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The mission of the IJISPM - International Journal of Information Systems and Project Management - is the dissemination of new scientific knowledge on information systems management and project management, encouraging further progress in theory and practice.

The IJISPM publishes leading scholarly and practical research articles that aim to advance the information systems management and project management fields of knowledge, featuring state-of-the-art research, theories, approaches, methodologies, techniques, and applications.

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Editorial

The mission of the *IJISPM - International Journal of Information Systems and Project Management* is the dissemination of new scientific knowledge on information systems management and project management, encouraging further progress in theory and practice.

It is our great pleasure to bring you the second number of the fourth volume of IJISPM. In this issue readers will find important contributions on intercultural competency in global IT projects, post tender negotiation procedure, Enterprise Collaboration Systems usage, and success criteria in agile software projects.

The first article, “Improving intercultural competency in global IT projects through recognition of culture-based behaviors”, is authored by Richard Amster and Christina Böhm. The success of global IT projects is highly influenced by culture-based behaviors. Issues between individuals arise when behaviors are (mis-)perceived, (mis-)interpreted, and (mis-)judged by using the perceiver’s expectations, beliefs, and values. Misperception results when the behavior is not anticipated because it would not occur in ones’ own culture. The article presents a study that analyzed cultural behavioral differences between Indian project managers and their counterparts in other countries. The conducted qualitative, semi-structured interviews revealed insights into cross-cultural challenges and shed light on the complex ways that culture-based behaviors impact IT projects. The study identified 127 behaviors that significantly affected project success and cross-cultural cooperation between Indian managers and managers from all over the world. These behaviors were grouped into 19 behavior clusters. Based on the study’s results, the article suggests four important components that should be added to cross-cultural training programs for international project managers.

As Peter Frimpong Manso and Athanasios Nikas state in the second article “The application of post tender negotiation procedure: a public sector procurement perspective in UK”, Post Tender Negotiation (PTN) procedure is part of the tendering process in procurement of goods and services. The procedure could be triggered if the initial tendering activity does not result in the selection of a supplier. This could be due to a lack of clear Value for Money (VfM) bidder. The PTN procedure is sparingly applied in the UK public sector procurement and the reasons adduced for this are based on ethical considerations. The UK Office of Government Procurement (OGP), formerly known as the Office for Government Commerce (OGC) and the European Union (EU) are the chief proponents of restricting the use of PTN to exceptional cases. The premise of their argument is that the buyer could unethically tilt her/his actions in the process of applying the PTN procedure to favor certain suppliers. It is the argument of this article that buyers from the public sector in UK are being deprived of the procedure’s benefit and therefore, the restrictions should be relaxed. Evidence from this study suggests that the procedure could offer the opportunity for further clarifications of supplier’s bid. The study also identifies that, for PTN to be successful, factors ensuring success in negotiations including cooperation should be present.

In the third article, “Use Cases and Collaboration Scenarios: how employees use socially-enabled Enterprise Collaboration Systems (ECS)”, Petra Schubert and Johannes H. Glitsch state that in recent years we have seen the emergence of a new type of collaboration software, the so-called “Enterprise Social Software”. The “social features” of this software type have stimulated a renewed interest in Enterprise Collaboration Systems (ECS). In this article the authors present findings from a longitudinal research project on the introduction and use of ECS in companies. They argue that ERP Systems and ECS are inherently different and that the process-paradigm that is common to ERP cannot be applied identically to ECS. To address this issue, are suggested two concepts (*use case and collaboration scenario*) for the analysis and description of collaboration activity in companies. From the literature and 26 case studies were identified typical use cases and collaboration scenarios that can serve as blueprints for ECS introduction projects. The longitudinal objective of the research is to assist companies with their ECS initiatives and to provide them with a catalogue of existing use cases and collaboration scenarios from various industry settings.



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The article “A qualitative study of success criteria in Norwegian agile software projects from suppliers’ perspective”, authored by Lubna Siddique and Bassam A. Hussein, provides practical insights into the success criteria in agile projects in the Norwegian software industry. The authors conducted 32 interviews with practitioners working with agile projects. The findings revealed two fundamental differences that distinguish the perception of success in agile projects from that in projects that are based on the waterfall approach. Firstly, the evaluation is carried out on a regular basis after each increment. This regular and continuous measurement of success contributes several advantages, including greater commitment and involvement from the customer and a higher level of mutual trust between the supplier and the customer, and thus leads to better knowledge sharing and reduced task uncertainty. Secondly, there is a stronger emphasis on customer satisfaction. The continuous assessment of success at the end of each iteration also has a significant, positive impact on the customer’s evaluation of the project outcome.

We would like to take this opportunity to express our gratitude to the distinguished members of the Editorial Board, for their commitment and for sharing their knowledge and experience in supporting the IJISPM.

Finally, we would like to express our gratitude to all the authors who submitted their work, for their insightful visions and valuable contributions.

We hope that you, the readers, find the International Journal of Information Systems and Project Management an interesting and valuable source of information for your continued work.

The Editor-in-Chief,

João Varajão

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João Varajão is currently professor of information systems and project management at the *University of Minho*. He is also a researcher of the *Centro Algoritmi* at the *University of Minho*. Born and raised in Portugal, he attended the *University of Minho*, earning his Undergraduate (1995), Masters (1997) and Doctorate (2003) degrees in Technologies and Information Systems. In 2012, he received his Habilitation degree from the *University of Trás-os-Montes e Alto Douro*. His current main research interests are in Information Systems Management and Information Systems Project Management. Before joining academia, he worked as an IT/IS consultant, project manager, information systems analyst and software developer, for private companies and public institutions. He has supervised more than 50 Masters and Doctoral dissertations in the Information Systems field. He has published over 250 works, including refereed publications, authored books, edited books, as well as book chapters and communications at international conferences. He serves as editor-in-chief, associate editor and member of the editorial board for international journals and has served in numerous committees of international conferences and workshops. He is co-founder of CENTERIS – Conference on ENTERprise Information Systems and of ProjMAN – International Conference on Project MANAGEMENT.

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Improving intercultural competency in global IT projects through recognition of culture-based behaviors

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Improving intercultural competency in global IT projects through recognition of culture-based behaviors

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Abstract:

The success of global IT projects is highly influenced by culture-based behaviors. Issues between individuals arise when behaviors are (mis-)perceived, (mis-)interpreted, and (mis-)judged by using the perceiver's expectations, beliefs, and values. Misperception results when the behavior is not anticipated because it would not occur in one's own culture. As a result, behavior should be the starting point for cross-cultural research. But, studies have primarily focused on belief and value systems which are more abstract and less specific than behaviors. This paper presents a study that analyzed cultural behavioral differences between Indian project managers and their counterparts in other countries. The conducted qualitative, semi-structured interviews revealed insights into cross-cultural challenges and shed light on the complex ways that culture-based behaviors impact IT projects. The study identified 127 behaviors that significantly affected project success and cross-cultural cooperation between Indian managers and managers from all over the world. These behaviors were grouped into 19 behavior clusters. Understanding these behavior clusters, and correlating these behaviors to values and beliefs, will improve project collaboration, and inform cross-cultural training strategies. In addition, existing cultural dimensions were reduced in scope, additional dimensions were defined for clarity, and new business-related dimensions were identified. Finally, based on the study's results, the paper suggests four important components that should be added to cross-cultural training programs for international project managers.

Keywords:

cross-cultural; behavior; project management; skills; diversity.

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1. Introduction

Globalization has increased the number of global projects [1] exponentially. Consequently, this has raised the need to understand the effects of culture on interpersonal and, more important for projects, on managerial interactions. During the past decades, significant research has been undertaken to identify cultural differences that affect global management. The research has focused on identifying belief and value systems that give rise to behavior differences [2]–[6]. Attempts have then been made to correlate these belief and value models to possible behavioral misinterpretations and challenges in global projects. Still, a precise description of behavioral differences that negatively impact cross-cultural project success is missing.

This work aimed at developing a more precise description of the culture-based behaviors that impact IT projects and business with Indian outsourcing companies. Our approach is based on concepts put forth – for example – by Hall [2]: that one can only become aware of one's own cultural preferences and values when interacting with individuals from other cultures. In this interaction, one can find him-/herself making statements such as 'they have no respect for authority', or 'they have no concept of meeting deadlines'. Such statements and emotions have the ability to serve two purposes that have not been taken advantage of in the past. First, they directly identify and describe sources of project challenges and inefficiencies. Second, they very accurately identify behaviors and values of the person expressing these statements. The study presented in this article provides a framework for understanding cross-cultural issues by extending the existing research that examined 'why' people from different cultures acted differently in projects, by identifying 19 behavioral clusters that reveal 'how' people from different cultures act differently and how these differences affect project situations. Finally, we linked these behavior clusters back to the existing cultural value dimensions that explain the 'why'. This linking revealed several additional cultural value dimensions that are important for explaining why people from different cultures act differently in projects.

This paper is structured as follows: before presenting the study, related work on intercultural project collaboration and cross-cultural training strategies is examined. Then, a study with Indian outsourcing companies – being the basis for this paper – is presented. In particular, culture-based behavior clusters that were identified in the study are described and connected to existing cultural value dimensions. Finally, conclusions on cross-cultural trainings are drawn and further implications are provided.

2. Background

2.1 Culture as a source of culture-based misinterpretation in global projects

The importance of culture in cross-cultural interactions is well shown in literature [7]–[9]. Individuals have different values and different preferences with regard to management [10] and leadership that are related to their cultural background [4], [5]. Several studies further indicate the connection of cultural aspects to the effectiveness of IT-related projects [11]–[15]. Theoretical rationales supporting the relevance of national and regional culture to business focus on various dimensions such as beliefs concerning space, time, context [2], duty, responsibility, status, stress [3], and relationships [6].

The ways to define culture are manifold – 'whatever a person must know in order to function in a particular society' [16]; 'collective programming' [4]; 'ideas and their attached values' [17] – but it is widely agreed that cultural values and norms manifest in a person's behavior [3], [6]. The underlying belief and value systems have been and continue to be the focal point in research, although in practice people react to behaviors – not to the very abstract underlying beliefs. Following Chris Argyris [18] and Peter Senge [19] individuals interpret behavior. They evaluate perceived behavior by applying their own values and beliefs to perceived behavioral patterns. Issues between individuals arise when culture-based behaviors are (mis-)interpreted and these misinterpretations are then judged using the perceivers not the actor's beliefs of good and bad. From a globalized project management perspective, direct research to identify

culture-based project challenges due to behavioral differences between cultural groups – rather than inferring behavior differences from belief differences – has been lacking.

Behaviors remain relatively uncharted, though some attempts have been made to use behaviors as correlated examples of the belief and value dimensions. Unfortunately, as one tries to map the universal value dimensions to national behavior, one realizes the lack of universality of this approach. For example, Hofstede's research [3] identified a very low power distance index (PDI) for Austria in the research sample of 1970. "The very low (PDI) score for Austria is surprising, but the position of Austria becomes clearer if we also take its uncertainty avoidance score into account" [4, p. 121]. This example illustrates that the behaviors correlated to value dimensions from surveys in the 1970s provide limited and often erroneous guidance for managers of global projects.

In addition to the high complexity of and the interconnections between the dimensions, various researchers have identified biases in Hofstede's studies such as the disproportional focus on Western countries or the restricted focus on IBM-related respondents [15], [20]. Moreover, restricting cultural boundaries to national and geographic borders seems inappropriate in a globalized world [11], where individuals – especially global project managers – are influenced by multiple regional cultures. Finally, people generally do not think in terms of values or beliefs – and especially they do not think in terms of anthropologically defined values and beliefs.

2.2 Cross-cultural training strategies

Cross-Cultural Training (CCT) research has identified primary considerations for improving sojourner performance and well-being: the type of assistance needed (what), the methods used to provide this assistance (how), and the time and place for providing the assistance (when and where) [21]–[23]. Best practices in Cross-Cultural Training suggest three types of assistance to be productive at work and enjoy the expatriate experience in general [21], [24], [25]:

- Assistance in learning country facts. This means increasing the expatriate's knowledge about other cultures and behaviors;
- Assistance in learning to identify, interpret, and respect different behaviors which supports the development of intercultural sensitivity. This includes constructively handling feelings that these behaviors induce as well as changing one's own attitudes about culture-based differences;
- Assistance in acting in appropriate ways in different situations. This helps the learner acquire intercultural skills for effectively handling different culture-based behaviors and for becoming a cross-cultural self-learner.

A variety of methods have been developed to provide this experience: from providing passive knowledge transfer to performing experiential activities designed to put the sojourner in real-life situations. Passive knowledge transfer can use personal assessments, lectures, area and case studies, and lists of "dos" and "don'ts". Experiential activities, on the other hand, include simulations, role-plays, exchanging perceptions, field trips, or real-life coaching at the foreign destination. Some theories suggest that cross-cultural training is best when provided before the sojourner leaves for the assignment as this helps to enable cultural learning from the beginning [21], [24]–[26]. Other theories propose that training should be performed when the expatriate has already experienced the challenges of working in a new culture [21], [24], [25]. The most recent theories recommend that cross-cultural training parallel the cultural adaptation process (illustrated in Fig. 1).



Fig. 1. Culture Adaptation Process [23]

These theories hypothesize that the sustainability of content will vary during the expatriate's assignment. Effective cross-cultural training should take advantage of this by aligning training to the cultural adaptation process. This means adjusting cross-cultural content to the psychological predispositions that occur during the various phases of the process [23].

Typically, cross-cultural training programs last one to two days. A recent survey showed that 64 percent of US companies provided at least one day of training. Though, 76 percent of these companies considered attendance at training sessions to be optional [25]. Furthermore, other studies confirm that 62 percent of US companies offer some form of Cross-Cultural Training, although the average length of this training is less than one day [27]. There are many apparent reasons for this disconnect between what researchers believe should be done to adequately prepare business expatriates and what is actually done; for instance, the disbelief in the effectiveness of cross-cultural training, the cost, or the use of other approaches. All these have resulted in the current state of inadequate preparation [28]. In contrast to the training given virtual, frequent flier, and part-time global workers, who often manage global project teams, the average organization takes training for expatriates more seriously. They provide pre-briefing information material followed by a one-week pre-departure program, and an optional on-arrival orientation. Foreign aid agencies in European countries, (e.g. Germany, Nordic Countries) take training even more seriously; they usually provide a one-month pre-departure program and in some cases up to three months with included language training [25].

Currently, most Cross-Cultural Training (CCT), even for expatriates, consists of passive knowledge transfer and emphasizes etiquette and a discussion of values and beliefs. Nevertheless, the best approach appears to use a combination of behaviors, values, and beliefs [29]. Behavioral examples enable the global worker to identify typical actions that would be unanticipated in their own culture. This helps her or him to perceive things they might otherwise miss, such as body language or a particular phrase. On the other hand, knowledge about values and beliefs enable global workers to properly interpret and judge these unanticipated actions and consequently to react in a culturally appropriate manner instead of exacerbating the cultural difference by reacting in a way unanticipated by their partner global worker.

While discussions of values and beliefs have been shown to improve the global worker's cultural awareness, training does not appear to effectively prepare the global worker for the specific behavioral difference they are about to experience [29]. One training approach that does focus on behavior is the culture specific assimilator [29]. This approach presents an example of behavior and asks the global worker to select one of several courses of action as the most appropriate response to the situation. A description, of why one action is appropriate and the others are not, is then given to the global worker. Unfortunately, as this training approach was primarily developed and used by the American Peace Corp and the US Military, no culture assimilators have been developed that have a business orientation. This deficiency may be due to the requirement of "an exceptionally good understanding of the two cultures" [30, p. 2]. To date, an exceptionally good understanding of business behaviors has not been available to people developing cross-cultural training for global project managers. This paper begins to address this challenge.

3. Examining project-relevant culture behaviors with Indian outsourcing companies

The study presented in this paper was designed to identify behavioral differences between Indian project managers and their counterparts from 17 different countries around the world (Australia, Belgium, Canada, China, France, Germany, Japan, New Zealand, Philippines, Poland, Singapore, South Africa, Sweden, Switzerland, Turkey, UK, and USA). The conducted interviews identified behaviors that affected IT projects in regard to their effectiveness, efficiency, and their success.

3.1 Research approach

In Indian outsourcing companies, managers in the areas of sales, implementation, and operations often work in multi-cultural environments where they interface directly with their global customers. Initially, these global customers were from English speaking countries and Northern European countries. Throughout the 21st century, Indian outsourcing companies have expanded into new markets (e.g. East Asia, Southern Europe, the Middle East, and Africa). In the early

years of outsourcing most Indian managers were graduates of leading Indian, American, and English universities; as a result, these managers entered the workforce with knowledge of cultural differences and an ethnorelative orientation. The dramatic growth and success of these companies has forced them to increase the range of their recruitment to include second tier Indian universities where many graduates have little or no cross-cultural experience, which increases the chance for being on the ethnocentric end of the scale. As a result the effectiveness of cross-cultural training has become increasingly important to these companies.

Since the purpose of the study was to identify as many diverse and troublesome behaviors in IT projects as possible, a qualitative research approach was chosen for this investigation. Between December 2011 and January 2012, several Indian companies graciously allowed the study initiator to interview senior staff for the purpose of identifying cultural differences. In detail, the managers were asked what negatively impacted their ability to successfully and straightforwardly provide their customer with a satisfying service experience. The interviewees were asked to describe their background, their formal cross-cultural training, and customer behaviors:

- Which made them feel uncomfortable;
- Which made it difficult to meet their responsibilities or achieve their goals;
- Which negatively affected their work morale;
- Which seemed odd, irrational, or offensive;
- Which were confusing, surprised them, or did not meet their expectations.

Furthermore, the interviewees were asked which behaviors were, in their opinion, commendable and should be emulated by Indian managers. The interviews were designed in a semi-structured manner to allow follow-on questions [31], and to ensure an open, unbiased data collection process.

3.2 *Research method*

The leading research question of this study was how Indian project managers perceived the behavior of their global counterparts in international IT projects. The sampling for the semi-structured interviews [31] consisted of 40 Indian managers with international experience managing outsourced projects. Through an online search, seven Indian outsourcing companies were contacted with the study request. Two of these seven were willing to allow their employees to participate in the interview series. All interviews had an approximate duration of one hour, and provided the data for this research.

The collected data was analyzed in a content analysis [32] through an initial category system. These categories represented functional areas in the project management lifecycle. By analyzing the content of the interview transcripts, business behaviors were collected and assigned to the category system. Through triangulation, some of the qualitative results were quantified for representational purposes.

3.3 *Culture-based behavior clusters for IT projects*

The study identified 19 behavior clusters that are relevant in IT projects/business according to the interviewed Indian managers. These behavior clusters were logically derived from a total of 127 behaviors revealed in the interviews. These behaviors affect personal relationships, business communication, how the daily work is done, engagement relationships and long-term business relationships. Table 1 illustrates the quantified dispersion of the 19 behavior clusters according to their frequency of mention in the interviews.

The findings are characterized by a high number of behavioral clusters relevant to IT projects. These clusters represent business processes included in all IT projects. Data analysis revealed that the unique identified behaviors were not distributed equally between these clusters.

More than half (in particular 62.1 percent) of the uniquely identified behaviors predominantly affected five of the clusters:

- 16.5 percent, of the behaviors concerned differences in communication. The data analysis showed that especially the tendency to communicate directly or indirectly affected project situations;
- 15.7 percent of the behaviors focused on the perceived failure to build a comfortable relationship with the customer. This perceived failure negatively affected their performance as well as the customer's satisfaction for the provided services, and their personal motivation for the project;
- 11.8 percent of the behaviors, involved decision-making, specifically who made decisions and how decisions were made;
- 10.2 percent of the behaviors introduced different approaches to project planning and project implementation; and
- 7.9 percent of the behaviors reflected different levels of importance assigned to following specified processes which impacted efficient project collaboration.

Table 1. Culture-based Project / Business Behavior Clusters

Behavior Cluster	No. of sub-behaviors from study	% of total sub-behaviors
How Individuals Prefer to Communicate	21	16.5%
How Relationships are Formed	20	15.7%
How Decisions are Made and Who Makes Them	15	11.8%
How Projects are Planned, Scheduled, and Executed	13	10.2%
Following Defined Processes	10	7.9%
Recognizing and Describing Problems	7	5.5%
How Requirements are Handled	5	3.9%
Appreciation of Work	4	3.1%
The Importance of Milestones	4	3.1%
Problem Escalation	4	3.1%
Value of Monitoring and Business Processes	4	3.1%
Approaches to Motivation	4	3.1%
Others	16	12.6%
TOTAL	127	100%

These five major behavior clusters are qualitatively described in detail in Table 2. Although these five behavior clusters were most often mentioned in the interviews, this does not necessarily mean they have the greatest impact on a project's success. It is possible that the impact of one of the remaining 14 behavior clusters may have more impact on a global IT project's success. For instance, if and how problems are reported can be a critical issue especially in globally distributed projects. While some team members in an intercultural team might report problems immediately, others may conceal problems and try to solve them alone first. Also different approaches toward following specifications can influence the cooperation within an IT project team. Confusion may arise and trust may be lost when some team members do not

want to vary from published and agreed to specification no matter what while other team members take a more flexible approach and also make un-requested changes.

