

# Web-based Project Management

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***Abstract:** Communication among companies and between clients and companies has been revolutionized by the Internet. Many systems with holistic and individualized service, sales and marketing concepts are available today. Project management means the continuous and goal oriented planing, supervision and control of relevant project parameters and requires adequate communication mechanisms.*

*In this paper we give an overview of basic communication concepts and present our approach of web-based project management which is based on these concepts and can be used for a variety of activities over the Internet. We have successfully used our approach for projects of a digital photography agency and a middle-class marketing agency.*

## 1. Introduction

The Internet allows new ways of communication both among companies and between clients and companies, e.g., b2b market places. New ways of collaboration are emerging also with clients enabling their participation in creative and inventive activities of individual products.

In this paper we describe a web-based project management system that enables companies to plan and execute business processes both with other companies and with clients. In Section 2 we describe basic concepts. Section 3 outlines our approach of web-based project management, including an example. In Section 4 we draw conclusions.

## 2. Basic Concepts

Office communication, groupware and workflow management comprise the basic foundation of our web-based approach to project management. They will briefly be described subsequently.

*Office Communication.* In company-wide networks, there are many different software concepts to support activities like writing letters or notes, administrating and finding documents, creating, forwarding and exchanging information [7]. Office communication systems should provide a variety of functionality and support users with many activities. They are supposed to increase the productivity of end users, to shorten office operations, to reduce media breaks, and to integrate

and combine information of various sources. Systems that provide solutions for these goals are distributed, have homogenous user interfaces with components like text processing, data administration, presentation software, etc.

*Groupware.* Computer supported cooperative work supports the collaboration of groups with common tasks without providing any control for these tasks [3, 7]. Groupware systems support cooperation in an unstructured, ad-hoc manner, provide information for all members of the group under a variety of access points, allow the possibility of simple data exchange, and allow various ways of collaboration.

*Workflow Management.* In contrast to more unstructured processes, it is the goal of workflow management systems to control the workflow among all members of a group that are involved in a certain business process. It is completely based on available procedures and, thus, only qualified for activities, which are well structured and standardized, i.e., routine activities with high manual effort. Workflow comprises a chain of processing steps that belong together and have to be taken care of within a certain period of time, across departments, according to well-defined rules with known information needs, and by people with certain abilities [3].

These concepts are being applied already within companies in various domains and departments. What we still lack is the utilization of these concepts across companies. Information and communication systems based on open and platform independent architectures are able to overcome geographic boundaries of workplaces.

### **3. Project Management**

Project management means the continuous and goal oriented planning, supervision and control of all relevant project parameters [4, 5, 6, 7]. In this context, a project is a nonrecurring, complex, and new intention with scarce resources and defined deadlines. It is performed under the participation of various departments or companies [4]. Projects can be viewed as a sequel of logically linked and time consuming procedures that result in state modifications. They can be divided into phases which are described by major milestones at the beginning and at the end of a phase [1].

A web-based project management system has to fulfill various requirements in order to integrate the concepts of groupware as well as workflow management and distributed project management. They include scalability, modularity, simplicity, communication, notification, project teams, document management, authorization, calendars, responsibilities, and project evaluation. Simple interfaces for the integration of existing systems is unalterable. In addition, state of the art security and encryption mechanisms are of utmost importance.

#### **3.1 Functionality**

The functionality of our web-based project management tool includes: master data, project structure, grouping of team members, digital documents, version management, resource management, message center, discussions, form editor, event agent, notification agents, workflow management, HTML editor, team calendar.

The modular structure allows customization of layout, offered functionality, menu options and company interaction. Thus, the user interface can be restricted to a subset of functions depending on the organizational relation among interoperating parties. Each involved project member will be faced with an application screen that had been designed by the organization responsible for the project. Additionally, companies can be embedded in the project structure in any level of the

hierarchy. Thus, they may not see projects and companies that are higher up in the hierarchy. Based on this flexibility it is possible to realize different project management setups [2].

### **3.2 Example**

We have used our application for various forms of project collaboration, e.g., business-to-business (b2b) project management between companies organized as virtual enterprises, vertical hierarchic b2b project management between a prime contractor and its legally independent sub-contractors, and business-to-consumer project management between companies and clients creatively interacting in the process of developing a customized product.

Our main focus has been on supporting middle-class marketing and photography agencies that both easily wanted to present their drafts and project progresses to their customers and wanted to give them the opportunity to be integrated in the process of the project by providing feedback to the agency. The agency can restrict operations performed by their clients. Thus, the agency's view and the client's view provide different customized menus on the screen [2].

Our implementation is a server-side Java-based web application and can be used with any regular web browser like MS Internet Explorer and Netscape Navigator.

### **4. Conclusion**

In this short paper we have given an overview of the basic concepts of office communication. We have then presented ideas for a web-based system for project management that are based on these concepts. Such a web-based system can be used for a variety of activities over the Internet, including office communication, groupware and workflow management. This can be achieved by simply managing some meta data and other resources. Projects of a digital photography agency and a middle-class marketing agency have successfully been managed with the help of our tool.

### **5. References**

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