

Shared Workspace and Group Blogging Experimentation through a Living Lab approach

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Abstract

For many years, it was assumed that technical features were the most important ingredients to support an effective and efficient collaborative platform. Nowadays, ICT users are creating value in massively populating web applications and online role-playing games with their own activities and related data (i.e. eBay, Amazon, Linked-In, FaceBook, SecondLife, World-of-Warcraft). When looking at the global success of online social networking, online presence and other popular web applications, one may realise the crying users' need to have collaborative platform supporting also social interactions with dedicated social features instead of purely focusing on technical features. This paper presents an empirical study on the use of both shared workspace and group blogging forming a collaborative platform. This study has been conducted according to the Living Lab user-centred research approach through the use of an exploratory environment as being a real life experiment. The basic idea was to engage a community of users into the collaborative concepts experimentation during their project activities. Important issues like whether the collaborative platform has helped in somehow sharing knowledge and reaching a mutual understanding as well as overcoming various types of collaborative distance are also discussed in this paper.

Keywords: collaborative working environment, collaboration, collaborative distance, eProfessional, group blogging, group consciousness, knowledge worker, Living Lab, shared workspace.

1 Introduction

It is currently anticipated that people will no longer work mainly individually but rather more as dynamically assembled groups of complementary skilled professionals working together within an enhanced collaboration¹ environment. Therefore, the combination of both social and intellectual capital will become the leading ingredient. As already demonstrated by the massive usage of social web applications, eProfessionals² will spend more time in people-networking like activities than ever.

This paper addresses collaborative working environment³ experimentation through the use of an on-line collaborative workplace materialised by an integration of Shared Workspace and Group Blogging technologies within a project based Living Lab approach. Our first goal is to evaluate the latest version of BSCW, integrating Shared Workspace and Group Blogging technologies, as an ongoing development within the ECOSPACE⁴ project. The second goal is to further explore users' consciousness and expectations in term of on-line collaborative workspace. Last but not least, the third goal is to experiment how users can contribute to the collaborative platform design addressing both its features and the user interface. While the area is strongly related to

¹ <http://en.wikipedia.org/wiki/Collaboration>

² <http://en.wikipedia.org/wiki/E-professional>

³ http://en.wikipedia.org/wiki/Collaborative_Working_Environment

⁴ <http://www.ami-communities.eu/wiki/ECOSPACE>

Computer Supported Cooperative Work (CSCW), we are also making observations on Collaborative Distance and more generally considering the social aspect emerging in any collaborative environment.

2 Proposed Theories and Techniques

2.1 Interpersonal Communication, Perception and Consciousness

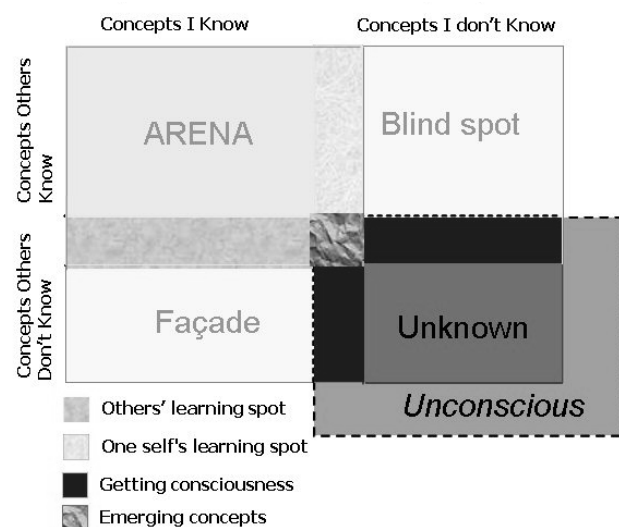
While productivity of individual work has been considerably increased for years by Information and Communication Technology (ICT), very few has been done in term of interpersonal productivity.