Table 2. Five major behavior clusters

Behavior Cluster	% of total sub-behaviors
Behavior 1: How Individuals Prefer to Communicate	<p>Some business partners (e.g. from Canada, Germany, the Netherlands, and the USA) were described by the interviewees as being very direct when communicating (e.g. ‘very open, let you know exactly what they were thinking’), other business partners (e.g. from China, India, Japan, and the Philippines) were perceived as being indirect when communicating (e.g. ‘do not like admitting mistakes in public’).</p> <p>The difference in communication behavior between Indian managers, who tend to be indirect and managers who were direct led to project difficulties. For example, in many instances the Indian interviewees felt that the customer did not value their expertise because their customer used very blunt language (e.g. did not mask their displeasure when projects were late or problems arose). This blunt language was interpreted as ‘disrespect’, which hindered trust and created barriers for building comfortable relationships.</p>
Behavior 2: How Relationships are Formed	<p>According to the interviewees, in some business cultures individuals tend to form relationships quickly. Interviewees described these business partners as being curious about their personal lives and being immediately hospitable (e.g. ‘asking where someone grew up’, and ‘inviting someone home for dinner’). These business partners were also willing and comfortable talking about themselves. In some cases, these business relationships were described as rather superficial (e.g. Canada and Sweden). In other cases, they were described as really delving deeply into a person’s life (e.g. Brazil and India). The Indian interviewees considered themselves to be both curious about others and comfortable talking about themselves: ‘Indians have a personal space that is non-existent. You talk to an Indian anywhere for about an hour ... you will know everything about him’.</p> <p>On the other hand, individuals from other backgrounds (e.g. Austria, China, France, Germany, Japan, and Korea) tend not to discuss their private lives in business environments. Relationships are formed slowly over time. Attempting to talk about private things in first meetings may create silence or uninformative responses. The interviewees felt this “coldness” created tension in project situations with Indian managers: ‘The first meetings were very cold and only about business. No talking about family or personal life – but after a few weeks the partners started to open up and became friendlier’.</p>
Behavior 3: How Decisions are Made and Who Makes Them	<p>The interviews revealed two different ways of dealing with decision-making. Interviewees stated that with some business partners (e.g. Canada, China, India, and the USA) the leader made most of the decisions. Sometimes the leader made decisions on their own. Often, especially for important decisions, the leader would consult with others and even go into open discussion with stakeholders or team members (e.g. ‘actively participate in brainstorming’). With these business partners decision-making was perceived as a rather fast process.</p> <p>In contrast, other business partners (e.g. Japan) needed to have full agreement from all stakeholders for a decision. If one or more stakeholders did not agree with the proposed solution, the process was either delayed or might be annulled. In general, this decision-making approach was perceived as rather time-consuming. However, once all stakeholders agreed on a decision, the decision was implemented quickly and smoothly.</p>

Table 2. Five major behavior clusters (cont.)

Behavior Cluster	% of total sub-behaviors
Behavior 4: How Projects are Planned, Scheduled, and Executed	<p>The process of planning and implementing projects differs from culture to culture. Some business partners (e.g. from India) tend to emphasize formal planning methodologies and project performance metrics when developing a project schedule. Other partners (e.g. Canada and the USA) tend to focus on task descriptions and milestone dates when developing the project schedule. For these business partners, once a schedule is accepted, it is not considered to be changeable; therefore, changes require formal renegotiations.</p> <p>Contrarily, some project partners (e.g. China and Korea) do not assign much importance to detailed schedules, as they anticipate that ‘things never work out completely as planned’. Therefore, they consider schedules to change over time through informal renegotiations.</p>
Behavior 5: Following Defined Processes	<p>As revealed by the interviewees, certain business partners (e.g. from Germany, Japan, and the Philippines) became extremely uncomfortable in unstructured environments. They avoid situations that were not structured with commonly known and accepted procedures. These business partners appeared most comfortable when they had precise rules or procedure to follow (e.g. ‘implementing changes only after investigation, agreement, and documentation’).</p> <p>On the contrary, the Indian interviewees felt constrained by rules and procedures. They were used to working in less structured environments where they had the ‘freedom of action’ – where they could choose how to work and figure out their own way to get to a solution (e.g. ‘I like to try to prototype new ways of doing things’).</p>

3.4 Connecting behavior clusters with existing cultural value dimensions

In addition to the previously described clusters, the researchers attempted to correlate, in real time, the answers given during the interviews to a set of recognized cultural attributes. This real-time correlation was used to structure the follow-on questions within the interviews. These follow-on questions attempted to identify the underlying values and beliefs of the interviewees so that the behaviors described could be attributed to these values and beliefs. In a few instances these follow-on questions identified values and beliefs held by the interviewees that have not been widely researched but that appeared to be extremely important in explaining the behaviors of the interviewees and the cultures with which they were interacting. The following section describe the cultural values and beliefs used to structure the follow-on questions and reveal the correlations found when analyzing the data.

While the primary objective of the research was to reveal project- and business-relevant, culture-based behaviors impacting project success, the research also attempted to link the identified behaviors to existing beliefs and value frameworks. These links can be important in regard to Argyris’ [18] theory. Behaviors are what people perceive and react to, the reaction, however, will be shaped by interpretation and judgment, and interpretation and judgment result from the application of ones own values and beliefs. The follow-on behavior will be a perceivable action resulting from how the initial behavior is perceived, interpreted, and judged, and these three internal activities are strongly affected by the values, beliefs and expectations of the person reacting to the behavior. Enabling the global worker to understand both behaviors and values/beliefs and how they are related might be the key to effective training for cross-cultural projects.

Table 3 provides an overview of the culture frameworks based on the research of Hofstede et al. [3], Trompenaars and Hampden-Turner [6], the GLOBE study [5] and other research.

As the descriptions in Table 3 reveal, some dimensions reference multiple and even conflicting behaviors and the behaviors referenced often have little to do with management practices. For this reason, some dimensions were split into two or more dimensions and were renamed. This structuring was necessary as too many behaviors are hypothesized to be the result of each dimension making it difficult to accurately infer a particular behavior based only on the determination that a culture has a specific cultural preference, such as collectivist.

Table 3. Cultural attributes specifying beliefs and values

ID	Dimension	Reference in Literature	Description of Dimension
A	Hierarchy versus Lean	[33], [34]	<p>According to Laurent [33] and Schwartz [34], some cultures believe well accepted rules, responsibilities, and defined behavior for different levels within a business organization are needed for the business to operate efficiently. Contrarily, other cultures would prefer less hierarchy.</p> <p>This dimension differs from Hofstede's PDI [3] as some cases reveal that a country with a low power distance index could still apply strict rules and strong hierarchies in organization. A country example for this phenomenon would be Germany.</p>
B	Risk Taking versus Risk Averse	[35], [3]	<p>Although this dimension is related to Hofstede's [3] Uncertainty Avoidance Index, he explicitly states that "uncertainty avoidance does not equal risk avoidance" [4, p. 148]. Hence, avoiding uncertainty or avoiding risks should be considered as independent cultural dimensions. Köster [35] reinforces this idea in her work on international project management by using the contrasts of 'embracing risks' and 'avoiding risks' when conducting a cultural gap analysis in a project.</p>
C	Work Hard versus Outcome	[5]	<p>The GLOBE study's [5] dimension of 'performance orientation' recognizes that some societies reward performance and emphasize results while other societies emphasize loyalty and cooperative spirit. However, the GLOBE's description also includes other values, for instance approaches to time, achievement, or quality. Therefore, here the aspect of valuing hard work or the work's outcome was uniquely identified for this research.</p>
D	Strict Procedure versus Ambiguity	[3]	<p>This dimension describes the Uncertainty Avoidance Index by Hofstede [3], which measures the extent of perceived discomfort in uncertain, unknown situations. Here, the dimension was renamed to prevent confusion between uncertainty and risk avoidance (see dimension 'B').</p>
E	Individualism versus Collectivism	[3]	<p>This dimension by Hofstede [3] describes the tendency of people to look after themselves or their immediate family. The belief that challenges are better met when a person's first responsibility is for the safety and improvements of her or his self and family. On the opposite stands the tendency of people to look after the good of the group, to expect members of the group to protect them, and to give them security in exchange for their loyalty towards the group.</p>
F	Neutral versus Emotional	[6]	<p>As described by Trompenaars and Hampden-Turner [6], in some cultures, emotions are openly and naturally expressed. People tend to talk loudly and excitedly. Furthermore, decisions may be based on emotions and intuition. In contrast, in neutral cultures emotions are carefully controlled, held in check, and are not publicly displays. Moreover, decisions are most often rational and separated from emotions.</p>
G	Monochronic versus Polychronic	[2], [6], [35]	<p>According to Hall [2], individuals from polychronic cultures tend to do many things at a time. They are easily distracted and tend to think about what will be achieved rather than when something must be completed. Individuals from monochronic cultures, on the other hand, tend to do one thing at a time. They concentrate on the job at hand and tend to think about when things must be achieved. Individuals from these cultures often undertake careful planning and scheduling and consider time management to be highly important.</p> <p>This aspect is also included in the dimension 'achievement versus ascription' by Trompenaars and Hampden-Turner [6]. Additionally, also Köster [35] uses the distinction between 'sequential' and 'synchronic' approaches for her cultural gap tool.</p>
H	In-Group Collectivism	[5]	<p>This dimension identified by House et al. [5] describes the degree to which people express pride, loyalty, and cohesiveness in their organization.</p> <p>Several studies have shown: individual, organizational, and national preference for individualism versus collectivism can differ within a single country[4]. Hence the importance of focusing on In-Group collectivism when applying the concept to organizations.</p>

Table 3. Cultural attributes specifying beliefs and values (cont.)

ID	Dimension	Reference in Literature	Description of Dimension
I	Power Distance versus Equality	[3]	The dimension of power distance, as suggested by Hofstede [3], measures the acceptance of inequality or equality within a society. This refers to the extent of acceptance of unequally distributed power in organizations and within the society. In such cultures, the less powerful believe that those in power have their best interests at heart and are better equipped to make the best decisions. In contrast, in egalitarian cultures status is not recognized as a right and natural order of things and individuals do not accept unequal distribution of power.

The behavior clusters described in Table 2 were associated with the underlying dimensions described in Table 3. During the process of linking the behaviors to the value and belief dimensions, some dimensions were discovered that were not identified or sufficiently described in the literature on cross-cultural management. Table 4 gives an overview of these newly defined and structured dimensions.

Table 4. Additional cultural value dimensions examined in the study

ID	Dimension	Description of Dimension
a	Strong Relations versus Impersonal	This dimension addresses the question of whether personal aspects should be a part of business relationships. In strongly relational cultures factors such as trust, favors, and shared time are more important than completing performance on time. Personal relationships may even be a prerequisite for doing business and for remaining high in the business partner's priority queue. Furthermore, people tend to be willing to work hard for people with whom they have a strong relationship. When personal relationships are believed to be required for successful business, then maintenance of personal relationships becomes important in cross-cultural cooperation. This aspect is reflected in the existing dimension 'specific versus diffuse' [6], which describes how individuals – to a greater (specific) or lesser (diffuse) extent – separate different types of relationships. Although the value of relationship is often mentioned, none of the existing cultural dimensions focus on the consequences to business of the presence or absence of strong personal relationships.
b	Value Harmony versus Conflict	This dimension describes that in some cultures, words and actions that re-enforce the cohesion of the group are considered to be good and proper. They believe that the loss of group harmony caused by conflicts or loss of interpersonal harmony is a negative influence for the individuals as well as the group. In contrast, other cultures believe that minor conflicts can result in creativity and improve decision-making. Although Köster [35] mentions a similar cultural difference called 'conflict versus consensus', her descriptions vary from this definition.
c	High Reciprocity versus Low Reciprocity	The term reciprocity refers to the importance of returning favors – even years after the favors have been given. This emerges from the belief that mutual favors bind people and make them more reliable and predictable. This value is highly associated with the concept of 'losing' or 'protecting' one's face. The dimension could be connected to how relationships are built and Hofstede's [3] short-term versus long-term orientation. Although Hofstede's studies come to the conclusion that short-term orientation is connected to respecting traditions, preserving one's 'face' and fulfilling social obligations, the data seems to be biased as many Asian countries scored the highest for long-term orientation. Moreover, our study does not support this connection but reveals an opposite dependence.

Table 4. Additional cultural value dimensions examined in the study (cont.)

ID	Dimension	Description of Dimension
d	Task versus Relationship	<p>This dimension describes the approach towards teamwork. On one end of the range it is believed that tasks and deliverables are most important. At this extreme people prefer to segment the first and most essential part of any project into tasks, defining the task's deliverables, and properly manage the task to completion. Individuals consider successful tasks completion to take precedence over private concerns. From a managerial perspective, in these cultures team members are fungible. At the other extreme people believe that tasks and deliverables are completed by people, people are the key asset for a project. The needs of the project team members, even non-business needs, will take precedence over task deadlines.</p> <p>The dimension's extremes also reflect in the current discussion on traditional and agile project management [36]. In leadership theory this contrast is described as being task- versus relationship-oriented. It differentiates two leadership styles: those dealing with task accomplishment and those focusing on facilitating team interactions [37]. In addition, also here Köster [35] identified this sphere for international project management and examines the impacts on managing stakeholders, leading and managing a team, and on planning, implementing, and controlling projects. Still, some emphasis – especially for the high value of individuals for the project – are not that strong in her definitions.</p>
e	Continuum versus Stages and Phases	<p>People from cultures with a continuum orientation tend to consider projects holistically: from the pre-phase of a project through the actual project phases and the future after the project has ended. Such individuals may believe that structuring in phases is not necessary or – in extreme cases – even hindering for making decisions. People with that belief may not give a high importance to setting priorities. On the other hand, people with a phase orientation tend to break projects into small tasks and make very detailed plans. They believe that it is most beneficial to success to prioritize and schedule tasks. Furthermore, they tend to stress the importance of meeting scheduled milestones.</p>

Finally, the existing dimension from literature (described in Table 3) and the newly structured dimensions (described in Table 4) were correlated to the five major behavior clusters (compare Table 2). This interlinking is illustrated in the following Table 5.

Table 5. Five major behavior clusters linked to cultural dimensions

ID	Behavior Cluster	Associated Cultural Dimensions
1	Behavior 1: How Individuals Prefer to Communicate	Hierarchy versus Lean (A) Individualism versus Collectivism (E) Neutral versus Emotional (F) Value Harmony versus Conflict (b) High Reciprocity versus Low Reciprocity (c)
2	Behavior 2: How Relationships are Formed	Strong Relations versus Impersonal (a) Task versus Relationship (d)
3	Behavior 3: How Decisions are Made and Who Makes Them	Hierarchy versus Lean (A) Risk Taking versus Risk Averse (B) Individualism versus Collectivism (E) In-Group Collectivism (H) Value Harmony versus Conflict (b) High Reciprocity versus Low Reciprocity (c)

Table 5. Five major behavior clusters linked to cultural dimensions (cont.)

ID	Behavior Cluster	Associated Cultural Dimensions
4	Behavior 4: How Projects are Planned, Scheduled, and Executed	Work Hard versus Outcome (C) Monochronic versus Polychronic (G) Strong Relations versus Impersonal (a) Task versus Relationship (d) Continuum versus Stages and Phases (e)
5	Behavior 5: Following Defined Processes	Hierarchy versus Lean (A) Strict Procedures versus Ambiguity (D) Power Distance versus Equality (I) Strong Relations versus Impersonal (a) High Reciprocity versus Low Reciprocity (c) Task versus Relationship (d)

4. Conclusion

This study revealed 127 behavioral differences between Indian project managers and their counterparts from all over the world. These behaviors were clustered in 19 categories correlated to business processes included in all IT projects. More than 60 percent of all behaviors were clustered in five of these categories:

- How project team members communicate;
- How project team members form relationships;
- How decisions are made for the project;
- How projects are planned and scheduled; and
- How rigorously defined processes are followed.

These five categories seem to have a noteworthy impact on managing intercultural projects, as more than 60 percent of all behaviors were clustered in these five categories. Given the limited time currently allocated to cross-cultural training project managers and team members (one to two days on average) [25], [27], focusing training on the behaviors most likely to impact project performance, that is, learning to recognize and effectively deal with these behaviors, should maximize the positive effects of such training. It should prove helpful to further generalize the 127 unique behaviors and the 19 clusters on the following meta-level:

- Culture-based patterns and protocols for communication;
- Culture-based approaches for developing appropriate business relationships;
- Culture-based ways to show respect/disrespect;
- Culture-based definitions of 'good work'.

These meta-levels provide a logical framework within which global project managers will be able to better understand culture-based behavioral differences that affect the success of cross-cultural management strategies. Further, cross-cultural trainers and intercultural coaches can benefit from these findings by using behavioral differences as a basis for their teaching strategies.

These four components should be considered – both as part of the passive content as well as the experiential learning activities – according to the study's results:

- Developing tactics that ensure effective communication;
- Supporting team members in developing appropriate business relationships;
- Developing mutual ways to show respect and avoid being disrespectful;
- Developing mutually accepted definitions of 'good work'.

The authors hypothesize that designing cross-cultural training emphasizing these meta-level behaviors (and the corresponding sub-behaviors) will better prepare project managers for international projects than current training approaches that have been designed to emphasize etiquette and understanding value and belief differences. The authors contend that behaviors are easier to describe, recognize, and evaluate than values and beliefs. Our research enables individuals to learn – in addition to general facts related to a specific culture, such as etiquette, and culture general concepts, such as values and beliefs – also the actual behaviors they will encounter. This provides immediately useful information that can be used to create emotional responses and that can form the basis for skills practice. Furthermore, combining behaviors with culture general values and beliefs builds up the competencies to effectively function in any new culture and helps the individual to become a self-learner. Emphasizing behaviors allows trainers or individuals to focus on their reaction to unexpected behaviors thereby increasing their intercultural sensitivity and practicing their intercultural skills. Of course, these hypotheses need to be proven in follow-on research.

The focus on behavior in this research provides the missing link between action and inappropriate reaction when managing global projects. These behaviors enable global workers to identify typical actions that would be unanticipated in their own culture. Linking these behaviors to widely accepted values and beliefs enable them to properly interpret and judge these unanticipated behaviors and consequently to react in a culturally appropriate manner. This approach will help the global worker react in a way anticipated by their global colleague consequently ending instead of exacerbating their cultural differences. In addition, the new, business-oriented, cultural dimensions and reduced scope of some existing cultural dimensions will simplify understanding the merits of the identified behavioral differences by enabling global workers to understand why their global colleagues are acting the way they do.

In conclusion, combining the existing body of research [2], [3], [5], [6] which focused on differing values and beliefs with the research presented in this paper, which focuses on behavioral differences, should provide significant advantages for individuals attempting to improve their effectiveness in international management. Our research shows that both behaviors and value/belief should be part of training; however, such a training program has not been developed. Future research should use the behaviors identified here as the basis for Cross-Cultural Training such as culture assimilators, critical incidents, or even role-plays. Moreover, a form of metrics should be developed to assess the benefit of this training approach. Finally, the results of this study can enhance the corporate knowledge base of global organizations if they analyze these newly identified behaviors, validate them in their context, and add them to activities and material of their corporate cross-cultural training programs.

The study relies on the reactions of individuals who have experienced the challenges of cross-cultural interactions. The results are not generalizable because the study only included Indian managers. In order to generalize the results of the study, similar studies in other cultural contexts would be needed. Further, the study presents those behaviors that were mentioned most by the interviewees. The study did not attempt to measure the impact of each of these behaviors and the impact of each behavior may vary considerably. This means, it might be possible that a small number of behaviors different from the five highest ranked behaviors described in this study may be more important for collaboration and business success than the higher ranked behaviors of this study.

