Course Description

Web Project Management

Contents

The Big Idea

Project Management has emerged during the last two decades to a discipline with a established set of concepts and methods. The importance of the management of projects has been growing rapidly with some organizations even becoming projectized as they operate in such volatile business environments as the Web. The task of project management in such environment is often assigned to a person being also responsible for business analysis and business lead. In sense of the multidisciplinary approach of Web Science therefore is is important for professionals in the field to be acquainted with the established knowledge of project management.

Contemporary Web projects differ from traditional IT projects in some constituing aspects:

1. Web projects can rely on other publicly and privatly available services based on open standards allowing Web projects to be focussed and lightweight. While the Web favours loose coupling between services those dependencies and interfaces still have to be maintained.
2. Building an application composed of smaller Web based services allows to have different teams work on different aspects. Choosing such architecture will have a significant impact on both the organizational structure and project management itself.
3. The dynamic of the Web creates a lot of opportunities but the time frame for a response is short. In order to accommodate this, Web projects have to be tuned to an environment characterized by high speed, high change and high uncertainty.

In this course, project management terminology and methods are introduced with the special nature of contemporary Web projects in mind. According to the multidisciplinary nature of Web Science the scope of project management includes due consideration of organizational, societal issues along with the implementation of the software.

Intended Learning Outcomes

After participation in the course, the students

- are able to explain the specifics of Web projects
- are able to explain key terms and definitions of the domain of project management
- are able to analyze the environment of a project and make rational choice of the project management methodology
- are able to establish a management of continuous process improvement
- are able to comfortably and successfully participate in a Web project and balance between different stakeholders
- are able to confidently take on the role as project manager

Structure of the Course

Introduction

In the introductory part of the course the discipline of project management is introduced. The question of what is a project is discussed and the the term project is delineated from terms like program, task and activity. The constraints Scope, Quality, Cost, Time and Resources are discussed and put in relation. The importance of and approaches to classification of projects is then introduced. The ever changing environment, in which projects are being performed is characterized and the question is discussed what uncertainty and change means for the selection of project management approaches. Material for this introduction is contained in the introduction and in chapter 1 of the textbook by Wysock[1].

Key Concepts from the Project Management Body of Knowledge (PMBOK)

For the establishment of key concepts for project management the relies on the "A Guide to the Project Management Body of Knowledge (PMBOK Guide)"[2], published by the Project Management Institute (PMI, PMI official website). The PMBOK Guide is process-based, meaning it describes work as being accomplished by processes. This approach is consistent with other management standards such as ISO 9000 and the Software Engineering Institute's CMMI. Processes overlap and interact throughout a project or its various phases. Processes are described in terms of:

- Inputs (documents, plans, designs, etc.)
- Tools and Techniques (mechanisms applied to inputs)
- Outputs (documents, products, etc.)

As a simple form of formulating the fundamental aim of project management six questions are formulated that are to be answered by the project management:

- what business situation is being addressed
- what do you need to do
- what will you do
- how will you do it
- how will you know you did it
- how well did you do

The five process groups defined in the PMBOK are then introduced, namely Scoping, Planning, Launching, Monitoring and Controlling, and Closing. The nine knowledge areas defined in the PMBOK are then introduced with emphasis on Scope Management, Communications Management, and risk management.

Study material for this section can be found in in part I of the textbook by Wysocki[1] and of course in the official desciption of the Project Management Body of Knowledge[2]. If you're looking out for another approach to learn about the PMBOK the Head First PMP[3] is worth a shot.

Project Management Life Cycles and Strategies

The five Process Groups and Knowledge Areas defined by the PMBOK are building blocks allowing to define project management life cycles suited for the characteristics of the project. The project management landscape as introduced by Wysocki[1] will be discussed. It categorizes projects based on two characteristics: goal and solution. Both can either be clearly defined or not clearly defined. Based on this landscape in the sequel five project management life cycle models (PMLCs) are introduced and discussed:

- traditional project management
- critical chain project management
- agile project management
- extreme project management

Study material for this section can be found in in part III ("Complex Project Management") of the textbook by Wysocki [1].