Looking at Wikipedia⁵ it is explained that “in psychology and the cognitive sciences, perception is the process of acquiring, interpreting, selecting, and organizing sensory information. Methods of studying perception range from essentially biological or physiological approaches, through psychological approaches to the often abstract 'thought-experiments' of mental philosophy.” The perceptual ecology approach of James J. Gibson investigated what information is actually presented to the perceptual systems. He detailed how the world could be specified to a mobile, exploring organism via the lawful projection of information about the world into energy arrays.

Looking again at Wikipedia, it is said that “Consciousness is a quality of the mind generally regarded to comprise such key features as subjectivity, self-awareness, sentience, sapience, and the ability to perceive the relationship between oneself and one's environment. Consciousness derives from Latin *conscientia* which means knowledge-with, that is, shared knowledge.

As it is argued in a previous paper, entitled “Stimulating Creativity and Innovation through People-Concepts Connectivity within on-line Collaborative Workspaces” [Pallot, Prinz, Pawar 2006], almost nothing has been done in the area of interpersonal productivity. Individual productivity is still considered as the holly grail by industrial companies. They do not consider social interaction as a vital activity for a business organization even if social interaction has been demonstrated [Nonaka, Takeuchi, Takeuchi] as the source of knowledge creation.

We are using the “*PerCeptUal Space*” (Person-conCept-visUal) approach as presented in a previous paper [Antoniac & Pallot 2006]. It represents an integration of 3 dimensions, namely social, conceptual and visual aspects that could support group of people to reach consciousness



of something (e.g., new concepts) in a much faster way. This *PerCeptUal Space* could be viewed as a Virtual/Online Space where new concepts are emerging in a way that it will stimulate people creativity (inter-personal creativity). Our starting point was the extended Johari window model [Luft 1969] introduced in a previous paper [Pallot, Prinz, Schaffers 2005]. This extended Johari Window model is representing “the on-line Community Window Model” and illustrates the process of Web enabled interpersonal communication through the use of collaborative shared workspaces.

Within the *inter-personal communication arena*, the group of people is sharing knowledge and concepts they know, and confront their ideas seemingly. During this social interaction, they are creating new knowledge that will lead

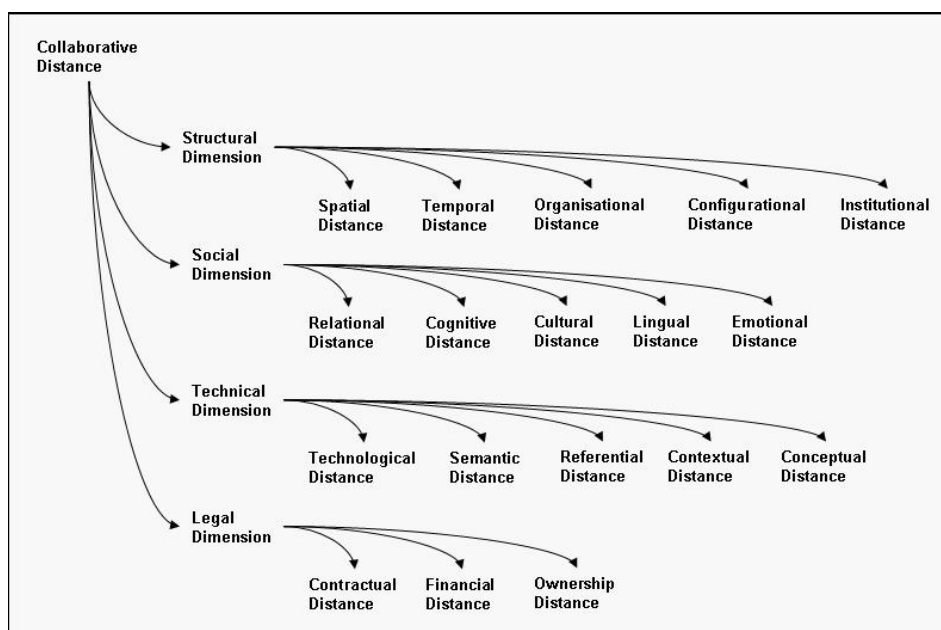
⁵ <http://en.wikipedia.org/wiki/Perception>

most probably into new emerging concepts if they are successful to reach the proper level of consciousness.

