



Mobile Project Management - Status Quo and Perspectives

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1 INTRODUCTION

In recent years the fulfillment of time-limited tasks within the context of so-called virtual projects has become increasingly significant. However, with regard to the influence of mobility and control of knowledge management processes, virtual projects indicate specific problems, and also opportunities for developing and using project knowledge and qualitative higher-value task fulfillment.

Theoretically derived and empirically ascertained problem areas within knowledge management in virtual projects are, for example, inadequate transparency regarding knowledge available in the project, as well as the relatively high fluctuation of staff possessing relevant knowledge. The prototype VITEA system takes problems of this kind into account and supports the exchange of information and knowledge in virtual projects via heterogeneous media.

2 STATUS QUO OF MOBILE PROJECT MANAGEMENT

Mobile Project Management is related to some challenges for project leaders and members, for example scheduling issues or keeping team members focused and on track. An empirical study which evaluated over 197 projects came to the result that most projects fail because of the lack of communication. Especially if the project members worked apart from each other. Related to this they did not get the information and knowledge they need to fulfill their worktasks (Schöner 2002).

The intention of Mobile Project Management is to support the communication between project members, to increase the information flow between them and to offer a system where project members can access the same data as in their office.

Existing Mobile Project Management Solutions deal with applications for Pocket PC, some of these solutions will be mentioned to give an idea about the current Status Quo of Mobile Project Management. For example **cyProj** (available from Handango.com) is an application to synchronize project files with a Pocket PC. It integrates with Microsoft Project 2000.

For the Palm OS **Project Planner** from ITOS is available. It comes along with a desktop application that synchronizes Project 2000 files with a PDA. Project plans are displayed on the Palm in a text-based outline format.

Another alternative for synchronizing project files is Natar's **Project@Hand**. It features a desktop conduit that transfers Project files to your Palm. XcelleNet is a provider of mobile resource management solutions. It provides Hercules with its **Afaria** management software to manage mobile users across nine countries.

Another Mobile Project Management Solution is realized by Singapore telco StarHub and Hong Kong – based wireless technology provider REALVision Technology. REALVision will provide its tool **Mobile Inspect** wireless enterprise solution to promote wireless construction project management solutions that will be accessed via StarHub's GPRS and SMS services in Singapore. Operational processes as document sharing, project scheduling, real-time collaboration, remote printing, workflow automation, environmental monitoring and auditing can be accessed by mobile devices via StarHub's GPRS and SMS.

These existing Mobile Project Management Solutions are focused on the synchronization of handheld devices with desktop PCs. The intention is to provide project files on mobile devices, but they did not support the communication, socialization and coordination between team members. These solutions do not consider mobile services and knowledge management sufficiently to support the needs of Mobile Project Management. The described mobile project management tools are mainly focused on data synchronization. Although it is important to make actual data accessible via mobile devices, mobile technologies offer more valuable potential, e.g. the availability of information and knowledge. The VITEA system goes one step behind offering data and takes the requirements of users into account.

In detail the following requirements should be fulfilled by a system to support mobile projects.

- support of communication and information exchange all project phases
- support of formal and informal communication
- coordination between project members in case of time, tasks and resources
- project related knowledge management

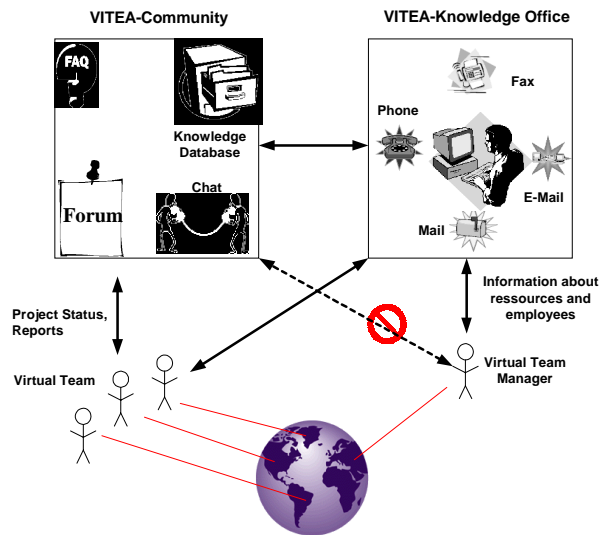
In the following chapter the main functions of VITEA are introduced.