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References

- [1] B. Jean, *Global Project Management: Communication, Collaboration and Management Across Borders*. Hampshire: Gower Publishing Limited, 2007.
- [2] E. T. Hall, *Beyond Culture*. New York: Random House Inc, 1977.
- [3] G. Hofstede, G. J. Hofstede and M. Minkov, *Cultures and organizations: Software of the mind. Intercultural cooperation and its importance for survival*, 3rd ed. New York: McGraw-Hill, 2010.
- [4] G. Hofstede, *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations across Nations*, 2nd ed. Thousand Oaks, CA: SAGE Publications, 2001.
- [5] R. J. House, P. J. Hanges, P. W. Dorfman and V. Gupta, Eds., *Culture, Leadership, and Organizations. The GLOBE Study of 62 Societies*. Thousand Oaks, CA: SAGE Publications, Inc, 2004.
- [6] F. Trompenaars and C. Hampden-Turner, *Riding the Waves of Culture: Understanding Cultural Diversity in Business*, 3rd revised. London: Nicholas Brealey Publishing, 2012.
- [7] L. E. Harrison and S. P. Huntington, Eds., *Culture Matters: How Values Shape Human Progress*. New York: Basic Books, 2000.
- [8] B. L. Kirkman, K. B. Lowe and C. B. Gibson, "A quarter century of Culture's Consequences: a review of empirical research incorporating Hofstede's cultural values framework," *J. Int. Bus. Stud.*, vol. 27, pp. 285–320, 2006.
- [9] F. R. Kluckhohn and F. L. Strodtbeck, *Variations in Value Orientations*. Evanston, IL: Row, Peterson, 1961.
- [10] A. Boonstra and J. de Vries, "Information System Conflict: Causes and Types," *International Journal of Information Systems and Project Management*, vol. 3, no. 4, pp. 5–20, 2015.
- [11] C. Böhm, "Cultural Flexibility in ICT Projects: A New Perspective on Managing Diversity in Project Teams," *Glob. J. Flex. Syst. Manag. Springer*, vol. 14, no. 2, pp. 115–122, 2013.
- [12] C. Böhm, "Managing Diversity in Complex ICT Project Environments – A Practitioners' Perspective," in *Proceedings of the Thirteenth Global Conference on Flexible Systems Management (GLOGIFT 13) – Managing Flexibility: People, Process and Technology*, New Delhi, 2013, pp. 168–177.
- [13] B. M. Dunavant and B. Heiss, *Global Diversity 2005*. Washington, DC: Diversity Best Practices, 2005.
- [14] B. Ives and S. L. Jarvenpaa, "Applications of Global Information Technology: Key Issues for Management," *MIS Q.*, vol. 15, no. 1, pp. 33–49, 1991.
- [15] M. D. Myers and F. B. Tan, "Beyond Models of National Culture in Information Systems Research," F. B. Tan, Ed. Hershey, PA: IGI Global, 2003, pp. 14–29.
- [16] R. Wardhaugh, *An Introduction to Sociolinguistics*, 6th ed. Oxford: John Wiley & Sons, 2009.
- [17] A. L. Kroeber and C. Kluckhohn, *Culture: A Critical Review of Concepts and Definitions*. Cambridge, MA: Harvard University, 1952.
- [18] C. Argyris, *Overcoming Organizational Defenses: Facilitating Organizational Learning*. Needham Heights: Allyn & Bacon, 1990.

- [19] P. M. Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization*. New York: Doubleday/Currency, 2006.
- [20] Y. P. Huo and D. M. Randall, "Exploring subcultural differences in Hofstede's value survey: The case of the Chinese," *Asia Pac. J. Manag.*, vol. 8, no. 2, pp. 159–173, 1991.
- [21] R. Bennett, A. Aston and T. Colquhoun, "Cross-Cultural Training: A Critical Step in Ensuring the Success of International Assignments," *Hum. Resour. Manage.*, vol. 39, no. 2–3, pp. 239–250, 2000.
- [22] B. M. Ferdman and S. E. Brody, "Models of Diversity Training," in *Handbook of Intercultural Training*, 2nd ed., D. Landis and R. Bhagat, Eds. Thousand Oaks, CA: SAGE Publications, 1996, pp. 282–303.
- [23] L. N. Littrell, E. Salas, K. P. Hess, M. Paley and S. Riedel, "Expatriate Preparation: A Critical Analysis of 25 Years of Cross-Cultural Training Research," *Hum. Resour. Dev. Rev.*, vol. 5, no. 3, pp. 355–388, 2006.
- [24] Y. Choe, "Intercultural Conflict Patterns and Intercultural Training Implications for Koreans," *Int. Area Rev.*, vol. 5, no. 1, pp. 111–118, 2002.
- [25] D. J. Kealey and D. R. Protheroe, "The Effectiveness of Cross-Cultural Training for Expatriates: An assessment of the literature on the issue," *Int. J. Intercult. Relat.*, vol. 20, no. 2, pp. 141–165, 1996.
- [26] G.-M. Chen and W. J. Starosta, "A Review of the Concept of Intercultural Sensitivity," *Hum. Commun.*, vol. 1, no. 1, pp. 1–16, 1997.
- [27] J. M. Werner and R. L. DeSimone, *Human Resource Development*, 6th ed. Mason, OH: South Western Cengage Learning, 2012.
- [28] D. P. S. Bhawuk, "Evolution of Culture Assimilators: towards Theory-based Assimilators," *Int. J. Intercult. Relat.*, vol. 25, no. 2, pp. 141–163, 2001.
- [29] D. P. S. Bhawuk and R. W. Brislin, "Cross-cultural Training: A Review," *Appl. Psychol.*, vol. 49, no. 1, pp. 162–191, 2000.
- [30] F. E. Fiedler, T. Mitchell, and H. C. Triandis, "The culture assimilator: An approach to cross-cultural training," *J. Appl. Psychol.*, vol. 55, no. 2, pp. 95–102, 1971.
- [31] A. Fink, *Conducting Research Literature Reviews. From the Internet to Paper*, 4th ed. Thousand Oaks, CA: SAGE Publications, Inc, 2014.
- [32] P. Mayring, *Qualitative Inhaltsanalyse: Grundlagen und Techniken [Qualitative Content Analysis: Basic principles and methods]*, 11th ed. Weinheim/Basel: Beltz-Verlag, 2010.
- [33] A. Laurent, "The Cultural Diversity of Western Conceptions of Management," *Int. Stud. Manag. Organ.*, vol. 13, no. 1–2, pp. 75–96, 1983.
- [34] S. H. Schwartz, "Universals in the content and structure of values: Theory and empirical tests in 20 countries," *Adv. Exp. Soc. Psychol.*, vol. 25, pp. 1–65, 1992.
- [35] K. Köster, *International Project Management*. London: SAGE Publications Ltd, 2010.
- [36] J. Highsmith, *Agile Project Management: Creating Innovative Products*, 2nd ed. Boston, MA: Addison-Wesley, 2004.
- [37] C. S. Burke, K. C. Stagl, C. Klein, G. F. Goodwin, E. Salas and S. M. Halpin, "What type of leadership behaviors are functional in teams? A meta-analysis," *Leadersh. Q.*, vol. 17, no. 3, pp. 288–307, 2006.

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The application of post tender negotiation procedure: a public sector procurement perspective in UK

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The application of post tender negotiation procedure: a public sector procurement perspective in UK

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Abstract:

Post Tender Negotiation (PTN) procedure is part of the tendering process in procurement of goods and services. The procedure could be triggered if the initial tendering activity does not result in the selection of a supplier. This could be due to a lack of clear Value for Money (VfM) bidder. The PTN procedure is sparingly applied in the UK public sector procurement and the reasons adduced for this are based on ethical considerations. The UK Office of Government Procurement (OGP), formerly known as the Office for Government Commerce (OGC) and the European Union (EU) are the chief proponents of restricting the use of PTN to exceptional cases. The premise of their argument is that the buyer could unethically tilt her/his actions in the process of applying the PTN procedure to favor certain suppliers. It is the argument of this paper that buyers from the public sector in UK are being deprived of the procedure's benefit and therefore, the restrictions should be relaxed. Evidence from this study suggests that the procedure could offer the opportunity for further clarifications of supplier's bid. The study also identifies that, for PTN to be successful, factors ensuring success in negotiations including cooperation should be present.

Keywords:

value for money, communication; procurement; negotiations; tendering.

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1. Introduction

Post Tender Negotiation (PTN) is a procurement procedure. Its usage has gained prominence as well as intense debate in recent times [1]; yet, there is limited research about its effects and the factors that contribute to the success of its application. The PTN procedure relates to the negotiations taking place before the issuing of final contracts and it is usually with bidders offering best Value for Money (VfM) [2]-[3]. The Chartered Institute of Procurement and Supply (CIPS) supports the above position [4]. CIPS argues that the main objective of a procurement activity is to gain VfM and that if initial assessments of bids do not provide VfM, then a buyer should be given the opportunity to apply the PTN procedure. Thus, as long as the procedure is applied in conformity with fairness in competition and ensures that the integrity of the tendering process is protected, public sector buyers should be encouraged to apply the procedure [4].

Notwithstanding the position of CIPS, certain public institutions in United Kingdom (UK) including the National Health Service, do not allow the application of PTN for the purposes of negotiating for price reductions [5]. The stance of the National Health Service in UK is in line with Directive 2004/18 by the EU where procurement interventions such as negotiated procedure and competitive dialogue are the only interventions which allow the PTN procedure [6]. The UK's Office for Government Procurement (OGP) formally known as Office for Government Commerce (OGC) ensures that EU Directives on procurement of goods and services are adhered to and this contributes to the limited usage of PTN in UK's public sector procurement [3].

There are limited studies in the area of PTN. Many researchers [7]-[8] have dwelled mostly on tendering thus, contributing to a gap in the literature of PTN. Thus, while the bidding/tendering process have received some attention [9]-[10], the PTN as a process within the tendering process have not been adequately discussed, hence the need for research to be done in this area. Previous research [1]-[11] explained the PTN procedure without discussing how the procedure can significantly influence VfM purchases and the factors that could ensure the application of the procedure's success. Thus, there is the need for research to be carried out to establish the effects of the PTN procedure and also identify the factors that would lead to the success of its application, particularly in the public sector procurements in UK. A research of this nature is important because, in a particular tendering process, there could be many scenarios that could arise which would necessitate the application of the PTN procedure. Such scenarios could include a lack of a VfM bidder, collusion in the bidding process, budgetary constraints, and the need for further clarifications in a supplier's bid [12]. The PTN could help address these scenarios; example, if the buyer realizes that the budget set for the purchase does not meet any of the prices quoted, the PTN procedure could be used to invite the supplier with closest quoted price for further negotiations. Perhaps, findings from such studies can influence authorities such as the EU and the OGP to realize the benefits that the procedure could bring to public sector procurement and encourage its usage.

The study aims at identifying the effects of PTN in the tendering processes, in particular how it impacts on VfM procurements. Thus, as UK public sector continues to embark on budget cuts and austerity program, there is the need for judicious use of available limited resources and therefore, every purchase has to deliver the expected value, hence, the need to ascertain how PTN can affect such VfM purchases. The study also seeks to identify the key factors that determine success in negotiations, the circumstances that trigger the application of PTN, and the reasons for the restrictions of the application of PTN in the UK's public sector procurement.

The next section discusses the background to the study and examines some theories and concepts of negotiations from which the study's underlying assumptions were developed. Section 3 discusses the research's methodology and data collection methods, the study adopted qualitative research approach and used interview techniques, as well as document review for data collection. Section 4 discusses the findings from the fieldwork and analyzes the data collected using Interpretative Phenomenological Analyses (IPA). Section 5 concludes the study, makes some recommendations and discusses the implications of the findings and how such findings can impact on management decisions on public sector procurement, especially in the United Kingdom.

2. Background

This section examines the concept of tendering, PTN, VfM and negotiations. It also discusses relevant theories on the topic especially negotiation theories such as, the games theories of cooperation and interdependence, the theory of multi-agent collaborative maintenance platform-communication, the conceptual framework of social motives and their influence on integrative negotiation, and also the Transactional Cost Economics (TCE) theory. The purpose of these reviews is to ascertain how these concepts and theories address the research's objectives.

2.1 The concept of tendering and its relationship with PTN

There is evidence to suggest that, the PTN could potentially aid a buyer's acquisition process especially if none of the submitted bids offers value for money [12]. It is therefore ideal to establish the understanding of the concept of tendering to place its relationship with PTN in context. Thus, if both procedures follow the same principles in their application, then it needs to be established whether the issue of ethics significantly impact on tendering process. If not, then ethical considerations should not be cited to restrict PTN because this study establishes that both procedures follow the same principles. The Organization for Economic Cooperation and Development (OECD) defines tendering as a process for procurement of goods and services [13]. The pitching of many suppliers against one another allows the buyer to secure cheaper price in the acquisition process as the suppliers compete among themselves. This could be an advantage to the buyer and many authors support this view [13]. However, it can also be argued that, the standardization of the buyer's requirements during the tendering process could potentially reduce the innovativeness of suppliers. Thus, in order to avoid supplier exploitation by the buyer, the tendering process should be guided by certain principles which the PTN procedure has to follow. The need to preserve the tendering process' integrity; the abhorrence to circumventing the tendering process; and thirdly, the duty to fair negotiations are some of the tendering principles advanced in academic literature [14]-[15]. The UK public sector rules governing the conduct of PTN stipulate that the same principles are followed during PTN applications [3]. Thus, if the same principles such as fairness in competition applies in both tendering and PTN, then it can be argued that, by implications, if ethical considerations are not used to restrict tendering, then the same should apply to PTN. The study further explores this proposition during the fieldwork.

The effects of PTN within tendering - The study also examines the effects of PTN within the tendering process. The PTN by implication could be used at the post tender stage if the actual tendering process does not yield the desired results [12]. This means that the PTN procedure has a significant effect on the tendering process as well as the buyer and the supplier. This is because there are many situations that could arise during the tendering process that would necessitate or trigger the PTN application in order for the desired results to be achieved in a particular acquisition [12]. Among these situations are when there is no overwhelming evidence that the evaluations of the final bids present a clear VfM supplier; where there is a possibility of doubt in relation to performance or quality; where there is the need for the clarification of terms and conditions; and where there is the need for the use of negotiation to achieve price reduction [12]. The fieldwork finding is used to examine whether the same factors form the basis of PTN application in UK public sector procurement. It is worth noting that the identification of price reduction as a trigger for PTN application adds interesting dimension to the PTN debate in UK public sector procurement. This is because, while some public sector institutions such as the University of Leicester permit the use of PTN for price negotiation [12], such practice is entirely forbidden in UK National Health Service [5]. Such inconsistencies in public sector procurement in UK have the tendency of creating confusion in the minds of public sector procurement officials and perhaps contribute to the procedures' limited applications and restrictions.

Kruger [16] traces the historical background to PTN restrictions by the European Union in the 1970s. He [16] observed that the public contract award in pan European environment regulated currently in a regime of comprehensive directives were originated from European Economic Community (EEC) early days in the 1970s and were consolidated in the 1990s. An intrigue proposition about the ban by EU on the rules of negotiations which is applicable to PTN is that, the ban has never been expressly identified by writing in any of the directives governing EU procurements [16]. Thus, the reviewing of the literature for EU ban on PTN for example, suggests that the issues have been considered both as self-

explanatory and self-evident, or there could be a probability that such issues have been left to national laws and EU/EEA laws interplay. This means that national laws can be crafted in a way that would allow the use of PTN without necessarily breaking the EU rules. The directive “Dir 93/37/EC [1994] O J No. L 111/114” [16] published in EC Council statements in 1994 gives slight scent of EU position on PTN in the past. However, this does not appear to be explicit expression of the ban of the procedure and therefore there is arguably a room to apply it, albeit the willingness and desire of national governments.

An opposing view of PTN restrictions based on theoretical underpinnings - there is a school of thought that argues that individual’s appreciation of ethics is based on their cultural values, traits, family and beliefs and not rules set by authorities [17]. This proposition directly challenges the idea that ethical considerations alone could be used to restrict the application of certain procedures in public sector procurement. Indeed, the potential exists for opportunistic behavior to occur during procurement activity. This may include bid collusion, cheating, contract breaches, and cutting corners [18]. However, using this notion alone without other evidence to back it may not necessarily give enough reasonable grounds for restricting certain procedures such as PTN in public sector and can be counter-productive. This is because individuals’ approach to ethics is different. The theory of Transaction Cost Economics (TCE) advances the argument that when opportunistic behavior is feasible during business transaction, individuals will take advantage of it [19]. This proposition is further explained in ethics behavioral assumption research [19]. Thus, it can be deduced from the above that unethical behavior during business transaction cannot be eliminated completely if profitable, rather individuals’ ethical behavior during procurement (tendering) activities may be guided by their cultural and family values and not rules that authorities set.

2.2 The effects of PTN on the buyer and the supplier

An empirically based review of two studies on the effects of PTN as a component of the tendering process identified that the procedure affects the buyer and the supplier on different levels. For instance, a study on subcontracting under the topic “Pre-tender and post-tender negotiation in Australia” found that bigger-sized sub-contracting firms support the procedure while smaller- sized sub-contracting firms oppose it. Similarly, opposing sub-contractors described the PTN as “bid peddling” and “bid shopping” and therefore an unethical practice [11]. However, a study conducted in Northern Ireland on PTN found evidence that the PTN contributes to securing VfM especially within the context of partnership and competition [20]. The two studies appear to be skewed towards a certain direction. While the research conducted in Australia concentrated on the PTN effects on only suppliers [11], the one conducted in Ireland discusses the PTN effects on just the buyer [20]. The reviewed studies established that the larger sub-contractors who support the PTN procedure argue that the procedure allows them to modify their bids to win contracts [11]. Buyers also argue that the PTN procedure allows them to negotiate for reduced prices and VfM [20]. Thus, while both research works give an insight about the effects of PTN, the focus of both on individual basis appear to be narrowed. This study widens its scope to both the buyer and supplier and ascertains how the fieldwork findings support the findings of the reviewed articles.

2.3 Post Tender Negotiation and value for money

The Office of Government Commerce [3] defines PTN as a buyer-tenderer contact and interaction for the purposes of refining and improving bids to ensure that competitive contract terms are commensurate with associated delivery and prices. Various restrictions governing the PTN procedure means that some public sector institutions require tacit approval from their heads of procurement before the procedure can be applied [12]. The many benefits associated with the PTN procedure include the creation of better understanding and improving the tender bids; significantly increasing bids which are compliant thereby providing an opportunity for greater competition; reducing both buyer and supplier risks; creating better relationship and understanding among negotiated parties; strategic partnership opportunities; clarification of proposal and requirements; alternative solution identifications; and performance improvement [21]. Some authors have discussed what constitute VfM as supplier’s flexibility, prompt delivery and the supplier’s dependability [22]-[23]. This is a clear shift from previously widely held view where lower prices were regarded as the main constituent of VfM [24]-[25]. Thus, discussion on negotiation at post tender stage should not just focus on price reduction but the supplier’s capability and strength to adjust to the changing needs of the buyer [24]. The supplier’s

flexibility, not just the lower price matters because, if the buyer's requirements change as a result of increased business activity in the middle of the contractual term, the buyer can rely on the existing supplier for increased volume of supply instead of going through the tendering process to select additional supplier [24].

2.4 Games theories of cooperation and interdependence

The Games theories of cooperation and interdependence and other relevant theories and concepts of negotiations are also examined in the study. The objective is to establish the factors that determine successful outcome during negotiation at post tender stage (agreement between buyer and supplier) and is in line with the proposition that PTN would lead to award of contracts only when there is successful negotiation. There is theoretical proof that cooperation and interdependence contributes to success in negotiation [26]. Nelson & Greenhalgh [27] who support this position use game theory to advance the arguments that rational objectives inform the basis of decision making during negotiations and therefore negotiators use strategic reasoning to approach such negotiations. Thus, each party recognizes both parties' interdependence thereby making cooperation and interdependence key determinants for reaching agreements during negotiations at post tender stage. This is particularly the case in PTN because, the buyer and the supplier have the interest of getting their business flourishing through the supplying and buying of goods and services. The buyer also needs to ensure that the resource base of the business is not depleted hence, uninterrupted supply of needed materials [28]-[29].

2.5 Theory of multi-agent collaborative maintenance platform-communication

The multi-agent collaborative maintenance platform theory focuses on the contribution that verbal communication makes to create rapport which in turn leads to successful negotiation outcomes [30] and this forms part of the assumptions for the fieldwork of the study. Many researchers are of the view that verbal communication plays a role towards rapport creation [30]-[31]. Nonetheless, while there may be some evidence in this proposition, it is also true that in recent times communication through email or telephone has become common and has equally led to creation of friendship and rapport. Thus, while the direct face-to-face conversation during PTN cannot easily be discounted, recent development in communication during procurement activity such as e-tendering has allowed negotiations to be conducted without face-to-face conversation. Despite the availability of evidence of verbal communication and series of face-to-face meetings during negotiation [30], the use of electronic communication such as email and telephone were clearly evident in a detailed correspondence made available to the researchers for an application of PTN [32]. The extent to which such electronic communications contribute to rapport is an area for further studies as there is currently not enough research in this area to draw reasonable conclusions. However, there is evidence [30] to support the theory that communication contributes to successful negotiation, hence, such assumption in this study.

2.6 Conceptual framework of social motives and their influence on integrative negotiation

The proposition of conceptual framework of social motives and their influence on integrative negotiation is that, when social motives approach becomes the main objective for negotiations, it leads to agreements. This position is based on findings from a study where there was an application of dual concern and cooperation and competition theory, of which the conceptual framework of social motives and their influence on integrative negotiation were the basis [28]. The outcome was that interactions between negotiation partners which are devoid of egoism and pomposity but rather, pro-social generate non-contentious negotiations. This means that procurement personnel ought to adopt social motive approach during negotiation at post tender stage as such approaches lead to success in negotiation.