2.2 Collaborative Distance

Wilson and al, in a paper entitled “Subjective distance in Teams” [Wilson and al, 2005], are proposing two categories of collaborative distance, namely objective distance and subjective distance. Authors are arguing that past research has mainly focused on objective distance (e.g. geographic distance) which produced conflicting and inconsistent findings regarding the relationship between distance and a variety of important processes and outcomes (e.g. team communication and performance). They define subjective distance as individuals’ cognitive and affective representation of the distance between them and their team members and argue that it is likely to predict important team outcomes better than objective distance. It is also said that objective (geographical) distance has spatial, temporal and Configurational elements [O’Leary and Cunnings 2002]. Those three elements are respectively representing physical distance, time zones or working hours and team members’ pattern or arrangement (e.g. roles, resources, power and status). It is also argued that communication and identification are key mediating processes by which subjective distance emerges. Those processes are affected in important ways by several types of factors, including individual (openness to experience, need for affiliation, experience with dispersed work, technology and travel), social (perceived similarity, status differences, role centrality), task (interdependence), and organisational (structural assurance and culture) factors.

In a recent literature review on distance and proximity types [Pallot 2007], it was proposed to adopt the following “standardised” dimensions of collaborative distance: structural, social, technical and legal. This exploration field is tentatively named “Collaborative Distance”, inducing a balanced observation of any collaboration case along those four dimensions as a kind of reference framework including a holistic view of factors affecting collaboration. Categorized types of distance or proximity allow making various measurements that could be then combined into a single overall indicator of collaborative distance.



Collaborative Distance Dimensions and respective Distance Types [Pallot 2007]

All the following types of distance appearing in the above figure, affecting collaboration among individuals or organisations in various ways, are mentioned in the literature. They may also appear as different types of proximity depending on whether authors have considered

collaboration among individuals or teamwork as distant collaboration or nearness collaboration. Presently, the wording “collaborative distance” is used in order to reflect the impact of distant collaboration among individuals or organisations. Though, organisations do not collaborate as such, only people have capabilities to collaborate.

2.3 Group Blogging

In a Weblog case study, it has been argued that existing knowledge work models depict only the tip of knowledge work iceberg and need improvements through a three dimensions framework (individuals, communities and networks) in order to be useful for supporting knowledge workers [Lilia Efimova 2005]. For sure, Group Blogging is a different concept than Collaborative Blog and Blog Community. Collaborative Blog is a specific type of blog where published entries are written by several authors. In recent years the blogosphere has seen the emergence and growing popularity of more collaborative efforts, often set up by already established bloggers wishing to pool time and resources to both reduce the pressure of maintaining a popular website and to attract a larger readership. Blog Community appears to be constituted by a community of bloggers.

One may consider that it is certainly better to inform a group of people via a simple group blog entry and RSS feed rather than spamming all individual mail boxes. Group Blogging, as being a social activity, might be creating proximity among groups of people and therefore compressing one or several distance factors. In the same way, we could assume that it is generating and storing intellectual and social capital in keeping explicit knowledge and links to the respective tacit knowledge (involved people). Furthermore, it could appear as an instrument to support emerging ontology in creating group taxonomy through the use of tags. Group Blogging is persistent and it supports late comers to the group and author clouds provide an instant overview of the current status of the group discussion. Further to this, the resulting tag cloud constitutes a folksonomy or tagsonomy that could speed up the way a group of people can reach consciousness and mutual understanding on a specific topic.

2.4 Living Lab (User-centred) Research Approach

Experience and Application Research (EAR) has been proposed by the ISTAG⁶ committee in 2004 as a means of addressing the challenge of creating a human-centred approach to R&D in ICT Ambient Intelligence for supporting integrated research and concurrent assessment of Ambient Intelligence technologies and systems. EAR involves research, development and design by, with and for users. In fact, ISTAG suggested that Ambient Intelligence research increasingly needs “*to allow people to live in their own future*” in order to bring that research closer to the needs of citizens and businesses.

