Master’s Thesis

Project On-boarding Processes
Information provision and knowledge transfer to new project team members

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Abstract

Project work is very common in today’s organizations. For various tasks projects are even the dominant organizational form in practice. Compared to the work in the line organization projects are for example cross-functional and temporarily. Due to this aspect, the staffing process occurs more regularly than in the standard line organization. However, the on-boarding process of new project team members – in this work understood as the practices to integrate the newcomers into the existing project team – is not covered by a lot of research results.

Research projects focus rather on other aspects of knowledge management in project contexts. In addition, related fields do only provide limited insights into the process of new team member project on-boarding. Thus, a gap in existing research result remains. This research project aims to close this gap and to provide insights into the process of project on-boarding. To provide practical guidance concrete aspects of the on-boarding like useful information sources and successful methods are investigated. More specifically the following research questions guide the project:

- Which methods & tools are used to provide employees project-related information during the introduction phase, how are they used in practice and how effective are these methods?
- Which information sources do new project team members search actively to get the information required to fulfill their new tasks, how are they used and how effective are these information sources?
- How are the various on-boarding processes structured, coordinated and monitored in practice and how effective are the on-boarding processes?

To investigate the subject the research project is structured as follows: Based on a literature review a quantitative survey (web-based questionnaire) is designed. The responses are analyzed and a quantitative overview of the applied methods, the used information sources and the on-boarding results is given. In a qualitative research step, additional interviews are performed to cover more complex aspects of the on-boarding process and to complement the quantitative results. The interviews with the project managers and project team members are analyzed to develop detailed descriptions.

Based on the analysis of the overall responses, the following can be summarized: Successful project managers do carefully analyze the project context to structure the on-boarding process accordingly. The curiosity and openness of team members is emphasized on and is often increased by an active communication of the project goals, the development of the project and the specific role and expected contribution of the newcomers. Project managers need to be highly available for the new team members because they are appreciated as the number one source of information during the project encounter.
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1 Introduction

1.1 Background

Project work is very common in today’s organizations. The range goes from new product development over software implementation to reorganization projects. Thus, for various tasks projects are the dominant organizational form in practice (Winch, 2000, 117). Accordingly, a huge body of knowledge and best practices is developed in the field of project management to support today’s organizations. Also, to support the professionalization of project work, various organizations were founded, i.e. the Project Management Institute or the International Project Management Association. Those organizations publish regularly studies on project work and do also educate and certify project members and project & program managers (Tonnquist, 2006, p. 342).

Compared to the work in the line organization projects are for example temporarily and cross-functional. Thus, they need to be managed differently compared to the ongoing operational work (Project Management Institute, 2008, p. 22). Due to the limited time projects last, the staffing process occurs more frequently than in the standard line organization. In a typical project lifecycle, the planning phase is followed by executing the project work. At this point, at the latest, the project manager and the already existing project team needs to be supported by additional staff. This logic applies to every project because of the definition of a project itself.

The on-boarding processes into organizations had been widely analyzed (see for example Van Maanen & Schein, 1979, p. 209; Ostroff & Kozlowski, 1992, p. 849 or Morrison, 2002, p. 1149) for many years. However, project on-boarding – in this work defined as the practices to integrate new members into the existing project team – has not been investigated to the same extend in the latest years. This is somewhat problematic having in mind the extend projects are carried out in today’s organizations and the requirement to on-board virtually the entire project team for every project.

1.2 Previous Research

As stated earlier the coverage of specific research results on the project on-boarding is rather low. The research focuses rather on the knowledge transfer across project, especially for project oriented organizations (Bresnen, Edelman, Newell, Scarborough & Swan, 2003, p. 157; Prencipe & Tell, 2001, p. 1373 or Hanisch, Lindner, Mueller & Wald, 2009, p. 148) or on the handover of project result to the line organization (Schindler & Eppler, 2003, p. 219), once the project is finished.

This lack of theoretical foundation and available literature can partly be covered by applying results from related fields. For decades, for example, researchers investigated the process of organizational socialization (Ostroff & Kozlowski, 1992, p. 849 or Morrison, 1993, p. 173) defined as the process of
individuals acquiring the knowledge, the behavior and the required attitude to successfully become a member of an organization (Van Maanen & Schein, 1979, p. 209). This research covers topics like which information is provided from whom (Comer, 1991, p. 64; Miller & Jablin, 1991, p. 92; Morrison, 1995, p. 131 or Morrison, 2002, p. 1149) or how modern technologies are used for the organizational on-boarding (Wesson & Gogus, 2005, p. 1018).

Other areas that potentially provide insights are the fields of computer based training and IT applications for knowledge management. The software market for applications to support project work is growing fast, keeping the pace of the use of project work in today’s organizations (Raymond & Bergeron, 2008, p. 213). Therefore, in practice, many on-boarding processes and on-the-job training are – at least partly – supported with modern technology. Therefore, research on the effectiveness of web-based training can be consulted to find factors describing under which conditions web-based training is favorable compared to i.e. class room training and therefore could be used to transfer information and knowledge to newcomers. Also the specific advantages of web-based training like the free choice of practice level or the time on different tasks (Brown, 2001, p. 271) or the specific disadvantages like the limited social richness (Wesson & Gogus, 2005, p. 1019) can be taken from this literature.

However, even if these researchers provide valuable insights into the usage of web-based training, the research focuses heavily on isolated trainings of employees in rather stable circumstances; say training on the usage of one new system (Liu, Chiang & Huang, 2007, p. 217) but not in project contexts.

It can be summarized, that related fields do only provide limited insights into project on-boarding. Thus, a gap in existing research results can be argued (Sandberg & Alvesson, 2010, p. 23). This research project aims to close this gap and to provide insight into the process of project on-boarding.

1.3 Purpose of the study

This research project aims to contribute to the understanding of the information provision and knowledge transfer to employees taking over a role in a project within their own company.

To investigate these aspects the applied methods for the project introduction and the information sources the project team uses will be investigated and their effectiveness for the project on-boarding will be determined. More specific the following research questions will guide the project:

- **Q1**: Which methods & tools are used to provide employees project-related information during the introduction phase?
- **Q2**: How are the various methods & tools for the on-boarding of project newcomers used in practice and how effective are these methods?
- **Q3:** Which information sources do new project team members search actively to get the information required to fulfill their new tasks and how effective are these information sources?
- **Q4:** How are the various information sources for the on-boarding of project newcomers used in practice?
- **Q5:** How are the various on-boarding processes structured, coordinated and monitored in practice?
- **Q6:** How effective are the on-boarding processes during the introduction to a new project and which factors drive the effectiveness?

The relationship between the research questions and the connection to the research steps is shown in the following figure:

![Figure 1: Research questions](image)

### 1.4 Practical Relevance

As stated earlier, today’s organizations are heavily using projects to perform critical tasks of their business, i.e. product development or software introductions. Due to the necessity to integrate new team members into projects and project teams, the research problem is of high relevance to today’s organizations in general and those with a large part of project work in specific.

The *target audience* for the research results is therefore literally everybody involved in project work. Those that are in the on-boarding process onto a running project can get ideas on how to assess different kind of information. Furthermore, individuals that are in charge of getting new project team members up to speed can benefit from the experiences of others.

### 1.5 Limitations

Due to the broad variety of project contents, knowledge management in general and the knowledge transfer in specific vary across projects. Even if some basic project management methods & techniques are applicable to
every project, it seems that the applied knowledge management needs to follow the content that should be transferred.

Due to the limit time and sample size the developed recommendations may not be generalized to each and every project. Even if a broad variety of project types and industries were covered by the participants, the research project is far away from being representative for any industry, project type etc.

Another limitation comes from the cultural aspect in knowledge management. Differences in specific procedures and organizational routines can make changes of the findings necessary for the application in the own organization and projects. Thus, the findings of this research need to be critically reviewed before applying to other projects.

1.6 Summary

As shown in this first section of the work, a research gap exists in the field of project on-boarding practices. This highly relevant field is not sufficiently covered with respect to its practical relevance. This work aims to contribute to this coverage by giving an overview of project on-boarding processes in practice and by developing recommendations for their design and execution. To do so the remaining work is structured as follows: Chapter 2 lays the theoretical foundation for the research project. In chapter 3 the methodical approach for the research project will be developed, containing a quantitative and a qualitative research step. The results of the quantitative research step are then given in chapter 4, where chapter 5 contains the analysis of the qualitative research step. Chapter 6 contains a synopsis of the overall results, followed by a discussion of the research results in chapter 7.
2 Theoretical Background

The main relevant theoretical fields to this research project are the following: (i) the project management lifecycle, (ii) knowledge management in project contexts, (iii) on-boarding practices for organizational newcomers and (iv) the role of information technology in the process of knowledge transfer.

2.1 Usage of theory in the research project

Purpose and benefit of the theoretical part and the short literature overview in the beginning of the research are

- to sharpen the research questions, the methodical approach and the methods used to collect and analyze data,
- to develop the online questionnaire and
- to develop the interview guideline.

Therefore, the foundational literature and theoretical concepts to this research project – out of the fields of knowledge management in project contexts and on-boarding practices for organizational newcomers – will be discussed briefly in the following sections.

2.2 Basic definitions of key terms of the research project

To think productively about the research questions and the challenges and problems that occur during the first weeks when individuals join a project team requires to define the on-boarding process and to distinguish between knowledge and information.

Researchers did investigate the situation when individuals join an organization for decades. This organizational on-boarding is commonly defined as the process of individuals acquiring the knowledge, the behavior and the required attitude to successfully become a member of an organization (Van Maanen & Schein, 1979, p. 209). This definition combines three levels of organizational integration (i) knowledge, (ii) behavior and (iii) the underlying attitudes or values. The basic goal of this process can be seen as the complete integration of the newcomer to be a valuable member of the team.

Following this definition, on-boarding, in this survey, is understood as the practices to integrate new members into the existing project team, i.e. provide the required information, build up the necessary knowledge, make them familiar with the social processes and build up work relationships to contribute to the project goals. The on-boarding period is the time where on-boarding is the main focus of the performed activities.

Also fundamental to this work, is the differentiation of data, information and knowledge. A common differentiation of these terms can be found at Davenport and Prusak (2000, p. 2):
**Data** is a basic description or observation of reality. Data does not include any interpretation, i.e. the records of transactions. Data tells nothing about the underlying reasons for an outcome or gives guidance for future actions.

**Information** is interpreted data, i.e. patterns where discovered, or a certain structure is added to use the data in a specific way. By this, information gains relevance and a purpose.

**Knowledge** builds on information but is generated by human reflection and experience. Furthermore it depends on the very situation and is action or decision oriented and goal focused.

### 2.3 Literature on Organizational On-boarding Practices

The research on on-boarding practices for permanent positions in the organization covers various topics. The following section gives an overview of the relevant research results.

#### 2.3.1 Types of useful information during the organizational encounter

One major field of interest is the question **what kind of information** is needed in the organization encounter (Comer, 1991, p. 64; Miller & Jablin, 1991, p. 92; Morrison, 1995, p. 131 or Morrison, 2002, p. 1149). Morrison, for example, differentiated between 7 categories of information items (*other researchers differ only slightly from this structure, see for example Comer, 1991, p. 68 or Wesson & Gogus, 2005, p. 1019):

1. **Technical information**, i.e. how to perform specific aspects of the job or how to balance the demands of the job.
2. **Referent information**, i.e. performance standards of the job, authority level of the role or objectives of the position.
3. **Social information**, e.g. how to get along with colleagues or how to behave in the organizational surrounding.
4. **Appraisal information** (Feedback on how well one is performing the tasks, need for improvement etc.)
5. **Normative information**, i.e. organization’s history, philosophy, goals.
6. **Organizational information** (organizational structure, financial position etc.)
7. **Political information**, e.g. actual decision making processes, who’s who, etc.

Research results show that organizational newcomers assess appraisal and referent information as the most useful. Objective information about the organization – normative information and information about the organizational structure – was assessed as the least useful (*Morrison, 1995, p. 144*). Interestingly, social information was ranked lower than political and
technical information, which shows a very high degree of task orientation when starting a new position.

Because these types of information can be found at different information sources another research directions asks the question from whom the different information types are acquired. Comer focuses, for example, on the information acquisition from peers (Comer, 1991, p. 68), Ostroff and Kozlowski investigate the role of mentoring (1993, p. 170) and Wesson and Gogus examine the usefulness of computer-based training for the transfer of information to newcomers (2005, p. 1018).

Morrison found a very specific and robust combination of information type and seeking tactic in her research on the information-seeking modes of newcomers (1993, p. 576). Newcomers turned to peers mainly for normative and social information. Supervisors were conducted for information about normative information and about performance standards and feedback.

2.3.2 Searching methods

Another branch of research focuses on the methods applied when searching for valuable information. Ashford differentiates between two different information seeking tactics: Monitoring vs. inquiring (1986, p. 472). Of special interest to the research are the different costs and the different types of costs connected with these different tactics. When a person joins a team actively asking for help is two folded: The newcomers can get the information asked for from, for example, the peer. However, the peer could also think that the newcomer should know this information based on his background, experience etc. Therefore, the option to actively ask for information comes with the risk to lose one’s reputation. If the individual assesses the expected costs of losing reputation higher as the benefit of achieving the information, than the passive observation will be chosen instead of asking.

Moreover, the literature on organizational entries provides further categories of benefits and costs in this situation. The positive value of active information acquisition has been understood as feedback diagnosticity, goal orientation or source credibility. The costs of the information acquisition was conceptualized as the expected effort, the social costs, i.e. loosing reputation, negative performance expectations, the presence of audience and low self-confidence (for the full overview of costs and benefits see Morrison & Vancouver, 2000, p. 120). Following this rationale the information acquisition of new team members can be differentiated between active methods and passive means to acquire information.

2.4 Literature on the Project Management Lifecycle

The PMBOK Guide, published by the US based Project Management Institute, defines a project as “a temporary endeavor undertaken to create a unique product, service or result” (Project Management Institute, 2008, p. 5).
Even if the product deliverable is unique in nature, various standards to perform the project work are established (see for example the overview of different certification possibilities at Tonnquist, 2006, p. 342).

One part of these standards is the project methodology including a project lifecycle model that defines the order the various parts of the project work should be carried out. While project work became popular in a broad variety of industries, several project life cycle models evolved (Bonnal, Gourc & Lacoste, 2002, p. 12). The following table gives a short overview of the basic phases, alternative terminologies and contents (compare also Labuschagne & Brent, 2005, p. 163):

<table>
<thead>
<tr>
<th>Phase</th>
<th>Alternative names</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiation</td>
<td>• Proposal</td>
<td>• Generation of the idea for a new product or service</td>
</tr>
<tr>
<td></td>
<td>• Concept</td>
<td>• Preparation of the first proposal for the development of the new product or service</td>
</tr>
<tr>
<td></td>
<td>• Idea generation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ideation</td>
<td></td>
</tr>
<tr>
<td>Pre-feasibility</td>
<td>• Initial / preliminary investigation</td>
<td>• Evaluation of the prepared proposal with respect to financial, operational and technical viability</td>
</tr>
<tr>
<td></td>
<td>• Initial assessment</td>
<td>• Matching into the corporate strategy and the organization’s project portfolio</td>
</tr>
<tr>
<td></td>
<td>• Evaluation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Research</td>
<td></td>
</tr>
<tr>
<td>Feasibility</td>
<td>• Detailed investigation</td>
<td>• Identification of the best solution to address the business needs</td>
</tr>
<tr>
<td></td>
<td>• Definition</td>
<td>• Analysis and assessment of the solution</td>
</tr>
<tr>
<td></td>
<td>• Business case</td>
<td>• Determination of major risks</td>
</tr>
<tr>
<td></td>
<td>• Authorization</td>
<td></td>
</tr>
<tr>
<td>Development &amp; execution</td>
<td>• Implementation</td>
<td>• This phase includes the detailed planning, design and development of the new product or service</td>
</tr>
<tr>
<td></td>
<td>• Realization</td>
<td>• Creation of supporting systems, manuals, processes and trainings</td>
</tr>
<tr>
<td></td>
<td>• Production</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Construction/Build</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Development</td>
<td></td>
</tr>
<tr>
<td>Commissioning</td>
<td>• Trial</td>
<td>• Testing of the solution in the operational environment</td>
</tr>
<tr>
<td></td>
<td>• Beta test</td>
<td>• Validation of acceptance, problem-solution-fit and capabilities</td>
</tr>
<tr>
<td></td>
<td>• Validation</td>
<td></td>
</tr>
<tr>
<td>Launch</td>
<td>• Release</td>
<td>• Handover to the business units, thus released into the operational environment</td>
</tr>
<tr>
<td></td>
<td>• Completion</td>
<td>• Introduction into the operational production and support</td>
</tr>
<tr>
<td></td>
<td>• Implementation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Handover</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Acceptance</td>
<td></td>
</tr>
<tr>
<td>Post Implementation Review</td>
<td>• Business review</td>
<td>• After sufficient time the developed product is measured for its benefits</td>
</tr>
<tr>
<td></td>
<td>• Project audit</td>
<td>• Impact analysis from the customer</td>
</tr>
<tr>
<td></td>
<td>• Post project review</td>
<td></td>
</tr>
</tbody>
</table>
While the number of phases, the used terminology and the specific steps performed in each phase differ, the basic idea – using a common framework to sequentially structure the work – remains the same, as the PMBOK Guide state: “the life cycle provides the basic framework for managing the project, regardless of the specific work involved” (Project Management Institute, 2008, p. 15). The PMBOK Guide suggests a project life cycle consisting of the following four stages:

1. Starting the project
2. Organizing and preparing
3. Carrying out the project work
4. Closing the project

Due to the broad acceptance and world-wide coverage of the standards provided by the Project Management Institute (Lehmann & Spiegel, 2009, p. 18), this four phase project life cycle model will be used to structure the relevant aspect of this work.