Assumptions of the study - the examination of the above theories and concepts has led to the assumptions of the field research and the proposed exploratory framework for the maximization of PTN. These are discussed as follows: It is the assumption of the study that achieving VfM is the ultimate objective of a procurement activity. Thus, a buyer recognizes the tendering process as an activity that facilitates such VfM procurement objective. The study also assumes that there are certain principles which govern the tendering process and these include the avoidance of unfair competition and protection of the tendering process' integrity [32]. Furthermore, the procuring institution's quests to overcome constraints in budgets and also make savings, oblige such institutions to negotiate at post tender stage. Thus, it is assumed that for negotiations to be successful at the PTN stage, certain factors such as communications, social

motive approach, interdependence and cooperation have to be present. As discussed, the theories underpinning these assumptions are games theories of cooperation and interdependence [27], transaction cost economics [19], theory of multi-agent collaborative maintenance platform and the conceptual framework of social motives and their influence on integrative negotiation [28].

2.7 Proposed exploratory framework for PTN's maximization

A proposed exploratory framework for PTN's maximization based on the assumption of the study has been developed and used as the model for the fieldwork [32]. The model illustrates that, as established theoretically from transaction cost economics, the potential exists for opportunistic behavior during business transaction. Thus, a tendering activity of which buyers regard as a means of facilitating VfM procurement should be governed by certain principles and that when the application of PTN is triggered based on factors such as the need to clarify bids, the same tendering principles also apply. The model further illustrates that as PTN application is triggered, certain factors that ensure negotiations success such as cooperation and interdependence have to be present and this would lead to the success of the negotiations for VfM procurement to be achieved. The negotiation partners (buyer and supplier) are linked to these scenarios and this is depicted on the model as seen from Fig. 1 below. The fieldwork was conducted based on the proposition of the model.

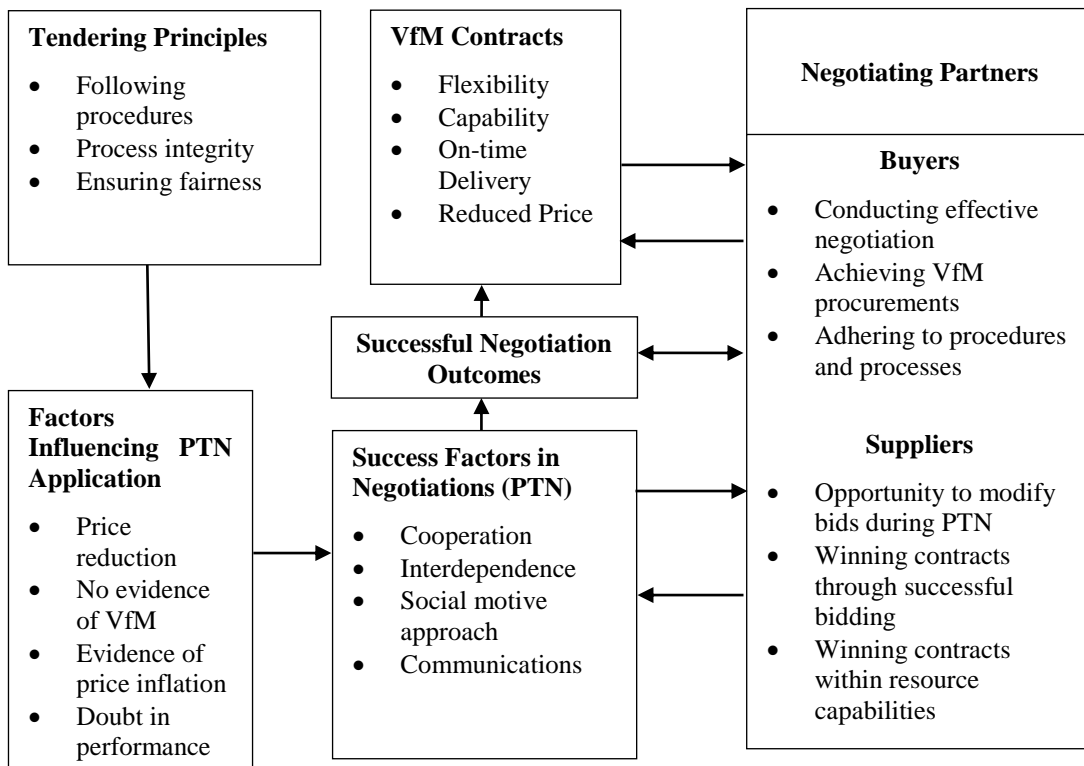


Fig. 1. Proposed exploratory framework for PTN's maximization

3. Research Methodology

The establishment of the contextual framework for the design of the research was helped by using the qualitative research approach [33]. This approach is consistent with the philosophical doctrine of the study and this greatly influenced the research's design. The unavailability of standardized, hard or objective data due to the limited application of PTN created a challenge. The qualitative research approach is interactive and this allowed for divergent views to be solicited from the participants. The need for detailed understanding of how UK public sector organizations apply PTN and the effects of its outcomes, as well as the factors that ensure the success of PTN application needed to be established. The above justifies the suitability of constructionist epistemology (qualitative) of the study as opposed to positivist epistemology (quantitative).

3.1 The research design

Both primary and secondary data were collected for the research between April 2014 and August 2014. The primary data collection was directly through in-depth interviews and the secondary data was based on literature and documentary reviews. The sample for the research consisted of eighteen (18) interviewees with mean age of 42 years. Initially, all participants were contacted by either phone or email with the view of seeking their agreement in advance before attending to the locations of the interviewees. The participants' number consisted of the following: three buyer managers and four buyers from a procurement department of a Local Government Authority in London; another three buyer managers each from three separate Local Government Authorities in London; five heads of supplier companies with current contracts with a London Local Authority; and three buyer managers in private sector institutions. The decision to include private institution participants was to allow a comparative view about PTN from the private sector perspective. In order to ensure the reliability of the data collected, opportunity or convenience sampling was chosen for the research [34]. The choice of such accidental or non-probability sampling was consistent with the nature of the topic's specificity. The selected sample composed of different stakeholders from the procurement industry and was regarded as interviewees with the technical competence and the necessary experience in PTN matters. This allowed biasness to be reduced as varied opinions were solicited thereby ensuring the reliability of the data collected. Documents were also reviewed extensively from a London Local Authority's Strategic Procurement Department. The documents reviewed detailed PTN's applications processes and procedures. They also unearthed the frequency at which PTN was applied in the Local Authority and provided figures which detailed the spend analysis of procurement of goods, works and services.

3.2 Data analysis

The data gathered through interviews and document reviews were analyzed separately and the findings were used for comparison purposes in order to gain the fieldwork's complete effect. The Interpretive Phenomenological Analysis (IPA) was adopted for the analysis of data gathered from the interviews.

Interviews - the purpose of the interviews was to gain an insightful understanding into the interviewees' world and also explore their personal perceptions and experiences and that made the IPA analytical approach a perfect fit [35]. This is because the IPA allows interview transcripts to be examined in detail which helps to unearth important themes emerging from the interviews [36]. Five stages of IPA [35] were identified and used for analyzing the transcripts from the interviews. These include the transcribing of the interviews into more clearer handwritten notes; thoroughly reading the transcripts several times; using the left margin to annotate significant and interesting information including interpretations and associations coming from the respondents; annotating themes that became apparent from the interviews on the right margin and initially transformed notes into statements that are meaningful; theoretically analyzing identified links that appear common and listing them as main ideas coming from the interviews; and finally creating tables of main ideas (themes) in order of coherent arrangement. Themes which appear to be irrelevant are eliminated at the final stage, while the relevant ones are connected to their contents of origin. Each interview followed same process described above. The IPA approach allowed detailed cross-checking and verification of interview transcripts to ensure data richness, reliability and validity [35].

Document reviews - The researchers were granted access by a Local Authority in London (UK), to review and analyze documents which outlined the processes and procedures involved in the application of PTN. The purposes of the documents review were to identify procurement processes and procedures including that of PTN and compare the findings to the findings from the interviews. The emphasis was to identify whether the purchasing processes outlined in the documents, emphasize PTN and VfM, and how this is consistent with the information gathered from the interviews and also from literature review.

3.3 *The role of the researchers in the study and ethical issues*

As noted by Simon [37], qualitative researchers have to explain if they are assuming the role of insiders which make their role an emic one and fully participate in an activity, phenomenon or program; or an etic role where the researchers take an objective or outsider's view. The researchers in this study assumed participant interviewer roles and immersed themselves fully in the participant's world [38], thus allowing researcher-participant interaction [39]. This allowed concepts adopted by the researchers based on the review of literature on the topic, as well as the researchers' knowledge and experiences to be incorporated in participants' perspectives. Furthermore, as exploratory investigation, the participant role assumed by the researchers allowed them (the researchers) to responsively react to data being collected by way of asking new questions for further clarifications and extensions and also occasional promptings [40]- [41].

Ethical Issues - The research's practical strategic management implication was explained to the Local Authorities in UK chosen for the study. The nature of data collected was explained to the participants prior to collection and the confidentiality of the answers from the respondents were addressed and guaranteed to the respondents. This was done by treating the views of an interviewee in the strictest confidence during the process of the interview and assured participants that views they have expressed would only be used for the purposes of the research. Quotations are used as pseudonyms in the study.

4. **Results presentation and discussion - Analysis of interview data using IPA**

This section presents and discusses the findings from the fieldwork including interviews and document reviews. The section also explains how the interviews were analyzed and illustrates the identified themes supported by quotes as seen in Table 1. The findings from document reviews were also presented, followed by discussion of the fieldwork findings.

As described in section 3.2, the application of five-stage process of IPA, allowed data to be observed closely by the researchers [35]. Data was interrogated in conformity with the research's objectives and in such a way that the participants' phenomenological integrity was ensured. The analysis of the interviews began by transcribing the interviews into handwritten notes. Interviews were thoroughly read interpretatively and the researchers annotated first responses to the text on the left margin. A translation of the initial researchers' notes into themes that emerged followed, and the right margin was used to record these emergent themes. The themes appeared abstract at this stage so they (themes) were further interrogated from which a connection was made between the themes. The result of this was that, subordinate themes with information identification, where themes being supported by instances that could be traced to the interviews transcripts were arranged. The process described above was repeated for all the interviews conducted. After each interview was analyzed, patterns were identified by cross-examining the cases from which seven principal (superordinate) and corresponding subordinate themes table was documented as illustrated in Table 1.

Table 1 illustrates the various themes identified from the analysis of the interviews using the IPA method. It identifies principal (superordinate) themes and subordinate themes and shows the number of participants who evidenced individual themes through their responses. Selected quotes have been used for illustration purposes to contextualize the themes. The rest of the section provides detailed presentation of identified themes with supported extracts from participants' responses, and also evidence from document reviews.

Table 1. Identified final themes from analysis of interviews with illustrations in quotes

Principal and subordinate themes	Illustrations in quotes	Source
Theme 1: PTN affects both supplier and buyer Opportunities for savings (13) Negotiated desired contracts (17) Modify bids to win contracts (4) Achievement of VfM (17)	“As a buyer, I can assure you that PTN is very effective to achieve VfM outcome.”	Participant 5
Theme 2: Factors ensuring negotiation success Cooperation (18) Interdependence (18) Communications (16) Social motive approach (17)	“I personally believe that when one adopts an arrogant posture during negotiations the outcome has always been a failure.”	Participant 1
Theme 3: PTN leads to achievement of VfM On-time delivery (13) Flexibility (16) Resource maximization (4) Capabilities (17) Reduced operational cost (12)	“PTN offers sub-contracting opportunities to our local SMEs and for me this ensures resource distribution in our local community.”	Participant 18
Theme 4: Some factors trigger PTN application Price reduction (17) No evidence of VfM (13) Doubt in performance quality (13) Evidence of price inflation (16)	“...we often encounter situation to apply PTN yet, there are limited opportunities for us to do so due to existing restrictions.”	Participant 4
Theme 5: Tendering principles apply to PTN Following procedures (18) Avoiding unethical sourcing (18) Ensuring fairness (18) Maintaining integrity (18)	“Public institutions have responsibility to maintain integrity in the PTN process and if we are satisfied that the process has been fair, we will have no problem.”	Participant 17
Theme 6: Ethical reasons for PTN restrictions Ethical reasons lack evidence (10) Sparingly application of PTN (10)	“Citing of ethical reasons by EU/UK government to ban PTN is intriguing; Why not ban on tendering?”	Participant 6
Theme 7: Restriction of PTN should be relaxed EU/UK to consider decision (15) PTN is an important procedure for VfM (17)	“Our private sector counterparts are reaping full benefits of PTN whilst we are denied.”	Participant 2

Note: Numbers in parenthesis represent the number of participants who evidenced each theme.

4.1 Evidence from document review

It was established from the document reviewed that when it became clear to the Strategic Procurement Unit and Adult Services of a Local Authority in London that the cost of procurement for Independent Living Support Service (ILSS) would potentially exceed the available budget, the PTN was recommended. The reason given by the authorities was to ensure available best prices and profitable outcome for the Authority. It was also established from the document reviewed that the PTN is sparingly applied especially in one of the Local Authorities in London, which confirms the views gathered from the interviews. For example, a look at the figures constituting the spend analysis for a Local Authority in London, a UK public sector entity for 2011/2012 financial year showed that the Authority spent a total amount of £285,652,216.00 on the top twenty areas of the Local Authority's expenditure [42]. A significant portion of the figure was spent on contractors and agencies providing structural works and repairs, and consultants providing services to the Authority. These two main areas constituted total expenditure of over £77m. In almost all the cases (except purchases below £10,000.00) tendering process or competitive bidding was applied but the PTN approach was applied on only one occasion.

4.2 Discussions of findings

The findings from the fieldwork as presented in the Table 1 are discussed in this section. The fieldwork findings largely confirmed the assumptions for the research thereby proving the effectiveness of the proposed exploratory framework developed for the maximization of PTN. Each of the seven findings is briefly discussed from which the study's conclusions and recommendations are made.

Finding 1: PTN affects both the buyer and the supplier - the study set out to establish the effects of the PTN as one of its main objective. The fieldwork findings confirmed directly that there is recognition on the part of both the buyer and the supplier that the PTN procedure affects them in a positive way. This confirms the findings of other researchers [11]-[20]. Although some suppliers expressed reservation about the procedure, the reservation was not related to the procedure itself but a feeling of nervousness and anxiety while waiting for decision on PTN selection. Thus, to a public sector buyer, the need for price reduction due to budgetary constraints makes the procedure necessary, while a supplier sees the procedure as a means to modify bids to enhance chances of winning a contract. A Buyer confirms this with the following quote: "... as a Buyer who has worked in both public and private sectors, I can assure you that it is very effective process to achieve the best prices and value for money outcomes". A Supplier also provided the following quote to confirm the above finding: "I do not oppose to the procedure in itself but waiting to hear whether I have been selected for further negotiations or not, brings me anxious moment and nervousness".

Finding 2: Factors ensuring negotiations success - the theoretical model for the research proposed that there should be presence of certain factors including cooperation and interdependence during negotiations to ensure agreements in PTN. Interestingly, evidence from the fieldwork confirms this proposition. This is significant because, if there are no agreements in negotiations at post tender stage, there could be no awards of contracts. As already established, the buyer's objective for negotiating with suppliers at PTN stage is to achieve VfM. However, this cannot be achieved if there are no agreements. The fieldwork identified cooperation, interdependence, communication and social motive approach to negotiations as key factors that ensure success in negotiation. This also confirmed findings from the academic literature. **Cooperation:** There was evidence from the field work that both buyers and suppliers recognize the importance of cooperating with each other during negotiations in order to reach agreement. The confirmation from the fieldwork on cooperation is evidenced by a quote from a supplier as follows: "over the years, I have developed relationship with officials in the Local Authority and anytime we are in negotiations, we cooperate with each other to achieve common goal" [27]. **Interdependence:** It was identified from the fieldwork that if a buyer and a supplier have previously negotiated and have existing relationship, they establish a greater degree of interdependence between them. This implies that the realization of interdependence between negotiating partners allows cooperation during negotiation and this contributes to agreements. The following is a quote from an interviewee; "as a buyer, I enter into negotiation with the aim of getting a deal which offers the best outcome for my organization and I can only achieve this if I receive the support of my negotiating partner. At the same time the suppliers also depend on us for their business and therefore we both need each other". This finding supports findings from academic literature [26]. It can thus be concluded that

one can predict an outcome of a negotiation if there is a history of existing relationship between a buyer and a supplier. This could in turn help to predict an eventual outcome of VfM contract award. **Social Motive:** The fieldwork established that when negotiation is conducted with friendliness approach it leads to agreement. This implies that when the negotiation is conducted in an unfriendly atmosphere, it becomes contentious and would likely lead to disagreements. The social motives concept's influence on integrative negotiations as identified in the literature confirms this proposition [28]. While the theories proposed by the authors of social motives concept's influence on integrative negotiations do not specify the nature of the social motive; that is, whether a case of arranging meetings in social settings or just being friendly would constitute social motive, the fieldwork findings suggest that, the longer the relationships, the higher the degree of harmony among a buyer and a supplier. Thus, in situations where there is longer relationship, one can arguably conclude that negotiations will be conducted in a harmonious atmosphere and arrive at agreements. This in turn will lead to the award of VfM contracts. The following is a quote by a participant; "I personally believe that when one adopts an arrogant posture during negotiations the outcome has always been a failure... I can say that this is not the case with this Local Authority as we have all become one family and thus enjoy harmonious atmosphere in our negotiations" [32]. **Communications:** The fieldwork established that during PTN, negotiating partners use electronic communication for most of their interactions and this leads to a creation of rapport among them. These include the use of emails, telephone and e-tendering to communicate to reach agreements. Thus, unlike the generally held view that face-to-face verbal communication creates rapport [30]-[31], this finding reflects recent advancements in communications and information technology. Such technological advancement leads to reduction in costly travels for meeting. A buyer supports the above findings with the following quote: "... non-verbal communications including email has become an integral part of our negotiation process during PTN".

Finding 3: PTN can lead to the achievement of VfM procurement - it was established from the fieldwork that there has been significant shift from focusing mostly on pricing to develop evaluation criteria for bids, to evaluation criteria where on-time delivery, flexibility and reduced operational cost are given prominence [22]-[23]. It was also established from the fieldwork that local authorities use the negotiation process to argue for potential suppliers to engage Small and Medium Enterprises (SMEs) in a form of sub- contract works in their localities. This was a way of bringing employment opportunities to the locality and was seen as fulfilment of the local authority's corporate social responsibility and therefore VfM. A Buyer Manager from a Local Authority offered this quote; "as part of our sustainability procurement campaign, we use the PTN procedure to advance the case for our suppliers to consider a certain percentage of their sub-contract works to our local SMEs to increase job opportunities in the community as a way of fulfilling our corporate social responsibilities". The theoretical proposition developed to address the study's objectives suggests that the PTN is used mainly for the purpose of achieving VfM. The findings from the fieldwork confirmed this proposition. However, while the review of literature identifies VfM variables such as flexibility, capabilities, reduced prices, and on-time delivery [22], the fieldwork findings suggested that public sector organizations, especially local authorities focus on additional VfM variables. They identify green procurements, sustainable procurements and local business participation as important VfM variables as the above quote confirms. Also, in order to meet their greenhouse emission commitments, public sector buyers, negotiate with suppliers to commit to environmental policies which are consistent with that of the local authorities. It can be concluded from the above that the PTN procedure presents significant advantage to public sector buyers as it provides opportunities to meet their environmental commitments and spread their resources to the benefits of the community. Furthermore, while the literature findings did not establish the exact VfM variable that benefits the supplier, the fieldwork findings suggested that the PTN provides the opportunity for suppliers to negotiate for contracts that meet their resource capabilities. A supplier volunteered the following response; "... PTN has the potential for me to achieve VfM as I can negotiate for supply of goods or services that are within my resource capabilities". It can be argued from the above that if suppliers view PTN as an avenue to negotiate for work that would not over-stretched their resource capabilities, then they would be less hostile to the PTN procedure and reduce the level of opposition if any.

Finding 4: Application of PTN is triggered by certain situation - the research model proposes that certain factors could emerge during the tendering processes which could trigger the application of PTN procedure [12]. The fieldwork sought the views of the interviewees on this proposition and these were confirmed as seen from the following quote: "in our

everyday procurement practices, we encounter several situations that make it necessary for us to apply PTN yet, there are limited opportunities for us to do so due to existing restrictions". The fieldwork establishes that the occurrences of these factors are common phenomena as the following quotation suggests; "in our everyday procurement practices we encounter several situations that make it necessary for us to apply PTN, yet there are limited opportunities for us to do so due to existing restrictions". Thus, it can be concluded that the PTN plays a crucial role when using the tendering procedure to procure goods and services in an organization. This is because factors such as the need to seek price reduction and also achieve VfM as identified in the literature and also from the fieldwork are the main objectives for every buyer and also supplier. Therefore, if the PTN is a procedure that can provide the opportunity to achieve these objectives, then the procedure's effectiveness and importance cannot be ignored.