According to the EAR or Living Lab⁷ approach, end-users are engaged into User Experience Prototyping Environments where scientists from complementary disciplines are expected, on the one hand, to reach a higher level of understanding of occurring phenomena and on the other hand, to explore new concepts that will lead to radical innovations in terms of new ICT based services (eServices). The observed end-users are not necessarily immersed individually but could also be immersed as a group or even as a community which is leading to richer observations and greater quantity of collected data which are increasing the reliability of the resulting analysis.

A Living Lab is like a coin having two sides, the first one is devoted to foundational research while the second one is devoted to innovation and support applied research and Industry led research. The research side of a Living Lab is mainly composed of three ingredients: Multidisciplinary Research involving several research labs specialised in different sciences

⁶ IST Advisory Group

⁷ http://en.wikipedia.org/wiki/Living_lab

such as Computer science, Social sciences as well as Economics, Ergonomics, Psychology and Socio-Cognitive for the observation of users; User-centred research methods and instrumentations (i.e. protocols, models, data); Users' communities as being on the one hand the subject of observation and on the other hand the valuable source of contribution. The role of research within Living Labs is of paramount importance as it provides both the Experience Prototyping and the Observation Framework allowing a better understanding or capturing of users' need within the limit of the number of factors taken into account during the signal/data acquisition.

However, each Living Lab is currently using his own methods, research protocols, data structure, acquisition, analysis, and visualisation tools. It means that each Living Lab is having a different level of both quantity and quality of user experience data and it is very difficult to make comparison among user experience datasets issued by different Living Labs as they are not necessarily using the same research approach, methods, research protocols and models. Furthermore, each specific Science community has its own existing methods, approaches and working practices for gathering, storing and exploiting user experience data. These are likely to impose a considerable constraint on the multidisciplinary research approach.

3 Research objectives and problem statement

Beside the evaluation of the collaborative platform by users, one of our objectives is to experiment how much Focus Group Interviews applied as an approach of a kind of "*PerCeptUal Space*" [Antoniac & Pallot 2006] could support groups of people to get consciousness of something (e.g., new concepts). It was expected that Focus Group Interviews would support the creation of an *inter-personal communication arena* among focus group members. In fact, group members are sharing their knowledge, concepts they know, and confront their ideas seemingly while they are telling and discussing their own experience in using the platform. Through this social interaction, they are progressively getting a better consciousness of the various concepts embedded in the platform and their benefits versus difficulties based on diverse encountered situations. Finally, it could lead, most probably, into new interesting requirements especially if they are successful to reach the proper level of consciousness of emerging concepts such as the famous social awareness.

In order to have a more immersive experience, focus groups were one-to-one translation of project teams. To reach the proper level of group consciousness, the interaction should be as inconspicuous as possible and encouraging the presentation and perception between participants and therefore should not be forced by the moderator. In this kind of evaluation environment, users should have a total freedom and therefore wide access to the collaborative platform functions without any specific restriction or obligation. The collaborative environment should be flexible to fit project team members in their respective daily activities.

4 Research approach

The research approach used for evaluating the ECOSPACE platform was born within the AMI@Work communities' environment which is integrating technology push and application pull. It was called "Living Lab" in reference to a living place where a research laboratory is exported in order to involve all stakeholders, and especially end-users into the innovation process composed of evaluation, exploration and co-design stages.

The ECOSPACE platform collects automatically data from users' generated events forming a log-data-set. Whatever discipline they belong to, it is allowing research scientists to use both those log-data-sets and focus group interviews in order to make better evaluations.

Focus groups can be used at any point in a research program. Stewart and Shamdasani have summarised the more common uses of focus groups to include: obtaining general background information about a topic of interest; generating research hypotheses that can be submitted to further research and testing using more quantitative approaches; stimulating new ideas and creative concepts; diagnosing the potential for problems with a new program, service or product; learning how respondents talk about the phenomenon of interest which may facilitate quantitative research tools; Interpreting previously obtained qualitative results (1990, p.15).

