# Reshaping Knowledge Flow: The Impact of Ecollaboration Platforms in It-Project Knowledge Transfer

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**Abstract**: This research embarks on an in-depth exploration of the transformative dynamics initiated by eCollaboration platforms in the field of IT project management, with a particular focus on knowledge transfer processes. The study delves into the intricacies of knowledge transfer, encompassing both its intra-project dynamics and its transfer from projects to project-based organisations (PBOs). The overall aim is to unravel the impact of eCollaboration platforms on this complex process and to provide insights into the evolving landscape of knowledge management in the context of IT projects. Methodologically, the study adopts a qualitative content analysis approach. Recognising the paradigmatic aspects that might limit insights for proponents of the quantitative paradigm, the chosen approach facilitates an in-depth exploration of the multifaceted nature of knowledge transfer within IT project management. The study involves a cohort of eleven project managers in Austria, with meticulous interviews conducted and recorded to ensure a comprehensive data collection process. The subsequent data analysis involves a systematic evaluation of the accumulated information derived from these expert interviews. This comprehensive analysis integrates both quantitative and qualitative components, providing a nuanced understanding of how eCollaboration platforms influence knowledge transfer within the complex landscape of IT projects. The research findings provide valuable insights into the evolving dynamics of knowledge transfer in the context of IT project management. By examining the impact of eCollaboration platforms on this process, the study contributes to a deeper understanding of the challenges and opportunities that arise in the area of knowledge management in IT projects. These findings have practical implications for project managers and organisations seeking to optimise knowledge transfer processes within their projects and project-based organisations. Ultimately, this research serves as a timely exploration of the transformative potential of eCollaboration platforms to reshape the flow of knowledge within IT project management. It paves the way for improved collaboration and knowledge sharing in the digital age and offers a critical perspective on the evolving landscape of IT project management practices.

**Keywords**: eCollaboration, Knowledge flow, Knowledge transfer, IT-project management

## 1. Introduction

This research evaluates changes in knowledge transfer through the use of eCollaboration platforms in IT project management. Knowledge transfer within projects and from projects to project-based organisations (PBOs) is a multi-faceted evolutionary process influenced by various factors and dynamic circumstances. Zhou *et al.* (2022) examined knowledge transfer from projects to PBOs using simplified variables in their study. However, the development of complex dynamic models requires further research. Furthermore, their research primarily addresses knowledge transfer from projects to PBOs, neglecting to examine how project managers use eCollaboration platforms to manage this knowledge transfer. Zhou et al. (2022) suggest that future research should broaden its focus to include other aspects of knowledge generation or the entire knowledge management process within PBOs. While Hetemi, Pushkina and Zerjav (2022) focus their analysis on collaborative knowledge work practices specifically within IT projects in their organisational context, there is a need for future research to explore the intricacies of knowledge work in settings that span multiple projects and organisations. Given the preliminary nature of the findings in their study, there is an opportunity for future research to enhance understanding through the use of qualitative research designs. The study highlights the importance of developing a robust understanding of project-based knowledge work and its practices, and emphasises its central role as a key capability for both public and private sector organisations striving for success within their organisational ecosystems. This implies a call for the current study to expand beyond the parameters set by Zhou et al. (2022) by considering additional elements in the knowledge management process. Furthermore, it suggests that Hetemi, Pushkina and Zerjav (2022) need to conduct further research that explores the intricacies of knowledge work in contexts that transcend individual projects and organisations, thereby addressing the existing research gap regarding forms of knowledge transfer in project management. Against this



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background, the epistemic focus of this study is on the transformation of knowledge transfer practices within eCollaborative projects. In addition, it includes the corresponding willingness to transfer knowledge from the project to the project-based organisation (PBO).

## 2. Theoretical Background

The terms tacit and explicit knowledge go back to Polanyi (1966) who states that people often know more than they can express. According to Pawlowsky (2019), tacit knowledge is interwoven with action and tied to the person who has the experience. It cannot be put into words, or only incompletely. Nonaka and Takeuchi (2012) add that tacit knowledge is based on individual experience and includes elusive factors such as beliefs and perspectives. In contrast, explicit knowledge is defined as easily transferable in language and processable in formal form (Pawlowsky, 2019). Nonaka and Takeuchi (2012) describe explicit knowledge as knowledge that can be expressed in clear sentences, technical data and manuals, and can be easily shared. Reinmann (2009) summarises that knowledge is considered implicit when it cannot be articulated directly and depends heavily on experience. In contrast, we speak of explicit knowledge when it can be articulated linguistically and decoupled from the primary knowledge carrier. Polanyi emphasised that the two forms of knowledge are inextricably linked. This duality is also evident in project knowledge, where both formalised project documentation and implicit knowledge arise in the minds of those involved in the project (Christian, 1994; Schindler, 2001). The interplay between tacit and explicit knowledge is crucial to understanding knowledge transfer in projects. While tacit knowledge is deeply personal and difficult to articulate, explicit knowledge is easily documented and shared. This duality poses challenges, especially in project management.

eCollaboration technologies address these challenges by providing platforms that facilitate the codification and sharing of tacit knowledge. These systems enable better coordination and communication by integrating both tacit and explicit knowledge into project workflows. Kock et al. (2001) define eCollaboration in the broadest sense as collaboration between people working on a common task using electronic technologies. As examples of eCollaboration technologies, they cite web-based chat tools, web-based asynchronous conferencing tools, email, collaborative writing tools, group decision support systems and teleconferencing. Schauer and Zeiller (2011) state that eCollaboration systems support the communication, coordination and collaboration of employees to work together towards a common goal and create economic value. This definition is consistent with Riemer's (2007) definition, which defines eCollaboration systems as software that supports communication, coordination and collaboration between human processes in groups. Bettoni *et al.* (2016) provide a knowledge-based definition of eCollaboration. They describe knowledge-based eCollaboration as a coordinated activity between different individuals who use electronic technologies to work on a single, common task, and who simultaneously make a conscious and continuous effort to build and maintain an underlying shared knowledge structure as a basis for accomplishing their task.

What these definitions have in common is that eCollaboration technologies support human knowledge carriers in working on a common task and thus also in working on a common project. When these definitions of eCollaboration are combined with Thiel's (2002) transfer model, the result is that the transfer channels listed in the transfer model can be equated with the term eCollaboration technologies. This suggests that different systems are used in the context of project management. Riemer (2007) defined four main system classes to characterise eCollaboration technologies. This classification is still valid today and is used in current studies.

Everyday systems are used continuously by teams as primary systems to support daily activities. They provide basic functionality to support all three types of social interaction - communication, coordination and collaboration. Everyday systems focus on asynchronous, text-based and thus codified communication. The systems provide email functionality as the primary mode of communication. Other typical features include shared calendars, address books, task lists, document areas and discussion forums. The main form of perception provided by these systems is that of a workspace in relation to documents held in shared areas (Riemer, 2007).

Integrated systems have many features in common with everyday systems, such as email, calendars, address books and to-do lists, but their key feature is support for synchronised communication. These systems also offer instant messaging and text conferencing. A key feature is presence information to create informal attention (Riemer, 2007).

Systems in the Coordination Systems class focus on specific aspects of team coordination. These systems are typically used by team members on an ongoing basis, albeit as a secondary system to the Everyday systems. Typical features include document areas, group calendars, task lists, project and resource plans, project controlling, document distribution lists and workflows (Riemer, 2007).

