Real World Awareness via the Knowledge Modeling and Description Language

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INTRODUCTION

Managers of companies have the ability to gain a competitive edge over their own informal networks. This capability emerged from a study by Sultanow and Sonnenborn (2013) which interviewed CEOs of large companies. Knowledge has strategic importance; it is relevant for long-lasting decisions and becomes increasingly crucial for corporate competitiveness (Pfeifer, Freudenberg, & Hanel, 2001). The ability for successful entrepreneurship lies in the capability to notice changes in the market before others and to access expert experience and knowledge that has been built over many years. Automated information such as online services, RSS feeds or email subscriptions are problematic because extracting relevant information is time consuming. In the informal network, we encounter diffuse structures. For example, a manager maintains an informal network in order to obtain knowledge from a person in real-time (e.g. a submission to the FDA) then through contract with his lawyer he is informally notified of a problem (for example, another client has a similar product or a snag in their process) and he tells him how to circumvent the competitors product. In the financial sector – there are cluster groups in NYC, London, Geneva, Hong Kong and Shanghai that spread critical information to competitors – sometimes knowingly but often unknowingly.

This article describes a new method to create a globally mobile network between managers and key persons around them. Managers extend and maintain informal networks and retrieve decision-relevant information and knowledge in real-time. This provides a backdrop for them to see where information might be leaking (e.g. information about trades or market makers moves that have yet to happen). This advantage in knowledge and systematic networking through mobile technology overcomes the barrier that once dictated that experiential knowledge is strictly bound to persons. Due to the rapid delivery of knowledge to managers, strategists are thus able to anticipate and act according to developments or irregularities in the market.

BACKGROUND

The current state of research on awareness of collaboration within and between organizations only allows for methodological transparency creation of locally concentrated collaboration. Existing awareness concepts only generate a picture of local situations as the basis for the coordination of their activities for a local team. Globally distributed collaboration is influenced by eight factors (Sultanow & Sonnenborn, 2013). The first set of dynamics are technical, for instance, the financial industry is concerned with economic relevance such as market size, growth and competition as well as the economy's specific technical infrastructure, including logistics communication networks and information systems. All of these factors heavily influence globally

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distributed relationships. The next array of considerations, which influence global teamwork correlates to legal applications, for example, Intellectual Property, taxes, subsidies and administrative practices. Moreover, legal circumstances are often directly related to current political conditions such as the role and influence of economic actors as well as the relationship between the individual and the state. Financial institutions must conform to the rules and regulations in the markets they are working in, despite being separated by time and space. Other circumstances, which can generate influence on how internationally linked partnerships such as social structures, can determine class distinctions and different social institutions. Cultural issues range from predominate languages and religions to issues such as common etiquette, customs and leadership techniques. Geographical and demographical issues are the final obstacles which effect global collaboration; primarily, one must consider differences in time zones, climates, topographies and resources. Finally, demographical disparities such as urbanization, migration, education attainment and skills should all be considered as subjects important to understanding how global collaboration can optimally perform. The concept of Real World Awareness (RWA) refers to global management and eliminates space and time boundaries that exist in local collaboration (Sultanow, Weber, & Cox, 2011). Based on this concept, we offer a novel approach in order for managers to create transparency while simultaneously enhancing their control capacity in collaborative processes. The most important features will aim to provide immediate access to information and knowledge relevant to important decisions. This knowledge is epistemologically progressed and thus bound to people. Creating managerial awareness with the Knowledge Modeling and Description Language (KMDL) allows for a formalized approach to capture and model perception objects under rigorous knowledge management terms (while still maintaining the presentation assets from a technical perspective). KMDL is suitable for modeling as well as for visualization because it is specifically geared towards knowledge-intensive processes; furthermore, it provides an array of viewing perspectives for management features (Sultanow, Zhou, Gronau, & Cox, 2012). The three diverse views within the KMDL allow visual distinctions to be made at the process, activity and communication levels (Gronau, Müller, & Korf, 2005; Gronau, 2012). Managers initially identify and specify transparency-relevant knowledge events and flows. The system next detects these events and subsequently displays a visualization of said event on a world map (with reference to location and time). Hence, decision makers play an integral role as users of the application in addition to being the chief strategists. The communication and activity view is particularly relevant for the management application. The outer frame of the activity view is where the user can identify the focal task. It consists of a number of knowledge processing activities called conversions (Nonaka & Takeuchi, 1995). The model elements of an activity view are people and teams, knowledge objects, requirements, information objects and conversions. Thus, the activity view visualizes the flow of both knowledge as well as information. The communication view describes the flow of communication within an organization. This level reveals how communication is characterized in any particular configuration; top priorities and gaps, then, are visible in the communication view. Managers can visually retrace knowledge exchanges and observe who communicated with whom across which organizational and geographical boundaries about any given topic. The process view reflects the process flow of knowledge-intensive processes or more generally - business process. This level is a straightforward way to perceive which tasks must be processed and what (if any) alternatives exist. Sub-processes, based on process interfaces, can be interconnected in order to describe the entire process. Roles and information systems are assigned to tasks. The process view therefore visualizes the control flow, seen in Figure 1.

However, in order to create Real World Awareness, KMDL needs to be capable of temporal and spatial referencing – a feature which does not exist in current awareness and knowledge management approaches.

KMDL AND ITS RELATIONSHIP TO TIME AND LOCATION

To establish a relationship to time and location, an event-oriented view must reflect information objects (based on a knowledge event model), objects of knowledge and conversions. It must also indicate the people and their roles respective to perceivable events.

The perception of these events is insufficient within the current globally distributed environment. The

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