Furthermore, according to Patton (1990), focus groups interviews are essential in the evaluation process: as part of a needs assessment, during a program, at the end of the program, or months after the completion of a program to gather perceptions on the outcome of that program.

This work was initiated assuming that the theory behind *PerCepTual space* would allow us to recognise group consciousness events when they occur during focus group interviews through interaction of participants.

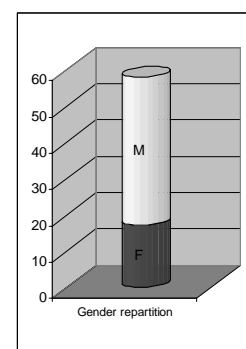
The experimentation and evaluation stage is especially focusing on key aspects such as knowing if users (Living Lab participants) have got consciousness of the importance of information/knowledge sharing and mutual understanding as well as the capacity of shared workspace and group blogging technologies to overcome collaborative distances and their impact on collaboration effectiveness and efficiency. This stage was conducted from October 2007 to February 2008 by 58 participants with an average age of 25 years old; most of them were master's degree students⁸ belonging to 4 different innovation domains (InnoBio, InnovEurope, InnovInfo, and Virtual Reality). A full day per week is devoted by students to collaborative projects all along the semester in order to concretely apply what they are learning during courses.

The exploration and co-design stage has involved only one group of selected participants. During this stage, participants were exploring various collaborative web applications in comparing with the experience they have got during the evaluation stage. Finally they have co-designed what they perceived as being the most appropriate collaborative features and user interface to support an effective and efficient collaboration.

5 Current results

5.1 Experimentation and evaluation

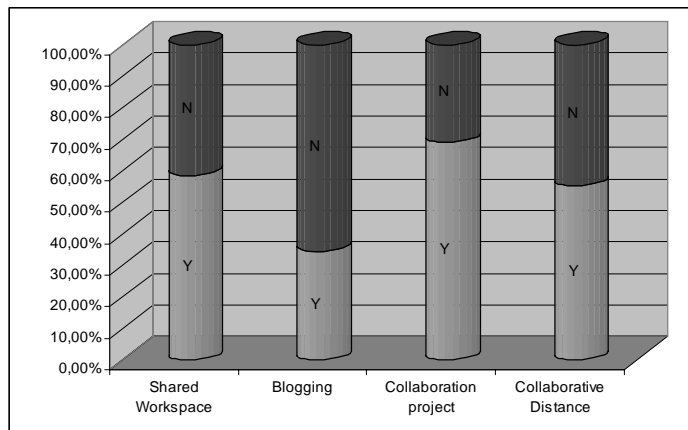
Participants' gender repartition is about less than one third feminine and more than two third masculine with an average age of 25 years old. Their experience repartition in shared Workspace technology is showing that there was a large majority of experienced users (58%) and minority of participants with no experience. Regarding blogging technology only one third was experienced and two third of participants didn't have any real experience. More than two third of them were used to work in collaboration project while less than one third did not get concrete experience so far. Though, their level of knowledge in term of collaborative experience seemed to be quite limited as soon as the discussion was going deeper into collaboration organisation modes and methods. Concerning



Collaborative Distance, a little bit more than majority has declared that they have been facing the existence of distance factors and related difficulties during collaboration projects and mentioned geographical (spatial), social, technology, cognitive, emotional, and lingual distances. Again, it seemed obvious that they needed to be guided with the existence of various distance factors and

⁸ <http://www.istia.univ-angers.fr/Innovation/>

their names while a one page description was provided in advance with the questionnaire to give them a better chance of being properly prepared before to start the focus group interviews.



The discussion among the different groups addressing the nine questions has revealed the following:

Most of the groups have declared, right from the beginning, that those technologies are mainly useful for distributed teams. On the one hand, while they had the opportunity to convince external project participants such as their customers, either academic or business organisations, partners in some cases, coaches and experts to use the collaborative

platform to avoid the extensive use of emailing with attached documents, it was clear that several project teams did not put a significant effort for justifying a low level of usage. On the other hand, after some discussion among group members, most of them have then recognised the high benefit of getting a central storage where documents were available anytime from anywhere until an internet connection was available without to have to worry about whether they thought to bring their USB memory stick or copied their files properly. It seems that some of them have even enjoyed remote working opportunity from home and started to update documents outside normal operating hours.

While the systematic activity events reporting email occurring every night has been criticised as flooding their respective mail box, they however recognised the importance of being kept aware of what others are doing but in a more real-time fashion. In the same way, most of them have acknowledge the usefulness of seeing progress at least through the evolving common project structure and growing number of documents. The fact that they were obliged to use a common structure was at the same time appreciated for enabling a shared set of concepts where to upload their documents and criticised by saying that it would be valuable that each member could design his own structure to have less cognitive workload and effort to make to find his own way. Another interesting point was mentioned as being a democratic system where all members have the same level of information and access to the same data without big risk of information retention due to the fact that anyone can easily forget to inform properly the others. So, during the focus group interviews discussion it was often said that “everyone has access to up-to-date information” without to have to waste time asking all team members about the location of the latest version of a document.

Regarding the discussion about whether they still prefer emailing than group blogging, it clearly appeared that most of the participants prefer to use instant messaging tool as synchronous communication rather than asynchronous communication. However, when necessary they preferred to send emails as asynchronous communication tool rather than trying the group blogging especially because it was said that it was easier to get access to the email than to the blogging. They also claimed that uploading a document into the shared workspace by “drag and drop” was faster than sending an attached document by email and much more reliable. Few participants have acknowledge the interest of group blogging for getting a project history and chronology of events but again re-emphasised that more external participants would have encouraged more teams to experience a project blog. Though, a large majority recognised the complementarity of Shared Workspace and Group Blogging technologies.

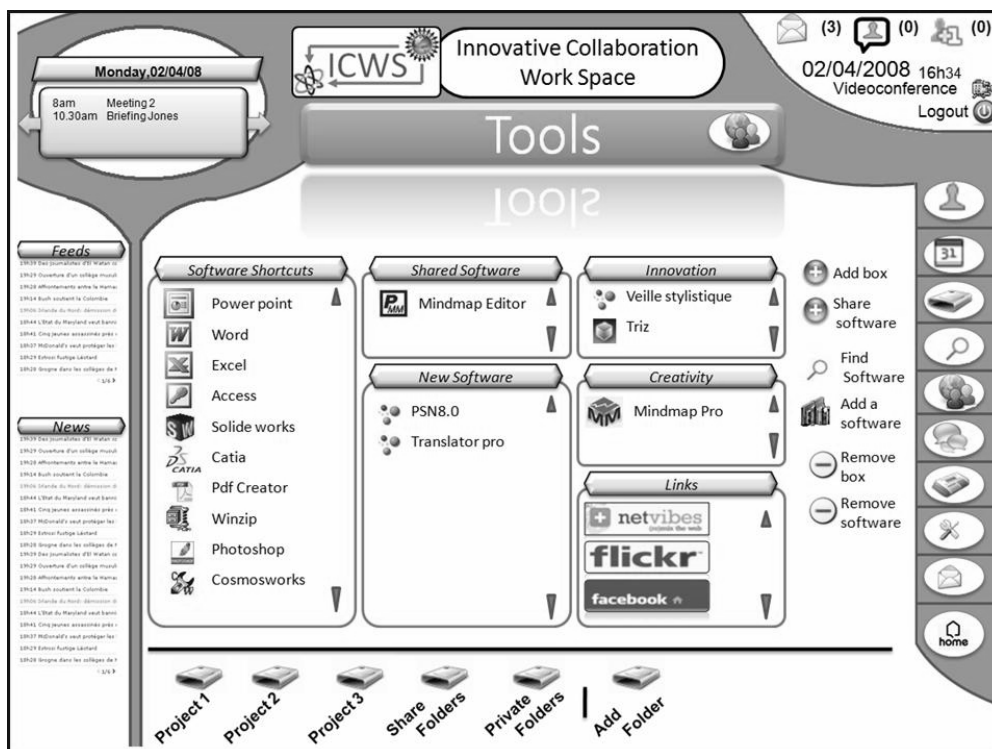
In term of collaboration distances, almost all participants said that both technologies were useful to overcome distance factors, especially spatial distance, but also cognitive distance, emotional distance, partly cultural distance but not lingual distance. It might look strange but emotional and