Meeting systems include systems that support online meetings and video conferencing. These can be used for specific situations and as secondary systems. The systems are based on rich synchronous communication capabilities such as text chat, audio and video communication. Other typical features include sharing of applications and whiteboards. Polls can be conducted to support ad hoc decisions and online presentations can be held to conduct online seminars (Riemer, 2007).

Based on Riemer's (2007) classification, the systems can be assigned to Thiel's (2002) transfer model. Figure 1 shows Thiel's (2002) transfer model extended to include these systems. This figure shows that the systems cover all transfer channels. It also shows that two systems can be used for asynchronous and formal knowledge transfer. From this it can be concluded that when both systems are actually used in projects, the codified material knowledge carriers are either distributed or stored redundantly. It can therefore be concluded that systematic transfer should be given high priority at this stage in order to minimise the risk of knowledge loss.

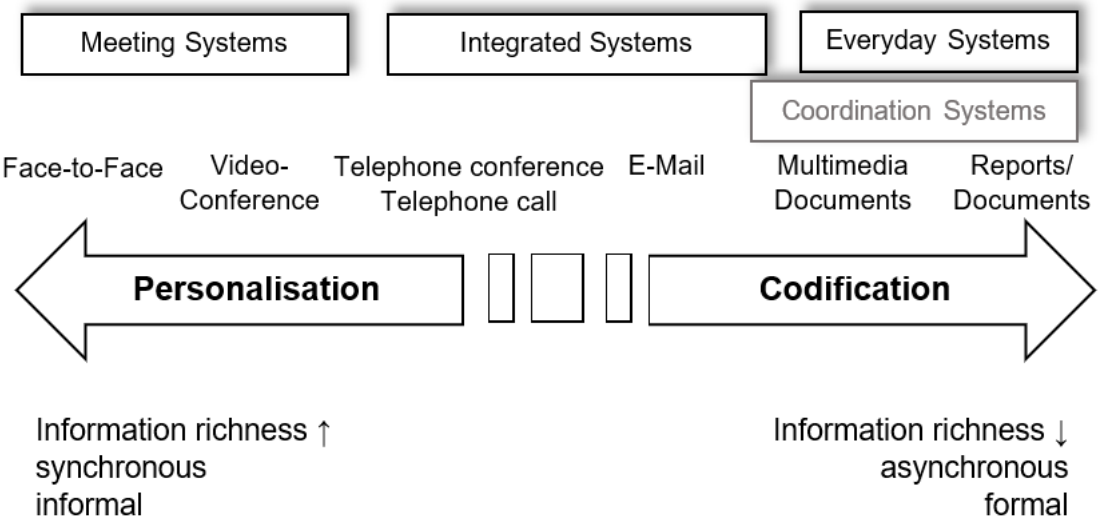


**Figure 1: Transfer methods according to Thiel (2002) extended by classification according to Riemer (2007)**

According to Riemer (2007), systems for integrating project features are quite similar to coordination systems. The processes of collaboration and coordination are supported by coordination systems, while integrated systems add the communication aspect. In addition to project management functions, integrated systems are systems that provide a range of functions from basic to knowledge management functions in relation to a company's organisation. In summary, eCollaboration systems form the technological basis for knowledge transfer in the project. It can be argued that it is necessary to define a system for their use and to control the transfer of knowledge across the boundaries of the systems.

## 3. Literature Review

The results of Hetemi, Pushkina and Zerjav (2022) study on collaborative knowledge work practices in IT projects describe and explain how cross-domain project teams collaborate and apply knowledge work practices within and across projects and in the IT industry. This study confirms that collaborative practices involving project members are essential. It is also necessary to understand the importance of the collaborative design of information technology as a means of knowledge work for project members. Recent research highlights the evolving landscape of knowledge transfer in different contexts. In IT projects, e-collaboration platforms have facilitated community engagement and social innovation, leading to improved outcomes and new collaborations (Rashid *et al.*, 2024). The digital transformation of micro, small and medium enterprises has been accelerated by Industry 4.0 and the COVID-19 pandemic, highlighting the need for knowledge transfer activities from universities to address readiness challenges (Anatan and Nur, 2023). Intergenerational differences, particularly in computer literacy and ICT use, affect knowledge transfer among engineers, requiring effective employee engagement strategies (Lužar *et al.*, 2023). In multinational companies, internal knowledge transfer is influenced by various factors, with vertical transfers dominating over horizontal ones, and power dynamics playing a significant role in conventional and reverse knowledge transfer (Castro and Moreira, 2023). Collectively, these studies highlight the importance of adapting knowledge transfer strategies to different organisational contexts and using technology for effective collaboration. eCollaboration platforms play a crucial role in knowledge

 

transfer and codification within IT projects. Knowledge management systems (KMS) support both explicit and tacit knowledge, helping to codify and make accessible previously implicit knowledge (Natek and Lesjak, 2021). The presence of industry norms, system integrators and administrative control influences the use of codification for knowledge transfer across projects (Cacciatori, Tamoschus and Grabher, 2012). Different project types require different approaches to knowledge management, with delivery and investment projects often relying on explicit knowledge and codification, while research and development projects emphasise tacit knowledge and personalisation (Koskinen, 2004). This distinction between tacit and explicit knowledge is crucial when considering how eCollaboration platforms facilitate the transition from implicit knowledge, which is difficult to articulate, to codified knowledge that can be easily shared across projects. Narrative-based systems can facilitate the transfer of explicit knowledge in technological innovation processes, allowing actors to reflect on different perspectives and roles within the innovation process (Burnett, 2012).

Knowledge transfer (KT) requires technology in the form of technical infrastructure, communication networks and a range of information services. Information technologies - multimedia, e-mail, intranet and databases - enable an organisation's employees to share information from different sources (Karlsen and Gottschalk, 2004). According to Kock *et al.* (2020), the correct use of the technological platform is an important success factor for knowledge transfer in projects, but it is also important that this is defined in advance by establishing common procedures, taking into account standards and rules. Recent studies highlight the importance of KT in project management, particularly in IT and sport contexts. Personalised, spontaneous KT, facilitated by informal interactions, has emerged as the dominant form in IT projects (Stampfl, Fischer and Palkovits-Rauter, 2023). Key determinants of KT include personal factors such as motivation and trust, organisational factors and technological factors (Bello, Ahmad and Mohd Nadzir, 2023). The quality of relationships between team members directly affects the effectiveness of KT, with organisational structure playing a mediating role (Ren *et al.*, 2023). In sport management, both formal and informal learning contribute to KT, with digital platforms and athlete agents serving as important tools in the process (Russo *et al.*, 2023). Challenges to effective KT include issues of quantity, distribution, team dynamics and time constraints (Stampfl, Fischer and Palkovits-Rauter, 2023). Successful KT is associated with increased efficiency, improved quality and faster project completion (Stampfl, Fischer and Palkovits-Rauter, 2023), highlighting the need for organisations to develop strategies to improve KT practices.

The study by Hanisch *et al.* (2009) confirms the support of IT tools as a necessary factor for the quality of knowledge management in projects. Meyer and Weßels (2020) note that the project team of the future must be responsible for defining and managing the collaboration platform, while at the same time creating a balance between control and freedom for the members of that platform. Recent research explores the impact of collaboration dynamics on project performance and knowledge management. Trust and relationship quality among team members positively influence knowledge transfer and project success (Ren *et al.*, 2023; Shang, Cao and Wu, 2023). Contractual control improves basic project performance, but doesn't significantly affect value-added performance (Shang, Cao and Wu, 2023). Organisational structure matters, with centralisation negatively affecting relationship quality and formalisation moderating the effectiveness of knowledge transfer (Ren *et al.*, 2023). Stakeholder engagement and knowledge management positively influence sustainability practices in project management (Blak Bernat, Qualharini and Castro, 2023). Interestingly, the virtual nature of teams does not diminish the impact of stakeholder engagement, knowledge sharing or sustainability practices on project success (Blak Bernat, Qualharini and Castro, 2023). These findings highlight the importance of balancing control and freedom in collaboration platforms to optimise knowledge management and project outcomes in both traditional and virtual environments.

Gruber and Gessler (2022) also state that structural frameworks must be created within the technical infrastructure for knowledge transfer to be successful. Bettoni *et al.* (2016) derive a necessary architecture for eCollaboration systems from their definition of knowledge-based eCollaboration and conclude that the organisational structure (people) and the processes of collaboration (task, knowledge and social processes) play an important role in the success of eCollaboration and must be designed accordingly. It is therefore not enough to focus on eCollaboration technologies, but to take the importance of people and processes seriously and ensure that the design balances all three elements. In terms of technology, it is important that the design of eCollaboration systems takes into account the needs arising from the design of the previous two elements - people and processes. The technology should therefore support these needs (Bettoni et al., 2016). The design of eCollaboration systems should balance people, processes and technology to support knowledge transfer and improve outcomes. For people, strategies include building platforms for participation, developing staff skills, and fostering positive attitudes among decision makers (David *et al.*, 2023). Process approaches include setting clear

objectives, establishing appropriate regulations and incorporating user feedback (David *et al.*, 2023). Technological considerations include understanding the impact of technology, ensuring preparedness and prioritising convenience (David *et al.*, 2023). Sustainable environment training can positively influence knowledge transfer, mediated by motivation to learn (Mohamad *et al.*, 2023). Design thinking profiles in technology-enhanced learning environments significantly impact interpersonal and evaluative skills, which influence knowledge transfer (Avsec, 2023). Organisations can assess and improve their technology implementation maturity using models that address people, process and technology dimensions, increasing the likelihood of successful implementation (Tripathi *et al.*, 2024). This balanced approach is critical for effective e-collaboration and knowledge transfer.

Research by Gilson *et al.* (2021) shows that teams that use technology to communicate find it more difficult to develop and maintain trust. According to North (2021), knowledge exchange is successful when mutual trust has been established between participants and everyone has been able to benefit from the transfer. This suggests that when using technological platforms, project managers need to consider not only the technical capabilities, but also the human and process needs. When a project needs experience in solving difficult problems, especially those that other projects have already dealt with, it can easily access and acquire the knowledge from the information systems. Technology thus makes knowledge available and enables efficient knowledge transfer (Karlsen & Gottschalk, 2004). Project managers can effectively integrate technical, human and process-oriented strategies in technology platforms by focusing on key determinants of knowledge transfer, including personal factors such as trust and motivation, organisational factors and technological factors (Bello, Ahmad and Mohd Nadzir, 2023). Trust between partners has a significant impact on project success and innovation, emphasising the importance of similarity and complementarity of knowledge bases (Vaez-Alaei *et al.*, 2024). A socio-technical framework for implementing lean project management highlights the importance of soft skills and human factors in the context of digital transformation (Lima *et al.*, 2023). To foster trust in projects, managers should address factors such as knowledge, skills, awareness and behaviour, while overcoming challenges related to policy, cost and collaboration (Farouk *et al.*, 2023). By integrating these strategies, project managers can increase trust, facilitate efficient knowledge transfer, and improve project outcomes in complex technological environments.

## 4. Current Study – aim and Research Question

While previous studies such as Zhou et al. (2022) mainly focused on knowledge transfer from projects to project-based organisations, this study specifically examines how project managers use eCollaboration platforms to manage this knowledge transfer. This broadens the focus to the entire knowledge management process within project-based organisations. The primary objective of this study was to gather and examine the practical experiences of project managers, with a particular focus on their practical insights gained from active involvement in operational IT projects. There was a lack of practical recommendations for organisations to improve knowledge transfer in IT projects through the effective use of eCollaboration platforms. This study provides empirically grounded findings that can serve as a basis for such recommendations.

Qualitative research designs investigating knowledge work practices in IT projects were lacking. This study uses a qualitative approach to gain a deeper understanding of the complex social dynamics and authentic contexts of knowledge sharing in IT projects. Given the nature of the research objectives, qualitative research methods were used to explore unknown experiences with eCollaboration by project managers in IT projects. The intention was to uncover insights that could serve as a basis for developing new theories or hypotheses, and to provide a basis for potential future quantitative research efforts aimed at validating or challenging the identified findings.

The aim of this work is not to test existing theories or hypotheses. The aim is that the results of this work will be of use to both the academic and business communities. Hetemi, Pushkina and Zerjav (2022) emphasised the need to explore the complexity of knowledge work in cross-project and cross-organisational contexts. This study takes up this suggestion by investigating the impact of eCollaboration platforms on knowledge transfer in different IT project contexts. One aim of this work is to identify the change in knowledge transfer caused by eCollaboration platforms. Therefore, the study was guided by the research question to what extent has knowledge transfer changed as a result of the increased use of eCollaboration in IT projects. Previous research has not sufficiently investigated the specific effects of eCollaboration platforms on the efficiency, quality and speed of knowledge transfer in IT projects. This study fills this gap by analysing the experiences of IT project managers in detail. This study shows the impact of eCollaboration technologies on the efficiency, quality and speed of knowledge transfer in IT projects and enables future project managers to derive practical

 

recommendations for organisations to improve knowledge transfer in IT projects through the effective use of eCollaboration platforms.

By addressing these research gaps, the study contributes to a more comprehensive understanding of the changing dynamics of knowledge transfer in the context of IT project management and provides valuable insights for both academics and practitioners in the field.

## 5. Methodology

To address the central question, a qualitative research framework was used to gain insights into the experiences of project managers in IT projects and their use of eCollaboration platforms. This research adopted an exploratory approach suitable for investigating phenomena that are only partially understood, as suggested by Eisenhardt and Graebner (2007). The deliberate choice of a qualitative method, as opposed to a quantitative one, was motivated by its ability to provide a deeper understanding of the complex social dynamics that are particularly evident in the personal experiences of project managers. In addition, it was considered essential to delve into the complex and authentic context in which knowledge exchange takes place. The choice of techniques within the qualitative research framework was based on factors such as research efficiency, research focus and nuances within the field of IT project management. From the available options, interviews were chosen for their efficiency and alignment with the objectives of the empirical investigation. The construction of the questions in the interview guide allowed for the inclusion of gaps identified in the theoretical segment and interesting facets of knowledge transfer, ensuring that the interviews remained focused on the research question. The expert interviews followed the principles of exploratory expert interviews outlined by Bogner, Littig and Menz (2014). The online interview approach was chosen for research efficiency, and the interviewer, who was familiar with the subject area, assumed the role of co-expert, fostering an interactive dynamic similar to constellation theory. This configuration ensured a balanced interaction during the interviews, where technical knowledge and project management expertise were on an equal footing between interviewer and interviewee. While this approach resulted in a high level of professionalism and factual information, it also maintained a strong professional influence within the boundaries of professional discourse. This interactional approach fits seamlessly with the exploratory nature of this research, as described by Misoch (2019). The interpretation of the results of the data analysis will depend on the underlying philosophical perspective of the researcher. Therefore, transparency regarding the researcher's philosophical stance is necessary to understand the research findings, as emphasised by Biedenbach and Müller (2011). In this study, the foundational philosophical stance adhered to phenomenalist principles and guided the analysis to cultivate insights into the personal experiences of project managers.

### 5.1 Participants

The researcher shapes the role of an expert throughout the concrete research process, allowing for self-definition based on their positions and associated knowledge, as elaborated by Kaiser (2021). In this study, it is assumed that these experts are tasked with overseeing IT projects and have insights into both the project team and the inherent decision-making mechanisms. Building on the findings of Misoch (2015), these experts are bearers of specialised knowledge acquired through training, often validated by certificates, or through practical involvement in specific organisational tasks. In order to verify the expert status of the respondents in this study, specific criteria were applied, requiring the possession of a valid certification from a reputable project management institute and a minimum of five years' experience in the field of IT project management. The term 'IT projects' encompasses various undertakings, including software development projects, enterprise software integration and implementation initiatives, information systems endeavours, IT infrastructure projects and strategic IT initiatives, in line with the scope outlined in Tiemeyer and Bauer (2010) research. The size of the sample was set at eleven individuals and detailed information on their experience and qualifications is given in Table 1.

**Table 1: Information on the interviewed experts**

| Person, gender | Experience with IT projects | Experience (in years) | Certification(s) |
|---|---|---|---|
| **Person 1, male** | Digitalisation projects, cloud projects, software development projects, business software implementation projects | 19 | Project Manager, cPM (pma/IPMA® Level C)<br>Scrum Master |

| Person, gender | Experience with IT projects | Experience (in years) | Certification(s) |
|---|---|---|---|
| **Person 2, male** | Implementation projects, digitalisation projects, strategic IT projects | 26 | Senior Project Manager, cSPM (pma/IPMA® Level B) |
| **Person 3, female** | Business software implementation projects | 8 | Project Manager, cPM (pma/IPMA® Level C)<br>Scrum Master |
| **Person 4, female** | Business software implementation projects | 8 | Project Management Associate, cPMA (pma/IPMA® Level D) |
| **Person 5, male** | Software development projects | 10 | Project Management Associate, cPMA (pma/IPMA® Level D) |
| **Person 6, male** | Business software implementation projects | 10 | PMP® - Project Management Professional |
| **Person 7, female** | Business software implementation projects, Software development projects | 13 | Scrum Master |
| **Person 8, female** | Organisational strategy projects, IT projects, process optimisation projects | 20 | Project Manager, cPM (pma/IPMA® Level C)<br>Scrum Master<br>Product Owner<br>Agile Coach |
| **Person 9, female** | Business software implementation projects, data management projects | 8 | Scrum Master |
| **Person 10, male** | Implementation projects, software development projects | 19 | Project Manager, cPM (pma/IPMA® Level C) |
| **Person 11, male** | Implementation projects, infrastructure projects | 24 | Project Manager, cPM (pma/IPMA® Level C)<br>Scrum Master<br>Product Owner |

Based on the above considerations, this research has carefully explored the first-hand perspectives of experienced project managers who have played a crucial role in overseeing IT projects within organisational settings. The selection of these individuals was carefully tailored to closely align with the subject matter of the study, ensuring a comprehensive and adaptable approach deeply rooted in the specific contexts of both the projects and the organisations with which they were associated. The primary focus was on these experts themselves and their experiential journeys, a focus underscored by Misoch's (2015) perspective. Their expertise, particularly the wealth of experiential and active knowledge they brought to the table, formed the focus of the applied research, a methodology that resonates with the perspectives outlined by Diekmann (2021).

Regarding the selection of suitable participants, this research framework opted for a homogeneous sampling strategy in the context of the current study, following the findings of Misoch (2015). This decision was practical, as the intended target group could be efficiently reached through a single channel, allowing for face-to-face interactions during the expert interviews.

### 5.2 Instrument and Data Collection

The structured expert interview format facilitates the generation of subjective impressions and interpretative knowledge within a specific context, providing a way to fill gaps identified in theory by drawing on professional and expert insights (Döring and Bortz, 2016). The design of the study required a comprehensive and nuanced guide, which balanced the need for detailed inquiries with the flexibility required for open interview situations in order to respond appropriately to respondents. The interview guide also served as a guarantee to ensure comparability of content in the subsequent content analysis. Its design and specifics were tailored to the research interests and the personal research and interview style of the interviewer, following the approach

 

outlined by Bogner, Littig and Menz (2014). The sequence of questions was strategically organised, beginning with a request for basic biographical information (education, occupation, etc.) to allow the interviewer to form an initial impression of the respondent and tailor the interaction accordingly. Subsequent questions delved into the general research topic and allowed for the possibility of supplementing them with more detailed inquiries as the conversation unfolded, as outlined in Table 2 (Döring and Bortz, 2016).

**Table 2: Interview guide**

| |
|---|
| 1. information phase |
| Brief introduction to the study, purpose of the interview |
| 2. demographic data |
| Education (in project management)<br>Project management experience |
| 3. Warm-up |
| - What role do you think knowledge transfer plays in project management?<br>(question derived from Bettoni *et al. (*2016); Castro and Moreira (2023)) |
| 4. main part |
| - Do you use eCollaboration systems to manage your projects and to what extent do these systems support you in knowledge transfer?<br>(question derived from Hetemi, Pushkina and Zerjav (2022))<br>- How long have you been working with eCollaboration systems and what exactly do you use them for?<br>(question derived from Bettoni et al. (2016); David et al. (2023))<br>- To what extent has knowledge transfer changed as a result of the increased use of eCollaboration in your projects?<br>(question derived from research question) |
| 5. fade out |
| Anything else you want to add or remove? |

Interviews were conducted with a pre-determined cohort of eleven participants in March 2023, with an average duration of 43 minutes per session. The interviews were carefully conducted and recorded during individual sessions on the Microsoft Teams platform. In order to maintain ethical standards, explicit consent was obtained from each interviewee, documented by signed consent forms confirming their agreement to the recording process during the scheduled appointments. The subsequent transcription of the video recordings was carried out using the Amberscript web platform, augmented by artificial intelligence (AI) technology.

### 5.3 Data Analysis

In order to systematically evaluate the accumulated data derived from the guided expert interviews, a thorough content analysis proved essential. As Kuckartz and Rädiker (2022) explain, qualitative content analysis is a "methodically controlled scientific analysis of texts, images, films and other forms of communication" (p. 39). The methodology of qualitative content analysis encompasses three basic approaches: content structuring, evaluative and typifying qualitative content analysis. Given the research design of this study, which precluded category evaluation and typology development, the content structuring method was adopted. In content structuring qualitative content analysis, information is methodically organised into different categories and subcategories (Kuckartz and Rädiker, 2022). This structured framework serves as the basis for the systematic and organised presentation of the research findings. The content analysis category system was initially developed by deductive means and then enriched by inductive insights from the transcripts. The overarching categories were derived directly from the interview guide, resulting in thematic categories that seamlessly reflected the inherent structure of the interview guide (Kuckartz and Rädiker, 2022).

Listing of the main thematic segments:

- eCollaboration
- Change in knowledge transfer

These overarching themes are closely linked to the central research question and effectively encapsulate the focus of this research. In line with the research objective, the key themes identified revolve around

eCollaboration and its changes in knowledge transfer. In addition, these fundamental categories serve as a robust basis for shaping and organising the findings within the final report. The process of delineating types through content analysis is greatly facilitated by the use of quality data analysis (QDA) software, a concept advocated by Kuckartz and Rädiker (2022). Consequently, MAXQDA Standard 2022 was carefully employed to streamline the content analysis in this particular study.

In the initial coding stage, the data collected was thoroughly examined in relation to the main thematic categories and systematic coding was applied accordingly. Sub-categories nested within these main themes emerged through inductive analysis driven by the available data. This process involved examining all coded text segments within a given primary category and merging relevant dimensions to create relevant subcategories. The subsequent coding phase then followed these emergent subcategories, guided by the principles outlined by Kuckartz and Rädiker (2022). Upon completion of the coding process, a series of both basic and complex analyses were conducted. These analyses were structured around the pre-defined categories and revealed correlations between the sub-categories within each primary theme. The content analysis of the expert interview transcripts included both quantitative and qualitative components, incorporating aspects such as frequency counts and verbatim quotes (Kuckartz & Rädiker, 2022).

## 6. Results

In the main categories, two subcategories emerged inductively. Two subcategories were formed for the systems used. In the two subcategories on systems, the four main system classes for characterising eCollaboration systems from Riemer (2007) were combined. The everyday systems and the coordination systems were combined because both systems cover the task areas of coordination, task lists and document storage and these are usually handled within a tool as part of project management. Integrated systems and meeting systems were also grouped together, as the tasks of these systems, such as group calendars, task lists, project and resource plans, project controlling, as well as document distribution lists, workflows, chats and video conferencing, can now also be handled within one platform. This summary of the main system classes during the data analysis shows that the characterisation created by Riemer (2007) and still used today is no longer up to date, as current technologies already have more functionalities and therefore cover more task areas.

### 6.1 Everyday and Coordination Systems

When it comes to using eCollaboration systems for operational project management, 10 of the 11 experts named Jira and Confluence by Atlassian. Jira is used for the operational distribution and completion of tasks and Confluence for the collaborative creation of documents, i.e. for the sustainable codification of knowledge. This finding is confirmed by the statements of persons 1 and 4: "Jira is strongly oriented towards task tracking. Whether it's on the project management level (-), but I also see that [...] many people work with it in terms of content, so I currently see Jira as a project management tool" (Transcript_P1, pos. 30) and "accordingly Confluence, which is our documentation tool, so it's very wiki-heavy, so to speak, where the real project knowledge is usually written down, at least as far as possible in terms of content" (Transcript_P4, pos. 37).

This consistent result for the use of eCollaboration systems to perform daily operational activities within projects shows that Atlassian's tools support all three types of social interaction - communication, coordination and collaboration (Riemer, 2007) - and that their use is consistent in practice.

### 6.2 Integrated Systems and Meeting Systems

In the area of extending everyday systems - the use of integrated systems - and for meeting systems, all experts use Microsoft applications - primarily Microsoft Teams. Microsoft Teams covers the typical functions of these eCollaboration systems, such as document areas, group calendars, task lists, project and resource plans and project controlling, but also offers extensive synchronous and asynchronous communication options, such as text chat, audio and video communication. The tool also allows for the sharing of applications, polling for decision making and whiteboarding. This finding was confirmed in all the interviews and is illustrated by the following statements made by persons 4 and 10:

> *"And of course MS Teams. That is used more for direct communication, so there are usually channels or Teams channels, so you can maybe send direct chat messages. [But] MS Teams is more for direct chat and of course also very, very important for video calls" (Transcript_P4, pos. 37).*

> *"Using Microsoft Teams [...] where the communication takes place, where you chat and where [...] project-specific documents are sent back and forth and where extras are edited etc." (Transcript_P10, pos. 31).*

 

In the area of integrated systems and meeting systems, a consistent picture emerged across all expert interviews, suggesting that the project managers have independently chosen the same approach and that the Microsoft Teams tool also covers all the project managers' requirements in this area.

### 6.3 Change in Knowledge Transfer

The experts cited increased transparency as a change in knowledge transfer due to the increased use of eCollaboration systems. Project managers stated that the use of eCollaboration platforms meant that more people had access to project knowledge and that this was therefore better distributed and more visible throughout the organisation. The experts stated that "this knowledge transfer also works much faster and is also transparent because we all have access to it" (Transcript_P6, pos. 36) and "that the knowledge is accessible to everyone" (Transcript_P7, pos. 39). In addition, the experts stated that the increased transparency had improved the overall transfer of knowledge in project management. According to Person 11, "it has improved a lot simply because this knowledge is centralised and freely available about this project" (Pos. 69). This is confirmed by person 2, who states that knowledge transfer "has improved [...] in the sense that it is accessible from anywhere at any time, which is a key factor, that everyone can access it" (Pos. 51). Person 4 also stated that "it is then also more visible to other people what is happening in the project and that is of course a very, very clear plus for transparency and traceability" (Pos. 39). It can be concluded from this that the results of projects are distributed to more people within the project-based organisations and that the associated knowledge transfer of these results can take place more quickly and more comprehensibly.

Another factor that has changed, according to the experts, is the perspective of those involved. They increasingly recognise the advantage of shared and available project knowledge and its impact on project success. This is clearly shown in the statement of person 2, who says "that [...] with these tools you can see the advantage that [...] it really is an advantage for everybody when you share information. Because at the end of the day the result is better' (Pos. 51). This allows the interpretation that the amount of codified knowledge has also increased. This interpretation is supported by the statement of Person 1, who says: "By using an intelligently set up Sharepoint, for example, or Confluence, i.e. an intranet system, I think you can gain a lot by getting people to document, because now it is a bit playful, it is comprehensible, it is not somehow rigidly prescribed in which structure the whole thing has to happen. In other words, I think the shyness has just gone a bit (--) to document things because it has become easy" (Pos. 34).

This is also confirmed by the statement of person 4, who stated that "it is more encouraged to write down topics" (Pos. 39). These statements show that the codified transfer of project knowledge has improved through the use of eCollaboration systems and is increasingly used by project managers.

Another aspect that can be mentioned is the geographical component. The codified knowledge is not only available to people in one location, but can be accessed regardless of time and place. This is clearly illustrated by the advantage of eCollaboration systems mentioned by person 6:

> *"And what you also have to add, of course, is [...] the extension through the possibilities of this online transfer of knowledge [...] to several locations. So we are no longer dependent on being at the same location, but in our case with locations in Germany this can be just as effective as the location in Vienna [...] as if I was sitting in the same office" (Pos. 36).*

This finding is confirmed by Person 4, who stated

> *"Teams has greatly increased the direct exchange, of course, mainly because of the distance, on the other hand, you have to say that MS Teams is also responsible for the fact that the project teams are no longer on site, which is perhaps not always positive, because then of course you can also say, well, the project staff no longer have a direct exchange, but and where this door-to-door communication is perhaps sometimes very important in the project, or where I simply run over quickly, that has of course also had a very strong influence on Teams, because that is simply no longer possible" (Pos. 39).*

From this statement it can be concluded that the increased use of eCollaboration systems not only brings benefits but is also viewed critically by project managers. This allows the assertion that the increased use of eCollaboration systems has led to an increase in codified knowledge transfer, but that personalised spontaneous transfer has decreased. This result of the analysis is supported by the additional doubts expressed by person 4: "And I don't know if this is perhaps good now, as I said, on the one hand it means that everyone can work from anywhere, but on the other hand of course this direct exchange of knowledge, this spontaneous exchange is perhaps not quite as strong anymore" (Pos. 39).

## 7. Discussion

The importance of collaboration in IT projects is emphasised both in the study by Hetemi, Pushkina and Zerjav (2022) and in an empirical study carried out. The results underline the central role of e-collaboration platforms for knowledge transfer in IT projects. This is in line with the findings of Castro and Moreira (2023) who analysed the importance of internal knowledge transfer in multinational companies. They found that vertical transfers dominate over horizontal transfers and that power dynamics play a significant role in conventional and reverse knowledge transfer. These findings suggest that organisational hierarchies and power structures should also be taken into account when implementing e-collaboration platforms in IT projects in order to ensure effective knowledge transfer. The findings highlight the importance of distinguishing between tacit and explicit knowledge in the context of knowledge transfer within IT projects. While tacit knowledge remains difficult to formalise due to its deeply personal and experiential nature (Nonaka & Takeuchi, 2012; Pawlowsky, 2019), eCollaboration platforms provide mechanisms for gradually codifying this knowledge and transforming it into explicit forms that are more accessible and transferable across teams (Lesjak & Natek, 2021). The effective use of these platforms therefore not only facilitates the sharing of explicit knowledge, but also helps to capture and disseminate tacit knowledge that might otherwise be lost (Bettoni et al., 2016). Hetemi, Pushkina and Zerjav (2022) focus on the crucial role of technological infrastructure such as multimedia, e-mail, intranet and databases for successful knowledge transfer. They emphasise that the correct use of this platform should be predefined by common procedures and standards. On the other hand, experts emphasise specific eCollaboration tools, such as Jira and Confluence, as efficient means of distributing tasks and collaboratively creating documents. This illustrates that different technologies are used in practice and highlights the need for specific tools. Both Hetemi, Pushkina and Zerjav (2022) and the surveyed experts agree that the increased use of eCollaboration systems leads to increased transparency of project knowledge. In this context, David et al. (2023) provide valuable insights into the design of e-collaboration systems. They emphasise the importance of a balanced approach that considers people, processes and technology. For the human aspect, they suggest strategies such as building platforms for participation, developing employee skills and fostering positive attitudes among decision makers. These findings could help to further improve the acceptance and effectiveness of e-collaboration tools in IT projects. The study by Hetemi, Pushkina and Zerjav (2022) emphasises that the use of technologies such as multimedia and email allows project results to be distributed on a wider scale. The expert interviews particularly emphasise that the use of eCollaboration platforms leads to improved accessibility and distribution of project knowledge. This observation is supported by the findings of David et al. (2023), who emphasise the importance of clear objectives, appropriate rules and the inclusion of user feedback in the design of e-collaboration processes. Integrating these aspects could help to further improve the transparency and effectiveness of knowledge transfer in IT projects. These tools are described as generally accepted and cover different needs of project managers. The emphasis on the correct use of the technological platform as a crucial success factor for knowledge transfer in projects, as presented by Kock et al. (2020), finds parallels in the expert interviews. It is stressed that the increased use of eCollaboration systems has led to changes in knowledge transfer. It is emphasised that technological platforms should not only be used efficiently, but also take into account the balance between transparency and the loss of spontaneous knowledge transfer. The study by Hanisch et al. (2009) confirms the support of IT tools as a decisive factor for the quality of knowledge management in projects. This is supported by the results of the expert interviews, which emphasise positive changes in knowledge transfer through the increased use of eCollaboration systems, in particular Confluence and Microsoft Teams. Castro and Moreira (2023) add that the effectiveness of knowledge transfer also depends on organisational factors. Their finding that power dynamics play a significant role underlines the need to consider organisational aspects when implementing e-collaboration systems. Meyer and Weßels (2020) emphasise that the project team of the future should be responsible for defining and managing the collaboration platform. This idea of team-oriented responsibility is reflected in the expert interviews, which talk about the standardised use and acceptance of eCollaboration tools. It is pointed out that the tools cover the different needs of project managers. David et al. (2023) complement this perspective by emphasising the importance of developing staff skills and fostering positive attitudes among decision makers. These aspects could be further explored in future research to develop strategies for more effective implementation and use of e-collaboration tools in IT projects. Gruber and Gessler (2022) emphasise the need for structural conditions within the technological infrastructure for successful knowledge transfer. This idea is supported by the experts' statements when they speak of increased transparency and better distribution of project knowledge through eCollaboration platforms. Bettoni et al. (2016) state that the architecture of eCollaboration systems should take into account the needs arising from the design of people and processes. This is in line with the results of the expert interviews, which emphasise that the increased use of eCollaboration systems has led to changes in knowledge transfer. It

 

is emphasised that in addition to the technological aspects, the balance between transparency and spontaneous knowledge transfer needs to be considered. David et al (2023) provide a valuable addition here by suggesting concrete strategies for designing eCollaboration systems that take into account people, processes and technology. Integrating these findings could help to develop eCollaboration systems that are better tailored to the needs of IT project teams. Research by Gilson et al. (2021) shows that teams using technology to communicate have difficulties in developing and maintaining trust. This contrasts with the results of the expert interviews, which emphasise that the increased use of eCollaboration systems leads to increased transparency and better distributed project knowledge.

## 8. Conclusion

The experts recommend the use of eCollaboration systems such as Jira and Confluence from Atlassian to make operational project management more efficient. Jira helps to distribute and complete tasks, while Confluence is a platform for collaboratively creating and storing documents and knowledge. All experts use Microsoft programmes, in particular Microsoft Teams, to extend their Everyday systems and meeting systems. Microsoft Teams offers all the features typical of eCollaboration systems, such as document areas, group calendars, task lists, project and resource plans and project controlling. In addition, the tool offers extensive synchronous and asynchronous communication options, such as text chat, audio and video communication, as well as programme sharing, polls for decision-making and whiteboards. All the expert interviews revealed a consistent picture in the area of eCollaboration systems. This suggests that project managers have independently chosen the same approach and that the tools in this area also cover all the needs of project managers. The experts found that the increased use of eCollaboration systems has led to changes in knowledge transfer. One of these changes is increased transparency, as more people have access to project knowledge through the use of eCollaboration platforms, and this knowledge is better distributed and more visible. This means that project results are distributed to more people and knowledge transfer is faster and more traceable. Stakeholders are increasingly recognising the benefits of shared knowledge and its impact on project success. This has probably led to an increase in codified knowledge. However, there are also some critical voices from project managers who believe that the use of eCollaboration systems has reduced the spontaneous transfer of knowledge. Another positive change is that project knowledge can be accessed regardless of time and place, rather than being available only in one place.

The research question about the changes in knowledge transfer due to the increased use of eCollaboration in IT projects can be summarised as an increase in transparency, an increase in codified knowledge and a decrease in personalised knowledge transfer. The use of eCollaboration platforms makes project knowledge more transparent and better distributed. More people have access to knowledge, which makes knowledge transfer faster and more traceable, and the benefits of shared knowledge are better understood. The availability of project knowledge independent of time and place is another advantage. However, there are also critics who fear that the use of these systems has reduced the spontaneous transfer of knowledge. Overall, the use of eCollaboration platforms seems to lead to more project knowledge being available in codified form. In conclusion, the integration of eCollaboration platforms in IT projects not only enhances the transfer of explicit knowledge, but also plays a crucial role in bridging the gap between tacit and explicit knowledge. By enabling the codification of previously unstructured, experience-based knowledge, these platforms help organisations achieve more comprehensive knowledge management practices, leading to more effective and sustainable project outcomes.

## 9. Limitations and Future Directions

The study has a number of limitations that should be addressed to ensure a more comprehensive and impartial approach. One limitation stem from the expert interviews, where the interviewer assumed the role of co-expert, introducing a strong technical bias. Choosing an alternative interaction configuration, such as having a neutral party conduct the interviews, could have fostered greater trust and facilitated the collection of confidential process knowledge, potentially providing a more comprehensive understanding of the subject matter. Another limitation lies in the active involvement of the researcher in the field, which influenced both the research design and its practical implementation. This involvement may have led to certain assumptions being implicitly accepted and not thoroughly tested in the research. To counteract this, future research could involve people with no prior knowledge of the field to conduct interviews, thus promoting a more objective and open exploration of the phenomena. From an economic perspective, time constraints hindered the implementation of theoretical sampling, resulting in incomplete theoretical saturation and limited insights from the interviews. To address this limitation, conducting additional interviews could increase the representativeness of the sample

and deepen the findings. Methodologically, the chosen qualitative content analysis approach has paradigmatic aspects that may limit insights, particularly for proponents of the quantitative paradigm. The exploration of complementary research methods could be beneficial in order to gain a more holistic understanding of the issue. In addition, the study focuses predominantly on the IT project management perspective, which may limit the generalisability of the findings. To broaden the scope and applicability of the findings, future research could incorporate project management perspectives from different domains or consider input from different project roles.

## References


Anatan, L. and Nur (2023) 'Micro, Small, and Medium Enterprises' Readiness for Digital Transformation in Indonesia', *Economies*, 11(6), p. 156. Available at: https://doi.org/10.3390/economies11060156.

Avsec, S. (2023) 'Design Thinking to Envision More Sustainable Technology-Enhanced Teaching for Effective Knowledge Transfer', *Sustainability*, 15(2), p. 1163. Available at: https://doi.org/10.3390/su15021163.

Bello, I., Ahmad, M. and Mohd Nadzir, M. (2023) 'Determinants of Knowledge Transfer for Information Technology Project Managers: A Systematic Literature Review', *Interdisciplinary Journal of Information, Knowledge, and Management*, 18, pp. 871–891. Available at: https://doi.org/10.28945/5233.

Bettoni, M. *et al.* (2016) 'eSF: An E-Collaboration System for Knowledge Workers', in, pp. 157–172. Available at: https://doi.org/10.4018/978-1-4666-9556-6.ch008.

Biedenbach, T. and Müller, R. (2011) 'Paradigms in project management research: examples from 15 years of IRNOP conferences', *International Journal of Managing Projects in Business*, 4, pp. 82–104. Available at: https://doi.org/10.1108/17538371111096908.

Blak Bernat, G., Qualharini, E.L. and Castro, M.S. (2023) 'Enhancing Sustainability in Project Management: The Role of Stakeholder Engagement and Knowledge Management in Virtual Team Environments', *Sustainability*, 15(6), p. 4896. Available at: https://doi.org/10.3390/su15064896.

Bogner, A., Littig, B. and Menz, W. (2014) *Interviews mit Experten: eine praxisorientierte Einführung*. Wiesbaden: Springer VS (Qualitative Sozialforschung). Available at: https://doi.org/10.1007/978-3-531-19416-5.

Burnett, S. (2012) 'Explicit to Tacit: the Role of Explicit Knowledge in Technological Innovation', *Libri*, 62(2). Available at: https://doi.org/10.1515/libri-2012-0011.

Cacciatori, E., Tamoschus, D. and Grabher, G. (2012) 'Knowledge transfer across projects: Codification in creative, high-tech and engineering industries', *Management Learning*, 43(3), pp. 309–331. Available at: https://doi.org/10.1177/1350507611426240.

Castro, R. and Moreira, A.C. (2023) 'Mapping Internal Knowledge Transfers in Multinational Corporations', *Administrative Sciences*, 13(1), p. 16. Available at: https://doi.org/10.3390/admsci13010016.

Christian, D. (1994) *Management et philosophie: penser l'entreprise [Management und Philosophie: Über das Unternehmen nachdenken]*. Paris: Nathan.

David, A. *et al.* (2023) 'Understanding Local Government Digital Technology Adoption Strategies: A PRISMA Review', *Sustainability*, 15(12), p. 9645. Available at: https://doi.org/10.3390/su15129645.

Diekmann, A. (2010) *Empirische Sozialforschung: Grundlagen, Methoden, Anwendungen*. 4. Auflage, vollständig überarbeitete und erweiterte Neuausgabe August 2007, Orginalausgabe. Reinbek bei Hamburg: rowohlts enzyklopädie im Rowohlt Taschenbuch Verlag.

Döring, N. and Bortz, J. (2016) *Forschungsmethoden und Evaluation in den Sozial- und Humanwissenschaften*. Berlin, Heidelberg: Springer Berlin Heidelberg (Springer-Lehrbuch). Available at: https://doi.org/10.1007/978-3-642-41089-5.

Eisenhardt, K.M. and Graebner, M.E. (2007) 'Theory Building From Cases: Opportunities And Challenges', *Academy of Management Journal*, 50(1), pp. 25–32. Available at: https://doi.org/10.5465/amj.2007.24160888.

Farouk, A.M. *et al.* (2023) 'Factors, Challenges and Strategies of Trust in BIM-Based Construction Projects: A Case Study in Malaysia', *Infrastructures*, 8(1), p. 13. Available at: https://doi.org/10.3390/infrastructures8010013.

Gilson, L. *et al.* (2021) 'Putting the "TEAM" back into virtual teams', *Organizational Dynamics*, 50(1). Available at: https://ciencia.iscte-iul.pt/publications/putting-the-team-back-into-virtual-teams/81272 (Accessed: 2 January 2023).

Gruber, V. and Gessler, A. (2022) *Wissenserwerb und Wissenstransfer von Leitungs- und Fachkräften in Kindertageseinrichtungen*. DE: Deutsches Jugendinstitut e. V. Available at: https://doi.org/10.36189/wiff32022 (Accessed: 3 May 2023).

Hanisch, B. *et al.* (2009) 'Knowledge management in project environments', *Journal of Knowledge Management*, 13(4), pp. 148–160. Available at: https://doi.org/10.1108/13673270910971897.

Hetemi, E., Pushkina, O. and Zerjav, V. (2022) 'Collaborative practices of knowledge work in IT projects', *International Journal of Project Management*, 40(8), pp. 906–920. Available at: https://doi.org/10.1016/j.ijproman.2022.10.004.

