizations. Sharing knowledge between units, teams and individuals requires access to knowledge and information throughout the organization.

There are several methods and mechanisms for sharing knowledge in organizations. For example, organizational size, geographical distances and industry are contextual factors which explain the variety of different knowledge sharing methods. The issue of interest is finding the best methods in sharing information throughout the organization.

In this paper we look at the challenges that are related to sharing knowledge on customer requirements. The paper is based on classification of different knowledge-sharing mechanisms, and they will be used in studying different knowledge sharing practices found in large case organizations.

2 Knowledge sharing
In organizations information and knowledge need to be shared. The term knowledge-sharing mechanism is here defined as formal and informal mechanisms which are used for sharing knowledge that is embedded in individuals or groups so that it can be used wider in work-related processes and activities. The key challenge is sharing personal information, making it more widely known among the co-workers.

We rely on two types of classifications here: Firstly, aggregation of knowledge is one important dimension [1], [2]. The degree of aggregation varies from individual to collective knowledge where it is shared among several persons. By definition, individual information is private and only known by one person whereas collective knowledge is shareable and available for colleagues, for example.

Secondly, the degree of articulation is another key dimension in information sharing, it can be classified into explicit and tacit knowledge [3], [1]. Some types of knowledge are relatively easy to convert into oral or written format and thus can be made explicit to others. There is also tacit type of knowledge, which is often based on expertise and experience, and may not be straightforward to communicate [1]. In addition, some knowledge and information is created as result of cooperative action while other is based on personal understanding and intuition.

2.1 The types of knowledge
These classifications can further be used in classifying knowledge into individual-explicit, individual tacit, collective-explicit and collective-tacit. Classifying information and knowledge into one of the four segments is the starting point when looking at the
mechanisms that are used in converting information from one type to another [1], [4].

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Table 1, Framework for sharing knowledge

The framework for sharing knowledge combines the two dimensions of information and knowledge, individual versus collective and explicit versus tacit. Depending on the type of knowledge and the degree of individualization and collectivism the knowledge sharing mechanisms are more person-to-person oriented or rely on sharing codified information, often with help of information technology.

3 Knowledge sharing mechanisms

Generally, knowledge sharing is based on two mechanisms: knowledge is shared from person-to-person which is referred to as personalization, or using technical solutions. It is often argued that knowledge sharing mechanisms that are based on personalization would be rather informal and ad hoc. In contrast, technical solutions are assumed to be more formal and incorporate electronic databases in knowledge sharing [5].

When knowledge and information can be expressed in words it can be shared in written format, transmitted and stored in electronic format which allows retrieval and combination of information. The mechanisms that are related to making unclear, non-verbal information shared among others are not as straightforward. Non-verbal information cannot be directly codified to a repository that allows browsing and retrieving of information. The advantages of social networking as a knowledge sharing mechanism are related to flexibility, and the possibility to transmitting and sharing of tacit knowledge. Discussions and sharing different viewpoints can also result in development of new knowledge [7].

Knowledge sharing with personalization tends to have limited reach, or there are few people who may get access to the knowledge [8]. Knowledge sharing via personalization requires that the person who seeks knowledge is aware of what information others have, where to find memos, working papers etc. The knowledge seeker has to get into touch with the knowledge provider, and the knowledge provider should be willing to share knowledge with the knowledge seeker. There are also other concerns; seeking information from others in the company may be considered as admitting ignorance on a given issue [9]. It is still important to facilitate and empower person-to-person knowledge sharing, especially if the information is tacit.

Knowledge codification refers to knowledge-sharing mechanism which aims to capture knowledge into knowledge bases that are accessible to others in the company. The mechanism should capture individual or collective knowledge making it wider property of the organization [10]. The knowledge-sharing mechanism that rely on codification are typically based or take advantage of information technology and knowledge management applications in converting knowledge into a format that allows archiving, browsing and retrieving information. Technical infrastructures for sharing codified knowledge need to be purchased, implemented and developed in order to create a platform for sharing this type of knowledge.

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Table 2, Mechanics for sharing knowledge

Often people generate knowledge in the process of doing their work, and this knowledge tends to remain “personal” or stored in the memory aids that people create for themselves [11]. However, this knowledge and information should be shareable and accessible to others. Knowledge is also integrated, embedded and institutionalized in structures and routines of the organization. It is important to notice that people are in the core of all knowledge sharing mechanisms – not technology even though there were all kinds of technical solutions available.

In knowledge sharing both the information that is to be shared and the characteristics of those who are
sharing the information are relevant. In personalization the absorptive capacity is of importance, it refers to the information seekers prior knowledge of the subject area which in turn helps in understanding the information. Another important characteristic is the perceived reliability of the information source. The third aspect is the interaction of those who are sharing information.

4 Empirical notions
The roles of different knowledge sharing mechanisms will be studied empirically in a group of case organizations. This research project is called “C-Understanding”, and it will be carried out by VTT Technical Research Centre of Finland and Turku School of Economics, Pori Unit. The area of interest is how customer needs can be incorporated in product and service development. The case companies are rather product oriented, but the need for developing integrated services from scattered products and services (such as maintenance and spare part service) is increasingly important. However, customer needs have to be understood so that these services can be developed. Here we are looking at the mechanisms that are used and developed for gathering, storing and sharing information on new service development. The aim is to better integrate customer information into the R&D process.

We are going to discuss with selected persons in R&D and marketing functions, and we approach key customers so that the multifaceted information sharing mechanisms could be mapped and understood. Here we also look at how different information systems are used for knowledge sharing. The research is currently in progress – results will be available in a few months.

4 Discussion
Generally, individual and/or tacit information makes sharing of information a challenge [4], [2]. Similarly, as Boh [12] argues the greater the complexity of the information the more is personal interaction needed in understanding it. This notion gives us an additional dimension to the framework for sharing knowledge.

The importance of human element in sharing knowledge must be emphasized. Typically, electronic repositories and person-to-person interaction mechanisms complement one another in knowledge sharing [12]. Sophisticated electronic knowledge repositories and systems for sharing knowledge are not enough, they also need to be well implemented and used. Also in person-to-person information sharing platforms and structures enabling and empowering knowledge sharing are needed. As information sharing ultimately depends on human motivation and dedication these are issues that should be understood in this framework.

References: