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Stimulating Creativity and Innovation through People-Concepts Connectivity within On-Line Collaborative Workspaces

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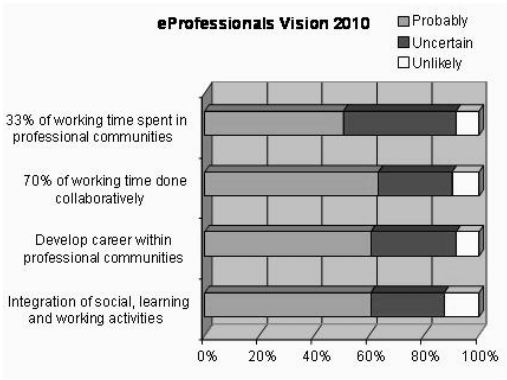
ABSTRACT

Constantly changing customer demands and intense global competitive environment imposes the compelling need to better support knowledge workers, operating as eProfessionals, within creativity sessions and innovation tasks while increasing inter-personal productivity in order to remain competitive on the global market. As a consequence, working organisation is shifting towards networked individuals driven simultaneously by the necessity of focusing on core competency while stimulating the emergence of creative ideas and breakthrough innovation. These in turn push organisations to implement new ways of working and interacting among diverse competency fields that require more effective and efficient collaborative approaches. This paper presents the vision of an e-space for all or networked individual shared workspaces within a group forming networks approach. The driving idea is to connect people and concepts together as a kind of knowledge hub where both individuals and communities are exposing knowledge on the Web through networked shared workspaces. An attempt is made to implement and explore the people-concepts connectivity approach within the framework of the AMI@Work ERIA communities used as a living lab, and evaluate its potential impact on creativity, innovation and interpersonal productivity. The paper concludes in introducing a brand new scientific domain of "Knowledge Connection" which is related to the existing domains of Knowledge Creation, Representation and Visualisation.

INTRODUCTION AND VISION

Within few years, significant social, organisational and economical changes as well as a relentless technology evolution will lead the way of working for eProfessionals into a dramatic change. People will no longer work according to chain production models but rather more as dynamically and spontaneously assembled groups of people working together in a collaboration mode, which means a seamless work to achieve common goals. The social capital will be the main driver, which means that people constitute the best asset of businesses. Professionals will spend more time in people-networking like activities than ever (i.e. on-line professional communities and social networks).

Figure 1. Results of the eProfessionals Vision 2010



This is confirmed by the EsoCE-Net survey on professional life balance as shown in figure 1. ICT role will be essential for supporting this professional and contextual social exchange, and seamless interaction within a complex virtualised world where people are in the foreground, as the centre of all attentions, while supporting technologies are operating in the background, almost invisible. In the academic research community, these trends lead to the Social Computing, Social Desktop or Social Web initiatives [Hoschka, 1998].

We consider an eProfessional as a Professional whose business and tasks can only be achieved using modern cooperation technologies. These technologies enable an eProfessional being part of groups and communities as well as knowledge networks, and being involved in distributed cooperation processes that have not been possible before.

This paper addresses creativity and innovation potential through people-concepts connectivity within on-line collaborative workplaces. Our goal is to design, explore and evaluate how future innovative collaborative workplaces could stimulate creativity and innovation while increasing inter-personal productivity.

EXISTING THEORIES AND WORK

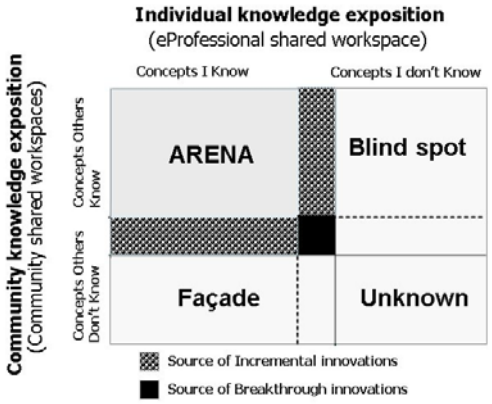
Flexible Arrangements in the Workplace

Working organisation is shifting towards more flexible forms such as networked individuals, often named eProfessionals, in the goals of stimulating creativity and innovation while increasing productivity. These in turn push organisations to implement new ways of working and interacting among diverse competency fields that require more effective and efficient Collaborative Working Environments.

Patricia Vendramin discussed an important challenge for the future of work [Vendramin, 1998]: how to develop flexible telework or mobile work patterns avoiding a deterioration of working conditions? What can be a social scenario of flexibility?

In the 2004 UK survey on flexible working [Puybaraud, 2005], it is mentioned that "The Holy grail for any organisation is to assess employees' productivity and increase it". However, in this case productivity is subjective and depends on many factors such as motivation, well-being, morale, job satisfaction, and level of provided support as revealed in this survey.

Figure 2. Community Window Model



Interpersonal Communication and Productivity

While productivity of individual work has been considerably increased for years by Information Technology, very few has been done in term of collaborative work and interpersonal productivity. Actual business cases of mobile work are mainly focusing on the increase of individual productivity while mobile and collaborative technologies are sitting on huge possible gains of interpersonal productivity.