Kaiser, R. (2021) *Qualitative Experteninterviews: konzeptionelle Grundlagen und praktische Durchführung*. 2., aktualisierte Auflage. Wiesbaden: Springer VS (Elemente der Politik). Available at: https://doi.org/10.1007/978-3-658-30255-9.

Karlsen, J. and Gottschalk, P. (2004) 'Factors Affecting Knowledge Transfer in IT Projects', *Engineering Management Journal; EMJ*, 16, pp. 3–11. Available at: https://doi.org/10.1080/10429247.2004.11415233.


 

Kock, A. *et al.* (2020) 'Project portfolio management information systems' positive influence on performance – the importance of process maturity', *International Journal of Project Management*, 38(4), pp. 229–241. Available at: https://doi.org/10.1016/j.ijproman.2020.05.001.

Kock, N. *et al.* (2001) 'E-collaboration: A look at past research and future challenges', *Journal of Systems and Information Technology*, 5(1), pp. 1–8. Available at: https://doi.org/10.1108/13287260180001059.

Koskinen, K.U. (2004) 'Knowledge Management to Improve Project Communication and Implementation', *Project Management Journal*, 35(2), pp. 13–19. Available at: https://doi.org/10.1177/875697280403500203.

Kuckartz, U. and Rädiker, S. (2022) *Qualitative Inhaltsanalyse: Methoden, Praxis, Computerunterstützung: Grundlagentexte Methoden*. 5. Auflage. Weinheim Basel: Beltz Juventa (Grundlagentexte Methoden).

Lima, B.F. *et al.* (2023) 'A Socio-Technical Framework for Lean Project Management Implementation towards Sustainable Value in the Digital Transformation Context', *Sustainability*, 15(3), p. 1756. Available at: https://doi.org/10.3390/su15031756.

Lužar, M. *et al.* (2023) 'Intergenerational Differences and Knowledge Transfer Among Slovenian Engineers', *Organizacija*, 56(1), pp. 66–79. Available at: https://doi.org/10.2478/orga-2023-0005.

Meyer, E. and Weßels, D. (2020) 'Plattformbasiertes X-Shaped Collaboration Projektmanagement', 31, pp. 57–63. Available at: https://doi.org/10.2357/PM-2020-0106.

Misoch, S. (2015) *Qualitative Interviews*. Berlin München: de Gruyter Oldenbourg.

Misoch, S. (2019) *Qualitative Interviews*. 2., erweiterte und aktualisierte Auflage. Berlin ; Boston: De Gruyter Oldenbourg.

Mohamad, N.I. *et al.* (2023) 'Development of a Structural Model for Sustainable Environment Training and Knowledge Transfer', *Sustainability*, 15(3), p. 2322. Available at: https://doi.org/10.3390/su15032322.

Natek, S. and Lesjak, D. (2021) 'Knowledge management systems and tacit knowledge', *International Journal of Innovation and Learning*, 29(2), p. 166. Available at: https://doi.org/10.1504/IJIL.2021.112994.

Nonaka, I. and Takeuchi, H. (2012) *Die Organisation des Wissens: wie japanische Unternehmen eine brachliegende Ressource nutzbar machen*. 2., um ein Vorwort erw. Aufl. Frankfurt am Main: Campus.

North, K. (2021) *Wissensorientierte Unternehmensführung: Wissensmanagement im digitalen Wandel*. 7., vollständig überarbeitete Auflage. Wiesbaden [Heidelberg]: Springer Gabler (Lehrbuch). Available at: https://doi.org/10.1007/978-3-658-32771-2.

Pawlowsky, P. (2019) *Wissensmanagement*. Berlin ; Boston: De Gruyter Oldenbourg.

Polanyi, M. (1966) *The tacit dimension*. Garden City, New York: Doubleday (Anchor books philosophy).

Rashid, N.K.A. *et al.* (2024) 'Community Engagement and Social Innovation Through Knowledge Transfer: Micro Evidence from Setiu Fishermen in Terengganu, Malaysia', *Journal of the Knowledge Economy*, 15(1), pp. 1069–1086. Available at: https://doi.org/10.1007/s13132-023-01102-5.

Reinmann, G. (2009) 'Studientext Wissensmanagement'. Augsburg.

Ren, X. *et al.* (2023) 'The effectiveness of relationship quality on knowledge transfer in project teams: the roles of project organizational structure', *Kybernetes* [Preprint]. Available at: https://doi.org/10.1108/K-10-2022-1394.

Riemer, K. (2007) 'The Market for E-Collaboration Systems - Identification of System Classes Using Cluster Analysis', *ECIS 2007 Proceedings* [Preprint]. Available at: https://aisel.aisnet.org/ecis2007/23.

Russo, G. *et al.* (2023) 'Learning and knowledge transfer by humans and digital platforms: which tools best support the decision-making process?', *Journal of Knowledge Management*, 27(11), pp. 310–329. Available at: https://doi.org/10.1108/JKM-07-2022-0597.

Schauer, B. and Zeiller, M. (2011) 'E-Collaboration Systems: How Collaborative They Really Are Analysis of Collaboration Features of Electronic Collaboration Systems', p. 6.

Schindler, M. (2001) *Wissensmanagement in der Projektabwicklung: Grundlagen, Determinanten und Gestaltungskonzepte eines ganzheitlichen Projektwissensmanagements*. 2., durchges. Aufl. Lohmar Köln: Eul (Reihe Wirtschaftsinformatik, 32).

Shang, K., Cao, Y. and Wu, J. (2023) 'An Exploratory Study on the Impact of Cross-Organizational Control and Knowledge Sharing on Project Performance', *Buildings*, 13(5), p. 1113. Available at: https://doi.org/10.3390/buildings13051113.

Stampfl, R., Fischer, J. and Palkovits-Rauter, S. (2023) 'Forms of knowledge transfer in IT project management', *MAP Social Sciences*, 4, pp. 53–66. Available at: https://doi.org/10.53880/2744-2454.2023.4.53.

Thiel, M. (2002) *Wissenstransfer in komplexen Organisationen: Effizienz durch Wiederverwendung von Wissen und Best Practices*. 1. Auflage. Wiesbaden: Springer Fachmedien Wiesbaden GmbH (Gabler-Edition Wissenschaft Markt- und Unternehmensentwicklung).

Tiemeyer, E. and Bauer, N. (eds) (2010) *Handbuch IT-Projektmanagement: Vorgehensmodelle, Managementinstrumente, Good Practices*. München: Hanser.

Tripathi, A. *et al.* (2024) 'People, Process, and Technology Maturity Levels for Successful Technology Implementation by State Departments of Transportation', *Transportation Research Record: Journal of the Transportation Research Board*, 2678(1), pp. 12–21. Available at: https://doi.org/10.1177/03611981231170002.

Vaez-Alaei, M. *et al.* (2024) 'How partners' knowledge base and complexity are related to innovative project success: The roles of trust and trust capability of partners', *International Journal of Project Management*, 42(1), p. 102557. Available at: https://doi.org/10.1016/j.ijproman.2023.102557.

Zhou, Q. *et al.* (2022) 'System dynamics approach of knowledge transfer from projects to the project-based organization', *International Journal of Managing Projects in Business*, 15(2), pp. 324–349. Available at: https://doi.org/10.1108/IJMPB-06-2021-0142.