As a project develops through the phases, work contents change substantially. During the start of a project a strong focus lies on the development of a business idea and a corresponding concept for a service or product. Further on, structuring, organizing and planning is the focus of the project activities and staffing aspects play an important role. As the project continues, other contents are becoming more important.

The differences within the project phases were also subject to various research projects. Pinto and Prescott investigated the importance of critical success factors in the different phases in the project life cycle (1988, p. 5). In a field study conducted among over 400 project managers and project team members the researchers found that different factors are crucial for the success during the course of a project (Pinto & Prescott, 1988, p. 13). Where a clear project mission and extensive client consultation are highly important during the early stage of a project, technical knowledge about the best solution, an effective staffing or a detailed schedule are less important. On the other hand, when carrying out the project work, technical skills and a clear and detailed project plan are critical to the project’s success (Pinto & Prescott, 1988, p. 14).

These research results are complemented by Weinkauf and Hoegl who investigated the change of leadership activities across the project life cycle (2002, p. 171). In a large-scale product development project in the automobile industry, involving 39 teams and a duration of 36 months, Weinkauf and Hoegl performed a survey study on the change of the dominant leadership activities at different stages in the project. After 12 months into the project a standardized questionnaire was provided to all project members and the same questionnaire was provided again in month 24 of the project. The researcher found some changes in the importance of various leadership
activities: Setting goals, determine the project approach, planning resources and determine values & norms were rated as more important after the first 12 months of the project. On the other hand, after 24 months of the project, ratings were higher for securing resources, granting autonomy to the team and rewarding team members as well as giving feedback to them. Even if these results only base on a single project and the changes were not substantially, the results are supported by other empirical findings (Adams & Barndt, 1988, p. 206 and Pinto & Prescott, 1990, p. 305).

For the purpose of this research the following can be concluded: When people join a project in different stages the information requirements and knowledge needs change accordingly. Because different methods and information sources are applied to transfer this information and knowledge, the information sources and on-boarding methods should also change depending on the phase in which new project team members join the project.

2.5 Literature on Knowledge Management in Project Contexts

Knowledge management in project contexts differ substantially from its application in the permanent organization. The basic definition of a project and its specific aspects give a good starting point for the identification of the various challenges. The following tables summarizes the argumentation and gives an overview of the corresponding challenges:

Table 2: Principal challenges for project knowledge management

<table>
<thead>
<tr>
<th>Project characteristic</th>
<th>Challenges for Knowledge Management in Projects</th>
</tr>
</thead>
</table>
| Temporary endeavor               | • Changing teams and working constellations (Principe & Tell, 2001, p. 1373), including the pre-determined termination of the project team, once the result is achieved (Schindler & Eppler, 2003, p. 220).  
  • Temporary aspects hinder the development of organizational practices and rules to transfer knowledge (Bresnen et al. 2003, p. 157).  
  • Lack of structure and ICT-infrastructure serves as an obstacle for effective knowledge transfer (Karlsen & Gottschalk, 2004, p. 6; Davenport & Prusak, 2000, p. 125). |
| Geographical dispersed & intercultural | • Physical and cultural barriers increase the challenge in knowledge transfer (Boh, 2007, p. 28).                                                                                                                                               |
| Cross-functional                 | • Barriers in terms of language, shared understanding and values etc. (Newell et al., 2003, p. 84; Bresnen et al., 2003, p. 157).                                                                                                                    |
| Development of a certain / unique product or service | • Short-term orientation, therefore the time-lag of the investment into knowledge management hinder the initial investment (DeFillippi & Arthur, 1998, p. 127)                                                     |
Overcoming these obstacles is the principle challenge in project knowledge management and the corresponding research. This discipline, however, is rather young (Bresnen et al., 2003, p. 157). Thus, the coverage can be called incomplete. However, some researchers and the corresponding research results provide a foundation for further research and also this work.

In the following figures the relationship between different projects of a certain organization and the relationship between the ongoing, permanent organization is shown. The existing body of research can be structured accordingly.

![Project knowledge management approaches](Disterer, 2005, p. 515)

### 2.5.2 Knowledge management between projects

Prencipe and Tell investigated the inter-project learning that occurs in project-oriented organizations (2001, p. 1373). The authors analyzed the mix of certain methods the organizational members applied to learn from other projects. This can happen on an individual level, on a project level as well as on the organizational level. The authors identified different organizational and project team patterns towards inter-project. These patterns were quite stable across the various projects and are based on organizational factors.

All these methods are based either on the **codification of knowledge** and the sharing of these documents with other member of the organization, i.e. project history files or a lessons learnt database, or direct **face-to-face communication** of project members, i.e. project manager camps or inter-project meetings. These principal approached to knowledge management were also identified in project oriented firms. Hansen, Nohria and Tierney differentiated in their research on the knowledge management at major consulting firm two different approaches (Hansen, Nohria & Tierney, 1999, p. 107). The **codification strategy** focuses on the storage and reuse of the generated knowledge, thus large economies of scale can be achieved when distributing manual, documents etc. throughout the company. The **personalization strategy**, in contrast, strives to connect the experts in a
company and by this, to bring the right people together supported by communication technology.

2.5.1 Knowledge transfer to the routine organization

Projects are performed to develop a certain product, service or result that should be utilized by the regular organization once the project is completed. However, during the course of the development, knowledge and experience was created to developed this very project result. Transferring this valuable knowledge to the organization as well as to following projects was the object of another direction of research projects. This aspect is of high value especially to organizations that work commonly in project structure, i.e. the construction or the consulting industry.

Some authors investigate how project teams or organizations capture the created knowledge for later usage, i.e. by lessons learned sessions or post-project appraisal (for a detailed list of methods see for example Schindler & Eppler, 2003, p. 222 & 225). Fuller, Dainty and Thorpe developed a set of methods and concrete events to enhance the development of usage of project lessons learned (2011, p. 125). By documenting the key points on ”benefit cards” the possibility of sharing and using the lessons learned can be increased (Fuller, Dainty & Thorpe, 2011, p. 129).

Schindler and Eppler analyzed practices and success factors for capturing project lessons learned and the gained experience (2003, p. 219). They qualitatively reviewed several methods to capture project knowledge and developed a set of recommendations to improve project knowledge management in total. They demand, for example,

- a more professional use of the format the knowledge is documented in,
- the process of the capturization and
- the use of earlier collected lessons learned.

The authors suggest to establish certain project roles to facilitate knowledge documentation in every phase during the course of the project and to integrate learning into the project goals (Schindler & Eppler, 2003, p. 225).

2.5.3 Project knowledge management success factors

Some authors investigated knowledge management in project contexts from a more generic viewpoint. They do not focus on certain methods, systems or technologies, instead the social factors and processes are the objective of their research. This stream of project knowledge management research goes along with the development of knowledge management research in the routine organization. Authors like Bresnen or Sense emphasized the critical role of ”softer” factors like leadership, climate or relationships to other members of the organization (Bresnen et al., 2003, p.
This branch of research follows the differentiation of a rather personalized approach to knowledge management in contrast to the systems approach (for a structured comparison see for example the overview at Hansen, Noria & Tirney, 1999, p. 109).

Bresnen et al. investigated the role of communities of practice and individuals that bridge the gap between construction projects to enhance the information flow and knowledge exchange (2003, p. 160). Their case study analysed the introduction of "Regional Engineering Manager" at a UK based construction company that worked as a network facilitator.

Hanisch, Lindner, Mueller & Wald differentiate the knowledge required along the project management lifecycle (2009, p. 150). The essential knowledge in the different project phases is described and corresponding Project Knowledge Management methods & tools are analyzed (2009, p. 154). The authors identified critical success factors for the knowledge management in project contexts. These were a well-developed information-and communication technology infrastructure, knowledge sharing oriented organizational routines, clear methods and a learning facilitating culture and communication practices.

2.6 Literature on the Role of IT in knowledge transfer

One of the major developments in the field of education is the extensive use of multimedia for training purposes (Welsh, Wanberg, Brown & Simmering, 2003, p. 245). Various researchers have shown the quick increase in the usage of computer-based training, multimedia learning environments and e-learning (Brown, 2001, p. 271). Commonly, the following advantages are associated with computer-based or multimedia training programs: Employees can individualize their training programs, i.e. in terms of the pace of the course (Zemke & Armstrong, 1996, p. 50; Filipczak, 1996, p. 27) and by this get a Taylor-made education for their specific situation. With a special focus on knowledge management in project it can be added that projects are a temporarily and cross-functional form of collaboration. Thus, often the project members do not interact with each other on a day-to-day basis and are often geographically distributed. Due to this, IT can support the collaboration and act as an enabler to the knowledge transfer of project members.

The strongly decreased costs of computer-based trainings in the recent years can be seen as one of the leading factors for the strong increase in the usage in internal trainings (Berry, 2000, p. 34 and Welsh, Wanberg, Brown & Simmering, 2003, p. 255).

However, there are also a couple of drawbacks in the usage of computer-based trainings. One of the main disadvantages is the limited social richness, defined as the ability of a communication method to reduce ambiguity in the information transmitted and to distribute social cues (Vinkatesh & Johnson, 2002, p. 661). Especially organization-specific contents in the social domains (Wesson & Gogus, 2004, p. 1019) will therefore be hard to transfer with
multimedia trainings. If those domains are less important and the task specific contents are more important, computer-based training should be of higher value to the employees.

Concluding, the usage of computer-based trainings needs two circumstances: Firstly, an infrastructure needs to be in place to provide employees with the contents they need to fulfill their positions and secondly, the employees have to take the initiative and actively use the training possibilities provided (Brown, 2001, p. 275).

Some companies have even included computer-based training programs in their newcomer orientation programs (Garvey, 2001, p. 112). Wesson and Gogus showed that when computer based training was used for the organizational entry phase the levels of organizational commitment and job satisfaction and also supervisor ratings for the organizational socialization and the role understanding were lower for newcomers compared to traditional classroom trainings (2005, p. 1023). However, the training effects on the acquisition of the organization language, the company history and the performance proficiency was as good as with traditional introduction classes.

2.7 Summary

Following the discussion of the previous sections, the following aspects of knowledge management in project contexts and the other related fields will be used to support this research project and to structure the collection and analysis of information:

1. Types of information that are of value during the project on-boarding
2. The relationship between the project, its lifecycle-phases and the organization
3. Methods and leadership activities that are performed to achieve the transfer of information and knowledge and to facilitate the knowledge and information sharing
4. Success factors & barriers to knowledge transfer in project contexts
5. Cultural aspects and the architecture created in the project to facilitate learning and knowledge exchange

The well-established types of information in the organizational encounter have to be transformed to be used in the analysis of project on-boarding. The following table shows the adaptation for the project context.
Table 3: Types of information in the organizational encounter and project on-boarding

<table>
<thead>
<tr>
<th>Type of Information</th>
<th>Organizational encounter</th>
<th>Project on-boarding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical information</td>
<td>Information how to perform specific aspects of the job or how to balance the demands of the job.</td>
<td>Focus on project methodology, project tools &amp; instruments</td>
</tr>
<tr>
<td>Referent information</td>
<td>i.e. performance standards of the job, authority level of the role or objectives of the position</td>
<td>Project role description &amp; standards, project role authority levels and objectives</td>
</tr>
<tr>
<td>Social information</td>
<td>e.g. how to get along with colleagues or how to behave in the organizational surrounding</td>
<td>Project stakeholder oriented social standards, routines and principles</td>
</tr>
<tr>
<td>Appraisal information</td>
<td>Feedback on how well one is performing the tasks, need for improvement etc.</td>
<td>Project oriented performance appraisals, i.e. from the project manager or sponsor</td>
</tr>
<tr>
<td>Normative information</td>
<td>Organization’s history, philosophy, goals.</td>
<td>History, background &amp; broader goals of the project within the context of the organization</td>
</tr>
<tr>
<td>Organizational information</td>
<td>(Organizational structure, financial position etc.)</td>
<td>Structure of the project organization, reporting processes, financial reporting and analysis of the project and its benefits</td>
</tr>
<tr>
<td>Political information</td>
<td>e.g. actual decision making processes within the organization, who’s who, etc.</td>
<td>Actual decision making processes within the project context (project team, steering committee etc.)</td>
</tr>
</tbody>
</table>

The following table summarizes the theoretical concepts that were found helpful in the analysis of the on-boarding processes. The table gives also a short overview how the different theories will be used in the research project.
Table 4: Summary of relevant theory for the research project

<table>
<thead>
<tr>
<th>Theoretical Part</th>
<th>Relevance in project on-boarding</th>
<th>Usage in this research project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of information during organizational encounters</td>
<td>The types of information organizational newcomers assess valuable (Comer, 1991, p. 64; Miller &amp; Jablin, 1991, p. 92; Morrison, 1995, p. 131)</td>
<td>Types of information will be indirectly covered in the quantitative investigation through the information sources used in the project on-boarding. Types of information will be directly analyzed during the qualitative research step.</td>
</tr>
<tr>
<td>Project life cycle</td>
<td>Helpful information &amp; knowledge differs depending on the specific phase in the project lifecycle (Hanisch et al., 2009, p. 150).</td>
<td>The project life cycle phase will be used as an independent variable in the online questionnaire during the quantitative research step and will be further investigated in the interviews.</td>
</tr>
<tr>
<td>Methods &amp; processes for knowledge acquisition &amp; sharing</td>
<td>Depending on the organization’s knowledge management strategy (i.e. personalization or codification), different processes have to be applied (Hansen et al., 1999, p. 107; Prencipe &amp; Tell, 2001, p. 1382).</td>
<td>Common methods for transferring knowledge will be included in the online questionnaire and also be further investigated in the interviews.</td>
</tr>
<tr>
<td>Leadership activities</td>
<td>Focal leadership activities change along the progress of a project (Weinkauf &amp; Hoegl, 2002, p. 171), thus encouraging knowledge sharing has to adapt accordingly.</td>
<td>Leadership activities will be incorporated into the interviews only in the qualitative research steps, due to their complexity.</td>
</tr>
<tr>
<td>Culture &amp; Architecture for learning &amp; knowledge transfer</td>
<td>The institutionalization of knowledge management in temporary organization requires a certain set-up, incl. roles, monitoring activities (Lindner &amp; Wald, 2010, p. 10; Schindler &amp; Eppler, 2003, p. 225; Bresnen et al., 2003, p. 164; Brookes et al., 2006, p. 474) as well as the encouragement in terms of a knowledge-sharing conducive culture (Sense, 2007, p. 405).</td>
<td>Cultural aspects and the architecture created in projects to foster knowledge sharing &amp; learning during the project on-boarding will be investigated during the qualitative research step due to their inherent complexity.</td>
</tr>
</tbody>
</table>
3 Methodological Approach

3.1 Knowledge Claim

According to Creswell, the researcher’s scientific worldview describes what and how the researcher will learn during the project (2003, p. 6). Therefore, what Creswell calls knowledge claim is the most fundamental clarification of the methodological approach. It determines most of the how the researcher will conduct his research.

The author of this work is convinced that every organization is unique and that a deep understanding of the specific situation is needed to design an effective solution to an organizational problem. Thus, the concrete problems should be the center of the analysis rather than a certain method should be fitted to the problem following a specific paradigm. Hence, the research project will be performed according to Creswell’s pragmatic knowledge claim (2003, p. 11). This knowledge claims focuses on applications that really work and solve problems. The practices used for the on-boarding of new project team members vary with the specific project contents and the required information and knowledge team members should have. Therefore there is no single best practice that can be theoretically developed and then tested in the field. Following a pragmatic knowledge claim means also to have the freedom of choice with respect to methods, instruments and procedures. The concrete application of this knowledge claim will become more operational in the description of the research project in the following sections.

3.2 Research Purpose

As stated in the introduction of this work, purpose of this research is to contribute to the understanding of the information provision and knowledge transfer to employees taking over a role in a project team within their own company.

The large variety of projects with respect to content, size, time frame, involved people etc. makes the analysis of the applied methods for the on-boarding of new members not easy. Therefore a common framework needs to be developed to both capture individual in-depth results and to make them comparable. This step will be subject to the literature review at the beginning of the research.

3.3 Research Approach

Three possible approaches to conduct research can be identified: Quantitative research, qualitative research and a mixed-method approach (Creswell, 2003, p. 18).

Quantitative research methods are suitable for testing theories in the field via experiments or surveys. Based on a post-positivist knowledge claim, the validity and reliability of existing theories is examined. Originally developed
in the natural sciences, the focus of these methods is to test the relationship between independent and depend variables. The research results in a numerical representation of the real world and in statistical analysis.

**Qualitative** research methods aim at exploring and understanding social phenomena. Qualitative research methods are applicable to develop theories in fields not already covered by research results and theories. Qualitative research can also result in descriptions that guide practitioners in their process when selecting methods (Eisenhardt, 1989, p. 532). To develop descriptions or theories interviews are conducted, documents are reviewed or real world cases are investigated by a combination of various methods.

**Mixed-method** research was developed in the late 50's and aims to combine the advantages of both worlds and to eliminate the biases of the application of a single method (Creswell, 2003, p. 15). Accordingly, the mixed-method research approach is literally, a mixture of the quantitative research approach and the qualitative research approach and the associated methods.

The choice of the research approach should be based on three aspects (Creswell, 2003, p. 21): First, the requirements of the problem should drive the selection of the research approach. If the problem is well-covered in the literature and various theories are accessible, they can be tested with a quantitative approach in various setting to broaden the applicable situations. Second, the researchers experience influences the selection of the research method. Researchers very familiar with case studies and direct observations of complex, multi-faceted settings may achieve better results when choosing a qualitative research approach. Third, the method should fit to the audience of the research. If the target audience is primarily used to numerical analysis and statistical examinations, the results of a quantitative method approach would be easier to present and to be applied by such an audience.