A model known as the Johari Window [Luft and Ingham, 1969] illustrates the process of interpersonal communication. It is an easily understood model of communication which employs a four-part figure to reflect the interaction of two sources of information - self and others. The squared field, representing the "interpersonal space," is partitioned into four "regions".

The Arena is the portion of the total interpersonal space devoted to mutual understanding and shared information. This *known by the self - known by others* facet of the relationship is thought to control interpersonal productivity. The assumption is that productivity and interpersonal effectiveness are directly related to the amount of mutually-held information. Therefore, the larger the *arena* becomes, the more rewarding, effective, and productive the relationship is apt to be. The *arena* can be thought of as the place where good communication happens. One can increase the size of this region by increasing the amount of *exposure* and *feedback seeking.*

Figure 2 is showing an adaptation of the Johari window model at the age of the Internet, Web and shared workspaces where eProfessional individuals, groups and communities can expose and share their knowledge on the web.

This extended Johari Window model is named the on-line Community Window Model and illustrates the process of Web enabled interpersonal communication through the use of collaborative shared workspaces. The model is quite similar to the Johari one and employs a four-part figure to reflect the interaction of two sources of knowledge – self, the eProfessional characterised by its individual shared workspace and others, characterised by the group or community shared workspaces. The size of the squared field, representing the "arena", is increased by knowledge exposition into two different regions. The dashed region represents the source of incremental innovation and the solid filled region represents the source of breakthrough innovation [Pallot et al., 2005].

Group Forming Networks

David Reed, an Internet veteran, is credited with what is sometimes called Reed's Law, which says, essentially, that networks that facilitate easy group forming are subject to potentially exponential growth [Reed, 1999].

Broadcast media or traditional industrial age businesses grow roughly in ratio depending on how many listeners or customers they have, which is a proportional growth.

However, if it is a network, where the participants can communicate with each other, the rules change. Bob Metcalfe, the inventor of Ethernet, noticed that, and it is known as Metcalfe's Law, that the value of a network increases with the square of the number of members.

David Reed suggested that if it is not just a network, but a community, the rules change again. The number of different interactions that might happen within a group of N people would be 2N, which is an exponential growth. So, if the members of the network can't just communicate one-to-one, but they can get together in groups of all kinds of sizes, the potential value is huge.

It is what potentially can happen but there is no certitude about it. Groups don't necessarily form spontaneously. It would be extremely interesting to discover factors that help groups to form and to self-organize.

RESEARCH APPROACH

Our research approach, beside the traditional literature review, starts with the development of vision scenarios for identifying innovative vision elements which are then compared with the state-of-the-art elements in order to identify the resulting gaps to be addressed to reach the vision.

In parallel to the development of vision scenarios and identification of gaps, we have tentatively extended the Johari Window Model into the on-line Community Window Model where we try to evaluate the impact of Web technologies on the initial model for both measuring the whole work community and prescribing ways to improve the collaborative workplace. Secondly, we use this extended window model to locate the emergence of creative ideas and characterise the possible areas of incremental innovation as well as breakthrough innovation. Concurrently to this work, an on-line community survey, dedicated to "on-line people networking", is conducted within an innovative way of consulting the AMI@Work European Research and Innovation Area (ERIA) communities through the combination of complementary polls posted on the communities' website. The main objective of this on-line survey is to validate the emerging vision elements and deducted research challenges.

We have used other existing surveys and reports such as the 2003 and 2004 surveys dedicated to flexible working in order to better understand drivers for change and both employers and employees expectations as well as challenges to be addressed in the light of these changes and expectations.

Findings

The AMI@Work European Research and Innovation Area (ERIA) communities are used as a "Living Lab" where we are exploring and evaluating the people-concepts connectivity approach. We are actually implementing a new version of the communities' website to implement, support, explore and evaluate people-concepts connectivity within the communities shared workspaces and its potential impact on creativity, innovation and inter-personal productivity through a number of metrics derived from social network analysis techniques and group forming networks law. Collected metrics data should provide pragmatic and realistic indications on whether we could validate the people-concepts connectivity approach to better support interactions among totally unknown people.

CONCLUSION AND FUTURE WORK

We are promoting an "individual shared workspace" for every eProfessional like the famous motto "an e-space for all". All those individual shared workspaces form a Network from where eProfessionals could start forming groups or communities as well as needed shared workspaces according to their common interests and collaboration needs. This approach is compliant with above Reed's law if we can demonstrate that this network of eProfessionals' individual shared

workspaces really facilitates easy group and community forming which are subject to potentially exponential growth. It would dramatically boost and stimulate creativity and innovation while increasing considerably productivity if we think just about how fast and easy it will become to connect knowledge and reach a mutual understanding with other eProfessionals sharing the same interest.

Formalised concepts within communities appear to be a corner stone linking collaborative resources together which open new possibilities such as discovering automatically useful collaborative resources within a broad population of virtual communities and in visualising or browsing resulting people-concepts maps. This lead to stimulate creativity and innovation in providing much faster and broader access to existing knowledge and people know-how and thus more opportunities to collaborate and more alternative solutions to explore. It is tentatively named "Knowledge Connection".

The next stage consists to evaluate whether Knowledge Connection could become a new scientific domain by its own at the crossroads of Collaborative Work, Knowledge Creation, Representation and Visualisation.

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