Agile Project Management

Traditional project management should be used in projects where both the *goal* and *solution* are well known beforehand. Due to earlier discussed specifics of Web projects those two are not always well known at project start. Technologies used in web based projects are evolving fast and the goal may need adjustment over the course of the project. Thus traditional project management techniques may not be the best fit in such an environment.

As described in part III of the textbook by Wysocki[1] agile project management is better suited for such projects. While there are many different concrete methodologies this course will focus on the usage of Kanban. Kanban is very simple and can be utilized in a lot of different domains.

The case study presented in the textbook by Kniberg[4] accompanied by the textbook by Skarin[5] form the basis for the application of Kanban in different project settings during the course.

Those who are interested to delve deeper into the agile project management approaches may find valuable information in the textbook by Cobb[6].

Context of a Project

Most web projects (like any other software projects) will not be executed in isolation. Besides well-known constraints like budget and time organizational structures, existing infrastructure and company politics will eventually have an impact on the project and must thus be taken into account by project management.

Regarding Conway's law[7] the architecture of the software created will reflect the communication structures of its surrounding organization. This should be kept in mind when designing the architecture of a new project. A too different approach compared too others systems could lead to unexpected problems down the road. The same goes for very different choices regarding the project management methodology.

This should not discourage to break new ground. Trying something different is more often then not a good choice. But one needs to keep in mind the possible consequences and conflicts that may be provoked. A project manager should have some strategies prepared for such scenarios.

Didactic Concept, Schedule and Assignments

The course is built upon online workshops as well as on asynchronous cooperation in the form of discussions and clarifications through E-mail, discussion forums, and other tools in the learning platform. The online workshops take place on three evenings as synchronous events with a duration of three hours each.

Within the limited workload available for the workshops and the individual work, the topics of this course can only be treated in the form of a overview.

The learning process is split into two parts, consisting of two phases each. The first part will focus on traditional project management and second part will be dedicated agile project management. Each phase starts with a brief introduction by the lecturer of around 30 minutes. Then learning teams are established of around 3 to 4 students. The teams have the task to acquire the relevant concepts, clarify questions, formulate glossary entries, questions, assumptions and hypotheses during the phase. This work is supposed to mainly take place asynchronously. The phase concludes with discussing questions, assumptions and hypotheses and working on assignments based on the acquired knowledge.

Besides discussions and exchanging personal experience on the different topics the key concepts will be conveyed by working on case studies.

The results of each workshop should be delivered in form a short presentation which includes:

- A description of the assigment

- Key entries from the glossary for the given assignment
- A summary of the findings, results or solutions of the assignment
- Personal highlights during the work on the assignment
- A short conclusion

The goal is to be able to express and communicate results in a concise and accurate form.

Preparing the Participation

In the sequel material is provided, that could be used to get into the topic before the semester starts. That also puts you into the position to handle some of the "reading workload" in more comfort than is possible during the semester.

Please make sure, that you have access to the main literature for the course, the textbooks by Wysocki[1], Kniberg[4] and Skarin[5].

In oder to open your mind for the topics of the workshop it is a good idea to reflect on the IT projects in the commercial context that you have been involved in so far. Think about what went wrong and what worked well and create your personal hot topic list of themes in project management, where you strive to answers for.

Part I ("Understanding the Project Management Landscape") of the textbook by Wysocki is good preparation of the course and would be most important to work on. As the course goes on we will also cover most of Part III ("Complex Project Management").

Introductory Lesson on Site

The introductory lesson is used to lay out the objectives and the approach of the course, and to introduce the first phase of the first part.