Applying this selection mode to the research problem and the research purpose of this work, the following rationale was made: The practices used for the on-boarding are rather less covered by empirical findings and a well-established body of research. However related fields provide some research results. For example, the literature on knowledge management provides a huge body of methods to codify, store, retrieve or transfer knowledge, depending on the specific content, the circumstances etc. (see for example the overview of Liao for the development in the years 1995 through 2002: Liao, 2003, p. 155). The application of these methods in project contexts could be evaluated with quantitative methods. However, the research purpose is also to explain the application in practice. This requires an in-depth investigation, especially because the specific mix of knowledge management methods is very context specific (Hansen, Nohria, Tierney, 1999, p. 109). To fully understand and capture the "what’s", the "why’s" and the "how’s" of these processes, qualitative research methods are more suitable. A large number of different methods and techniques for the transfer of information and
knowledge exist. Time consuming qualitative methods cannot be applied to all facets and aspects of all of these methods. Therefore, some aspects should be investigated by less time consuming methods out of the set of quantitative research methods. A selection of the most common on-boarding practices and the most effective structures can be done to focus the in-depth investigation.

The researcher is familiar with interview techniques due to his background as a management consultant and has extensive experience in capturing and verifying organizational processes by the triangulation of the responses of different individuals. The target audience of this research project consists of people involved in project work. Even if projects are used for a broad variety of tasks, they have a number of things in common. Modern project management methods focus on the numerical analysis of the project progress. Methods like for example the earned value calculation translate the qualitative project results into numerical values and mathematical methods are applied to assess and interpret how the project team performs. Therefore, quantitative research results should be easily accessible for people involved in project work. In addition, case study descriptions have a high usability for practitioners, as their application in business schools show.

Based on this, qualitative and quantitative methods will be combined in a sequential manner (Creswell, 2003, p. 16) in this study, resulting in an explanatory mixed-method research approach:

- The first research step consists of a classical quantitative set-up. Based on a literature review a questionnaire will be developed, provided to participants and the results will be quantitatively analyzed. By this the research questions Q1 and Q3 will be addressed.
- Due to the nature of the research problem, a second research step will be added to analyze the used methods in more detail, aiming to answer research questions Q2 and Q4.
- Research question Q5 will be part of the quantitative research step and will also be an element of the interviews in the qualitative research step.
- The combination of the quantitative and the qualitative results is used to explore research question Q6.

To summarize, the entire research project will include the following steps:

1) A Literature review to gain more background of the subject and to sharpen the research questions,
2) Theoretical design of a model of knowledge transfer in projects
3) Design of a quantitative survey and formulation of a questionnaire
4) Quantitative investigation (data collection and analysis via survey)
5) Selection of participants (supported by a quantitative research step)  
6) Design of an interview guideline and performing interviews  
7) Qualitative analysis of the interview  
8) Inductively develop guideline for the application of various methods, tools and information sources

3.4 Strategy of inquiry

Due to the mixed-method approach literally every possible method to collect data is possible (*for an overview compare for example* Creswell, 2003, p. 13). However, the concrete problem and the challenges of a research project as part of a master’s program frame the decision of an appropriate strategy of inquiry.

The research problem demands for the *quantitative research step* a method that is appropriate for the handling of large amounts of data. The on-boarding processes should be quantitatively described. To reach reliable results, a critical mass of participants should be included in the quantitative analysis. On the other hand, the *qualitative research step* requires in-depth descriptions
of the on-boarding processes. Here a method has to be selected that enables a rich understanding of the situations.

### 3.4.1 Quantitative data collection

Out of the possible data collection modes for quantitative research a survey design was chosen. Due to the additional time effort and the travel expenditures an experiment seemed not to be justified. Moreover the direct observation of the participants or the physical interaction with the researcher was not required, thus a survey seemed to be more successful and practical.

More specifically, the following course of actions was performed within the timeframe of this research project: A questionnaire was designed to explore and analyze the applied methods and the used information sources for the on-boarding of new project team members in practice. Purpose was to assess a broad variety of participants with different backgrounds, project experience etc. The invitation to this questionnaire was provided by mail to a large number of professionals with project experience. The participants were selected with a search of professional networks (XING, LinkedIn etc.), the business contacts of the author and also by contacting professional project organizations, i.e. the Project Management Institute to get additional participants.

All selected participants received an email with a short introduction to the survey and a link to the online questionnaire (for the benefits of an online investigation over the classical mail survey see for example Shannon & Bradshaw, 2002, p. 179 or Cobanoglu, Warde & Moreo, 2001, p. 405). Further information about the survey was included on the webpage above the questions. The online questionnaire was available in the period 04/23/2012 – 05/19/2012. The responses were untracked, meaning that no reminders or follow-up emails could be provided (for alternative procedures see for example Creswell, 2003, p. 158 or Sheehan, 2001, p. 0). However, to demonstrate the anonymity of the participants this procedure was selected, even if higher response rate could have been achieved with follow-up letters or reminders (Creswell, 2003, p. 158). For the entire survey the free online tool “Kwik surveys” (see www.kwiksurveys.com) was used.

In advance to the online survey the questionnaire was pre-tested with a small sample of project managers to establish a high clarity of the instructions, evaluate the amount of time required to complete the questionnaire and the precision of the choices. The pre-test participants were contacted in person to discuss their opinion on the wording and the user-friendliness of the online questionnaire in person.

Due to the voluntary participation and the unclear connection of the participants to the topic a low response rate is possible (Sheehan, 2001, p. 0). Commonly, a low response rate limits the possibility to generalize the findings of the survey because the non-respondents could have changed the results dramatically (Armstrong & Overton, 1977, p. 396). However, this risk
is inherent in every survey. However, since the research topic is of a high practical relevance the author was positive that a sufficient number of respondents could be found.

For most of the questions the questionnaire included answer options the participants had to choose from, partly those answer options included also ranges, i.e. 5-10 years. The questions asking for a more detailed description or an assessment include likert-scale oriented answer option, i.e. “very effective”, “effective”, “ineffective” etc.

During the period the online questionnaire was available, 32 respondents answered to the questions. Because the link was posted in the above mentioned networks and organizations, a response rate cannot be calculated (for more details please see section 4.1).

3.4.2 Qualitative data collection

From the possible methods for the qualitative research step observations provide the most colorful impression, the researchers can get firsthand information and is part of the situation, thus can even feel the atmosphere. On the other hand, these real-time observations demand a huge budget of time. Due to the limitations of this master’ thesis research project the author decided to make interviews with the individuals that are willing to participate.

The selection process for the qualitative research step was two-folded. First, a question was incorporate in the online questionnaire if respondents were willing to participate in another research step. Therefore, the qualitative research step was briefly described at the end of the online questionnaire. Second, personal contacts of the author were asked directly; if they would like to participate at this research step, mainly out of the current and former organizations. All interview partners received a short email in advance to the interview and were then called to schedule the interviews. The developed interview guideline were used to semi-structure the interviews, however, due to the strong interactive character not all of the interviews included exactly the same topics and contents. Based on the interviews, the on-boarding practices were summarized by combining the descriptions and stories of the interview partners.

During the course of the research projects 11 interview partner could be motivated to participate at the research project. These participants were recruited out of 4 different organizations.

3.5 Validity & Reliability

The basic concepts of validity and reliability are described in this section for both quantitative and qualitative research. Possible biases are briefly discussed and the associated strategies and activities to avoid or limit the negative effects are summarized.
3.5.1 Quantitative Research Step

The discussion of the quality of research results has a long history in quantitative methods. Originally developed in the natural sciences researchers aimed to explain the real world in experiments. Accordingly, the concepts of validity and reliability can be clearly defined and an extensive set of strategies and practices to increase the validity and reliability exists.

Reliability can be defined as „the extent to which results are consistent over time and an accurate representation of the total population under study“ and „if the results of a study can be reproduced under a similar methodology, the the research instrument is considered to be reliable“ (Joppe, 2000, p. 1). The core of this concept is the idea of repeatability of the research results in further research projects (Golafshani, 2003, p. 598).

In contrast, the term validity determines if the research truly measures the intended aspect. „In other word, does the research instrument allow you to hit ‘the bulls eye’ of your research object?“ (Joppe, 2000, p. 1). The concept of validity is at the heart of the positivistic knowledge claim and circles around other empirical concepts such as truth and actuality (Winter, 2000, p. 1).

In the following, possible biases associated with quantitative research will be described. The associated strategies and activities to avoid or limit the negative effects are then discussed with respect to the application in this research project.

Selection bias

Selection bias describes a situation where the selected sample for the research is not a good representation of the full population. This can happen, if the sample consists of some extreme items out of the full population. If this, phenomenon – called truncation – exists, the research findings cannot be generalized to the full population (Collier & Mahoney, 1996, p. 60). In result, the validity of the research is not given, because an analysis of the sample gives not answer that are true for the investigated population. Furthermore, the reliability is also poor, because – in principal – the bias would have to be reproduced to repeat the research results.

The answers to the questionnaire refer to certain projects. Therefore, the selection of these projects impacts the outcome of the analysis of the responses: the participants of the online questionnaire were asked to give their responses based on their last completed project. Based on research on project performance, a huge share of all projects does not fulfill the project goals. Therefore, it could be the case that some participants refer in their responses to an unsuccessful project. This could have negative impacts on several questions in the questionnaire. The probability that a large number of participants refer to the same problematic project increases, if the entire sample is recruited from a small number of organizations. The participants for the questionnaire were therefore contacted from a broad variety of
organizations, to decrease the chance that a large number of participants could refer to the same problematic project.

Another bias could derive from an unbalanced selection of participants for the survey: to motivate a sufficient number of people to participate at the survey, personal contacts of the author were asked for their participation. By this, the diversity of the participants was limited due to the tendency to keep contacts to persons with same interests, mindsets and opinions. To increase the diversity of the participants, also strangers were contacted and asked for their support in the research project. To balance the effort of getting participants, those strangers documented their interest on the subject in some way, i.e. by posting comments about the subject or by their membership in certain groups on the network xing.com, but did not stated a certain opinion about the subject.

Another possible bias is due to the fact that only one certain method was applied (Cobanoglu & Cobanoglu, 2003, p. 478). The online questionnaire discriminates participants without access to the internet. Due to the target group – European project management professional – no specific risk was seen by the usage of an online questionnaire as only form of inquiry (compare for example the usage of the internet for commercial purposes of the European union that shows that almost every individual has access to the internet in most of the European countries; Internet World Stats, 2011).

**Response quality**

On the sample level the responses has to be accurate and true. The following two questions can be derived from this: First, do the participants really have answered to the best of their knowledge and second, is the answer of the participants a good description of the reality?

The questions included in the survey refer to the personal experience of the participants. Some questions require even a reflection on the own performance in previous projects. If participants really did have reflected on their experience in project on-boarding processes they need a certain amount of time to answer all of the questions. The tool used to administer the online questionnaire provides the functionality to analyze the time needed per participant. Later on in this work, the time needed per participants is analyzed to assess this aspect of quality of the responses.

Several questions of the survey refer to similar aspects of the on-boarding process, but from different perspectives. One question asks, for example, for the persons who executed the on-boarding activities. Another question asks the participants to rate the usage of several on-boarding methods. These methods include also the person who performed the activity. The responses of these questions should fit to each other, to draw a consistent picture of the individual on-boarding process. Therefore, a triangulation of the responses is included in the analysis part of this paper.
Construct validity & reliability

Construct validity refers to the question if the initial structure and the developed hypothesis about causes and effects of the investigated phenomenon are correct, and hence the gathered data is suitable for the analysis in the first place (Golafshani, 2003, p. 599). This is also required to reproduce the research results due to the following rationale: If the causal relationship of independent variables and the dependent variables is not given, for example other not identified variables interfere the relationship; the research results will be hardly replicable. The uncovered cause of the dependent variables could change and by this change the results of the research in total.

The research project tries to describe, analyze and explain on-boarding processes. The structure of the questionnaire is designed to identify success factors (independent variables) for the integration of new team members (dependent variables). In this sense the quantitative research step is based on hypotheses derived from the literature on on-boarding practices, knowledge management etc. The quantitative research results are therefore dependent on the selection of the independent variables, thus on the underlying hypothesis that guided their selection. If key elements of the explanation were missed and not included in the questionnaire, the result would be a lower validity and reliability. To avoid this possible bias an extensive literature research was conducted. In addition, all of the underlying hypothesis and theories are made as transparent as possible: The chapter on the theoretical background included a broad discussion of current theories and research results about the topic and the development of the questionnaire and the interview guideline are described in detail in the chapters 4 and 5 of this work.

3.5.2 Qualitative Research Step

Where the concepts of validity and reliability are widely accepted among quantitative researchers, they have been controversially discussed with respect to the application in qualitative research. Some researchers even argue that the traditional concepts of validity and reliability should not be applied to qualitative research at all (Smith, 1984, p. 379).

For the qualitative research step of this work the concept of validity is understood as plausible, credible and trustworthy research (Johnson, 1997, p. 282). Validity is operationalized in five ways (Johnson, 1997, p. 284):

Descriptive validity

Descriptive validity refers to a true representation of the researchers’ description of reality in the research report. The question is if that what is described did really happen.

One strategy to achieve a high level of descriptive validity is the investigator triangulation (Johnson, 1997, p. 285). This method uses multiple observers to describe a situation. By this, the description is getting more
accurate than from just one observer. The author conducted the research project on his own; therefore investigator triangulation could not be applied. However, because various interview partners refer to the same project the interview responses were triangulated (Creswell, 2003, p. 196).

**Interpretive validity**

The interpretive validity requests that the researcher gives an accurate interpretation of what the participants really meant. This requires that the researcher “get inside the heads of the participants, look through the participants’ eyes, and see and feel what they see and feel.” (Johnson, 1997, p. 285).

One strategy to increase the interpretative validity is to use low inference descriptors, i.e. direct quotations of what the participants said. By this the researchers can not only describe what happened but can also add the participant’s interpretation and meanings. In the qualitative research section, therefore, quotations will be widely used to increase the authenticity of the descriptions. Another approach to increase the interpretative validity was that only projects were chosen that were unfamiliar to the author. By this, the author created boundaries between the researcher and the research object (Creswell, 2003, p. 196).

**Theoretical validity**

A high level of theoretical validity requires a good theoretical foundation of the findings. This means that the collected data and the identified patterns fit into a theoretical frame. Theoretical validity requires from the research to have a good explanation of the causes and effects of the studied phenomena.

The research findings of this investigation are compared to existing theoretical concepts in chapter 6 and 7. By this, explanations for the research results are given to increase the theoretical validity.

**Internal validity**

Similar to the construct reliability and validity, the concept of internal validity ensures that the found explanations are really causal (Johnson, 1997, p. 287). Due to the interaction with the participants during the interviews, the researched could explicitly ask for the connections of actions and reactions. By this, the attempt to ensure a high internal validity was incorporated into the data collections instruments of the qualitative research step.

**External validity**

If the research results should be generalized or applied to other situations or settings, a high external validity is required. The concept of external validity therefore goes along with the reliability of the research. The development of the interview guideline was heavily described in chapter 5, thus other researchers could do the same investigation again. Of course the concrete descriptions and expressions are typical only to the concrete
interviewees, however similar experiences should be found. Also, the interview partners and the entire set-up was described, so that the reader can decide how and where the research results could be applied (Johnson, 1997, p. 290).

Last-but-not-least the clarification of the possible biases in the research project supported the awareness of the researcher to those risks and by this, limited the probability of their occurrence (Creswell, 2003, p. 196).

3.6 Ethical Considerations

Based on the theoretical foundation in chapter 2 of this work this chapter contains the development of the methodological approach. Based on the problem requirements, an explanatory mixed-method approach was found as most suitable to answer the research questions. Accordingly, the strategy of inquiry was developed consisting of an online questionnaire and the interview guideline were designed. In the following the researcher’s ethical considerations connected to the data collections and analysis are described.

3.6.1 Quantitative Research Step

A lot of quantitative research tends to marginalize the participants adding up the different results to a large sample and not offering the possibility to contribute further than by giving predetermined answers (Creswell, 2003, p. 62). Since this quantitative research will be followed up by a qualitative research step (the quantitative and qualitative steps together will result in an explanatory mixed-method research approach) all participants will have the possibility to participate at this second step and to contribute to a larger extend to the research project if wanted.

Moreover, the purpose and the entire process of the study will be fully described to the participants in the invitation letter, so that everybody is aware how the responses will be used. Due to the selection process, the participation is completely voluntary and anonymous, even if this could result in a lower response rate. Throughout the full research process participants will have the possibility to anonymously ask questions at all times by email.

The structure of the questionnaire follows a common pattern: Basic questions on the professional experience and the organization were followed by more concrete questions on the on-boarding process itself. The questionnaire concludes with a self-assessment of the on-boarding process. By the application of this pattern the participants were able to assess their position in the survey, therefore could decide to leave the online questionnaire at any time. All of the questions were also included on a single webpage to ensure that the participants could browse all questions in advance, so that no questions could have negatively surprised the participants. At the top of the questionnaire the required amount of time for the questionnaire was given. By this, the participants were well prepared.
The full data set was only used for the purpose of the research project, the data will be deleted after the final analysis and the completion of the master thesis and all information will be treated completely confidential and will not be shared with any other individual.

3.6.2 Qualitative Research Step

In advance to the interviews, the purpose and the entire process of the full research project was described to the participants, so that everybody was aware how the responses will be used. Moreover, the participation is completely voluntary and the participants will not be disclosed at any given time. Throughout the full research process the participants, again, will have the possibility to ask questions. In addition, the benefits of the study will be explained to every participant in the introduction of the interviews.

The full set of information collected in the interviews will only be used for the purpose of the research project, the information recorded will be deleted after the final analysis and the completion of the master thesis, and all information will be treated completely confidential and will not be shared with any other individual.

3.7 Summary

Based on the theoretical foundation in chapter 2 of this work this chapter contains the development of the methodological approach. Based on the problem requirements, an explanatory mixed-method research approach was found as most suitable to answer the research questions. Accordingly, the strategy of inquiry was developed and the online questionnaire and the interview guideline were designed.
4 Quantitative Research Step

The quantitative research step is guided by the research questions. The chapter is structured as follows: First, the sample of respondents is described in detail to lay the foundation for the quantitative analysis and its understanding. Then, based on the research questions, the corresponding questions of the survey are developed and the analysis of the responses is performed. The development of the questions is documented in much detail to support the target audience in their interpretation of the analysis results and to increase the reliability and validity of the research. The chapter concluded with a short summary, to review the major findings of the quantitative analysis and to guide the qualitative research step.

4.1 Sample description

A total of 32 participants responded to the questions in the online questionnaire in the period from 04/23/2012 – 05/19/2012. To maximize the number of participants all contacted persons were explicitly encouraged forwarding the link to the online questionnaire to their colleagues and contacts. Therefore, a response rate cannot be calculated.

Not all participants answered to the full questionnaire so that not all 32 responses could be used to analyze the on-boarding practices. Only 29 participants answered to most of the questions, resulting in 91% complete responses.

The application used to administer the survey provides also the function to analyze the duration the participants needed to complete the questionnaire. This can be seen as an indication how serious the participants took the questionnaire and how intensively they reflected on the on-boarding process and its effectiveness. On average the participants needed slightly longer than 11 minutes to complete the questionnaire. The following figure shows the distribution of the durations in more detail:

![Figure 4: Time needed to complete the questionnaire](image)

Figure 4: Time needed to complete the questionnaire
Most of the participants needed 5-10 minutes to complete all of the questions of the online survey. Only 10% or 3 participants needed less than 5 minutes for the 19 questions. Having the number of questions and the content and complexity in mind the author assumes that all of the 29 complete responses can be used. The invitation letter and the test at the top of the questionnaire gave an approximate time to finish the questionnaire of 15-20 minutes. 90% of the participants finished the questionnaire within 20 minutes. Therefore, from an ethical viewpoint, the participants were sufficiently prepared to the effort connected to the questionnaire.

The sample consists mostly of project managers, with about 45%, and project team members (about 35%). Sub-project managers made up only 20% of the sample. Project managers of the sample have about 15 years of work experience and worked on average on about 14 projects. Hereewith they are more experienced than the other two roles. Project team members have as much work experience as sub-project managers, however much less project experience.

Table 5: Description of the participants

<table>
<thead>
<tr>
<th>Sample description</th>
<th>Distribution</th>
<th>Years of work experience</th>
<th>Number of project assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>Avg.</td>
</tr>
<tr>
<td>Project Manager</td>
<td>14</td>
<td>45,2</td>
<td>15,5</td>
</tr>
<tr>
<td>Sub-project Manager</td>
<td>6</td>
<td>19,4</td>
<td>9,1</td>
</tr>
<tr>
<td>Project Team Member</td>
<td>11</td>
<td>35,4</td>
<td>9,3</td>
</tr>
</tbody>
</table>

The number of work experience and the project experience, measured by the number of finished project assignments, can be used to describe the sample in more detail. More than 50% of the participants have more than 10 years of work experience with an average of 12.5 years and a standard deviation of 8.2 years. The participants have substantial project experience; about 20% of the respondents can capitalize on the experience from more than 15 completed projects. About 45% of the participants have completed more than 10 projects and the average value is 9.8 completed projects with a standard deviation of 6.3. The detailed distribution of the number of years of work experience and the number of completed project assignments is shown in the following figure:
Another important aspect of the sample is the project-portfolio the participants refer to in their responses. The questionnaire gives the possibility to analyze the projects with respect to type, duration and number of project team members. Most of the projects were conducted to achieve organizational development (more than 50% of the responses). About 25% of the responses refer to IT project and in about 15% of the cases a R&D / product development projects is basis for the answers. No participant of the online questionnaire refers to a manufacturing project and only one to a construction project. This means that out of this quantitative analysis no conclusions can be drawn for these types of projects.

When it comes to the duration of the projects the project portfolio is almost evenly distributed across the given choices. 40% were shorter projects with durations up to 6 months, about 25% of the participants refer to project with durations between 6 and 12 months and the remaining 35% to project with more 12 months project duration, as the following figure shows:
The sample consisted of rather small projects, 70% had project teams smaller than 10 team members and less than 20% had a team size beyond 20 individuals, as shown in the following figure:

A cross-variable analysis is able to provide a more detailed description of the complete project portfolio. The following figure shows the distribution by type in relation to the project duration as well as the team member size:
As the table shows, the majority of the projects were smaller organizational development projects with durations less than 6 months and a project team of with maximum 10 individuals or larger IT projects with a duration of more than 12 months and a project team with more than 20 individuals.

4.2 On-boarding structure

Research question 5 asks for the structure of the on-boarding processes in practice. As structural factors the period dedicated to the on-boarding, the effort – in terms of hours spent – and the distribution of labor for the on-boarding are used. The following section describes the development of the questions to enable the analysis regarding research question 5 (the aspects of the coordination and monitoring of the on-boarding processes, that are also part of research question 5, will be emphasized in the qualitative research).

4.2.1 Development of the questions

Joining a project and the integration to the project team is a complex process, including the social interaction with the team members, the acquisition of the required knowledge and further more. To describe the on-boarding process, questions about the amount of time were included as well as questions about the used methods and information sources.

**Duration & effort**

The duration and the effort for the on-boarding of new team members can be seen as main determinants for the planning and scheduling of the on-boarding process. Documents have to be prepared, other project team members have to block their schedule to show the newcomers around and walk them through the project deliverables. The project manager need some time to guide them through the project organization and so forth. This time
can be seen as an investment into the project team; however opportunity costs arise during this time because parts of the team cannot work on the project deliverables. Therefore, the duration and the effort for the on-boarding process will be used as independent variables in the analysis of the on-boarding processes, thus questions for these values were included in the questionnaire.

**Division of labor**

Another decision before the on-boarding process actually happens is the question of responsibilities. The various tasks, i.e. providing documentation, introducing the newcomers to the already existing project team members have to be schedule and performed. Therefore, the responsibilities and activities need to be addressed to the existing project team members. Survey question 11 asks directly for the extent the different project team members performed the on-boarding activities.

Projects are carried out in a certain organizational form. These project organizations exist for the duration of the project and supplement the standard line organization. These organizations contain various roles with certain specific tasks (*PMBOK, 2008, p. 25*). The on-boarding processes for the different roles may differ based on the corresponding tasks:

- **Project Sponsors** provide the resources to the project. During the initial phase, the sponsor champions the project and serves as the main spokesperson to senior management. The Sponsor leads the project until the project manager is recruited.

- **Project Managers** are assigned to achieve the project goals, therefore even if engaged in all the aspects of the project, project managers steer from the overall perspective. They define how the project is managed, keep track of the progress, manage the projects risks and provide the reporting of the project.

- The **Project Management Team** supplements the project manager in the management of the project. They also carry out the project work due to their special knowledge or certain skills.

- **Additional Team Members** focus completely on the project work and provide their special skills or knowledge of specific subjects.

The difference in the on-boarding of the different roles can be analyzed by reviewing questions 3 and 11, therefore no specific question was needed.

**4.2.2 Analysis of the responses**

The on-boarding processes in the sample occurred mostly right at the beginning of the projects. More than 50% of the participants joined the project during the first project phase were the project work focuses on setting
goals, communication to the stakeholders etc. (see chapter 2.4) and only about 15% joined the project during the execution phase when the project work was carried out.

![Project phase](image)

Figure 9: On-boarding duration

This on-boarding timing is also reflected by the already spent project duration. Almost 80% of the responses refer to on-boarding processes that occurred before 20% of the overall duration was spent. Only a very small percentage joined the project later on, as figure 10 shows. This means that no changes in the management style or leadership activities across the on-boarding processes are expected to be found. As several research findings suggest, the focus and leadership activities differ along the project lifecycle (for details see section 2.4 of this work). However, because almost all respondents joined the project at an early stage, in the following analyses the entire sample will analyzed in one piece.

![Project time spent](image)

Figure 10: Project time spent before the on-boarding process
The performed on-boarding processes were typically only very few weeks long with an average of 2.2 weeks (standard deviation = 1.7), the results are summarized in the following figure:

![On-boarding duration](image)

Figure 11: On-boarding duration

With respect to the dedicated effort for the on-boarding – measured in hours spent – there was a strong concentration at 0-20 hours. On average the participants dedicated 26 hours (standard deviation = 21) for the on-boarding. At this point should be emphasized, that the online-questionnaire only asked for the hours the new project team member invested into the on-boarding. Time dedicated by other project team members was not included in the online questionnaire because it was assumed, that the participants of the survey did not have records of the hours spent by all other team members for the on-boarding. The results are summarized in the following figure:

![On-boarding effort](image)

Figure 12: On-boarding effort (in hrs.)

Another important aspect to decide is who should do the on-boarding activities. It’s the project managers responsibility to ensure a high performing team, however to achieve this he can also delegate activities. As the following figure shows, the project manager is the main person who performs the on-boarding activities. The scale on the vertical axis is based on the likert-scale given in the questionnaire where the option “not at all” was
translated into “0” and “to a very large extent” equals a “4” on the scale. This means that on average the project manager performed on-boarding activities to a large extent with a score of 3.2. The difference between sub-project managers (2.4) and other team members (2.0) is rather small when it comes to the extent of the activities.

Due to the diverse respondents with respect to the project role this distribution of the on-boarding activities is further analyzed. The following table shows by whom the different roles, project manager etc., were on-boarded. The forth column shows the average values for all participants. The table shows that project managers play an important role in the on-boarding of all other project roles, the score ranges from 3.0 to 3.4. Also project team members perform a stable share of the on-boarding activities, however on a lower level (range between 2.0 and 2.1). The sub-project managers of the sample had almost no contact to the project sponsor, even less than the on-boarded team members. They support the project manager in many ways and serve also as a replacement in the case the original project manager is of duty, on sick leave etc. Therefore, at least medium interaction between the sponsor and sub-project managers was expected. The value is also quite stable with a standard deviation of 0.82. However, the relative small number of sub-project managers in the sample, only 6 participants stated that they had this role in the project, limits the validity of this analysis.

Figure 13: Distribution of the on-boarding activities
Table 7: On-boarding execution per project role

<table>
<thead>
<tr>
<th>On-boarding execution</th>
<th>for Project Managers</th>
<th>for Sub-project Manager</th>
<th>for Project Team Members</th>
<th>for all participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>by Project sponsors</td>
<td>1.7</td>
<td>0.7</td>
<td>1.9</td>
<td>1.5</td>
</tr>
<tr>
<td>by Project managers</td>
<td>3.4</td>
<td>3.0</td>
<td>3.0</td>
<td>3.2</td>
</tr>
<tr>
<td>by Sub-project managers</td>
<td>2.3</td>
<td>2.7</td>
<td>2.3</td>
<td>2.4</td>
</tr>
<tr>
<td>by Team members</td>
<td>2.0</td>
<td>2.0</td>
<td>2.1</td>
<td>2.0</td>
</tr>
</tbody>
</table>

4.3 On-boarding Methods

Research question 1 asks specifically for the methods used in on-boarding processes in practice. The following section describes the development of the questions and answer options to lay the foundation for the analysis regarding research question 1.

4.3.1 Development of the questions

When taking over a new project assignment, the project manager plays a crucial role in the entry stage to the project. In many situations the project manager is the dominant teacher for the project methods & contents. Especially for information on technical questions, referent information or performance feedback the project manager provides the new team member with highly valuable information and knowledge (see for example the rationale of Morrison, 1993, p. 57). For this task, project managers can apply various methods to transfer their knowledge about the project to the new team members. Out of the broad portfolio of options (see for example Prencipe & Tell, 2001, p. 1381) the following alternatives were given in the questionnaire: coaching-on-the-task, shadowing and storytelling.

Learning from other team members plays an important role in the information acquisition in a new assignment as well. Researchers showed, for example, that peers provide valuable guidance on declarative and procedural knowledge (Borgatti & Cross, 2003, p. 442). Especially modern organizational network theory emphasizes the usefulness of colleagues and peers both in the introductory phase as well as later on in the career path (Morrison, 2002, p. 1149; Borgatti & Cross, 2003, p. 432). Thus, information is received both, actively by inquiries and also passively mainly depending on the type of information (Morrison, 1993, p. 568 or Comer, 1991, p. 71). Therefore, learning from peers was included in the section on handover methods to cover the active information provisioning from peers to the newcomer. Also the possibility of a more passive information acquisition was included with the methods of shadowing and storytelling.

An entire branch of the knowledge management research focuses on the person-to-person interaction. Since projects are to a large degree team work,
knowledge acquisition on a team level is a standard approach for the regular project work. Thus, the same methods can also be applied for the on-boarding of new team members. When following the “swim-or-sink” approach, they may remain the only method. To cover this, the list of methods includes “team meetings / sessions / workshops”. This rather broad option should cover all interactions that happen on a team level (for a list of several concrete methods see Prencipe & Tell, 2001, p. 1381).

The high importance of computer-based learning in today’s organizations had been already discussed in this paper. Many organizations provide their employees also with a broad variety of training opportunities. They are partly supported or completely provided electronically with multimedia elements (compare for example Hoglund’s description of Microsoft’s Sales Academy, 2009, p. 4). Therefore, the option “Trainings (i.e. instructor-led or online courses)” was included in the questionnaire as a possible method for the project on-boarding. For a full overview of the given on-boarding methods see Appendix 1).

4.3.2 Analysis of the responses

One of the main questions in this research project is about the methods applied to integrate new team members. In the questionnaire, 10 different methods for the on-boarding were given. Due to the importance of this question intra-questionnaire verification is done by matching the answers for the on-boarding method and the persons named as responsible for the on-boarding. By this triangulation of the responses the trustworthiness of the responses can be assessed.

The responses to question 11 (Who performed the on-boarding activities?) and those given to question 12 (To what extent were the following methods used in the on-boarding?) should fit to each other. This cross-check is shown in the following table. For this, the on-boarding methods were clustered with respect to the performing project role. The choices coaching, storytelling and shadowing project team members, for example, were clustered. The average score for the extent they were used is then compared to the answer option “project team members” of question 11. The following figure shows the result of this triangulation of the responses of questions 11 and 12:
For the on-boarding activities by the project sponsor and by other team members the answers to question 11 and 12 almost match perfectly to each other, the difference of the scores is about 0.1. For the extent activities are performed by the project manager or sub-project managers the difference is slightly higher than 0.7 which is about 25% of the score. However, because in the answer options of question 12 no differentiation was made between the project manager and sub-project managers this difference is not affecting the validity of the sample and the analysis can be conducted.

The following table summarizes the responses for the on-boarding methods. The values, again, can be easily translated: The higher the figure, the more the method was applied and the better the method was assessed effective.
Team meetings, discussions and workshops were used to the largest extent with an average score of 2.8 followed by self-study (2.7) and storytelling by the project manager (2.5). With respect to the effectiveness, again team meetings are on the first place with an average score of 3.1, followed by coaching on-the-task by the project manager (3.1) and coaching by team members with 3.0. The analysis also shows an overall good matching of the extent of usage and the assessment of the effectiveness of the method. The five methods that were assessed as the most effective for the on-boarding were also used to the largest degree (highlighted grey in the table).

Beside the question for the most applied and effective methods, the responses should be analyzed for the person who performed the on-boarding. As discussed earlier, the on-boarding period can be seen as an investment into the project team. The costs that occur at that time have to be compared to the effectiveness. As the responses to question 11 show, the project manager is engaged to the largest extent in on-boarding activities. But is he or she also the most effective resource on this task? When comparing the assessed effectiveness of the project managers with that of the project team members, question 12 revealed that project managers reached a higher score for all of the on-boarding activities. Coaching – when performed by the project manager – achieved a score of 3.1, team members were given a 3.0 resulting in a difference of 0.1. The difference for storytelling is 0.3 and that for shadowing is 0.2. However, the project manager is also the scarcest resource therefore he should schedule his time carefully. The differences between the
effectiveness is quite low, thus – in principle – more on-boarding activities could be performed by team members to spare the time of the project manager to reduce the costs of the on-boarding.

4.4 Information Sources for the On-boarding

Research question 3 focuses on the information sources used by the new project team members. The newcomer has various options to get valuable information when joining the project team. In the selection process, the newcomer has the free choice and plays an active role. The following section describes the development of the questions and answer options to enable the analysis regarding research question 3.

4.4.1 Development of the questions

To cover the active information seeking of the new project team member questions on the used information were also included in the questionnaire. Descriptions and manuals are very intuitive instruments new project team members can use to get project specific information. These are for example the project management plan, the risk management plan or the work breakdown structure of the project. In addition, these descriptions often include also specific tricks how tasks should be performed to achieve a high effectiveness. By this, they serve as an organizational knowledge base. These “natural” information sources where included in the questionnaire accordingly.

As stated already in 3.2.3 project managers play an important role in the information acquisition of newcomers. By this mean, they also serve as a valuable source of information, especially for technical information, referent information or performance feedback.

Learning as a team is a common process in project environments. Apart from team discussions and so forth the team members have also the function as information sources (Prencipe & Tell, 2001, p. 1381). Therefore, learning from peers – other project team members – was included in the section on the information sources to cover the active information search by the newcomer when not turning to the project manager for information.