3 VITEA SYSTEM

The chapter's goal is to describe the functionality of VITEA (Dietze et al. 2002). VITEA is a system intended to organize knowledge generation and to coordinate knowledge dissemination in virtual project teams by using heterogeneous media. VITEA includes a virtual community to generate knowledge for and about virtual projects and to generate knowledge about the members of virtual teams. It also uses a reference lab as a knowledge office to distribute information required by virtual team members and managers. Virtual teams can use VITEA to realize and coordinate international projects. VITEA supports the essential flexibility, mobility, independency and dynamics required by virtual team members and managers. Figure 1 illustrates the functionality of VITEA.

Virtual team members can work together on international projects although they are located at different places all over the world. The VITEA-Community can be used by all project participants to update and to retrieve the project status and progress. It includes a knowledgebase that consists of an employee and a project database. For each employee a profile with detailed information is held in the employee database. For each VITEA-Project the project database offers information about the project status, project resources, project staff, project goals and timing constraints. The project information can be shared and interchanged by all project participants through the community. The information stored in the VITEA-System is organized as a knowledge network that consists of objects and the relationships between them. The VITEA-Community acts as an expert system and offers FAQ boards, a chat system and a discussion forum to support the data interchange and social relationships between VITEA-Members.

Figure 1: VITEA-System



The main challenges in the context of mobile services are the awareness and to get the right information timely.

In the context of the VITEA-System we differentiate between three types of mobile services:

- information push
- information push on demand
- information pull

There is only few information which is passed on by using push technologies. This amount is limited to avoid disturbance of the user. Only very important or time critical information is distributed in this category. For example if there is a change in time or location of appointments or meetings the information is distributed to everybody concerned with this. Further more there is some information related to the project content, like milestone, notes or other project relevant news which will be passed on to all project members.

More information is offered by the service “information push on demand”.

If a team member is interested in specific categories of information, he or she can mark this categories to allow the transfer of this information to his or her mobile device.

Examples for this are:

- introduction of new project members
- new projects in the company
- new job announcements in the Company
- free-time activities (sorted by cities or regions)
- announcements of education, seminars, training or workshops
- conference deadlines

In addition to several push services the VITEA system offers pull services. Via VITEA the user can contact an “Information Broker”. This can be a person or a speech processing system, depending on the type of the requested information.

If a “mobile worker” needs information concerning project status, ability to contact project members, schedules, meetings (project meetings and private meetings), skills, experts or lessons learnt he contacts the system. This can be achieved via (mobile) phone, short message service, fax or internet. The required information will be transferred to the mobile device, e.g. cellular phone or personal digital assistant.

Figure 2: Conversion of knowledge (Nonaka/Takeuchi 1995)

	explicit	tacit
explicit	communication	internalization
tacit	externalization	socialization

Scenario:

Bob is a project member of the PROVIT project. On his way from Munich to Frankfurt for a meeting with project partners he receives a message via mobile phone that the meeting starts one hour later. He decides to use this time to make some calls. He requests the telephone numbers via a voice processing system and gets them by SMS. Additionally he calls the human information broker and asks her to send the related documents via email to his personal digital assistant. After finishing these calls he checks the news that has been send by the VITEA push services based on his personal criteria. He finds a message that members from other company projects are planning an informal meeting in Frankfurt and he decides to join them after the PROVIT meeting.

The main intention of the VITEA system is to bridge the knowledge gap between virtual team members and project member who are located in the same place.

The second aspect is the support of “learning by socialization” which is mostly a challenge for virtual projects. Besides the generation and distribution of knowledge the intention of the approach is to connect people. Usually the fourth quadrant of the following figure is hard to achieve in virtual projects.

4 CONCLUSION

The main challenge in the context of mobile project management is the availability of data, information and knowledge. The existing approaches are primarily focused on the exchange of data. The VITEA system goes one step behind and takes the requirements of users into account and makes it possible to access the relevant information and knowledge timely even if the project member is away from his or her office. It supports the communication between the project members by offering synchronous and asynchronous communication channels. The information broker is a person who passes on the required information and knowledge supported by speech technologies.

One of the remaining challenges is the maintenance of the knowledge base in an appropriate way. At the same time this is a key success factor of the usefulness of the system. The systems pre-condition is a well working project information and knowledge management system.

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