Finding 5: Tendering principles apply to PTN - the fieldwork also sought participants view on PTN within the context of tendering to discuss the principles that guide the application of PTN [14]-[15]. It was established that the same principles that guide the tendering process are used for the PTN. The interviewees concluded that the PTN is an extension of the tendering process and therefore the same principle apply in PTN thereby confirming the proposition of the Office for Government Commerce [3]. The importance of this finding is that any deviation from these principles could be deemed as unethical. Thus, if ethical considerations are the basis for restrictions, then this finding addresses that. The need to follow procedures; maintaining the integrity of tendering in the PTN processes; ensuring fairness in competition; and avoiding unethical sourcing are the principles identified. The general consensus gathered from the application of these principles is to avoid subjecting the PTN application to manipulation. This was not just important to buyers, but suppliers as well, as the following quote suggests: "public sector institutions have the responsibility to maintain confidence in the tendering process and it is only when this is done that small business like ours can invest our resources in the tendering process".

Finding 6: Ethical reasons for PTN restrictions - findings from the literature suggest that the EU/OGC cites ethical considerations to restricts PTN application [3]. Thus, it was evident from the fieldwork findings through the interviews and document review that the restrictions have resulted in considerable low amount of PTN applications in UK public sector. However, as already established, there are always situations that would come up during tendering process which make the application of PTN inevitable as the following quotation shows: "... when I was working in the private sector there were always situations that would arise for me to apply PTN. However, in public sector there is the potential for accusation of 'Dutch Auction' and suspicion in PTN application". The above suggests that the public sector buyers are under severe constraints in their efforts to apply PTN. They are caught up in public sector bureaucratic web where they recognize that the PTN can help achieve their VfM procurement objective but hampered by restrictions. The implication of these fieldwork findings is that private sector buyers tend to reap benefits from PTN application more than that of their public sector counterparts. It can be summarized that buyers from all sides agree that PTN application generate VfM procurements which confirms the findings of other researchers [20]. A Buyer who opposes the restrictions offered the following quote: "in local government in particular, purchases above certain threshold require mayoral approval and therefore you cannot afford to engage in any underhand deals or circumvent the process".

Finding 7: Restriction of PTN should be relaxed - there was overwhelming agreement that the EU and UK Officials should relax the restrictions on PTN in order for the public sector buyers to also reap the benefits associated with it. The following quotes summarize the views of the public sector buyers interviewed: "I find the ethical reasons being cited by EU/OGC to restrict PTN application intriguing because there is also a possibility for a buyer to behave unprofessionally during normal tendering process so why not ban that?" Another participant offered this quote: "our counterparts in the private sector are reaping the full benefit of the procedure but we find ourselves in a long bureaucratic chain where decisions are made by the top echelons with no knowledge about what happens on the ground".

5. Conclusions

The study has revealed that the PTN positively affects both the buyer and the supplier as it leads to the achievement of VfM procurements. However, the success of PTN application largely depends on the negotiating partners' ability to cooperate and realize that they both depend on one another in order to achieve agreements during negotiations. Such

negotiations should also be conducted with social motive approach and in the atmosphere of friendliness. Thus, in order to reduce cost in travelling to locations for meetings for the purposes of PTN, electronic communications such as email could be used as a means of correspondence and this could also create rapport for agreements to be reached.

5.1 Recommendations for the relaxation of PTN restrictions

The study has adduced evidence to prove that the restriction on PTN by EU and UK authorities put public sector buyers at a disadvantage compared to their private sector counterparts. This is particularly the case because, contrary to the view that the PTN procedure could potentially distort competition as alluded to by EU/OGC [3], the study found no evidence to support this proposition. Significantly, the study uncovered evidence in the academic literature which proposed that the appreciation of an individual's ethical considerations is based on their, traits, beliefs, cultural values and family and not necessarily the rules set by authorities [17]. Moreover, the fieldwork also confirmed that officials in public sector procurement accept their obligations and responsibility of working within rules and therefore follow the principles associated with PTN. This in a way allows them to fulfil their duties of meeting public sector ethical standards in order to meet audit test. Thus, the awareness that there are consequences when processes are circumvented make public sector officials in procurement behave ethically in the course of performing their duties. Therefore, there is a strong case for the restriction to be lifted as the negotiations at post tender stage could be used to clarify bids and make a case for suppliers to consider using local SMEs for sub-contract works. This will give opportunities to create employment for local people. Thus, even if the procedure could prolong the tendering process, the cost that could be incurred is necessary if there are economic gains to be derived from it as argued in TCE theory [19].

5.2 Potential areas for future studies

While the study has helped to establish that the PTN application could lead to VfM procurement, the degree to which this can happen was not quantified. This is a weakness to the study because it cannot be expressed objectively and in absolute terms the rate at which PTN leads to VfM achievement. Thus, future studies could use quantitative research approach to objectively establish the correlation between PTN and VfM. Another interesting area of study could be an investigation into how the use of non-verbal communication such as emails and e-tendering can be used to establish rapport between buyers and suppliers to improve communication during PTN. Also, local government institutions are constantly relying on their procurement activities to distribute their resources within the local community as a way of fulfilling their corporate social responsibilities. The PTN has been used as bargaining chip in recent times to encourage bigger suppliers to award sub-contracts to local SMEs which could lead to improvement in employment opportunities. Therefore, it would be necessary to carry out a study to establish how PTN could be used as a means to fulfil corporate social responsibilities in Local Government Authorities.

5.3 Limitations of the study

The participant interviewer approach adopted has some weaknesses. This approach has been criticized as unscientific due to its interpretative and subjective nature [39]. However, the approach was necessary because some participants were not familiar with the PTN procedure and the interviewer participation allowed knowledge enhancement. Also, the IPA technique adopted to analyze the interview data increases the potential for subjective interpretation which may not be appropriate. The exercise involved in the approach itself is laborious and time consuming. Notwithstanding these limitations, a credible and reliable data was collected while a reliable technique was used to analyze the data. The demographic composition of the participants indicates that participants with different levels of experiences and differing views have been carefully selected and deliberately interviewed. This allowed data to be triangulated and catered for the smaller sample size. Also, the IPA approach allowed detailed cross-checking and verification of interview transcripts and the information gathered was synthesized with that of the document reviewed to ensure data richness, reliability and validity.

5.4 Learning Reflections

The researchers were aware that the PTN procedure is not a typical procurement activity in UK public sector and therefore not common. However, the level at which it has been minimally applied in some UK public sector institutions came as a surprise. A junior buyer interviewed has been in post for three years but has never experienced the application of the procedure. Considering the fact that many aspects of the PTN procedure, for example, negotiations are related to most procurement activities, one would have expected that junior procurement officials are trained about the procedure. Besides, evidence has been adduced from this study to demonstrate that the application of the PTN procedure may be inevitable in some instances and therefore necessary for officials' knowledge to be broadened about it. Furthermore, the task involved in collecting qualitative data using in-depth interview technique and document reviews and analyzing and interpreting the data collected, using the IPA technique to make the data rich was much daunting than initially thought. However, in the final analysis, this task has allowed a convincing case to be made and therefore a worthy undertaking.

5.5 Concluding Remarks

The confirmation of the study's theoretical proposition by the findings from the fieldwork meant that the objectives set for the research have been fully addressed. Thus, in spite of some weaknesses of the study, the qualitative research approach adopted allowed rich data collections and this accounted for the uniformity between the study's theoretical model and the findings. The study has policy implications for decision-makers in procurement management especially, public sectors as it provides understanding about how PTN could be used to achieve their VfM procurement objectives.

References

- [1] S. Laryea and W. Hughes, "Commercial reviews in the tender process of contractors," *Engineering Construction & Architectural Management* (09699988), vol. 16, no. 6, pp. 558-572, 2009.
- [2] Procureweb. (2014, December 20). *Post tender negotiation* [Online]. Available: http://help.procureweb.ac.uk/goodpracticeguide/1177procurement/1008proc_cycle/1301cy_ptn/index.html
- [3] Office of Government Commerce (OGC) 2 HM Treasury. (2016, January 26). *Contract management in long term or complex projects: Key commercial principles to help ensure value for money* [Online]. Available: http://webarchive.nationalarchives.gov.uk/20110601212617/http://www.ogc.gov.uk/documents/Introduction_to_Public_Procurement.pdf
- [4] The Cattered Institute of Purchasing and Supply. (2015, January 10). *Tendering and post tender negotiations* [Online]. Available: <http://www.cips.org/Documents/Resources>
- [5] United Kingdom Homecare Association Ltd. (2015, February 24). *Procurement challenge case study* [Online]. Available: <http://www.ukhca.co.uk/pdfs/challengingtenderscasestudies.pdf>
- [6] M. Burnett, "Using competitive dialogue in EU public procurement-early trends and future developments," *EIPAScope*, vol. 2009, no. 2, pp. 17-23, 2009.
- [7] C. Salagean and D. Ţibulca, "Researches Concerning the Dynamics of some Physical-Chemical Modifications in First Quality Beef during the Salting and Tendering Process," *Bulletin of The University of Agricultural Sciences & Veterinary Medicine Cluj-Napoca. Agriculture*, vol. 69, no 2, p.386, 2012.
- [8] F. Rolim., A. Brasileiro and E. Santos, "Competition in Brazilian bus and coach services - The results of recent competitive tendering processes," *Research In Transportation Economics*, vol. 29, no.1, p. 45-51, 2010.
- [9] R. Bangs, A. Murrell and M. Constance-Huggins, "Minority business bidding for local government contracts: the complexity of availability," *Social Work In Public Health*, vol. 23, no. 2-3, pp. 247-262, 2007.
- [10] Y. Shengjie and Y. Jiangang, "A learning method to evaluate a generation company's bidding strategy in the electricity market," *Turkish Journal Of Electrical Engineering & Computer Sciences*, vol. 22, no. 1, pp. 34, 2014.

- [11] T. Uher and G. Runeson, "Pre-tender and post-tender negotiations in Australia," *Construction Management & Economics*, vol. 2, no. 3, p. 185, 1984.
- [12]. University of Leicester. (2014, December 31). *Guide on Post-Tender Negotiations* [Online]. Available: <http://www2.le.ac.uk/offices/purchasing/tendering-procedures/post-tender-negotiation>
- [13] A. Singh, M. Nayak and D. Seshadri, "Marketing 'Value' to price-sensitive customers during the tendering process," *Vikalpa: The Journal for Decision Makers*, vol. 38, no. 4, pp. 49-68, 2014.
- [14] J. Buckingham, P. Olexiuk, T. Nicolay and L. Hurl, "Tendering and purchasing law in upstream oil, gas, and oilsands: The competitive bidding process and obligations when contracting for work," *Alberta Law Review*, vol. 47, no. 2, pp. 497-527, 2010.
- [15] R. J. Gregory, "Social capital theory and administrative reform: maintaining ethical probity in public service," *Public Administration Review*, vol. 59, no. 1, pp. 63-75.
- [16] K. Kruger, "Ban-on-negotiations in tender procedures: Undermining best value for money?" *Journal of Public Procurement*, vol. 4, pp. 397-436, 2004.
- [17] R. Ray, J. Hornibrook, M. Skitmore and A. Zarkada-fraser, "Ethics in tendering: a survey of Australian opinion and practice," *Construction Management & Economics*, vol. 17, no. 2, pp. 139-153, 1999.
- [18] A. Zarkada-Fraser and M. Skitmore, "Decisions with moral content: collusion," *Construction Management & Economics*, vol. 18, no. 1, pp. 101-111, 2000.
- [19] T. Hawkins, E. Powley and M. Gravier, "Public versus private sector procurement ethics and strategy: what each sector can learn from the other," *Journal of Business Ethics*, vol. 103, no. 4, pp. 567-586, 2011.
- [20] Erridge, A. and Nondi, R. (1994) "Public procurement, competition and partnership," *European Journal of Purchasing & Supply Management*, vol. 1, no. 3, pp. 169-179, 1999.
- [21] RDTL – Ministry of Finance RDTL. (2014, March 31). *Procurement Best Practice Guide 5: Post-tender Negotiations* [Online]. Available: <http://www.mof.gov.tl/wp-content/uploads/2011/05/5-procurement-best-practice-guideline-tender-negotiation-en.pdf>
- [22] M. Christopher, "The agile supply chain: competing in volatile markets," *Industrial Marketing Management*, vol. 29, no. 1, pp. 37-44, 2000.
- [23] S. Chopra and P. Meindl, *Supply chain management: strategy, planning, and operation*. 5th ed. Upper Saddle River, NJ: Prentice-Hall, 2013.
- [24] N. Dimitri, "Best value for money in procurement," *Journal of Public Procurement*, vol. 13, no. 2, pp. 149-175, 2013.
- [25] D. Morallos and A. Amekudzi, "The state of the practice of value for money analysis in comparing public private partnerships to traditional procurements," *Public Works Management & Policy*, vol. 13, no. 2, pp. 114-125, 2008.
- [26] A. Vasile, C. Costea and T. Viciu, "An evolutionary game approach to market competition and cooperation," *Advances In Complex Systems*, vol. 15, pp. 1250044-1-1250044-15, 2012.
- [27] S. A. Neslin and L. Greenhalgh "Nash's theory of cooperative games as a predictor of the outcomes of buyer-seller negotiations: An experiment in media purchasing," *Journal of Marketing Research*, vol. 20, no. 4, pp. 368-379, 1983.
- [28] C.K. De Dreu, L.R. Weingart and S. Kwon, "Influence of social motives on integrative negotiation: a meta-analytic review and test of two theories," *Journal of personality and social psychology*, vol. 78, no. 5, p. 889, 2000.
- [29] E. J. Lawler and S. R. Thye, "Bringing emotions into social exchange theory," *Annual review of sociology*, vol. 25, pp. 217-244, 1999.

- [30] A. Trappey, C., Trappey and W. Ni, "A multi-agent collaborative maintenance platform applying game theory negotiation strategies," *Journal Of Intelligent Manufacturing*, vol. 24, no. 3, p. 613, 2013.
- [31] I. Bronstein, N. Nelson, Z. Livnat and R. Ben-Ari, "Rapport in negotiation: the contribution of the verbal channel," *Journal of Conflict Resolution*, vol. 56, no. 6, pp. 1089-1115, 2012.
- [32] P.F. Manso and A. Nikas, "Examining the Effects of Post Tender Negotiation in UK's Public Sector Procurements: An Empirical Study". In *Proceedings of Conference on ENTERprise Information Systems/International Conference on Project MANagement/Conference on Health and Social Care Information Systems and Technologies, CENTERIS/ProjMAN/HCist*, Vilamoura, Portugal, 2015, pp. 457-465.
- [33] C. R. Kothari, "*Research methodology: methods and techniques*," New Age International, 2004.
- [34] L. Cohen, L. Manion and K. Morrison, *Research Methods in Education*. 6th ed. Oxon, UK: Routledge, 2007.
- [35] J.A. Smith and M. Osborn. (2014, December 27). *Interpretive Phenomenological Analysis* [Online]. Available: http://www.uk.sagepub.com/upm-data/17418_04_Smith_2e_Ch_04.pdf
- [36] S. Murray and D. Holmes, "Interpretive Phenomenological Analysis (IPA) and the Ethics of Body and Place: Critical Methodological Reflections," *Human Studies*, pp. 1-16, 2013.
- [37] M. Simon. (2014, April 30). *The Role of the Researcher* [Online]. Available: <http://dissertationrecipes.com/wp-content/uploads/2011/04/Role-of-the-Researcher.pdf>
- [38] N. Johnson, "The role of self and emotion within qualitative sensitive research: a reflective account," *Enquire*, vol. 4, pp. 1-50, 2009.
- [39] J. Clement, "Analysis of clinical interviews: Foundations and model viability," in *Handbook of research methodologies for science and mathematics education*, R. Lesh & A. Kelly, Hillsdale, NJ: Lawrence Erlbaum, 2000, pp. 341-385.
- [40] T. Brannick and D. Coghlan, "In defense of being 'native': The case for insider academic research," *Organizational Research Methods*, vol. 10 no. 1, pp. 59-74, 2007.
- [41] J. Holland, "Emotions and research," *International Journal of Social Research Methodology*, vol. 10, no. 3, pp.195-209, 2007.
- [42] London Borough of Newham. (2015, February 20). *Spend analyses* [Online]. Available: <http://newhamintranet/resources/corporateprocurement/spendanalysis.htm?Printable=true>

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Use Cases and Collaboration Scenarios: how employees use socially-enabled Enterprise Collaboration Systems (ECS)

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Use Cases and Collaboration Scenarios: how employees use socially-enabled Enterprise Collaboration Systems (ECS)

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Abstract:

In recent years we have seen the emergence of a new type of collaboration software, the so-called “Enterprise Social Software”. The “social features” of this software type have stimulated a renewed interest in Enterprise Collaboration Systems (ECS). In this article we present findings from a longitudinal research project on the introduction and use of ECS in companies. We argue that ERP Systems and ECS are inherently different and that the process-paradigm that is common to ERP cannot be applied identically to ECS. To address this issue, we suggest the two concepts *use case* and *collaboration scenario* for the analysis and description of collaboration activity in companies. From the literature and 26 case studies we identified typical use cases and collaboration scenarios that can serve as blueprints for ECS introduction projects. The longitudinal objective of our research is to assist companies with their ECS initiatives and to provide them with a catalog of existing use cases and collaboration scenarios from various industry settings.

Keywords:

Enterprise Collaboration Systems (ECS); Enterprise Social Software (ESS); CSCW; Use Cases; Collaboration Scenarios.

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1. Introduction

Enterprise Collaboration Systems (ECS) are software systems that support the collaborative work of employees. ECS comprise all areas of collaboration such as information and content sharing, communication, cooperation and coordination as described in the 8C Model for Enterprise Information Management [1]. The first forms of ECS evolved under the name “groupware” [2] around the year 1984. Since then, research on ECS has been conducted in the field of *Computer-Supported Cooperative Work (CSCW)* [3]. Enterprise Collaboration Systems (ECS) support employees in all areas of their joint work and are an important enabler of the modern digital workplace. They have recently gained renewed attention through the emergence of a new form of *socially-enabled* collaboration software. Since around 2005, Social Media platforms have become very popular for *private use* and it was only a question of time before their “social features” (e.g. social profiles, microblogs, chat, activity streams) were implemented into business software, bringing forward a new software type that is now discussed under terms such as “*Enterprise Social Networks (ESN)*” [4] or “*Enterprise Social Software (ESS)*” [5] in the academic literature.

Our research showed that Enterprise Social Systems (ESS) will soon become a necessary component of the basic IT infrastructure especially in innovative and service-oriented companies. Heinz and Kumar call it “backbone” in their talk on the introduction of a large ESN at Robert Bosch, a large German manufacturer of home appliances and automotive parts. At a business conference in February 2016 they stated that “The #ESN will be the backbone of future organizations – and thus a prerequisite for business operations” (Heinz and Kumar, IBM Connect, Orlando, Feb 1, 2016). ESS are changing the way that employees work together [6] just as the introduction of E-Mail changed communication between the hierarchical structures in companies more than 20 years ago [2]. Even though early adopters of ESS are confident that this software will enable their companies to become more agile and to collaborate more effectively [7], there are still many open questions regarding the opportunities for use that this new type of software brings about.

In this article we are looking at collaboration software for businesses in general, old and new systems alike. We are using the term *Enterprise Collaboration System (ECS)* for software applications that support collaboration in companies [6]. In our understanding ECS are socio-technical systems that include hardware and software as well as people, processes and organizational aspects.

Some of the open questions regarding the proper use of ECS have their roots in the characteristic traits of this kind of software. The use of an ECS cannot be prescribed and it is hard to develop manuals or guidelines for its use. Following theory on social construction of technology (SCOT) the affordances of the software are open to an interpretative flexibility [8] meaning that the capabilities of the software are dependent on the experiences and skills of the person using it. Its features are thus partly defined through the actual use. To give an example, the software product IBM Connections provides users with the possibility to create templates for activities with lists of single tasks that can be assigned to group members. The process of creating such a template is straightforward but the *areas of use* are endless. During our research we found evidence for multiple purposes of such task lists such as project and event management, checklists for the repair of machines or the onboarding of new employees. These areas for use (which we call *use cases*) are identified and implemented by a specific company and require a certain degree of creativity on the part of the user.

There are *fundamental differences* between software that supports collaboration between people (ECS) and the more process-oriented ERP systems. The first important difference concerns their *application area and the structure of their content*. ERP systems are based on a process-oriented view [9] with the aim of supporting clearly defined and repeatable business functions following built-in business rules. ERP systems are critical to businesses because they support the core order fulfilment process. ECS, on the other hand, are designed to support *joint work* among people in the workplace. They are supportive in nature and their continuous availability is usually less business critical than in the case of ERP systems [7]. Whilst ERP data comprises highly structured master data and transactional data reflecting the company’s resources and business activities, ECS contain, for the most part, unstructured content such as documents, blogs or posts. Another difference lies in the *implementation process*. It is accepted that the selection and implementation of ERP systems must follow a well-defined project plan [10], [11] whilst ECS are often reported to

follow a “bottom up” [12] and rather experimental [13] introduction approach. They also differ in *purpose and use*. ERP systems give little room for creativity and they impose their structure and their implemented order of events onto the user. The use of ERP systems is mandatory for activities in the order fulfilment process. ECS, on the other hand, are tools for ad-hoc use which offer choice and thus entail uncertainty [14]. Both system types require skills for their use, however, ERP skills are much more routine. ECS require the user to understand the suitability of a tool for a current task at hand and to make appropriate selections. ECS use is often voluntary so that the user has to acknowledge the benefits of using the tool. This is why “*user acceptance*” has traditionally played an important role in research on collaboration systems [15].