Today’s organizations and working places can be characterized as heavily supported by IT systems and job specific applications. In addition today’s complex and differentiated organizations have expert units and staff functions with company-wide authority to provide guidelines, procedures and rules. Those documents structure the day-to-day work of the employees company-wide, hence can be used also in the on-boarding process to provide newcomers with information on how tasks are performed. Accordingly, those types of documents were included in the questionnaire.

The World Wide Web provides a huge body of knowledge on project management practices as well as on almost every corporate function, industry and method. These information sources can be used by the new project team
member for the *active acquisition of information*. Therefore this information source was also included in the questionnaire. For the full set of given information sources in the online questionnaire see Appendix 1)

**4.4.2 Analysis of the responses**

Research question 2 refers to information sources used during the on-boarding process and their perceived effectiveness. This refers to the active information seeking role of the newcomers in the on-boarding. The following table summarizes the responses for the information sources used. The values need to be interpreted in the same manner as the responses to the handover methods: the higher the value, the larger the extent they were applied or the higher the assessed effectiveness.

<table>
<thead>
<tr>
<th>Information source</th>
<th>Extent of usage</th>
<th>Assessed effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Avg.</td>
<td>SD</td>
</tr>
<tr>
<td>Process descriptions &amp; documentations of this project</td>
<td>2.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Project deliverables of this project</td>
<td>2.4</td>
<td>0.9</td>
</tr>
<tr>
<td>Lessons learned documents from this project</td>
<td>1.4</td>
<td>0.9</td>
</tr>
<tr>
<td>Information directly from the project sponsor</td>
<td>1.9</td>
<td>1.3</td>
</tr>
<tr>
<td>Information directly from the project manager</td>
<td>3.1</td>
<td>0.6</td>
</tr>
<tr>
<td>Information directly from other project team members</td>
<td>2.7</td>
<td>0.6</td>
</tr>
<tr>
<td>Lessons learned documents from other project</td>
<td>1.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Documentation / deliverables from other project</td>
<td>1.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Handbooks, guidelines &amp; other general documentations of the organization</td>
<td>1.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Web-based courses / online material</td>
<td>0.9</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Direct information from the project manager and from other team members turned out to be used to the largest degree with scores of 3.1 and 2.7 respectively and in addition were also rated as the most effective, both with a score of 3.1. Again, a high level of fit can be found comparing the usage and the assessment of the different information sources. The Top 5 information sources were used to the largest extent. This should not come as a surprise, since the newcomers can actively and consciously choose to which information source they turn to.

The following figure summarizes the fit for the used information sources as well as for the applied on-boarding methods. The vertical axis shows the average score per method and per information sources calculated as the product of the extent of usage and the assessed effectiveness. For example, if
the direct information by the project manager was given a score of 3 for usage and a score of 3 for effectiveness this method achieves a score of 9. All 10 methods and also all 10 information sources were averaged.

![Average methodical & information source fit of participants](image)

Figure 15: Instrumental fit of on-boarding methods & information sources

The average score for both, the fit of the used on-boarding methods and the fit for the accessed information sources is 4.6, both with a standard deviation of 0.85. However, the figure shows that within the group of respondents also some had a rather unsuccessful on-boarding process, documented by average scores of about 2 for the methodical fit and 3 for the information source fit.

The answers also show a clear tendency to stick to the current project. All of the Top 5 information sources refer directly to the project at hand. The documented information sources that store knowledge developed in other contexts; here other projects, were used to a small extent with an average score of about 1.5. These instruments were assessed slightly better at about 2.4. Also documents of the wider organization or from outside the organization are less attractive to the new team members as documentations or deliverables from the project with a score of 1.9 for the usage and 2.4 for the effectiveness. Even if celebrated as a new era in professional education and training, online courses or web-based material were used to a small extent and assessed to be ineffective.

The large extent the newcomers could use other team members and the project manager can be understood as a strong commitment to the on-boarding, because the entire project team is highly available to the newcomers during the on-boarding period.

Again, it has to be questioned if the structure of the on-boarding of the sample is optimal. As shown in the table above, the project manager was utilized as information source to the largest extent, even if project team members are assessed similar effective. This question needs to be analyzed
further in the qualitative research because the online questionnaire gives no information about the specific contents that were discussed.

4.5 On-boarding results

Research question 6 asks for the effectiveness and the underlying drivers for the success of the on-boarding. These questions are partly addressed in the quantitative research step, partly in the qualitative investigation. The on-boarding success can be understood as the time needed to be up-to-speed. For the underlying drivers, several hypotheses are developed based on the literature review of this work. The following section develops operational measures for these questions and the corresponding parts of the survey.

4.5.1 Development of the questions

Achieving effectiveness in performing the tasks and contributing to the project objectives can be seen as the overall goal of the on-boarding process.

With every new level of effectiveness new team members are able to focus more on the project tasks and responsibilities. To cover this aspect, the participants were asked to state the durations after they achieved 50% and 100% of their effectiveness. Another sign the on-boarding result is achieved, is the fact that new team members start to contribute to the project objective(s). For this, the team members need to have the right information and knowledge about the project. When the project team members do that on a regular basis, it can be assumed they are fully “up to speed”. Accordingly, the participants were asked when they contributed substantially to the project objectives for the first time and when they did this on a regular basis.

The first questions of the questionnaire emphasized the professional background of the participants. By this, a basic description of the sample was developed earlier in this work. However, these factors could also serve as an explanation for the success of the on-boarding. As research on job rotation practices suggests, the more diverse experience professionals have, the better they can adjust to various circumstances by applying the knowledge they gained in other positions. Job rotation programs increase, for example, the problem solving skills of individuals (Allwood & Lee, 2004, p. 865) or the overall knowledge and understanding about the organization (Bhadury & Radovilsky, 2006, 4431). By this, the versatility of employees increase and they can show a good performance in various positions. Campion, Cheraskin and Stevens showed for example, that job rotation improves administrative, technical and business skills, where the effect on business skills was the highest (1994, p. 1536). Therefore, the number of years of professional experience and the number of projects the participants have worked on, can be drivers for the speed the newcomers adjust to the new project assignment.

In the description of the on-boarding processes, the duration and the time dedicated to the on-boarding activities were included. These are also two possible variables for the success of the on-boarding. With a very cautious approach and too long and / or too intense on-boarding phases organizations
and project teams dedicate too many resources and spend too much money to bring new team members up-to-speed. On the other hand, if on-boarding processes are too short, team members cannot fully focus on the project tasks, they constantly have to get the information and acquire the knowledge required to perform the task.

Another possible driver for the effectiveness can be developed out of the applied methods and the used information sources. The participants rated the various methods and sources different effective. Therefore, the hours spent for the on-boarding could have been invested with a higher or a lower pay-back. If a respondent has used mainly those methods that were assessed more effective it can be assumed that this on-boarding should be more successful compared to a situation where, for some reason, only badly assessed methods were used. The same rationale can also be applied for the information sources used during for the on-boarding. The following figure summarizes the hypothesis derived from the literature:

![Hypotheses diagram](image)

Figure 16: Hypotheses for the drivers of the on-boarding result

The success of the on-boarding can be also assessed from another angle. The result of the on-boarding can often only be assessed after the project is completed. Only at that time the full review and reflection of the on-boarding can happen. Therefore, the participants were asked to reflect and answer based on their last completed project. By this it was possible to ask the participants how long and how intense (in terms of hours spent) they would perform the on-boarding process if they could do it over again. Hence, when stating a shorter period as they had in reality, the organization or the project team spent too many resources to the on-boarding. On the contrary, when they would like to have spent a longer time, the organization could improve its resource utilization by bringing the new team member up-to-speed before moving on to the operational project tasks.
4.5.2 Analysis of the responses

Complementing to the descriptive section of the quantitative results, the survey focused also on the success of the on-boarding. Research Question 6 deals with the effectiveness of the on-boarding processes. The measures for this are how quickly the newcomers could fulfill their tasks effectively and when were they able to contribute to the project objectives. The following figure shows the responses to question 16 of the questionnaire that focused on the effectiveness of the participants. The column charts show the share of the responses to the certain option, were the line charts showing the corresponding accumulated numbers.

![Achieved effectiveness](image)

Figure 17: Time needed for 50% & 100% Effectiveness

It can be seen that about 40% of the respondents were able to achieve 50% of their effectiveness already after 1-2 weeks. Additional 40% achieved 50% effectiveness after 3-4 weeks, thus almost 80% of the respondents achieved half of their effectiveness after 1 month. Compared to the duration of the on-boarding processes (60% were up to 2 weeks long and additional 30% were 3 or 4 weeks long) this situation can be seen as the standard case of the sample: The participants joined the team, had a quick and intense on-boarding of about 25 hours in the first two or three weeks.

When it comes to the full effectiveness, no participant stated to be fully up-to-speed in the first 2 weeks. The majority of the participants, about 50%, reached this level of effectiveness after 5-8 weeks, and about 20% already after 3-4 weeks.

The distribution for the second measure of the on-boarding success shows almost the same profile. The only significant difference is that about 10% of the respondents stated that they contributed already after 1-2 weeks regularly to the project goals. The following figure shows the full distribution of the responses, the different types of charts are used similar to the previous figure.
From an organizational and also a scientific perspective, it is highly interesting which factors drive the speed new team members achieve a high degree of effectiveness in their tasks or the ability to contribute to the project objectives. The organization should focus on those factors in the project staffing and the on-boarding process alike. From a scientific viewpoint those methods, information sources or personal factors should be focused on in additional research projects and investigations.

The survey design provides various starting points for this analysis. First, the background of the respondents can be one source for this. Having more professional experience can ease the on-boarding to further projects. The survey captured this by asking for the number of years of professional experience (i) and also for the number of accomplished project assignments (ii). Secondly, the on-boarding process needs to have the “correct” duration. As shown in section 4.2.2, the duration for the on-boarding processes for most of the respondents was 1-2 weeks’ time. The question is, if a longer duration of the handover (iii) or more on-boarding effort (iv) can positively impact the on-boarding success. Another suggested success factor is the fit of the used methods and information sources. Two measures were created in section 4.5.1 for this: the fit of the used on-boarding methods (v) and the fit of the information sources (vi).

The Spearman's rank correlation coefficient was calculated to analyze the effects of these factors on the on-boarding success (the Spearman’s rank correlation coefficient was used because the responses do not follow the standard normal distribution). The following table shows the analysis for these six factors:

![Project goal contribution graph](image)
Table 10: Correlation for effectiveness & goal contribution

<table>
<thead>
<tr>
<th>Spearman's rank correlation coefficient</th>
<th>Effectiveness</th>
<th>Goal contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>(i) Work experience</td>
<td>0.17</td>
<td>0.16</td>
</tr>
<tr>
<td>(ii) Project experience</td>
<td>-0.17</td>
<td>-0.15</td>
</tr>
<tr>
<td>(iii) On-boarding duration</td>
<td>0.50</td>
<td>0.33</td>
</tr>
<tr>
<td>(iv) On-boarding effort</td>
<td>0.19</td>
<td>0.34</td>
</tr>
<tr>
<td>(v) Methodical fit</td>
<td>0.15</td>
<td>0.09</td>
</tr>
<tr>
<td>(vi) Information source fit</td>
<td>0.13</td>
<td>-0.24</td>
</tr>
</tbody>
</table>

The analysis shows overall a low level of correlation. Assuming that for the given sample size for about 25, the correlation should be about 0.40 or -0.40 to be significant, only two values of the entire table shows a significant correlation. No clear influence on the on-boarding result was found for work experience, project experience, the on-boarding effort, the methodical fit and also the information source fit. However, the significance for the on-boarding duration shows values between 0.27 and 0.50 for the four on-boarding success measures, which should be looked at with more detail.

The positive correlation means, the shorter the duration of the on-boarding period, the quicker new team members were up-to-speed and vice versa. This direction of correlation is counter-intuitive and does not match to the assumed relationship derived from the literature review. One possible explanation could be that the variables have to be changed: The on-boarding process was monitored by the project manager and was enlarged due to the slow progress. Another possible explanation is that a third variables interferes the correlation, say influences both variables. The overall performance level of the respondent, for example, could be the true driver for both, the time the respondents needed and also the time the responses were given for the on-boarding process.

The participants achieved quickly a medium level of effectiveness in their project work. But how did the respondents assess this progress by themselves? They were asked how much time and effort they would like to dedicate to the on-boarding if they could do it again to evaluate this question. In general, the participants were satisfied with time and duration of their on-boarding processes. As the following figures shows, almost 50% of the respondents would like to dedicate the same effort to the on-boarding process. However, more than 30% would like to have more hours for the on-boarding. Interestingly, there were also some participants who would focus earlier on the operational project tasks next time.
Figure 19: Supposed change in on-boarding effort

With respect to the duration of the on-boarding process, about the same assessment can be seen. Slightly more respondents are satisfied with the duration of the on-boarding process and slightly less would like to have a longer period for the integration phase. The detailed distribution can be found in the following figure:

Figure 20: Supposed change in on-boarding duration

When combining the two analyses it can be seen, that 5 participants out of the sample would not change effort and duration.

The high level of satisfaction with duration and effort of the participants leads to the following two question:

1. Were those participants that demanded no change really more successful?

2. Were those participants that demanded more time or effort less successful in their on-boarding process?

The first question focuses more on the individual assessment. Participants could have poor success in the on-boarding, however do not want to change their habits or working styles. The second question focuses more on an organizational viewpoint or an economic rationale: If respondents have achieved good results in terms of quickly achieving effectiveness and / or contributed early to the project objectives but demand more time or effort for the on-boarding, more time and effort should rather not be granted. This could be based, for example, on their personal discomfort or insecurity. But
the project would waste scarce resources if the project team focuses too long on the integration.

The following table compares the responses of the participants who demanded more effort, less effort and no change for the on-boarding success.

Table 11: Comparison of on-boarding success and supposed changes in on-boarding effort

<table>
<thead>
<tr>
<th></th>
<th>Effectiveness</th>
<th></th>
<th>Goal contribution</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50% (Avg.)</td>
<td>100% (Avg.)</td>
<td>1st time (Avg.)</td>
<td>regularly (Avg.)</td>
</tr>
<tr>
<td>Less effort</td>
<td>2.8</td>
<td>3.5</td>
<td>2.8</td>
<td>3.0</td>
</tr>
<tr>
<td>No change supposed</td>
<td>1.5</td>
<td>2.7</td>
<td>1.7</td>
<td>2.7</td>
</tr>
<tr>
<td>More effort</td>
<td>2.0</td>
<td>3.6</td>
<td>1.7</td>
<td>3.0</td>
</tr>
</tbody>
</table>

It can be seen that those respondents that were satisfied with the effort really needed less time to work effectively in the project. When it comes to the goal contribution, two effects can be seen. First, those respondents who demanded less effort needed on average the longest period to start contributing to the project goals. Second, there is no significant difference when the participants of the three clusters were fully up to speed. Participants that requested more time were as quickly fully up-to-speed as the other respondents, even those that would have reduced the on-boarding effort. This means that the personal assessment and the supposed change is actually a bad indicator for the success of the on-boarding.

The same conclusions can be drawn with respect to the assessment of the on-boarding duration. As the following figures shows, the same assessment bias occurs. Those participants who requested longer on-boarding durations were, in total, as quickly up-to-speed as those who would reduce the duration.

Table 12: Comparison of on-boarding success and supposed changes in on-boarding duration

<table>
<thead>
<tr>
<th></th>
<th>Effectiveness</th>
<th></th>
<th>Goal contribution</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50% (Avg.)</td>
<td>100% (Avg.)</td>
<td>1st time (Avg.)</td>
<td>regularly (Avg.)</td>
</tr>
<tr>
<td>Shorter duration</td>
<td>3.0</td>
<td>3.5</td>
<td>2.8</td>
<td>3.0</td>
</tr>
<tr>
<td>No change supposed</td>
<td>1.8</td>
<td>2.9</td>
<td>1.6</td>
<td>2.7</td>
</tr>
<tr>
<td>Longer duration</td>
<td>1.9</td>
<td>3.5</td>
<td>2.1</td>
<td>3.1</td>
</tr>
</tbody>
</table>

4.6 Conclusions of the quantitative results

The survey and the corresponding quantitative analysis give a detailed picture of what was done during the on-boarding processes of the sample. Moreover, the structure of the on-boarding processes and their results were described and analyzed. In the following the Research questions that were addressed with the quantitative investigation are reviewed and the
corresponding research results are summarized. Each section concludes with a summary of open questions for the qualitative research step.

4.6.1 Research question 1

The first research question asks which methods & tools are used to provide employees project-related information during the introduction phase. The quantitative research revealed that team meetings, discussions and workshops are used to the largest extent. These methods were also assessed as most effective. However, the methods applied during the on-boarding are always a mixture of several approaches. Interactive, team oriented methods are combined with the autonomous study of project documents, the illustrative storytelling by the project manager and team members and coaching on-the-task. The applied mix of methods is also highly appreciated by the respondents of the survey. The methods that were used to the largest extent were also rated as the most effective ones.

When it comes to the assessment from an organizational perspective, it has to be mentioned that the project managers are utilized to a large extent for the on-boarding processes of new team members and sub-project managers alike. Since the project manager is by definition a scare resource, it should be investigated which on-boarding methods could be used to reduce the effort for the project manager without reducing the on-boarding success. Therefore, the qualitative research should focus, i.e. on the specific contents that are emphasized by the different roles during the on-boarding.

4.6.2 Research question 3

Subject of research question 3 is which information sources new project team members search actively to get the information required to fulfill their new tasks and how effective these information sources are.