In the first phase the introduction is treated and the case study *Pizza Deliverd Quickly* is introduced. For the upcoming asynchronous phase, the groups are requested to produce glossary entries and to work on assignments referring to the introduction. In addition, the students are asked to work towards an understanding of the process groups and knowledge areas. They are asked to formulate questions and hypotheses for this topic.

1st Online Workshop

The first workshop concludes the first phase in a plenary session, where selected groups present their results. Selected questions, assumptions and hypotheses will be discussed and clarified. The glossary entries will be critically discussed.

The second phase is then introduced with a lesson of about 30 minutes. In the second phase the topic *launching*, *planning*, and *monitoring* are focussed. The groups then work in virtual breakout rooms on a first assignment dealing with planning and monitoring. Selected results are then presented in the plenary.

Assignments for the upcoming asynchronous groupwork phase are explained. The assignments deal with the elaboration of artifacts for the case study and working towards an understanding of launching, planning, and monitoring. In addition questions, assumptions and hypotheses should be formulated.

2nd Online Workshop

The second workshop concludes the second phase in a plenary session, where selected groups present their results. Selected questions, assumptions and hypotheses will be discussed and clarified. The solutions to the assignments will be critically discussed focussing on the identification of design alternatives.

The second part is then introduced with a lesson of about 30 minutes. Subject of this part will be the case studies presented in Kniberg[4] and Skarin[5] and will focus on Kanban as an agile project management method. The groups then work in virtual breakout rooms on identifying key differences to the traditional project management approach discussed earlier. The glossary should be extended as appropriate. Selected results are then presented in the plenary.

Assignments for the upcoming asynchronous groupwork phase are explained. The assignments deal with the elaboration of artifacts for the case study and working towards an understanding of Kanban as methodology. In addition questions, assumptions and hypotheses should be formulated

3rd Online Workshop

The third workshop concludes the third phase in a plenary session, where selected groups present their results. Selected questions, assumptions and hypotheses will be discussed and clarified. The solutions to the assignments will be critically discussed.

The second and last phase is then introduced with a lesson of about 30 minutes. This phase will concetrate on comparing the different case studies. The groups then work in virtual breakout rooms and highlight advantages and disadvantages of the presented approaches. Personal experience of the students is highly appreciated in this phase and should be presented as well. Selected results are then presented in the plenary.

Assignments for the upcoming asynchronous groupwork phase are explained. The assignments deal with embedding projects in their bigger scope and respecting organizational and technical constraints. In addition questions, assumptions and hypotheses should be formulated.

Concluding Workshop on Site

This on site workshop concludes the fourth phase and the course as a whole in a plenary session, where selected groups present their results. Selected questions, assumptions and hypotheses will be discussed and clarified.

As a final chapter different approaches of staying connected and keeping up to date in the software world will be discussed.

References

↑ [1.0] [1.1] [1.2] [1.3] [1.4] [1.5] Wysocki, Robert (2014). Effective Project Management - Traditional, Agile, Extreme, seventh edition. Wiley Publishing Inc.

↑ [2.0] [2.1] PMI (2017). A Guide to the Project Management Body of Knowledge, 6th edition. Project Management Institute.

↑ Greene, Jennifer; Stallman, Andrew (2015). *Head First PMP*. O'Reilly Media, Inc..

↑ [4.0] [4.1] [4.2] Kniberg, Henrik (2011). Lean from the Trenches - Managing Large-Scale Projects with Kanban. The Pragmatic Programmers, LLC.

↑ [5.0] [5.1] [5.2] Skarin, Mattias (2015). Real-World Kanban - Do Less, Accomplish More with Lean Thinking. The Pragmatic Programmers, LLC.

↑ Cobb, Charles (2015). The Project Manager's Guide to Mastering Agile: Principles and Practices for an Adaptive Approach. Wiley.

↑ Conway, Melvin (1967). *How Do Committees Invent?*. http://www.melconway.com/Home/Conways_Law.html.

27.02.2019