In our article we argue that the use cases and collaboration scenarios supported by the new generation of socially-enabled Enterprise Collaboration Systems (ECS) are not yet well understood and that we need ways of classifying and describing the dimensions of collaboration scenarios.

We believe that the paradigm of the *business process* that describes a defined sequence of tasks and events does not work for areas that involve a high degree of collaboration. We argue that we need a new paradigm when we define the recommended use for collaboration systems because the sequence of activities that is supported by the ECS is mostly ad hoc and thus in large parts difficult or impossible to prescribe or automate. In a collaboration activity, the user is continuously making choices about which tool to use to support the task at hand. In the early stages of adoption of an ECS making this choice requires an intellectual effort for the person performing the task. It is only over time that users appropriate [15] collaboration technology and (may) become able to use them in an effortless manner and without too much thinking about it.

As a consequence, we argue that whilst *ERP implementation projects* are about understanding business processes and finding ways to ideally support them, *ECS implementation projects* are about identifying use cases and collaboration scenarios that best suit a specific company and the people working in it. By understanding the potential of the ECS, companies can create a better and more efficient digital workplace for their employees. Our final research objective is to develop a *catalog* (database) of *use cases* and *collaboration scenarios* that provides a structured overview of current practices and stimulates ideas for future use.

2. Use Cases and Scenarios in the Literature

The term use case was first used in 1987 by Jacobson [16]. Jacobson defines the term use case as a “special sequence of transactions, performed by a user and a system in a dialogue” ([17] cited in [18]). The concept of the use case can be found in both, the academic literature as well as in publications by practitioners [19] and has, since its first occurrence, become a very popular way of describing software requirements [16]. The field of computer sciences has described the use case as a formal concept in UML (Unified Modeling Language) [18], [20]. The Object Management Group’s (OMG) specification of UML considers use cases to be “means for specifying required usage of a system” [21, p. 597]. In the OMG’s definition, use cases are specific to *one* organization and describe a situation at a high level with little specific detail. This is underlined by the example in the UML specification describing a telephone catalog at a very general level [21, p. 585]. Generally, use cases contain the description of actors and how these actors interact with a (computer) system to achieve a defined business goal. Jacobson et al. [22] emphasize that the descriptions of use cases, which often occur in the form of stories, should also include the value that a system provides to its users.

In practice, the concept of a use case is not always applied according to its above definition and use cases may seem ambiguous in some respect. Irwin and Turk [23] mention that some elements in particular, such as “actor” and “association between actors and use case” are not used in a consistent way. A selective search for the term “use case” in the CSCW literature confirms this ambiguity. Osimo et al. [24], for example, identified a number of use cases such as “internal management process”, “knowledge creation and sharing (internal)” and “expertise location”. Along the same lines, a Gartner report [25] lists common use cases, for example “internal communications”, “project team coordination” and “knowledge management”. Whilst all of these examples seem to be valid use cases, the level of abstraction that they contain varies. A use case named “management process” seems to be on a much higher abstraction

level than the very specific-sounding use case of “expertise location”. While it appears that there is an agreement in the literature that use cases describe *what* happens, their level of detail and their exact use is not consistent across the literature even though a large percentage of articles refer to the UML definition. The same applies to the literature in the field of CSCW, which is also lacking a uniform use of the term.

Based on our literature review and following the general concepts provided by UML and the initial ideas of Jacobson [17] we define the term “*use case*” as follows:

A use case describes a high level business activity with a focus on the interactions of a user and a (computer) system to support the tasks that are required to complete the activity (i.e. to achieve a business goal). Use cases can describe activities that are applicable to many companies (e.g. project management) or they can be specific to a particular organization (i.e. supporting an activity only found in this company). The use case is characterized by a high level of abstraction and is technology agnostic. It can be further detailed with the help of collaboration scenarios (see below).

As shown in the previous section, use cases are defined at a high level of abstraction, which calls for a more detailed concept that brings us closer to the level of the actual software features. We propose the term *collaboration scenario* to further specify the steps of the interaction in a use case. The term “scenario” is widely used in the literature. During our literature search we found thousands of mentions of the term. The term is also broadly used in everyday language, where a scenario is often understood as an outline or description of a scene (e.g. Merriam-Webster and Oxford Dictionary). Bolloju and Sun [26] note that scenarios have been used in many ways in the literature, not only in terms of what they describe, but also how they are described. The possibilities seem to range from any text-based representation of activities to structured diagrams. They use a graphical representation as a basis themselves, which is put in the context of requirements engineering. The term is inconsistently used in areas where collaboration takes place [27]. From our research we could find several examples where scenarios are used to help in the description of requirements with some collaborative aspects (e.g. [28], [29]). There are a number of articles that reflect a meaning and intention of the term that supports our purposes, for example in publications about “Anwendungsszenarien” [30] (German: application scenarios”) and “Anwendungsbereiche” [31] (German: “application areas”) or simply scenarios that are textually described [32]. Examples of scenarios from this previous work include “information sharing”, “discussion” or “internal marketing”. Alternative uses of the term scenario include the work by Niemeier [33], who uses the word “application scenario” to describe actual fields of application such as “innovation” or blueprints such as “training on the job”. Other authors in the field of CSCW are using the term “cooperation scenarios” [34] or simply “scenario” [35].

Based on our literature review and our previous research [36] we define the term “*collaboration scenario*” as:

A composition of activities that are carried out by one or more people (actors) to achieve a common task (collaboratively). Collaboration scenarios describe the specific steps of the interaction among human actors and/or social documents involved in the joint work. Collaboration scenarios are generic components that can occur in different use cases. Collaboration scenarios include references to concrete software features and can be used to identify the necessary software. They can thus be used in the evaluation process as a link between use cases and actual collaboration software.

As previously stated [36] the nature of collaboration scenarios is different from that of a business process as the collaborative interactions depicted in it are more detailed. The sequence of activities does not describe a pre-defined order of tasks but rather a flexible set of tasks and checkpoints that may or may not be put in order due to preconditions imposed by other factors like the creation of documents. The way to reach a checkpoint may depend on multiple factors, one of which is the artifacts that are involved. Social documents [37], [38] such as files, blogs or wiki pages enriched by tags, hyperlinks or likes are examples of such artifacts and may impose certain conditions on the way to complete a collaboration scenario and can be central to the outcome. A more conceptual view of use cases and collaboration scenarios is presented in section 4 of this article.

3. Research Design

The following section describes the interpretive, qualitative approach taken in our research. The research was mostly conducted in the years 2015/2016 and was organized in three phases (cf. Fig. 1):

1. Framework development: categories, terms and definitions;
2. Coding, framework enrichment and revision;
3. Completion of framework and population of the catalog.

Phase 1 (cf. section 3.1) was aimed at understanding and developing the basic terminology framework surrounding use cases and collaboration scenarios. For this purpose, a structured literature review was conducted and 14 existing cases (descriptions of ECS implementation projects) were analyzed. In *phase 2*, the initial framework was used to guide the structured coding of 12 additional cases by two independent researchers. Again, the researchers analyzed and interpreted existing descriptions of ECS implementation projects looking for use cases and collaboration scenarios, which they documented in the form of “codes”. The findings were discussed and full agreement on the codes was established.

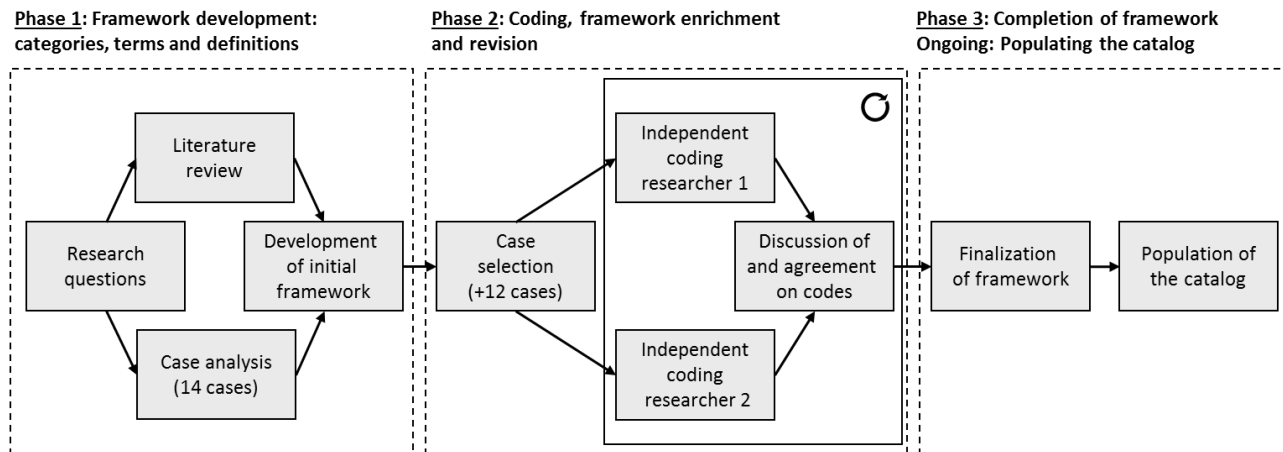


Fig. 1. Research steps

In *phase 3* the initial framework was revised and its dimensions were used to create a database of use cases and scenarios (which we call “catalog”). The catalog was populated with the codes identified in phase 1 and 2.

The first findings of phase 1 were presented in a previous publication [36]. In this article, we focus on phases 2 and 3. The activities of all phases will be further described in the following sections.

3.1 Phase 1: Framework development: categories, terms and definitions

The first phase of our research involved an examination of existing literature and a preliminary analysis of cases on ECS implementation projects. The findings from these two sources helped us to develop our definitions and our understanding of the dimensions of use cases and scenarios.

In order to gain a better understanding of the relevant terms and definitions a *structured literature review* following Webster and Watson [39] was conducted. The search was carried out using the EBSCOhost search engine, which allows the search across several scientific publication databases including Business Source Complete, EconLit and SocIndex. First, a broad search was performed on (peer-reviewed) academic journals using the keywords “use case” as well as “scenario” in order to gain a general feeling for the number of occurrences of these terms in the literature. The search resulted in 1,414 and 78,437 hits respectively. In the next step, the search parameters were narrowed down. We used

either the keyword “use case” or the keyword “scenario” in combination with other search terms to improve the relevance of the results. Combinations with keywords such as “collaboration”, “cscw”, “computer supported cooperative work”, “groupware”, “origins”, “history” and others were used. This procedure proved to be more helpful, however, only few results could be found that matched the specific context of our investigation (i.e. Enterprise Collaboration Systems). This subset of articles was then examined for references to further literature that seemed relevant for our topic area (snow-ball technique). Some important findings of our literature review have already been presented in section 2 of this article.

In parallel to the literature search, a *case analysis* was carried out that yielded codes for our initial framework and served as an important input for the next research phase. Fourteen industry cases were examined. The findings have been documented in [36]. The initial framework included 13 use cases and 13 collaboration scenarios listed in Table 1 and Table 2.

Table 1. **Use Cases** sorted by occurrence identified in the first 14 cases [36].

#	Use Case	Grounded
1	Knowledge sharing	11
2	Enterprise communication	8
3	Project organization	7
4	Sales opportunity handling	2
5	Collaborative quote compilation	1
6	Accounting organization	1
7	Human resources organization	1
8	Idea and innovation organization	1
9	Internal marketing	1
10	Software development organization	1
11	Team organization	1
12	Workshop organization	0
13	Trade show organization	0

Table 2. **Collaboration scenarios** sorted by occurrence identified in first 14 cases [36].

#	Collaboration Scenario	Grounded
1	Information and knowledge handling	12
2	Information exchange (“push/subscription”)	11
3	Knowledge collection (e.g. handbook) (“pull/on-demand”)	9
4	Expert search	8
5	Discussion	7
6	Document lifecycle handling	5
7	Meeting minutes and tasks	4
8	Conference	3
9	Joint authoring (synchronous/asynchronous)	3
10	Problem solving	3
11	Organization of meetings	2
12	Reporting	1
13	File sharing	0

3.2 Phase 2: Coding, framework enrichment and revision

In phase 2, another 12 industry cases were analyzed and coded in order to extend and, if necessary, revise the initial framework. The industry cases were selected from the E2.0 Cases database (www.e20cases.org). This open access database contains industry cases on software implementation projects in the domain of collaboration. The cases that were selected for our analysis are categorized as “orange” and “gold”. “Orange” cases (cases 1-14) follow the eXperience method, a structured approach for writing cases [40]. “Gold” cases (cases 15-26) are also rich cases that are systematically written, but do not follow the well-defined eXperience structure. Table 3 gives an overview of all industry cases that were analyzed in phase 1 and 2 with information on company size, industry sector, project objectives and the software used. The case IDs are later used for the documentation of the sources of our codes in the results tables (cf. section 5).

Table 3. Cases used in phase 1 and 2 to develop the framework.

ID	Case	No. of Employees	Industry Sector	E2.0 Project Objective	Software
1	ABB	120,000	Energy and Automation Technology	Blog and wiki in enterprise communication	Windows SharePoint Services 3.0
2	ADTELLIGENCE	10	Advertising	Organizing all information with social software	Several Web 2.0 tools
3	Börse Berlin	26	Securities trading, B2B	Communication between exchange and private investors	Invision Powerboard
4	Capgemini	100,000	B2B services and solutions	Expert identification and discussion	Yammer
5	Communardo	180+	Information and Communication	Microblogging	Microblogging bespoke software
6	DocHouse	11	Consulting, IT, software	Collaboration CRM	IBM Lotus Quickr
7	ESG	700	B2B development, integration and operations	Knowledge management	Atlassian Confluence
8	Fritz & Macziol	700	B2B and B2A consulting and system house	Knowledge gathering, transfer and expert search	IBM Lotus Connections
9	Pentos	35	Consulting, IT, software	Employee blogging	IBM Lotus Notes
10	Rheinmetall	20,000	B2B and B2A development and production	Team room, discussions and yellow pages	IBM Lotus Collaboration Technology
11	SFS Services	4,246	IT services	Wiki for knowledge transfer	MediaWiki
12	Siemens	405,000	B2B consulting, development and production	Global knowledge management and expert search	Liferay
13	Siemens Building Technologies	40,000	Software, systems, services	Knowledge transfer and communication	Collaboration platform Reference+
14	T-Systems Multimedia Solutions	1,000	Software, consulting	Collaborative team work	Atlassian Confluence Enterprise Wiki
15	Siemens	475,000	B2B consulting, development and production	Weblog for knowledge management	Twoday.net-based Weblog
16	Sun Microsystems	35,000	IT services	Wikis and weblogs	Atlassian Confluence
17	Saia-Burgess Controls AG	340	Electronic automation and controls	Information and knowledge management	Google Apps (for Business)
18	Teufelberger	750	Manufacturing (steel ropes, composites, ...)	Information and knowledge management	Microsoft SharePoint Server 2010
19	Factline Webservices	11	IT services (information management and communication)	Task management with tags	Task management software (custom implementation)
20	Greentube	160	Full service provider in	Knowledge management	MediaWiki

ID	Case	No. of Employees	Industry Sector	E2.0 Project Objective	Software
21	IQ mobile	27	online gaming Full service provider for mobile media	with wiki Knowledge distribution with weblog	WordPress
22	Schuldnerberatung Wien	35	Debt counseling	Knowledge management with wiki	Wiki (custom implementation)
23	WINTERHELLER	150	Software development; IT consulting	Software documentation with wiki	WINTERHELLER Competence Center
24	Valyue Consulting	No data	IT consulting	Enterprise communication and knowledge management	Jive
25	Swiss Re Ourspace	10400	Reinsurance	Project management with Jive	Jive
26	Swiss Re	10400	Reinsurance	Enterprise collaboration with ECS	Jive

We took a multi-level coding approach [41] for the analysis of the selected cases (cf. Fig. 2). The codes from the initial framework (cf. Table 1) were applied by both researchers independently, who, at the same time, were challenging these codes and scanning for new codes (i.e. new use cases and collaboration scenarios). This *structural coding process* was followed by a discussion of the codes with the objective to establish an agreement of the identified use cases and scenarios. The first coding round yielded 34 codes, therefore enlarging the original code set of 26 codes by additional 8 codes.

In a second round of coding the codes were checked against *all 26* industry cases again including the newly defined and previously undiscovered codes. Upon completion of the second round of coding the results were discussed again. The final set of codes consisted of 14 use cases (cf. Table 4) and 18 collaboration scenarios (cf. Table 5).

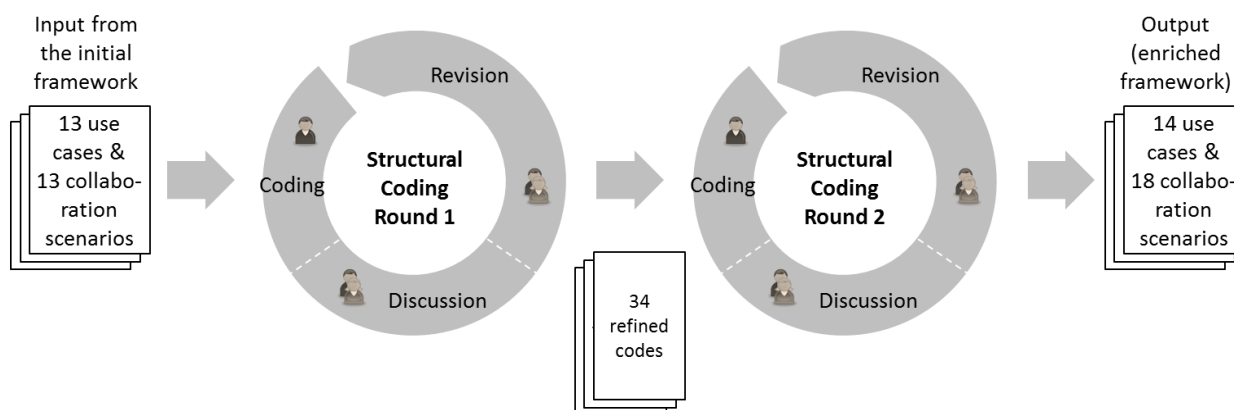


Fig. 2. Two rounds of coding

3.3 Phase 3: Completion of framework and ongoing population of the catalog

In phase 3 the framework was finalized: For each of the codes a short description was written based on the literature review and the analysis of the industry cases. Additionally, collaboration scenarios were mapped to use cases and

features were mapped to collaboration scenarios. The results were used to populate the catalog of use cases and collaboration scenarios. The codes and the content of the catalog will be further described in section 5.

4. Analytical Framework: Structuring Enterprise Collaboration

In this section we will further explain the theoretical framework that guides our analysis. Research findings show that the introduction phase of an ECS is critical for the adoption of this technology [42]. Often, ECS fail to be accepted by staff in the early implementation phase and it is difficult to turn user perception around once a negative opinion has been formed regarding the new system.

In order to support management in the decision process for an ECS we were searching for ways of structuring the problem domain in order to facilitate the ECS evaluation process. With this objective in mind we used the IRESS framework previously described in [36]. The IRESS framework provides a contextual view at the social software requirements of a company. The acronym “IRESS” stands for “Identification of Requirements for Enterprise Social Software (ESS)”. The framework is composed of four levels (cf. Fig. 6 in appendix A) containing conceptual elements that can be used to model the collaboration requirements of a specific company. The *top level* suggests the identification of *business processes and use cases* that need to be supported by collaboration technology. The *second level* is dedicated to the *collaboration scenarios*, which are, in accordance with our above definition, modular components that support business processes and use cases. The *third level* gives an overview of the *software components*, which are necessary to support collaboration scenarios. The *bottom level* contains the actual “*collaborative features*” and is structured using the dimensions of the 8C Model for Enterprise Information Management by Williams [1]. The *top two levels*, business process/use cases as well as their supporting collaboration scenarios represent the “*organizational view*” in evaluation projects whereas the focus of the *two lower levels* is on the *actual software support*.

The IRESS framework implies a *task-oriented approach* and provides a systematic view to bring order to the rather unstructured field of collaboration. Comparable to other models for business analysis (such as ARIS) the IRESS framework requires companies to analyze their *business processes* and *use cases* first, to establish an overview of their sequence of activities (*process map*) and their organizational units (*organizational chart*). Most companies will not be able to model all their business activity in processes because not all business activity is strictly sequential. Processes are based on the idea that the sequence of tasks is more or less predictable and stable (structured) but there is also *project-oriented work* going on in companies which cannot be described in a strict sequence and which requires a higher degree of flexibility in the order of events. We propose to describe these “other” forms of business activities in use cases, e.g. the *organization of a trade show* or classical projects such as *product development* or *research*.