The analysis of the responses revealed that the direct information from other team members is the number one source for newcomers, both with respect to the extent of usage as well as in the assessment of the new team members. Because the newcomers can decide which information sources they use to what extent, there was a strong fit between the degree of usage and the assessed effectiveness. However, for some respondents this fit was substantially lower than for others.

Again, a mixture of different types of source was applied. The direct information was supplemented by documentation of project processes, the project plan and project deliverables. The answers also show a clear tendency to use primarily sources out of the current project. Lessons learned documents, for example, were neither used to a large extent, nor assessed to be very effective. Also online material was assessed to be of little help during the on-boarding phase.

This analysis gives also some directions for the questions to the interviewees. First of all, the contents that were requested by the new team members should be investigated. Furthermore, the assessment of lessons
learned documentation and external / online information came somewhat unexpected and should be emphasized in the interviews as well.

4.6.3 Research question 5

This research question focuses on the structure of the on-boarding processes. This can be described by the duration, the effort and the intensity of the on-boarding. Furthermore, the division of labor specifies the structure. The online survey showed that the standard on-boarding process was on average 2.2 weeks long and about 20 hours were dedicated to the on-boarding. The project manager plays a dominant role in the introduction to the project and performed the on-boarding to the largest extent. As a general input to the interviews, this structure should be investigated in more depth with respect to the underlying rationale.

4.6.4 Research question 6

With respect to the effectiveness of the on-boarding processes and the underlying success factors – as asked for in research question 6 –, the quantitative investigation revealed the following: The participants were able to contribute to the project goals within a short period. After 4 weeks into the project assignment a total of about 80% had contributed to the project goals. However, a longer period of 5-8 weeks was needed to contribute on a regular basis for most of the respondents. Overall, the participants assessed their own on-boarding processes sufficient. After a short period the participants were also able to work effectively, after 4 weeks about 80% stated they reached 50% of their effectiveness. This value improved within the next 4 weeks to the full effectiveness for 80% of the participants.

In the self-assessment of the respondents the on-boarding processes were medium successful, about 30% would dedicate more time or a longer duration if they could do the on-boarding process again and about 50% would not change duration or effort.
5 Results of the Qualitative Research

5.1 Description of the sample

The objectives for the collection of interview partners were two folded: First, there should be a sufficient number of interview partners to develop rich, multi-faceted and detailed descriptions. Second, the group of interview partner should be diverse with respect to professional background, project experience etc. By this, a sample bias should be avoided. In addition, some of the interview partners should refer to the same projects to enable a triangulation of the responses of the different interviewees.

Therefore, the collection of interview partners was structured as follows: The online questionnaire briefly described the qualitative research step and invited the respondents to participate in the interviews. However, this resulted only in one interviewee. Therefore, this mode was supplemented by directly contacting former and current colleagues about participation. By this approach, the majority of the interview partners could be found. The direct contact also enabled interviewing several members of one project team. Triangulation therefore could be made in two directions: First, the responses of different project team members could be compared (horizontal triangulation) and second, the responses of the team members could be compared to those of the corresponding project managers (vertical triangulation).

The first organization is a financial service company. Founded in the late 90’s the organization has a history of a quick external growth due to several mergers and acquisitions and also a period of consolidations and divestments. Two different projects were subject to the qualitative investigation, one dealt with organizational development and the scope of the second was a combination of organizational development and software development, where the focus lied on the software development. In total, 4 project team members and 2 project managers of this organization were interviewed. The structure is shown in the following figure:

![Interview-Project Architecture at Organization 1](image-url)

Figure 21: Interview-Project Architecture at Organization 1
The second organization is a small consulting firm. The firm was established in 2008 by a management buy-out of one of the large German consulting firms. The project, that was main subject in the interviews, was an organizational development project and the 3 interview partners spent substantial time on this project over the course of the last 8 months. The structure of the interview partners is shown in the following figure:

![Figure 22: Interview-Project Architecture at Organization 2](image)

The interview partners of these two organizations were supplemented by two interview partners that came from other organizations. The following table gives an overview of all interview partners:

<table>
<thead>
<tr>
<th>No.</th>
<th>Industry</th>
<th>Project type</th>
<th>Project Duration</th>
<th>Role of the Interviewee</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Health care</td>
<td>Organizational development</td>
<td>&gt; 12 months</td>
<td>Project Manager</td>
</tr>
<tr>
<td>2</td>
<td>Financial Services</td>
<td>IT &amp; organizational development</td>
<td>&gt; 12 months</td>
<td>Project Team Member</td>
</tr>
<tr>
<td>3</td>
<td>Financial Services</td>
<td>Organizational development</td>
<td>&gt; 12 months</td>
<td>Project Manager</td>
</tr>
<tr>
<td>4</td>
<td>Financial Services</td>
<td>IT &amp; organizational development</td>
<td>&gt; 12 months</td>
<td>Project Team Member</td>
</tr>
<tr>
<td>5</td>
<td>Financial Services</td>
<td>Organizational development</td>
<td>&gt; 12 months</td>
<td>Project Team Member</td>
</tr>
<tr>
<td>6</td>
<td>Financial Services</td>
<td>Organizational development</td>
<td>&gt; 12 months</td>
<td>Project Team Member</td>
</tr>
<tr>
<td>7</td>
<td>Consultancy</td>
<td>Organizational development</td>
<td>&gt; 6 months</td>
<td>Project Team Member</td>
</tr>
<tr>
<td>8</td>
<td>Consultancy</td>
<td>Organizational development</td>
<td>&gt; 6 months</td>
<td>Project Team Member</td>
</tr>
<tr>
<td>9</td>
<td>Consultancy</td>
<td>Organizational development</td>
<td>&gt; 6 months</td>
<td>Project Team Member</td>
</tr>
<tr>
<td>10</td>
<td>Financial Services</td>
<td>IT &amp; organizational development</td>
<td>&gt; 12 months</td>
<td>Project Manager</td>
</tr>
<tr>
<td>11</td>
<td>Consultancy</td>
<td>IT &amp; organizational development</td>
<td>&gt; 12 months</td>
<td>Project Manager</td>
</tr>
</tbody>
</table>
5.2 Development of the Interview guideline

Again, the development of the instruments for the data collection phase is described in detail to enable the reader to assess the sample, the data collection and the analysis. By this, the applicability of the findings can be increased ((Johnson, 1997, p. 290).

5.2.1 Content and structure of the interviews

Depending on the role of the interviewees the content of the on-boarding process is expected to differ substantially, i.e. when on-boarding the project management team a strong emphasize should be on the project management plan, incl. its sub-plans. On the other hand, when a certain specialist joins the team, it can be assumed, than a stronger focus lies on the related project goals, methods and deliverables.

The quantitative research step included a detailed description of the on-boarding processes of the participants. However, how the respondents applied the various methods and sources to get the information and knowledge they are after could not be captured. Aspects like the own tactics, approaches and the mindset and behavior has to be subject of an interactive interview, since it cannot be captured by a questionnaire.

The project managers play a dominant role in the on-boarding of other team members, as the quantitative investigation showed. Therefore, it can be assumed that they do some planning activities to structure the on-boarding processes of the other team members in advance.

Following these hypotheses and the quantitative research results, the following table specifies the contents of the interviews, depending on the role of the interviewee.

Table 14: Content & structure of the interviews

<table>
<thead>
<tr>
<th>Contents</th>
<th>Project Managers</th>
<th>Project Team Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Project set-up &amp; context</td>
<td>Questions about the size, type and duration of the project, it’s special challenges, the methodology and approach</td>
<td></td>
</tr>
<tr>
<td>(2) Personal behavior during the own on-boarding</td>
<td>Questions regarding the tactics and approaches to get the right information during the on-boarding as well as questions regarding the mindset at this stage.</td>
<td></td>
</tr>
<tr>
<td>(3) Preparations for the on-boarding</td>
<td>Questions regarding the performed preparations for the on-boarding of new team members.</td>
<td>Questions regarding the perception of the preparations for the own on-boarding.</td>
</tr>
<tr>
<td>(4) Set-up for the on-boarding</td>
<td>Questions regarding the active creation of an on-boarding facilitating environment.</td>
<td>Questions regarding the perception of the preparations for the own on-boarding.</td>
</tr>
</tbody>
</table>
5.2.2 Project set-up

Projects are used for a broad variety of tasks and contents. Thus, projects can differ to a large extend from one to another. In addition, they could include a broad variety of specific aspects and challenges that could not be covered by a standardized questionnaire. Therefore, the interviews were started with questions about the size, type and duration of the project. In the first section of the interviews, also the project’s special challenges were asked for and how they were integrated into the project methodology and the approach for staffing and on-boarding team members.

Depending on the answers of the interviewees, several follow-up questions were asked. However, the core questions could be standardized to secure the possibility to compare the answers. The description in this section of the work focuses on these core questions. The full set of all core questions is included in Appendix 2.

5.2.3 Behavior during the own on-boarding

Joining a team as an individual is a highly complex task. This task is approached differently by every individual. Accordingly, the information acquisition tactics differ substantially (see for example Morrison & Vancouver, 2000, p. 120). New team members assess, for example, the risks of various tactics differently: When asking actively for information, the already established team members could assess this negatively and the competence of the newcomer is at risk. It can be assumed that this risk is lower if there is already an existing relationship between the team members. This effect leads to the application of different methods for the on-boarding depending on how the newcomer assesses the risk for an active inquiry. Moreover, the individual tactics should also differ depending on the role the interviewee has in the project. To cover these aspects of the on-boarding process, the own attitude towards the on-boarding and the applied tactics and methods were focused on in this section of the interviews.

5.2.4 Preparations for the on-boarding of others

According to the role of the project manager described by the PMBOK, it’s their responsibility to lead the communication to all stakeholders, including the project team and to develop the project team as a whole (Project Management Institute, 2004, p. 25 & 58). This task requires careful planning & preparations of the project manager, if he or she wants to lead the project to a success. But even for non-project managers it can be assumed
that the on-boarding process will be somehow prepared. Also, for the existing project team members the enlargement of the project team is an important step. They will work closely together with the newcomers for the next months or even quarters. Therefore, this section of the interviews focused on the preparations the existing team members made when other individuals joined the project team.

Also the project team members were asked the same questions about their preparations because of the team effort character of the on-boarding process. However, since it’s not their foremost responsibility, different preparations were expected.

5.2.5 Set-up for the on-boarding of others
Current research about the success factors for project knowledge management highlights the importance of cultural aspects and a learning facilitating environment (Sense, 2007, p. 405; Bresnen et al., 2003, p. 164). Therefore the project managers were asked about the climate they tried to achieve and the atmosphere they tried to establish.

Contrary to the tasks & responsibility of the project manager, the project team members should carry out the project work by contributing with their know-how and expertise. They are the “customers” of the on-boarding set-up created by the project manager. Therefore, the questions for the project team members were asked from a different perspective. The questions focused on how they perceived the atmosphere and their experience during the on-boarding process.

5.2.6 Behavior during the on-boarding of others
The integration of new team members is always a team effort. Research about the organizational encounter of employees showed that peers provide highly valuable information (Morrison, 1993, p. 576). This is especially true for information about the social interaction within the team and for normative information. For this type of information, peers are even the number one choice for new team members (compare also section 2.3.1 of this paper). Accordingly, questions where included about how each and every individual of the entire project team prepared and conducted the on-boarding of others. These questions were the same for both project managers and project team members.

5.2.7 Summary of the on-boarding experience
Finally, all participants were asked for a summarizing assessment of their on-boarding experience and the major success factors for the on-boarding in their project role. These questions encouraged the interview partners to reflect about the entire project and to focus on the on-boarding activities with the largest impact.

The interviews concluded with an open question if the participants would like to add something, how they experienced the interview situation and if all topics were covered they think are important in the on-boarding.
The following figure shows the connection of the interview sections to the research questions:

![Figure 23: Connection of Research Questions and Interview Topics](image)

(For the full interview guidelines for project managers and project team members see Appendix 2)

5.3 Analysis of the interviews

This chapter includes the analysis of the interviews about the on-boarding process. In general, there are two possible options to structure this section. Each interview could be described and summarized. The full picture could then be analyzed with respect to the research questions. On the other hand the responses and the received information could be structured according to the research questions directly. By this fewer repetitions could be achieved. In addition, the performed triangulation of the responses of various team members is supported. Therefore, the analysis of the interviews is directly structured along the research questions that focus on the qualitative investigation. The next chapter includes then the combination of the quantitative and the qualitative findings.

5.3.1 Research question 2

Research question 2 focuses on the application of the various on-boarding methods. The quantitative research step revealed which methods were applied and how effective the participants assess these methods. In other words, which methods are worthwhile to focus on, because they are used regularly. The qualitative inquiry opens up the possibility to discuss these methods in more detail.
Team meeting, discussions and workshops

Team meetings, discussions and workshops were used to the largest extent for the on-boarding of new team members. The interview partners described mainly kick-off meeting and, depending on the project, also kick-off weeks to get all project team members together and “on the same page”. These meetings were heavily structured in advance by the project managers. Agendas and hand-outs were often sent in advance to prepare the participants. When the project managers were asked about the special challenges of the project and the context they were able to point out the key challenges. The triangulation of the responses across the project team and from team members to project managers revealed also a large fit of these challenges.

In some instances, the already existing project team actually planned the positioning towards the joining team members. They discussed the project contents very detailed and the corresponding distribution of labor. One interviewee described this process as follows: “In my personal introduction I emphasized especially my technical background because I should be the main responsible for these topics for the rest of the project. We wanted to establish clear contact persons for the people to direct them when they are looking for information.”

These meetings were also supplemented by documentation and additional material. By this, the project managers want to make sure that the contents are really completely understood by the new team members. The topics in these kick-off meetings circle around the project methodology and structure. The interviewed project managers are keen to make sure that everybody clearly understood the project objectives, the project plan and the further project steps. In general, the project managers heavily guided the new team members in this phase, which is highly appreciated by the newcomers. The statement of one project team member can be used to illustrate that: “Before the kick-off meeting I had roughly heart about the project. After the one day kick-off the full project scope, the project plan and the project methodology were crystal clear to me. I could really start with the work”.

Coaching-on-the-task

One major approach to on-boarding is to get the newcomers involved as quickly as possible. Coaching-on-the-task by project managers as well as team members was assessed as the second and third most effective methods.

Bringing the team members into the work happens on various different ways. The project managers of the interviews use a broad variety of approaches. One project manager made sketches along the discussions to visualize the descriptions in a way the counterpart could easily follow. He then provokes the counterpart to grasp the pen by themselves to support or correct the project manager in the documentation. Another project manager includes the project team in the planning phase: “In smaller projects I usually
do the initial planning together with the team to get everybody involved as soon as possible. I simply get everybody’s commitment to the plan so that the execution phase benefits a lot. When the people realize that they can influence the project to a large extent, they also bring the best ideas on the table.”

Even if the tricks to get the people involved are different, one common theme could be found. One project manager can be cited to illustrate this approach: “The single most important thing when getting others on the journey is genuine appreciation of their support, their tasks and their personalities; this opens the door right away.”

The dominant structure for the coaching is, again, team workshops as well as one-to-one situations. These situations were also used to assess the progress of each project team member by the project manager and to give individual support if needed. One challenge in these situations comes from the hierarchy in the line organizations. If project members are on the same level as the project manager or even higher in the hierarchy, some of the project managers hesitated with concrete support, even if they identified some problems. This situation can maybe solved indirect. Some of the interview partners were external consultants who did not report such problems. By definition, they have no hierarchical relationship to the internal team members, but they are also positioned as methodical experts and this can be also done for internal colleagues.

**Storytelling**

Storytelling by the project manager was used to a large extent and was also assessed positive. In these occasions, the project managers reported in the interviews they took the team members onto “the journey of the project”. They described broadly the first ideas, then the establishment of the project goals and the concrete deliverables. By this, they increased the buy-in of the team members and the understanding of the context. This phenomenon was similarly described by the project team members and the project managers. Project managers created a guiding theme and the team members appreciated mostly the openness in the descriptions and discussions.

One project team member described a kick-off meeting where even the project goals were openly discussed and every team members could give his or her own opinion about how realistic and achievable the goals are and what is needed to fulfill them. This increased the support of the team members and gave the project manager concrete options for the risk management of the project.

**Self-study of project documents**

Self-study of project documents was also used to a large extent as onboarding method. Here can be summarized, that the project managers guided
this self-study substantially. The concrete contents are discussed in the following section about the information sources.

5.3.2 Research question 4

The concrete application of the information sources during the on-boarding process is subject to research question 4. The analysis of the online questionnaire showed that newcomers prefer a specific mix of information sources. First, they turn to the people already engaged in the project. Second, they use the documents of the project, i.e. the project plan and the already developed project deliverables.

Two different situations have to be differentiated here: First, if project managers start their job, only little documentation exists. Thus, the development of the project management plan is the primarily task of the project manager. For this, strong interactions with the project sponsor and other project team members are needed. Second, when project team members join a project where the project manager already established a methodology, project team members can use the developed documents.

Therefore, the information sources used by project managers and those used by project team members are described separately in the following.

Information sources usage by project managers

During the interviews it could be seen that project managers capitalize strongly on their experience from a large number of projects. Project managers are by far more determined in their approach. They know exactly what they like to focus on and how they want to accomplish this. Project team members are more curious about the project. Project managers want to get a full understanding of the project to assess the challenges and if their methodological ideas fit to the goal, scope and limitations.

In some instances the project roles are not clear when the project sponsor meet the project manager for the first time. According to the project management standard the project sponsor manages the project in the very beginning, before a project manager is selected (Project Management Institute, 2008, p. 25). Therefore, the first meetings of sponsor and project manager are somehow a job interview for the project manager. As one project manager stated: “In the first meetings in every project my primary goal is to convince the project sponsor to take my project approach, the secondary goal is to clarify the organizational structure and how the business processes are structure.” The interviewed project managers focused also a lot on the organizational context of the project. This can be related to their task to communicate with all stakeholders regularly about the project. This information they took out of various “sources” like the project sponsor and other team members.

Project managers focus in their own on-boarding processes also on the contents related to their role. Clarifying the project objectives, the project scope and the interfaces to other projects is the focus of the first meetings
with the sponsor. One project manager made it very clear by saying: “A lot of things may change along the project process; however, if your project goals are not defined crystal clear you have a problem.”

When it comes to the on-boarding of others, the same picture can be drawn for the interviewed project manager. Even if every project manager has a slightly different approach, they all were very certain about what to do. In some instances they could clearly name typical situations and how they deal with this kind of challenges. One project manager with rather stable project types and contents summarized it this way: “When I first meet the experts I can quickly assess whether they support the project or not. Then I adjust the interview schedule accordingly.” This is important for the on-boarding of project team member, which is described in the following section.

**Information sources usage by project team members**

Project team members utilized the existing project team and especially the project manager as the number one source for information about the project. Again, it could be seen that every individual has an own approach and focuses on slightly different things. However, some common themes could be found also here.

*Curiosity* can be seen as a major theme in the on-boarding of project team members. Most of the interview partners simply wanted to know what the project is all about and especially what their role should be. For this, they used, in principle, every available source, even if the project manager plays the dominant role in this process.

*Continuous information* was named as a desired situation by the newcomers. Keeping them constantly “in the loop” to give them the chance to reflect about the project, the content etc. can be seen as a recommendation. As one of the interview team members said: “We are always good informed about the overall progress. We talk on a regular basis about the work packages the team members are working on. By this we always know the current status and are aware of where we can support and how things fit together”.

Some of the interview partners mentioned that they appreciated the chance to study the topic of the project also in their spare time to prepare the tasks. Therefore, the newcomers were keen to get to know the project as soon as possible to get prepared. By throwing the newcomers into the task, on the contrary, they do not have a chance to do this. The opposite is the case.

Regularly, the project sponsor appears for a short while during the kick-off or other meetings of the team. The project team members reported about their meetings with the project sponsor that mainly the project goals were emphasized. This *management commitment* was also strongly demanded by the project managers.
In general, the following can be summarized: Project team members carefully select their information source. For every piece of information they look for the best possible source. In many instances during the on-boarding process, they focus on the project manager. However, if other sources are more suitable, like the project sponsor for the objectives and the organizational context, they prefer this source. This summary leads to the overall structure of the on-boarding process which is the subject of the following section.

5.3.3 Research question 5

Research question 5 deals with the structure, the monitoring and the coordination of the on-boarding processes. Some of the structural aspects are well covered by the quantitative analysis. The described on-boarding processes were on average spread over two weeks and the various activities took about 25 hours. The dominance of the project manager can be seen in almost every part of this work. The overall role can be summarized by the statement of one of the project manager: “It’s part of the project management to structure the work for the team. The team members should bring the content but it’s the responsibility of the project manager that everything comes at the right time and in the right structure so that everything fits smoothly together”.

In line with this opinion, a common structure for the on-boarding could be found in the interviews: After the staffing of the project team as a joint effort of the project manager, the project sponsor and line managers the project teams were contacted by the project responsible. Typically, the project sponsor and the project manager shared this task in some way. This is usually followed by a kick-off meeting, where the project objectives, the project structure and the roles of the different team members are the main subjects. For larger projects this occasion is also used to socialize with other team members. These team building activities are often not a point on the agenda; however, everybody knows which topics are used as a cover. After the kick-off events the project work starts. Sometimes this is rather a racing start sometime a more cautious approach is chosen. After the distribution of the work packages, the project manager monitors the first deliverables carefully, both to ensure the quality and to assess the progress of the team members. When the project manager has a clear picture of the project team the standard project work starts. This program fits easily into the 25 hours in 2 weeks schedule out of the quantitative analysis.

These on-boarding weeks are structured carefully in advance by the project managers. They are also in the responsibility to coordinate all the activities during these first weeks. No other team member can replace the project manager in this task. All of the interviewed project managers were very certain about the specific challenges of the project. The project managers incorporated these challenges also to different extents into the structure of the on-boarding.
In addition to this “official on-boarding process”, the interviews revealed also the importance of a **pre-on-boarding phase**. This is, when the line managers staffed the project team with his or her team members. At this occasion some of the project team members had heard about the concrete project tasks for the first time. In these instances the very beginning of the project on-boarding had something of a racing start. Often Line Managers throw their staff into a new challenge. One project team member called it even “… then the project just happened to me, it was really sheer luck.” At the other end of the continuum is a softer assignment approach. At team meetings and other situations the line manager used the opportunity to brief his or her team about the general development in the organization. Then, when the project really starts, all of his or her subordinates are well aware of the situation and a project assignment does not come as a surprise. One of the interviewees described his experience as follows: “I knew about the project several months in advance to the actual assignment. During this period I reflected a lot about the things my colleagues described and how I would approach the project. I reflected about the things that worked in the past and those that won’t. Therefore, in the first meetings I felt well prepared and had a clear plan what to do and how to start my work.” The perception of the assignment of this interview partner was by far better. Where this interviewee saw concrete potential to improve his working methods, the other interview partner described a lot of insecurity and pressure. The persons that were thrown into the projects, in general, had only a rough picture of their concrete assignment and needed the guidance by the project manager to a large extent. Here the project manager started to draw a picture of the background of the project and had to tell the story of the project rather than focus on the specific roles and tasks.

5.3.4 Research question 6

Research question 6 focuses on the effectiveness of the on-boarding processes and the underlying drivers for the success. Even if this research questions should be analyzed based on the results of both the quantitative and the qualitative research steps, some preliminary findings can be described here in the qualitative section.

As the single most important aspect the **conscious design** of an on-boarding process can be considered. As a respondent to the online questionnaire stated in the free text field: “First step indeed is to get aware that on-boarding needs to be done actively at all, not only bring people in and let them learn on the project”.

Another enabler for a successful on-boarding, a **common ground** of the project team was described. In many instances, this common ground was based on the organizational practices “how things are made here”. The interviewees often stated things like “…, this depends on our project methodology.” or “in our approach, it’s common to …” or “within our organization…”. The shared organizational background served as a
The concrete on-boarding activities could be started earlier or quicker. Also a common background worked this way. As one of the interview partners described: “When we describe the different process steps we perform, they are completely different across the project team. However, since we are all finance people, we do understand each other and know what we are talking about”.

The fit of the capabilities of the team members and the project task was also mentioned in most of the interview as key success factor. This can either be ensured by the staffing of the project team. However, in some instances the people with the necessary skills and experience are not available and the development has to happen on the project.

Some of the interview partner also named the pressure they felt in the introduction to the project. If the project comes along with a large investment or a major change for the organization, a full load of responsibility was put on the project team members. They had the role of an ambassador for their apartment, therefore they should guarantee that all requirements are documented and all the specifics are fully understood. As one interview team member described: “The board members told us that we are responsible for the project result. If the product does not fit to the needs and requirement of our department it’s our fault.” This put a lot of pressure on the team members that should be supported by focused development activities if the team members did not have it at the beginning of the project.
6 Discussion

Two aspects of the research project will be discussed in this section: First, the research findings will be critically reviewed. Second, the methodological approach of the research project will be carefully assessed.

6.1 Discussion of the research results

The research project gives a good description of on-boarding processes in practice. The qualitative research step also revealed the concrete application of the methods and the information sources. Almost all of the research questions could be answered to the full extent, however, due to the comparatively low number of participants the reliability and external validity is limited, thus the interpretation, generalization and application of the research findings should be done carefully. Various methods were applied to increase the quality and value of the results. However, the limited resources of this research within a master’s program could not be completely eliminated.

The research findings suffer also in another aspect: the isolation of success factors for the on-boarding success was quite challenging and the quantitative research step did not provide a clear direction. The developed hypotheses for the quantitative analysis were not supported; hence the success of the on-boarding processes could not be explained by the quantitative analysis. The literature review gave a set of plausible drivers to explain the speed the newcomers increased their project performance. However, only a low correlation could be found to these measures for success. Some variables were not included in the model. Some projects are, for example, more challenging or more innovative than others. For these projects the on-boarding processes could demand more time and more experienced team members could be selected. This set-up would possibly explain the quantitative analysis; however, the online questionnaire did not provide the basis for further analysis. This shows that the field needs more investigation to increase the quantitative basis.

It can be argued that the research findings are not completely new. Existing theories were mainly supported. However, these theories were taken out of related fields, thus their field of application was enlarged to the on-boarding of new project team members. Also, some findings of this work did not match to the latest research. The participants reported only a small usage of online material and web-based courses. These kinds of educational tools were celebrated by researchers to revolutionize vocational trainings. Discussion about copyright laws in various countries can lead to the impression that every bit of information is available online. However, the participants of this research project were not interested in this kind of information source. This finding should be further investigated to clarify if new project team members do not appreciate these information sources at all or just not in their first weeks into the project. Another pattern is counter-
intuitive. People involved in project management and committees for the standardization of project work postulate: No project is finished before the lessons learned are developed, stored and ready to use for further projects. However, at least the participants of this research project did not turn to lessons learned documents at all, neither assess these information sources as worthwhile to review. Again, the question should be whether the respondents do not use these instruments during the on-boarding process or if they neglect the value in general.

6.2 Discussion of the methodological approach

Some of these limitations were already briefly discussed in section 3 of this work. In addition the following sources for further biases can be summarized:

The answers of the respondents were triangulated in various ways: First, some of the responses to the questionnaire were checked for consistency. Second, the interview responses of team members were checked against the responses of other team members of the same project and also against the responses of the project manager. However, the assessment of the effectiveness and the project goal contribution made by the respondents in the online survey was not cross-checked. The respondents answered the questions by themselves. This can produce several biases, i.e. the respondents could link the project success to their personal on-boarding success and by this the validity of the research results decreases.

Another limitation comes from the content of the questionnaire for the quantitative analysis. With the achieved effectiveness and the contribution to the project goals only two dimensions of the on-boarding result were measured. In addition, i.e. the social team integration and the personal development could have been also investigated. These aspects are partly included in the qualitative interviews; however the questionnaire laid the foundations for the topics discussed during the interviews. Therefore, if the online questions include this bias, the following qualitative research step would also suffer in this aspect.
7 Conclusion

7.1 Background & summary of the research

Projects are temporary activities carried out to create products, services or – in general – a specific result (Project Management Institute, 2008, p. 5). Once the result is achieved the project will be terminated. Project work is not just very common in today’s organizations, for various tasks projects are even the dominant organizational form. Due to the temporarily character of projects, every project deals with intensive team building activities and the integration of new staff. However, the process of new team member integration – or project on-boarding in the terms of this work – was not covered by many research projects so far.

This research project aimed to close this research gap and to provide insights into the process of project on-boarding. The author himself was also heavily engaged in project work during his previous positions as management consultant as well as in his current occupation as project manager. In addition to the academic requirement the author has therefore a personal interest and motivation. To provide the expected practical guidance concrete aspects of the on-boarding like useful information sources and successful methods were therefore investigated. More specifically, the following research questions were formulated to develop concrete and applicable research results:

- Which methods & tools are used to provide employees project-related information during the introduction phase, how are they used in practice and how effective are these methods?

- Which information sources do new project team members search actively to get the information required to fulfill their new tasks, how are they used and how effective are these information sources?

- How are the various on-boarding processes structured, coordinated and monitored in practice and how effective are the on-boarding processes?

Based on the requirements of the research problem, the set of research questions and the author’s background and experience an explanatory mixed-method research approach was chosen, combining quantitative and qualitative research methods in a sequential manner.

The quantitative research step used an online questionnaire to quantitatively analyze the on-boarding process of the participants. A second research step was added to analyze the applied methods in more detail. Therefore, a subset of the participants of the online questionnaire was interviewed. The integration of the findings of the two research steps was also used to enrich the research results. By this combination of the two research approaches, the full set of research questions was tried to answer.

The data collection of the research project was conducted in a six week period during the late spring in 2012. During that period 32 respondents...
answered to the questions of the online survey and additional 11 participated in the interviews.

7.2 Research results

The quantitative as well as the qualitative research results give a detailed, precise and illustrative description of project on-boarding processes in practice. Research questions 1 through 5 were answered in detail in the corresponding sections. Therefore, in the following the main findings are summarized and the results of the quantitative and qualitative research are integrated.

**On-boarding methods**

Research questions 1 and 2 asked for the used methods for the on-boarding of new team members and the concrete application of the methods. The quantitative research revealed that team meetings, discussions and workshops are used to the largest extent to integrate new project team members. These methods were also assessed as most effective which shows a good fit of the applied methods. The methods applied during the on-boarding are always a mixture of several approaches. Interactive, team oriented methods are combined with the autonomous study of project documents, the illustrative storytelling by the project manager and team members and coaching on-the-task.

In summary, the studied project teams and individuals rely heavily on the face-to-face transfer of knowledge during the project team encounter. These occasions were used by the team members to question the project goals, clarify the project organization and methodical approach and especially to clarify the specific role of the new team members. Project managers focused in these occasions on the development of the project and tried to demonstrate a genuine appreciation of the team member’s contributions. Self-study of documents complemented these intense interactions. The entire portfolio of methods was actively composed by the project managers. They selected the methods based on a carefully analysis of project goals and scope and the specific challenges associated with the project in the particular organization. However, new team members do not simply consume the on-boarding process, they also select actively the appropriate method for the knowledge they are looking after. This combination of active on-boarding behavior and good understanding of what the project team really needs leads to a high satisfaction of the applied methods.

**Information sources**

Subject to research questions 3 and 4 were the information sources used in the on-boarding process. Accordingly, the corresponding research questions focused on which information sources are used, how they are used and how effectiveness they were assessed. Again, the quantitative analysis contributed the descriptive overview. Project sponsor, project manager and other team
members were heavily used by the newcomers during the on-boarding process. This is supported by the availability of the project manager at all times. The interviewed project managers described a strong focus on the encouragement of an open and curious atmosphere in the project team. The extent of communication within the team was actively kept on a high level during the first weeks by the project manager.

As in the analysis of the applied methods, the personal interaction was supplemented by the review of project specific documents. Descriptions of the project and also already finalized deliverables were frequently conducted by the newcomers. This goes along with a high level of curiosity about the task at hand and the specific role. Here the project manager focus on a clear and common structure of the documentation to make the contents easy accessible to the team members. Depending on the situation, some project managers also delegated some of the fundamental documentation tasks to new team members, i.e. description of departments, processes etc. to keep the new team members quickly involved to increase actively their buy-in to the project. Information out of the larger context of the project was used to a much lower extent in the first weeks of the assignment. During this phase, the full focus lied on the concrete project.

**Structure, coordination and monitoring of the on-boarding process**

Subjects of research questions 5 are the structure, the coordination and the monitoring of on-boarding processes. The answer to this research question cannot be based on the response to only a single interview question. The structure of the on-boarding processes rather has to be extracted from a large set of questions.

From a quantitative point of view the structure was rather simple. The on-boarding processes were only a few intense weeks. During that time, on average about 25 hours distributed over roughly two weeks, the newcomers followed a pre-defined schedule. This schedule was developed by the project manager based on his or her organizational knowledge and discussions with the project sponsor and other, already existing, team members. For these processes the project manager sets also the pace. However, all contacted project managers also demonstrated a high openness to changes along the way. Overall, carefully balancing the pre-structured activities and transplanting the involvement into the project team was the main challenge of the project managers at that phase of the project. By this, the project responsible coordinated the on-boarding activities.

The challenge of monitoring the team development was also a multi-faceted task, mainly performed by the project managers. For this, the interviewed project managers relied heavily on their experience of a large number of projects and on one-to-one discussions with their project team members as well as on meetings with the entire team. In general, they
described a challenging pace; however, they were not afraid of taking one step back, if the project teams needed some support.

**On-boarding results and success factors**

The self-assessment of the respondent captured in the online questionnaire gave a good description of the on-boarding success asked for in research question 6. In general, new team members were able to work with a medium effectiveness and could start to contribute to the project goals, directly after the on-boarding process. Due to this, the documented on-boarding process can be described as successful. The majority of the respondents achieved full effectiveness after 5-8 weeks into their assignment. They also contributed regularly to the project goals. Furthermore, the project managers expressed high satisfaction with the described on-boarding processes. Other perspectives that could have shown other results, for example the view of the project sponsor, were not incorporated into the research structure.

The second part of research question 6 asked for the success factors in the on-boarding process. For this, the quantitative analysis gave no clear explanation, thus no direction for further investigation in the interviews was available. Therefore the author needed to structure the data collection and therefore the interview questions of this topic much broader. By this, the responses were only on a general level; however, they did show some success factors. Personal factors by the team member, like openness and curiosity supported the information gathering of the team members. Those that expressed a high level of curiosity, for example, could describe the project in much more detail and from various angles.

Project managers that expressed a high importance of the on-boarding process designed it more consciously. They could also motivate and explain the different on-boarding steps in a better way. It can be summarized that if the concrete challenges were specifically incorporated into the project on-boarding, project team members described the on-boarding process as more valuable. Finally, shared organizational practices and a common ground, i.e. the same functional background, united project team easily, however, these aspects are hard to influence compared to those mentioned above.

**7.3 Limitations and future research**

The limitations of this research project come from two different perspectives: First, the research findings could be – as in every research in social sciences – of better quality and could have a higher level of clarity. Second, another direction of limitations comes from the methodological approach of the research project. Directions for future research are integrated into the below assessment.