social distances have also been mentioned for getting a chance to remotely start a relationship with someone who is too shy or emotional for interacting lively. Once it was said by a participant that it has helped to overcome a conflict without telling clearly what kind of conflict like if one of the group member was willing to impose his own view rather than having a more team spirit and democratic approach. Concerning the distance factors that were created by those two technologies, social distance became a must as well as technology distance. Only once emotional and cultural distances were incidentally evoked but not really heavily discussed within the group like if it was not felt as being important enough.

In term of improvement of the collaborative platform there is a clear expressed need for an intuitive dashboard on the top of the expectation pile providing a balanced situation in between technical and social features while the current ECOSPACE platform appeared to be too much addressing technical features. Appearing in second position in the expectation ranking, there are equally online edit (wiki style) and more ergonomic and intuitive user interface (i.e. GoogleDoc, AdobeSahre, SecondLife) as well as layout customisation (i.e. user profile, navigation structure, widget selection, background image or photo) in order to move from unattractive 80's grey style into more attractive and intuitive 2000's web2.0 style. Third in a row appear all the synchronous tools like web-conf, audio-conf, instant messaging, presence, white-board, and shared applications including online annotations. Real-time notification of activity events was again evocated in suggesting using RSSfeed mechanism within a specific widget like in FaceBook. Not surprisingly, SMS alert was also suggested for awareness of crucially expected event that has to be reported instantaneously at anytime and wherever are located team members.

5.2 Exploration and design

The project team members selected for carrying out the exploration and design activities had already a user experience of several socially oriented web applications as well as collaborative platforms. They have reported their exploration results into a specific document where Mayetic, Sosius, Mind49, Linked In, Flickr, MySpace, FaceBook and Windows Live Messenger represent good examples of what they found useful in term of both technical and social features with an acceptable level of user interface. Altogether, about 17 collaborative web platforms and about 15 social web applications have been experienced and assessed during the exploration stage.



Several tentative mock-ups including each feature webpage have been designed and discussed among the participants. The above figure is showing an example of the desired main page of the collaborative platform, as designed by users, where most of the expected features are appearing.

6 Conclusion and future work

This paper introduced the Living Lab user-centred research approach which was experimented during this field study on evaluating the impact of integrated Shared Workspace and Group Blogging technologies on collaboration effectiveness and efficiency. While we have collected large amount of data through the collaborative platform log-data and during the focus group interviews, it is too early to raise a definite conclusion on the overall value brought by users. However, it appeared clearly that we need new specific ICT based research instruments to support dynamic user profile modelling, multi-modal collection of data and multi-source data analysis in order to speed up the overall process especially because collecting more data lead to better quality but also means to spend more time on the analysis and interpretation.

Beside the traditional features found into a collaborative platform, considering users expectations, the results of this field study are confirming that intuitive user interface (i.e. drag and drop), social and personalisation features are crucial ingredients for user adoption of collaborative platforms. There are some good examples of expected features such as displaying real-time information about what colleagues are doing, including project logo and photos in the webpage background, member's profile with photos are all contributing to provide a human-being touch which is not only "humanising" collaborative platforms but also improving the way people can perceive online collaboration.

Another interesting aspect is that most of the participants thought, right from the beginning, that collaborative platforms are useful, if and only if, project team members are in a distributed situation. However, during the focus group interviews discussion, they were progressively getting consciousness of other types of collaborative distance than the famous geographical one and that collaborative platforms could also be useful in a collocated situation.

The next stage would be the involvement of a broader diversity of users in the real life experiment in engaging other participants from different EU countries. This would bring onboard more organisational, cognitive, cultural and lingual distance factors than the ones already observed in this field study.

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