Business processes are characterized by activities that have a structure and that can be modelled as a pre-defined sequence of tasks. We use the term *use case* to describe other forms of business activity for which the sequence of events is unpredictable. Both concepts, processes as well as use cases, can be supported by *collaboration scenarios* as defined above.

The process map and the overview of use cases on the top level of the IRESS framework serve as the basis for identifying candidate areas for collaboration that contain a high concentration of C⁴-activities (communication, cooperation, content, coordination). The identified business processes and use cases are analyzed and their *collaboration scenarios* are identified. Typical (generic) collaboration scenarios are, for example, creating meeting minutes and tasks or file sharing.

Collaboration scenarios can then be mapped to *feature bundles*, which we call *collaborative software components* that support one or several C⁴ activities. The final aim of our research is to provide a mapping between collaboration scenarios and collaborative software components in a *Collaboration Scenarios Catalog (CSC)*. The catalog has been designed to contain a range of (generic) collaboration scenarios that frequently occur in companies.

Fig. 3 shows a taxonomy for collaboration activities that helps clarify the level of discussion. *Use Cases* form the top of the taxonomy. They are general descriptions of a business activity and can occur in multiple companies. Examples are

“Event Management” or “Project Management”. The actual instance of a use case on a detailed level is company-specific. As explained above, we use *collaboration scenarios* to describe the detailed view of activities. These are rather general in nature and applicable to multiple companies. However, variations from the generic collaboration scenario during actual instantiation are possible. On the lowest level, these collaboration scenarios are supported by a composition of (atomic) software features (e.g. a blog post or a text message).

The *use case* is meant to demonstrate the *business value* that the users can derive from the application of collaboration software. The collaboration scenario shows the *actual actors, tasks and their interaction* and how they can be supported by technology.

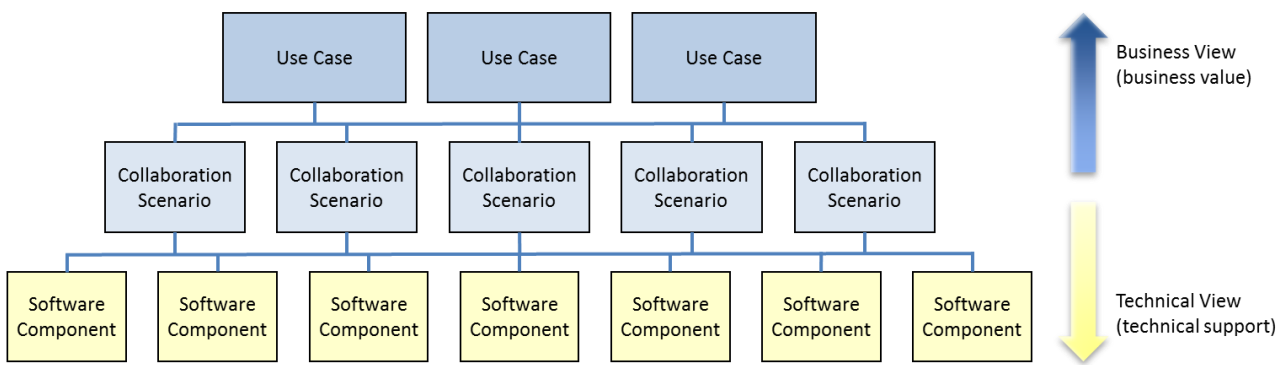


Fig. 3. Use cases consist of collaboration scenarios which are supported by software components [36, p. 165]

Our initial research showed that the distinction between use cases and collaboration scenarios is useful in the context of Enterprise Collaboration Systems [36]. However, from the cases that we analyzed so far, it became apparent that a strict two-level distinction is not enough. Our coding showed that it was possible to identify independent use cases that are composed of different collaboration scenarios. Collaboration scenarios, however, are sometimes composed of other collaboration scenarios. Some scenarios appear as subcomponents in other scenarios, which calls for a nested concept. These *nested collaboration scenarios* result in a two-way relationship between collaboration scenarios and their possible compositions (cf. Fig. 4). On the one hand, a collaboration scenario may (but does not need to) be composed of other collaboration scenarios. On the other hand, a collaboration scenario may (but does not have to) be a component of another collaboration scenarios.

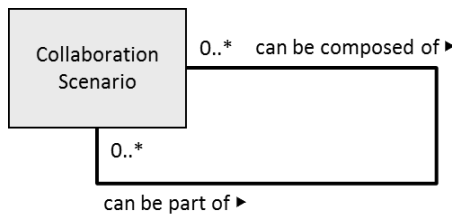


Fig. 4. Concept of nested collaboration scenarios (using UML)

To give an example, the use case “project organization” could be made up of the four collaboration scenarios “*expert search*”, “*discussion*”, “*meeting minutes and tasks*” and “*file sharing*”. At the start of the project the team needs to be staffed with the right people (expert search). The team needs a platform for the exchange of ideas (discussion) and a joint library for files (file sharing). During the meetings notes need to be taken and tasks need to be assigned to the team members (meeting minutes and tasks). While these collaboration scenarios are all part of the same use case, file sharing may occur in a discussion or in the context of meeting minutes and a task as well. Posts in a forum (discussion) may contain shared files. The same applies to minutes. Therefore, the collaboration scenario “file sharing” can either be used separately or as a subcomponent in the other two collaboration scenarios as illustrated in Fig. 5.

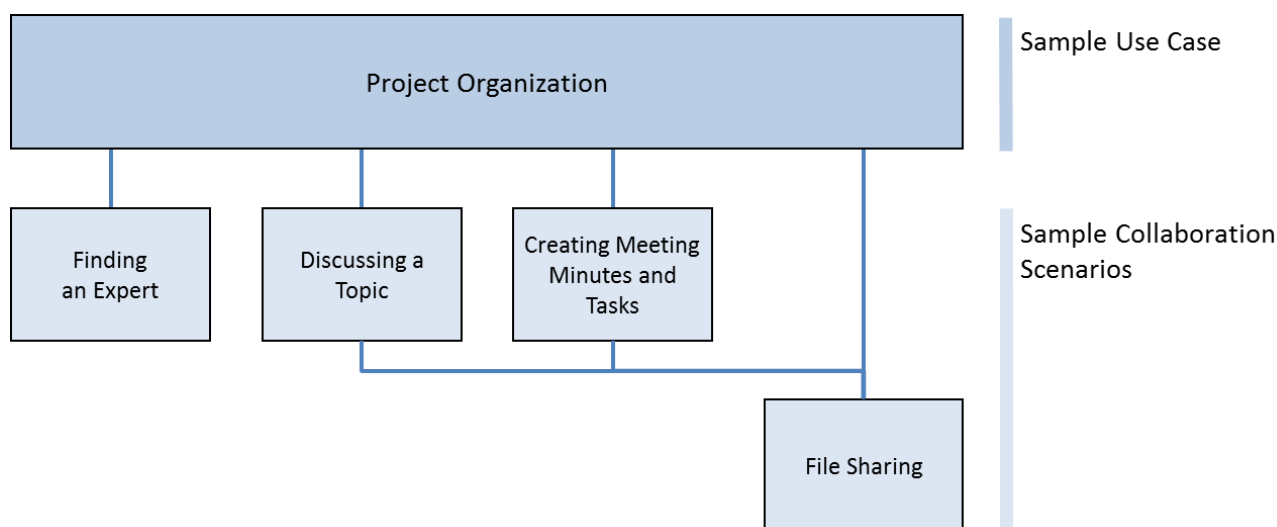


Fig. 5. Example for nested collaboration scenarios in the use case project organization

In the next section, we will describe the codes that could be identified in the analysis of the cases with the help of our initial framework.

5. Findings: Use Cases and Collaboration Scenarios

In the *first phase* of our research we developed an understanding of the special nature and the distinctive characteristics of *use cases* and *collaboration scenarios* and we were able to successfully identify a series of cases and scenarios that match our definition [36]. In the *second phase* we deepened our understanding and extended the code base in two additional coding rounds with the help of further industry cases. Table 4 lists the codes for *use cases* from this second phase and provides a description for each use case. The table also shows the number of times a code occurred in the cases (groundedness) and the sources in which this code was found. The column “sources” contains the IDs of the cases shown in Table 3 above. The last column contains examples of related scenarios in order to illustrate the actual activities in this case.

In the second round of coding we revised the naming of use cases and scenarios. We are now using *nouns* for *use cases* and make use of *verbs* for *collaboration scenarios* to facilitate the differentiation. We also added the prefixes UC (use case) and CS (collaboration scenario) to make the description unambiguous. To illustrate the new naming concept, the use case originally just called “*knowledge sharing*” has now been renamed to “*UC: Knowledge management*”. “Software development organization” is now called “*UC: Software development*”. The new naming scheme was a result of our refined understanding of use cases in the ECS context.

Table 4 also shows examples of collaboration scenarios that illustrate the use cases. For example, *UC: Knowledge management* usually requires that information is available. One way of putting such information into the system can be done by *CS: Documenting information*. Also, to make it easier to find the information later, some form of document enrichment might be necessary (e.g. tagging). This can be described with the collaboration scenario *CS: Managing information*. The frequently mentioned use case *UC: Project organization* commonly includes meetings; example collaboration scenarios applicable include *CS: Organizing a meeting* as well as *CS: Conducting a meeting*.

The coding of the cases had some limitations common to the analysis of *secondary literature* that was written for a different purpose. We believe that some of our developed codes are not necessarily describing “ideal” cases and scenarios. The codes are a representation of what was reported in the selected cases using the level of detail that was provided by the authors. A more detailed analysis of the actual activities in Enterprise Collaboration Systems will be necessary to develop a richer representation of collaboration activities that can serve as an orientation for best practice.

Table 4. Use cases identified (sorted by column “grounded”).

No.	Use Case (UC)	Short Description	Grounded	Sources	Related Scenarios (examples)
1	UC: Knowledge management	Activities involving the documentation of experiences and expertise of employees making this knowledge available for others.	21	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 13, 15, 16, 17, 18, 20, 21, 22, 23, 24, 26	Documenting information, enriching information
2	UC: Enterprise communication	General support of communication within the enterprise, comprising synchronous and asynchronous forms of information exchange between employees.	11	2, 3, 4, 5, 6, 7, 8, 9, 18, 24, 26	Discussing topics, conducting a meeting
3	UC: Project organization	All activities necessary to organize a project, including typical work such as joint task management and meeting preparation and documentation.	10	1, 2, 3, 4, 6, 7, 11, 18, 25, 26	Organizing a meeting, conducting a meeting
4	UC: Sales opportunity handling	Management of collective information available to decrease the time for a customer response and the quality of the information provided.	3	11, 14, 24	Finding an expert, retrieving information
5	UC: Software development	Collaborative support for software development teams, typically involving task management and documentation.	3	4, 16, 23	Documenting information, conducting a meeting
6	UC: Customer communication	Collaborative activities with a focus on the customer, typically supporting CRM activities such as marketing material, newsletters, etc.	2	12, 24	Discussing topics, posting news
7	UC: Idea and innovation management	Supporting creative processes in the company e.g. by means of ideation management.	2	6, 18	Discussing topics, documenting information
8	UC: Management accounting	Support of collaborative tasks of post calculation of projects.	1	11	Documenting information, retrieving information
9	UC: Human resource management	Support of collaborative tasks of members of the HR department.	1	4	Documenting information, finding an expert

No.	Use Case (UC)	Short Description	Grounded	Sources	Related Scenarios (examples)
10	UC: Internal communications	Support of collaborative tasks of members of the internal communications department (e.g. monthly newsletter to employees).	1	8	Posting news, alerting to a news
11	UC: Quote compilation	Access to information necessary to compile a quotation, e.g. existing company knowledge or finding the right expert in the company.	1	11	Retrieving information, discussing topics
12	UC: Team organization	Long-term management of an organizational unit (e.g. a division, department or group) including typical work such as joint task management, meeting support and documentation; community without a fixed end date.	1	9	Organizing a meeting, conducting a meeting
13	UC: Event management	Support of activities for unique or recurring events such as a trade show.	0	n/a	Organizing a meeting, documenting information
14	UC: Workshop organization	Support of activities for workshops.	0	n/a	Organizing a meeting, documenting information

Looking at occurrence (groundedness), it is interesting to see that there are three use cases that are mentioned in many cases. *UC: Knowledge management* is the dominant use case with 21 unique mentions in 26 cases. It is followed by *UC: Enterprise communication* (11) and *UC: Project organization* (10) which both occur in more than one third of the cases. All other use cases could only be identified in between one and three cases. This supports our belief that use cases are rather company-specific.

Our identification of use cases and their importance is in accordance with previous findings in the literature. Even though the authors of related literature did not explicitly look at use cases they mention similar concepts, e.g. *the drivers* for the investment in Enterprise Social Software. Miles [43] lists the sharing of knowledge (*UC: Knowledge management*) as one of the biggest drivers for Enterprise 2.0. Other authors implicitly refer to the three top use cases when looking at the *achieved or unachieved contributions* generated by collaboration software (e.g. [44], [45]). The use case *UC: Project organization* is often described in publications about the collaborative nature of interactions in ECS (e.g. in [43]–[47]). While, again, the level of detail in the description of drivers and contributions varies, the general idea of beneficial use of ECS for the use case *UC: project organization* is supported by this literature. Other examples that are similar to our use cases could be identified as well. These include *UC: Customer communication* [44] and *UC: Idea and innovation management* [45]. The use of similar concepts for drivers, benefits and use cases makes it apparent that such a high-level view (that of use cases) alone is not enough thus calling for the more detailed view of *collaboration scenarios*.

Table 5 shows the *collaboration scenarios* that could be identified in the cases. The table has the same structure as the previous one, showing a description of the scenario, the groundedness, the sources in which this code was found and some exemplary features that would be used for this scenario.

Table 5. Collaboration scenarios (sorted by column “grounded”).

No.	Collaboration Scenario (CS)	Short Description	Grounded	Sources	Related Features (examples)
1	CS: Documenting information	Making information available for future use	23	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 26	Blog posts, Wiki pages, markup of changes, tagging
2	CS: Retrieving information	Actively searching information in the ECS, targeted search and assembling of existing information	21	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 18, 20, 21, 22, 23, 24, 26	Visualization of tag usage, search
3	CS: Discussing topics	Synchronous and asynchronous conversations between people	15	1, 2, 4, 6, 7, 8, 9, 11, 12, 13, 15, 17, 18, 25, 26	Chat, discussion forums, comments
4	CS: Sharing information	Active distribution of information to receivers with or without previous subscription (“push/subscription”)	14	1, 2, 4, 5, 6, 8, 9, 11, 13, 17, 18, 20, 25, 26	Microblog posts, Blog posts, comments, content subscription
5	CS: Enriching information	Enriching or improving information such as adding meta data and annotations	12	2, 4, 6, 7, 8, 11, 14, 15, 16, 18, 20, 25	Ratings, pointers or references to content, tagging
6	CS: Finding an expert	Identification of matter experts in the collaborative network	9	3, 5, 6, 7, 8, 9, 11, 13, 18	User profiles, search, tagging
7	CS: Posting news	Writing a news message	7	2, 3, 7, 8, 12, 18, 26	Posts, message boards, tagging
8	CS: Conducting a meeting	Meeting with others in an online meeting environment	6	2, 4, 9, 10, 12, 19	Video conferencing, unified communication, screen sharing
9	CS: Alerting to news	Sending out alerts on news	6	2, 7, 8, 11, 18, 26	message boards, shared workspaces, workspace awareness, like
10	CS: Joint authoring	Synchronous and asynchronous collaborative authoring of documents, articles, etc.	6	2, 3, 7, 23, 24, 25	Shared authoring, shared workspaces, document and version control
11	CS: Problem solving	Solution of individual or common problems using collaborative capabilities	5	8, 9, 13, 15, 26	Discussion forums, comments, workspace awareness
12	CS: Creating meeting minutes and tasks	Writing of meeting minutes and creation of corresponding tasks	5	1, 3, 17, 22, 24	Posts, comments, tagging
13	CS: Organizing a meeting	Organizational steps towards conducting a meeting such as finding a date, booking rooms, writing minutes	4	2, 3, 14, 24	Discussion forums, chat, shared workspace

No.	Collaboration Scenario (CS)	Short Description	Grounded	Sources	Related Features (examples)
14	CS: Administering documents	Maintenance of documents such as archiving or activities to enrich documents with meta data	3	6, 7, 11	Ratings, pointers or references to content, tagging
15	CS: File sharing	Sharing of files with co-workers in directory-like structures	3	11, 17, 26	Shared workspace, document management, document and version control
16	CS: Conducting a poll	Asking for feedback or opinions on one or a few questions for quick results	1	26	Microblogging, polls and voting, ratings, rankings
17	CS: Conducting a survey	Asking for feedback or opinions on a matter with an online questionnaire for more comprehensive results	1	17	Posts, microblogging, polls and voting
18	CS: Rating information	Giving feedback on the perceived quality or usefulness of certain information	1	18	Posts, comments, ratings (e.g. stars)

18 collaboration scenarios were identified in the selected industry cases. The dominant collaboration scenario (mentioned in 23 of 26 industry cases) is *CS: Documenting information*. *CS: Retrieving information* is in second place. This is in accordance with the findings for the use cases because the first two collaboration scenarios are components of the number one use case.

6. Conclusions and Outlook

In our article, we present findings from an analysis of industry cases describing the use of ECS in companies. We suggest using the terms *use case* and *collaboration scenario* as a lens for the analysis of collaboration activities. The analysis of the literature showed that these two terms are not clearly defined. We are proposing a framework for the description of use cases and collaboration scenarios with the intention of providing a means to examine and develop requirements for Enterprise Collaboration Systems. With the help of 26 case studies on ECS introduction projects we were able to identify a set of concrete use cases and corresponding collaboration scenarios. These can be used for ideation and identification of possible uses in future ECS implementation projects.

Our findings are limited by the small scope of cases as well as the limited level of detail on collaboration activity that was provided by the case authors. As a consequence, we believe that the list of cases and scenarios presented in this article is by no means complete and more work must be done to develop them to successfully guide companies in their design of Enterprise Collaboration Systems. We were, however, able to demonstrate that our framework provides a suitable tool for the identification of cases and scenarios. We will continue our longitudinal work by investigating companies that have ECS in place and we are confident that the data collected in the field will help us to further populate the catalog of use cases and collaboration scenarios.

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References

- [1] S. P. Williams, "Enterprise 2.0 and Collaborative Technologies," Working Report of the Research Group Business Software, May 2010, University of Koblenz-Landau, Koblenz, Germany, 2010.
- [2] W. J. Orlikowski, "Learning from Notes: Organizational Issues in Groupware Implementation," in *Proceedings of the Conference on Computer-Supported Cooperative Work (CSCW'92)*, 1992, pp. 1–9.
- [3] J. Grudin, "Computer-Supported Cooperative Work: History and Focus," *IEEE Comput.*, vol. 27, pp. 19–26, 1994.
- [4] K. Riemer, S. Stieglitz and C. Meske, "From Top to Bottom: Investigating the Changing Role of Hierarchy in Enterprise Social Networks," *Bus. Inf. Syst. Eng.*, vol. 57, no. 3, pp. 197–212, 2015.
- [5] C. Herzog, A. Richter, M. Steinhüser, U. Hoppe and M. Koch, "Methods and metrics for measuring the success of Enterprise Social Software – what we can learn from practice and vice versa," *Proc. 21st Eur. Conf. Inf. Syst. (ECIS 2013)*, pp. 1–12, 2013.
- [6] P. Schubert and S. P. Williams, "The Concept of Social Business: Oxymoron or Sign of a Changing Work Culture?," in *Proceedings of the 26th Bled Conference*, 2013, pp. 222–235.
- [7] T. Kuettner, R. Diehl and P. Schubert, "Change factors in Enterprise 2.0 initiatives: Can we learn from ERP?," *Electron. Mark.*, vol. 23, no. 4, pp. 329–340, Oct. 2013.
- [8] D. MacKenzie and J. Wajcman, *The social shaping of technology*, 2nd ed. Buckingham, UK: Open University Press, 1999.
- [9] T. H. Davenport, "Putting the Enterprise into the Enterprise System," *Harv. Bus. Rev.*, vol. 76, no. 4, pp. 121–131, 1998.
- [10] M. L. Markus and C. Tanis, "The Enterprise System Experience - From Adoption to Success," in *Framing the Domains of IT Management: Projecting the Future Through the Past*, R. W. Zmud, Ed. Pinnaflex Education Resources, Inc, 2000, pp. 173–207.
- [11] J. Becker, O. Vering and A. Winkelmann, *Softwareauswahl und -einführung in Industrie und Handel: Vorgehen bei und Erfahrungen mit ERP- und Warenwirtschaftssystemen*. Berlin Heidelberg: Springer, 2007.
- [12] R. Diehl, T. Kuettner and P. Schubert, "Introduction of enterprise collaboration systems: In-depth studies show that laissez-faire does not work," in *Proceedings of the 26th Bled Conference*, 2013, pp. 236–250.
- [13] A. Richter and A. Stocker, "Exploration & Promotion: Einführungsstrategien von Corporate Social Software," in *Proceedings of the Tenth Internationale Tagung Wirtschaftsinformatik (WI 2011)*, 2011.
- [14] P. Dourish, "The Appropriation of Interactive Technologies: Some Lessons from Placeless Documents," *Comput. Support. Coop. Work CSCW An Int. J.*, vol. 12, no. 4, pp. 465–490, 2003.
- [15] K. Riemer and R. B. Johnston, "Place-making: A Phenomenological Theory of Technology Appropriation," in *International Conference on Information Systems*, 2012.