**Result limitations**

The research project gives a detailed picture of what was done during the on-boarding phase of several projects at various organizations. The
qualitative research step also revealed the concrete application of methods and information sources. In both research steps, the structure and the success of the on-boarding activities could be analyzed. However, due to the comparatively low number of participants the reliability and external validity is limited, thus the interpretation, generalization and application of the research findings should be done carefully. Due to the practical value of the research questions further research project should also emphasize on this area to increase the quantitative basis for analysis.

This work provided detailed analyses of the overall structure of on-boarding processes in practice. However, the findings for the underlying success factors could not be explained with the same clarity. Some of the suspected drivers, i.e. the duration and effort of the on-boarding, could not be found as strong enablers for a quick adaptation of the newcomers. The explanations derived from the interviews could partly solve this issue. Future research project therefore could be more explorative to find possible success factors and broaden the scope and the data basis for this aspect. More extensive data collection in the qualitative research step should also be done to provide better descriptions and examples.

The qualitative description of the on-boarding processes provides also some room for improvements. The limited resources of this research project and this work allowed only short interviews with the participants and the review of some central documentation. Also, only short descriptions of the on-boarding processes were possible in the case study section. A more detailed approach and a more extensive data collection and case study descriptions in the qualitative research step could have resulted in a deeper understanding of the on-boarding processes.

**Methodical Limitations**

The answers of the respondents were triangulated in various ways. However, for future research projects the author suggests that a) the project team members, b) the project manager, c) the project sponsor and d) also the line managers should be involved in the investigation. By this, various improvements could be established: First, the development of the team members could be described from various angles. Also, investigator triangulation could be incorporated into the online questionnaire which would increase the validity of the analysis. Another improvement would be, for example, the possibility to analyze both the personal development of the project team members and the utilization of project results in the line organization. In the supplementing interviews the specific monitoring of these developments could be also emphasized.

Another suggestion to increase the explanatory value of the analysis would be to complement the quantitative research step by an in-depth investigation of the given responses. Participants could do the interview closely after the online questionnaire. The concrete responses then could be further
investigated based on the online questionnaire. However, then the participants and their responses would not remain anonymous, therefore it could be questioned if the participants are completely honest about sensitive aspect like their work performance and achievements.

From the content of the questionnaire comes another limitation for the quantitative analysis. With the achieved effectiveness and the contribution to the project goals only two dimension of the on-boarding result were measured. In addition, i.e. the social team integration and the personal development could have been also investigated. These aspects are partly included in the qualitative interviews; however the questionnaire laid the foundations for the topics discussed during the interviews. Therefore, if the online questions include this bias, the following qualitative research step would also suffer in this aspect.

Another source for biases lies in the subjective memory of the respondents. The participants’ answers could i.e. depend on the project success in general and not only on the on-boarding success. This effect could be reduced in future research projects by direct observations of the on-boarding processes in some instances. Another improvement would be to document the various efforts and activities during the on-boarding process. This would result in a longitudinal research design, and in-depth case studies of the observed projects.

The question how to get new project team members up-to-speed as quickly as possible is of high practical value. Staffing processes occur more often compared to the line organization, thus project teams have to be built regularly and new colleagues have to be on-boarded at a higher pace. Also, projects underlie a constant process of change. Outsourcing, for example, has the potential to change the way projects are executed. Global organizations change their project methodology towards a more intensive use of external experts which will change the staffing and on-boarding alike. When there are no organizational routines or shared practices, project teams has to develop such things along the project.

This work contributed to the understanding of project on-boarding practices. The findings can be complemented by additional research in this highly practical subject to build a fruitful basis for practitioners. The resonance of the topic in the interviews was large and the participants were keen to get to know more about the research results. Therefore, maybe this research project could serve as a starting point for further discussion of the findings among project practitioners and by this, improve the on-boarding of team members in practice, which was the ultimate purpose of this study.
Literature


**Sheehan, K. B. (2001).** E-mail Survey Response Rates: A Review. *Journal of Computer-Mediated Communication, 6* (2), 0–0.


Appendix 1: Instruments of the quantitative research step

Invitation Letter

Hi,

my name is Frank and after several years as a consultant and project manager I’m currently studying part-time to receive my Master’s degree in information logistics.

In my master's thesis project I'm investigating the practices of the on-boarding of new project team members, a task every project manager needs to do regularly (attached you can find a full description of the purpose statement and more information on the procedure).

Therefore I would like to ask you to take a couple of minutes of your valuable time to help me with my survey and to complete an online questionnaire. As a “thank you” for your participation you will receive a free copy of the master’s thesis after completion.

All the information you provide will be treated confidential and cannot be tracked back to you in the final analysis and the thesis. Moreover, after the completion of the thesis all records will be deleted.

To participate, please click on the link below or copy it into your web browser.

[Survey link]

Thank you for your time!

If there will be any problems or questions during the survey please contact me via frank.keusch@googlemail.com.

Best regards

Frank

Online Questionnaire

Welcome to the project on-boarding survey!

Purpose of this survey is to gain insights into the practices during the on-boarding of new project team members. This questionnaire consists of several questions about the on-boarding process. Please answer the questions based on your latest fully completed project.
All your information will be treated confidentially. Your answers are completely anonymous and cannot be tracked back to you and also all analysis will be performed in a manner that no information can be traced back to a single individual. Thank you in advance for participating in this survey!

1. How many years of work experience do you have?
   - 0-3
   - 3-5
   - 5-10
   - 10-15
   - 15 or more

2. How many project assignments did you had in your professional career (please count only project assignments with a substantial amount of time / duration)?
   - 0-5
   - 6-10
   - 11-15
   - 15 or more

3. What was your role in this project?
   - Project manager
   - Sub project manager/ Manager of subordinated projects
   - Project team member

4. What type of project did you worked on (latest fully completed project)?
   - IT / system development
   - R&D / new product or service development
   - Organizational development
   - Construction, incl. plant / site development
   - Manufacturing engineering
   - Other

5. How long was the duration of this project in total?
   - 0-6 months
6. How many team members had this project?
   - < 5 individuals
   - 5-10 individuals
   - 11-20 individuals
   - 21-50 individuals
   - > 50 individuals

7. In which phase of this project did the on-boarding happen?
   - Starting the project
   - Organizing and preparing the project
   - Carrying out the project work
   - Closing the project

8. How much of the overall project duration was spent before the on-boarding process started?
   - 0-20%
   - 21-40%
   - 41-60%
   - 61-80%
   - more than 80%

9. How long was the period dedicated to the on-boarding of new project team members?
   - 0-2 weeks
   - 2-4 weeks
   - 4-6 weeks
   - more than 6 weeks

10. How much effort (in terms of hours spent) was dedicated to the on-boarding of the new project team member in total?
    - 0-20 hours
    - 21-40 hours
    - 41-60 hours
    - more than 60 hours
11. Who performed the on-boarding activities?

<table>
<thead>
<tr>
<th></th>
<th>to a very large extent</th>
<th>to a large extent</th>
<th>medium</th>
<th>to a small extent</th>
<th>not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Project Sponsor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Project Manager</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sub Project Managers / Manager of Subordinated Projects</td>
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</tr>
<tr>
<td>Project Team Members</td>
<td></td>
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</tr>
</tbody>
</table>

12. To what extend were the following methods used in the on-boarding?

<table>
<thead>
<tr>
<th></th>
<th>to a very large extent</th>
<th>to a large extent</th>
<th>medium</th>
<th>to a small extent</th>
<th>not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coaching or storytelling by the project sponsor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coaching-on-the-task by your project manager</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Shadowing your project manager</td>
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<tr>
<td>Storytelling by your project manager</td>
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<tr>
<td>Coaching on-the-task by project team members</td>
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<tr>
<td>Shadowing your project team members</td>
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<tr>
<td>Storytelling by your project team members</td>
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<tr>
<td>Team meetings / discussion / workshops</td>
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<tr>
<td>Self-study of project documents</td>
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<tr>
<td>Trainings (i.e. instructor-led or online courses)</td>
<td></td>
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</tr>
</tbody>
</table>
13. How do you assess the different methods for the handover?

<table>
<thead>
<tr>
<th>Method</th>
<th>Very effective</th>
<th>Effective</th>
<th>Ineffective</th>
<th>Very ineffective</th>
<th>not used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coaching or storytelling by the project sponsor</td>
<td></td>
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<tr>
<td>Coaching-on-the-task by your project manager</td>
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<tr>
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<tr>
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<tr>
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<td>Trainings (i.e. instructor-led or online courses)</td>
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</tr>
</tbody>
</table>

14. To what extend have you used the following information sources during the handover process?

<table>
<thead>
<tr>
<th>Information Sources</th>
<th>to a very large extent</th>
<th>to a large extent</th>
<th>medium</th>
<th>to a small extent</th>
<th>not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process descriptions &amp; documentations of this</td>
<td></td>
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</tr>
<tr>
<td>Information sources</td>
<td>Very effective</td>
<td>Effective</td>
<td>Ineffective</td>
<td>Very ineffective</td>
<td>not used</td>
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<td>----------------------------------------------------------</td>
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<tr>
<td>Project deliverables of this project</td>
<td></td>
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<tr>
<td>Lessons learned documents from this project</td>
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<tr>
<td>Information directly from the project sponsor</td>
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<td>Information directly from the project manager</td>
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<tr>
<td>Information directly from other project team members</td>
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<td></td>
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<tr>
<td>Lessons learned documents from other project</td>
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<tr>
<td>Documentation / deliverables from other project</td>
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<tr>
<td>Handbooks, guidelines &amp; other general documentations of the organization</td>
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<tr>
<td>Web-based courses / online material</td>
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</tbody>
</table>

15. How do you assess the different information sources for the handover?
<table>
<thead>
<tr>
<th>Management plan, WBS</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Project deliverables of <strong>this</strong> project</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Lessons learned documents from <strong>this</strong> project</td>
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<tr>
<td>Information directly from the project sponsor</td>
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<tr>
<td>Information directly from the project manager</td>
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<td></td>
</tr>
<tr>
<td>Information directly from other project team members</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Lessons learned documents from <strong>other</strong> project</td>
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<tr>
<td>Documentation / deliverables from <strong>other</strong> project</td>
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<tr>
<td>Web-based courses / online material</td>
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</tbody>
</table>

**16. How long did it take to...**

<table>
<thead>
<tr>
<th></th>
<th>1-2 weeks</th>
<th>3-4 weeks</th>
<th>5-8 weeks</th>
<th>9-12 weeks</th>
<th>4 month or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>…achieve <strong>50% of your effectiveness</strong> in performing your project tasks?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>…achieve <strong>100% of your</strong></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
effectiveness in performing your project tasks?

17. How long did it take to...

<table>
<thead>
<tr>
<th>... contribute substantially to the projects objective(s) for the first time?</th>
<th>1-2 weeks</th>
<th>3-4 weeks</th>
<th>5-8 weeks</th>
<th>9-12 weeks</th>
<th>4 month or more</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>... be fully up to speed and contributed on a regular basis to the projects objective(s)?</th>
<th>1-2 weeks</th>
<th>3-4 weeks</th>
<th>5-8 weeks</th>
<th>9-12 weeks</th>
<th>4 month or more</th>
</tr>
</thead>
</table>

18. If you could do the same on-boarding again, how long would you like to have for the on-boarding process?

- 0-2 weeks
- 2-4 weeks
- 4-6 weeks
- More than 6 weeks

19. If you could do the same on-boarding again, how much effort (in terms of hours spent) would you like to dedicate to the on-boarding process?

- 0-20 hours
- 20-40 hours
- 40-60 hours
- More than 60 hours

20. Is there anything else you would like to add about the on-boarding process or feedback about the questionnaire?

(please fill in)

21. The entire research project consists of this questionnaire (quantitative research step) and also of an explanatory research step to gain more detailed information (qualitative research). If you want to participate further in this research project (i.e. further questionnaires /
short telephone interviews), please drop me a note (frank.keusch@gmail.com).

Matching of Research questions and online questionnaire

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Question in the Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1: Which methods &amp; tools are used?</td>
<td>12. To what extent were the following methods used in the on-boarding?</td>
</tr>
<tr>
<td></td>
<td>13. How do you assess the different methods for the on-boarding?</td>
</tr>
<tr>
<td>Q3: Which information sources do new team members search &amp; how effective are these sources?</td>
<td>14. To what extent have you used the following information sources during the on-boarding?</td>
</tr>
<tr>
<td></td>
<td>15. How do you assess the different information sources for the on-boarding?</td>
</tr>
<tr>
<td>Q5: How are the various on-boarding processes structured and coordinated in practice?</td>
<td>3. What was your role in the project?</td>
</tr>
<tr>
<td></td>
<td>4. What type was the project?</td>
</tr>
<tr>
<td></td>
<td>5. How long was the duration of the project in total?</td>
</tr>
<tr>
<td></td>
<td>6. How many team members did the project have?</td>
</tr>
<tr>
<td></td>
<td>7. In which phase of the project did you join the team?</td>
</tr>
<tr>
<td></td>
<td>8. How much of the overall project duration was spent before the on-boarding process started?</td>
</tr>
<tr>
<td></td>
<td>9. How long was the period dedicated to the on-boarding?</td>
</tr>
<tr>
<td></td>
<td>10. How much effort did you dedicate to the on-boarding?</td>
</tr>
<tr>
<td></td>
<td>11. Who performed the on-boarding activities?</td>
</tr>
<tr>
<td>Q6: How effective are the on-boarding processes during the introduction to a new project and which factors drive the effectiveness?</td>
<td>1. How many years of work experience do you have?</td>
</tr>
<tr>
<td></td>
<td>2. How many project assignments have you had in your professional career?</td>
</tr>
<tr>
<td></td>
<td>3. What was your role in the project?</td>
</tr>
<tr>
<td></td>
<td>9. How long was the period dedicated to the on-boarding?</td>
</tr>
<tr>
<td></td>
<td>11. Who performed the on-boarding activities?</td>
</tr>
<tr>
<td></td>
<td>12. To what extent were the methods used in the on-boarding? + 13. How do you assess the methods?</td>
</tr>
<tr>
<td></td>
<td>14. To what extent have you used the information sources during the on-boarding? + 15. How do you assess the information sources for the on-boarding?</td>
</tr>
<tr>
<td></td>
<td>16. How long did it take to achieve x% of your effectiveness in performing your project tasks?</td>
</tr>
<tr>
<td></td>
<td>17. How long did it take to contribute to the project</td>
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</tr>
<tr>
<td>18.</td>
<td>If you could do the same on-boarding again, how long would you like to have for the on-boarding process?</td>
</tr>
<tr>
<td>19.</td>
<td>If you could do the same on-boarding again, how much effort would you like to dedicate to the on-boarding process?</td>
</tr>
</tbody>
</table>
Appendix 2: Instruments of the qualitative research step

Interview Guideline for Project Managers

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company:</td>
<td></td>
</tr>
<tr>
<td>Position:</td>
<td></td>
</tr>
<tr>
<td>Project Role:</td>
<td></td>
</tr>
</tbody>
</table>

1 Project set-up
1.1 Could you please describe the project in general and also the specific project situation?

2 Behavior during your own on-boarding
2.1 How would you describe your mindset at this stage of the project, when you met the sponsor or functional / operational managers?
2.2 What were your goals for the first meetings with the sponsor or functional / operational managers?
2.3 How did you approach this task?
2.4 Which importance did the various types of information have and how did you use them?

3 Set-up for the on-boarding of others
3.1 Before the new members joined, what were your plans for the on-boarding?
3.2 What were your plans for this occasion with respect to the set-up / climate / atmosphere?
3.3 Which concrete activities / actions did you do to achieve that?

4 Preparations for the on-boarding of others
4.1 What specific preparations did you perform for the on-boarding?
4.2 Which information did you consult for your preparations?
4.3 Which role did your work relationships / connections in the organization play for the on-boarding?

5 Behavior during others’ on-boarding
5.1 How did you prepare the first on-boarding events / occasions for the on-boarding of following team members?
5.2 Which importance did the various types of information have when on-boarding new team members and how did you use them?
5.3 How did you perform the on-boarding in detail?

6 Success Factors
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>Could you please summarize your on-boarding experience within the last few projects?</td>
</tr>
<tr>
<td>6.2</td>
<td>In a nutshell, which were the major success factors in your last few on-boarding processes?</td>
</tr>
<tr>
<td>6.2</td>
<td>Which were the last major success factors in the on-boarding processes of your project team?</td>
</tr>
<tr>
<td>7</td>
<td>Open question</td>
</tr>
<tr>
<td>7.1</td>
<td>Is there anything you want to add about on-boarding processes?</td>
</tr>
</tbody>
</table>

**Interview Guideline for Project Team Members**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company:</td>
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<td>Position:</td>
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</tbody>
</table>

1 **Project set-up**

1.1 Could you please describe the project in general and also the specific project situation?

2 **Behavior during your own on-boarding**

2.1 How would you describe your mindset at this stage of the project, when you met the sponsor or functional / operational managers?

2.2 What were your goals for the first meetings with the sponsor or functional / operational managers?

2.3 How did you approach this task?

2.4 Which importance did the various types of information have and how did you use them?

3 **Set-up for the on-boarding**

3.1 When you joined the project team, which goals / steps were communicated to you?

3.2 How did you experience the set-up that was created by the project manager?

3.3 What specific activities / actions of the project manager do you recall?

4 **Behavior during others’ on-boarding**

4.1 How did you prepare the first on-boarding events / occasions for the on-boarding of following team members?

4.2 Which importance did the various types of information have when on-boarding new team members and how did you use them?

4.3 How did you perform the on-boarding in detail?
<table>
<thead>
<tr>
<th>5</th>
<th>Success Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
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<tr>
<th>6</th>
<th>Open question</th>
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