- [16] M. Dahan, P. Shoval and A. Sturm, “Comparing the impact of the OO-DFD and the Use Case methods for modeling functional requirements on comprehension and quality of models: A controlled experiment,” *Requir. Eng.*, vol. 19, no. 1, pp. 27–43, 2014.
- [17] I. Jacobson, “Object-oriented Development in an Industrial Environment,” in *Conference Proceedings on Object-oriented Programming Systems, Languages and Applications*, 1987, pp. 183–191.
- [18] I. Jacobson, “Use cases – Yesterday, today, and tomorrow,” *Softw. Syst. Model.*, vol. 3, no. 3, pp. 210–220, 2004.
- [19] M. Ratcliffe and D. Budgen, “The application of use case definitions in system design specification,” *Inf. Softw. Technol.*, vol. 43, pp. 365–386, 2001.
- [20] B. Dohing and J. Parsons, “How UML is Used,” *Commun. ACM*, vol. 49, no. 5, pp. 109–113, 2006.
- [21] OMG, “OMG Unified Modeling Language™ (OMG UML), Superstructure, Version 2.4,” 2010. [Online]. Available: <http://www.omg.org/spec/UML/2.4/Superstructure/PDF/>.
- [22] I. Jacobson, I. Spence and K. Bittner, “Use-Case 2.0: The Guide to Succeeding with Use Cases,” 2011.
- [23] G. Irwin and D. Turk, “An Ontological Analysis of Use Case Modeling Grammar,” *J. Assoc. Inf. Syst.*, vol. 6, no. 1, pp. 1–36, 2005.
- [24] D. Osimo, K. Szkuta, P. Foley, F. Biagi, M. Thompson, L. Bryant, D. Bradshaw and J. Ritzek, “Enterprise 2.0 study: D4 Final Report,” Bruxelles, 2010.
- [25] N. Drakos, “Survey Analysis: Use of Social Software in the Workplace Is Prevalent but its Impact Is Hard to Quantify,” 2013.
- [26] N. Bolloju and S. X. Y. Sun, “Benefits of supplementing use case narratives with activity diagrams - An exploratory study,” *J. Syst. Softw.*, vol. 85, no. 9, pp. 2182–2191, 2012.
- [27] T. Allweyer, *Geschäftsprozessmanagement: Strategie, Entwurf, Implementierung, Controlling*. Herdecke/Bochum: W3L, 2005.
- [28] L. Liu and E. Yu, “Designing information systems in social context: A goal and scenario modelling approach,” *Inf. Syst.*, vol. 29, no. 2, pp. 187–203, 2004.
- [29] J. Kim, S. Park and V. Sugumaran, “Improving use case driven analysis using goal and scenario authoring: A linguistics-based approach,” *Data Knowl. Eng.*, vol. 58, no. 1, pp. 21–46, 2006.
- [30] A. Richter, S. Mörl, M. Trier and M. Koch, “Anwendungsszenarien als Werkzeug zur (V) Ermittlung des Nutzens von Corporate Social Software,” *10. Int. Tagung Wirtschaftsinformatik*, 2011.
- [31] C. Houy, P. Fettke and P. Loos, “Einsatzpotenziale von Enterprise-2.0-Anwendungen - Darstellung des State-of-the-Art auf Basis eines Literaturreviews,” Working Report of the Institut für Wirtschaftsinformatik (IWi) im DFKI, 2010.
- [32] M. B. Rosson and J. M. Carroll, “Scenario-Based Design,” in *The Human-Computer Interaction Handbook: Fundamentals, Evolving Technologies and Emerging Applications*, J. A. Jacko and A. Sears, Eds. Hillsdale: L. Erlbaum Associates Inc., 2002, pp. 1032–1050.
- [33] J. Niemeier, “Der Wandel der Unternehmen durch Social Media setzt sich fort,” 2011. [Online]. Available: <http://www.centrestage.de/2011/05/11/der-wandel-der-unternehmen-durch-social-media-setzt-sich-fort/>.
- [34] O. Stiemerling and A. B. Cremers, “The use of cooperation scenarios in the design and evaluation of a CSCW system,” *IEEE Trans. Softw. Eng.*, vol. 24, no. 12, pp. 1171–1181, 1998.
- [35] S. R. Haynes, S. Purao and A. L. Skattebo, “Scenario-Based Methods for Evaluating Collaborative Systems,”

Comput. Support. Coop. Work, vol. 18, no. 4, pp. 331–356, 2009.

[36] P. Schubert and J. H. Glitsch, “Adding Structure to Enterprise Collaboration Systems: Identification of Use Cases and Collaboration Scenarios,” in *Procedia Computer Science*, 2015, vol. 64, pp. 161–169.

[37] V. Hausmann and S. P. Williams, “Social Business Documents,” *Procedia Comput. Sci.*, vol. 64, pp. 360–368, 2015.

[38] V. Hausmann and S. P. Williams, “Issues for the long-term management of Social Business Documents,” *International Journal of Information Systems and Project Management*, vol. 4, no. 3, in print, 2016.

[39] J. Webster and R. T. Watson, “Analyzing the Past to Prepare for the Future: Writing a Literature Review,” *MIS Q.*, vol. 26, no. 2, pp. xiii–xxiii, 2002.

[40] P. Schubert and R. Wölfle, “The eXperience Methodology for Writing IS Case Studies,” in *Americas Conference on Information Systems (AMCIS)*, 2007, no. 2, pp. 1–15.

[41] M. B. Miles, A. M. Huberman and J. Saldaña, *Qualitative Data Analysis: A Methods Sourcebook*, 3rd edition. Thousand Oaks: Sage Publications, 2014.

[42] K. Riemer, P. Overfeld, P. Scifleet and A. Richter, “Oh, SNEP! The Dynamics of Social Network Emergence - the case of Capgemini Yammer,” Sydney, WP2012-01, 2012.

[43] D. Miles, “Collaboration and Enterprise 2.0,” Silver Springs, MD, 2009.

[44] S. J. Andriole, “Business impact of Web 2.0 technologies,” *Commun. ACM*, vol. 53, no. 12, pp. 67–79, 2010.

[45] S. P. Williams and P. Schubert, “Social Business Readiness Survey 2014,” Working Report of the Research Group Business Software, May 2010, University of Koblenz-Landau, Koblenz, Germany, 2015.

[46] M. Chui, J. Manyika, J. Bughin, R. Dobbs, C. Roxburgh, H. Sarrazin, G. Sands and M. Westergren, “The social economy: Unlocking value and productivity through social technologies,” *McKinsey Global Institute*, no. July. McKinsey Global Institute, 2012.

[47] M. Chui, A. Miller and R. P. Roberts, “Six Ways to Make Web 2.0 Work,” *McKinsey Quarterly*, pp. 1–8, 2009.

Appendix A. IRESS Model

Organisation	Business Processes & Use Cases	Order management Procurement Product development Manufacturing Accounting Trade show organisation Project organisation Workshop organisation			
	Collaboration Scenarios	Expert search Meeting minutes and tasks General information sharing (asynchronous) Knowledge collection (e.g. handbook) Joint authoring (synchronous/asynchronous) File Sharing Conference, synchronous			
Software Support	Software Components	Workspace Blogs Wikis Forums Tasks Files Calendar Microblogs			
	Collaborative Features (C⁴)	Communication Chat (text message) Microblogging Posts Voice message synchronous Voice message asynchronous Asynchronous sent (rich) text message Discussion forums Message boards Comments, annotations Video conferencing Unified Communication Broadcast ...	Cooperation Shared authoring Markup of changes (in a text) Screen sharing/shared desktop Shared workspaces Workspace awareness Ratings, rankings User profiles ...	Content Document management (document storage, archiving) Content management Data aggregation (display what a user needs on start page) Data integration Content collection Linking (e.g. hyperlinks) Pointers or references to content Tagging, Folksonomies Visualisation of tag usage Collecting feedback Content subscription Search ...	Coordination User directories Roles Group calendar, deadline planning Resource planning Shared tasks Reminders, triggers, alerts Workflow support Graphical flow Polls and voting Document and version control Presence awareness ...

Fig. 6. IRESS Model: Identification of Requirements for Enterprise Social Software [36, p. 164]

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A qualitative study of success criteria in Norwegian agile software projects from suppliers' perspective

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Abstract:

This paper provides practical insights into the success criteria in agile projects in the Norwegian software industry. We conducted 32 interviews with practitioners working with agile projects. The findings revealed two fundamental differences that distinguish the perception of success in agile projects from that in projects that are based on the waterfall approach. Firstly, the evaluation is carried out on a regular basis after each increment. This regular and continuous measurement of success contributes several advantages, including greater commitment and involvement from the customer and a higher level of mutual trust between the supplier and the customer; and thus leads to better knowledge sharing and reduced task uncertainty. The reduction of task uncertainty provides more predictability about the direction of the project and better grounds for change control; not least, it allows room to consider multiple and subjective assessments by various stakeholders. Secondly, there is a stronger emphasis on customer satisfaction. Customer satisfaction is measured in terms of how quickly the customer obtains value from the project. The continuous assessment of success at the end of each iteration also has a significant, positive impact on the customer's evaluation of the project outcome.

Keywords:

success criteria; agile projects; suppliers; qualitative study.

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1. Introduction

It is important to emphasize that the importance of project success criteria extends beyond the final evaluation of the project outcome [1]. Jugdev and Müller [1] emphasized the importance of defining project success criteria up front to align stakeholders and to create a common vision about the project's outcome and how it will be evaluated. Although much research has been carried out on project success criteria for projects that mainly follow the traditional waterfall model, it does not take into account the emergent characteristics of agile software projects. Software projects based on agile projects have some features that distinguish them from projects following the traditional waterfall approach [2].

The waterfall approach follows an engineering discipline in which the development is predictive and repeatable; therefore, the final evaluation is performed once a phase or the final deliverables are complete. On the other hand, agile methods are lightweight processes that employ short iterative cycles, actively involve users to establish, prioritize and verify requirements and rely on a team's tacit knowledge as opposed to documentation. A truly agile method must be iterative (take several cycles to complete), incremental (not deliver the entire product at once), self-organizing (the teams determine the best way to handle the work) and emergent (processes, principles and work structures are recognized during the project rather than predetermined) [3]. Software systems are so complex that full specifications cannot be given at the start of the project; therefore, agile methods (XP, Scrum, Kanban, etc.) help to deliver projects associated with uncertainties [4].

Project success criteria include several dimensions spanning from criteria concerning the efficiency of the project management effort (project management success) to criteria that reflect the impact of the project on end-users, on business, on societies (project success) and on creating opportunities for the future [5]-[8]. The main purposes of these criteria are to define a clear rationale for deciding whether the project was a success/failure and, to some extent, the degree of success/failure. There is also increasing recognition of the need to consider the dynamic nature of projects and look at success from a subjectivist viewpoint as well [9]. De Wit first suggested a distinction between project success and project management success. Project success embodies the perceived value of a project when the result or product is in operation [10]. Focusing on project success may lead to the consideration of criteria such as product use, user or client satisfaction and benefits to users or clients [11]. On the other hand, meeting the requirements concerning time to deliver, specifications and budget embodies project management success.

This paper is exploratory and seeks to investigate the categories of success criteria used in agile projects and the conditions that must be met to achieve project management success as well as project success. The similarities and dissimilarities between agile-based projects and projects based on the waterfall approach concerning how success is perceived and managed will be analyzed and presented. The findings and analysis are based on interviews with 32 agile practitioners from 25 different software development organizations in Norway. Of the 32 participants, 26 were project managers (19 project managers were from the supplier side, 4 were project managers from the customer side and 3 were project managers of companies performing in-house development), 4 were developers and 2 were solution architects. Their organizations varied from consulting organizations to in-house development organizations.

This paper is structured as follows. First, we will review the literature to determine how success criteria are defined in general. Then, we will investigate how the success criteria in software projects differ from those in other types of projects. Next, the interview findings will be presented, followed by a discussion and conclusion.

2. Literature review

According to Wateridge [12], success for software projects is not a "black and white" concept. Unlike construction projects in which project success is easier to measure [12], software projects are more visible when they become operational; therefore, at this stage, there are more chances for the product to be evaluated regarding its use and business value. During the operation phase, different stakeholders' perceptions of success are easy to measure [13]-[15].

According to some researchers [16]-[19], the measurement of software project success has a multidimensional perspective. Many stakeholders are involved in a project and they can have a variety of interests depending on the outcomes of the project. Contingent on the use of the project, different stakeholders (supplier company, customers, project team, end-users) can have different perspectives, interests and roles in the project [15],[19]; therefore, they have different perceptions of success [20]-[24]. These stakeholders have strong control over the project and they can exert an impact on its results [25]. For example, developers might have success criteria for software projects that consist of substantial learning and reusable codes instead of time and budget [26]. Customer satisfaction, process efficiency and functional requirements might be the most important success criteria for suppliers [27].

According to Christenson and Walker [28], establishing an agreement on how and when a project will be evaluated helps in creating a common vision about the outcome, which is in itself a significant driver of project management success. Hussein [29] supported this view and recommended defining a project's success criteria at the start as good project management practice.

Creating a common reference point at the start of the project to define how projects will be evaluated is an important factor in aligning the project team and establishing commitment to the project objectives. Korzaan [30] showed that commitment to project objectives has a positive influence on the perceptions of project performance, both directly and indirectly, through individual propensities to report project status information. Hussein [29] showed that failing to use project success criteria actively in the management of projects can lead to numerous and frequent changes to these criteria, which in turn result in poor project performance, frustration and even losses. Poor management leads to poor intermediate results. Poor intermediate results lead to changing project priorities and these cause a project to lose focus, according to Dvir and Lechler [31].

The importance of measuring success while keeping different stakeholders' perspectives in view was introduced by De Wit [10]. A framework was presented by McLeod et al. [11] to measure success based on the different perspectives of stakeholders. Although a project can involve a number of stakeholders, there are two main stakeholders: one is the customer and the other is the supplier. Both of these stakeholder types can have different expectations of the project; therefore, according to Jugdev and Müller [1], all the stakeholders need to be involved in defining the success criteria. Customer companies want the maximum functionality delivered within a limited budget and time span, while supplier companies exist to make profits along with delivering successful projects.

Therefore, it is very important for project success to be measured by taking into consideration the perceptions or business values of the project from the viewpoint of those stakeholders who are possible beneficiaries of the project. Some studies have suggested the same [32],[33]. Some researchers have argued that practitioners should avoid measuring the success of software projects in terms of triple constraints, and practitioners should measure projects' success depending on the project type and stakeholders' interests [27]. Different studies have attempted to investigate the effects of stakeholder perspectives [11] at different points of the project life cycle [34]. Wateridge [12] suggested "meeting user requirements" as the most important success criterion, but this could vary from stakeholder to stakeholder. End-users consider success criteria from their perspective (for example, the ease of use of the system). Project managers consider a project to be successful if it has been delivered within the available time and budget [35].

Procaccino and Verner [36] presented a study about the stakeholders' different perceptions of success. They found that the ease of using a system and meeting customer needs are considered to be important success criteria by software practitioners. The perceptions of stakeholders can vary to the extent that a project that is considered to be successful by the client may be considered a complete failure by the end-users or contractors (suppliers) [37],[38]. According to some researchers, customer satisfaction is one of the most important criteria for a project [39],[40]. Meeting the budget, schedule and requirements targets are not enough for project evaluation; therefore, success criteria like process efficiency and stakeholder satisfaction must also be included in project evaluation [41].

Agarwal and Rathod [42] defined success from the perspectives of the internal stakeholders of an organization. In their opinion, delivering the full scope of a project is the most important success criterion. Shenhar et al. [8] found that success has different meanings for different stakeholders and depends on the circumstances and the type of the project.

Müller and Turner [43] suggested that project success criteria vary depending on the project manager's influence on the project. According to them, success criteria depend on many factors, including the age and nationality of the project manager [43].

Taking into consideration the supplier's perspective, Savolainen et al. [44] presented a framework for measuring the success of software projects. From the very start of software development, success is measured based on triple constraints, but can a project be called successful if it meets the triple constraints but does not produce customer satisfaction? Conversely, if a project fails to meet the triple constraints criteria but the customers are highly satisfied with the end product, can it be called a successful project?

The Standish Group's report published in 2015 [45] introduced a major change in terms of accessing project success. The success criteria were revised to include six factors, namely on time, on budget, on target, on goal, value and satisfaction. The reason for including these criteria is that, according to the report, there are "many projects that have met the Triple Constraints and did not return value to the organization or the users and executive sponsors were unsatisfied." According to the Standish Group, "changes in this criteria was not done quickly or lightly"; they were made after careful consideration and a survey.

3. Methodology

We conducted interviews with 32 agile practitioners from 25 different software development organizations in Norway. Of the 32 participant interviewees, 26 were project managers (19 project managers were from the supplier side, 4 project managers were from the customer side and 3 project managers were from companies performing in-house development), 4 were developers and 2 were solution architects. Their organizations varied from consulting organizations to in-house development organizations. The practitioners had considerable experience with IT, ranging from 3 to 40 years. Most of the practitioners had been using the agile method since its inception or had started working with the methodology before it was named "agile". The products and services offered by the practitioners' organizations included web-based applications, front- and back-office applications and software development services. The practitioners interviewed were scrum masters, project managers, system developers and product owners, enabling us to view problems from multiple perspectives. We conducted semi-structured interviews through various media, including face to face, email and Skype. To take multiple issues into consideration, we developed a research instrument consisting of six open-ended questions to conduct the interviews:

- How often do you evaluate the project?
- What are the success criteria for your company?
- Do you think that different stakeholders have different perceptions of success?
- How are success criteria in agile software projects different from those of other types of projects?
- In your opinion, how can project success be achieved?

We then asked the follow-up question:

- How can customer satisfaction be achieved?

We used a non-probability sampling technique for our research [45], specifically purposive sampling. This technique was selected bearing in mind the purpose of the research. We deliberately contacted participants who had relevant experience related to the research questions. We searched for participants on the Internet, and after looking into their profiles we sent them an invitation to take part in the study. The participants who were interested in participating in the research replied and accepted. After agreeing on the time and place of the interviews, we conducted interviews of 20-25 minutes' duration. Data were collected from 2011 to 2014.

Our priority throughout this research was to ensure the anonymity of our interviewees and their organizations. Thus, we refer to the interviewees throughout this paper as respondents AP1 to AP32.

We used a thematic analysis method for data analysis [47]. First, we transcribed the interviews. Second, we read the transcripts several times to familiarize ourselves with the information. Third, we identified patterns in the informants' answers. Fourth, we labeled sections according to those patterns. After clustering the information, we were able to organize, compare and analyze it. This study presents limitations that affect its generalizability, because it is strongly context-specific, as it was mostly performed within the Norwegian context. Furthermore, we collected the data not with specific project cases in mind but rather based on the collective experiences of the informants.

Validity measures the accuracy of research findings [59]. This research was conducted in 21 different organizations. We chose practitioners by considering their experience and suitability for the study. We also ensured that the practitioners had enough experience and knowledge of the subject under study. We interviewed a large number of practitioners (32) to reduce the bias in the study [59].

Reliability measures the consistency of the research. We guaranteed this reliability in our study by cross-checking the results of different practitioners. The transcripts of the interviews were sent to the concerned practitioner so that he/she could check for any omissions or errors.

4. Interview findings

In this section, interview data are presented. Due to space constraints it is not possible to present all interview data. We have presented selected quotes in Table 1.

Table 1. Interview data

Questions	Respondents response
How often you judge the success of the project?	<p><i>"That's up to the customer how they judge success. As a supplier, we judge success after each iteration." _AP1</i></p> <p><i>"It depends on the role, hitting financial targets, customer satisfaction. Meeting financial targets determines the health of the current business. Providing customer satisfaction ensures the continued existence of the business. A degree of increased organizational learning and expertise is also a factor, but again depends on the point of view of who makes the evaluation." _AP4</i></p> <p><i>"Success in agile projects is measured how quickly you can deliver business value. Since you are delivering in iterations it is easy to get feedback from the customer and you can analyze where are you heading." _AP30</i></p> <p><i>"We have check after getting delivery of the product pieces. If we feel that the project is heading towards wrong, we can take measures to get it fixed." _AP3</i></p> <p><i>"We have extensive routines and methods to follow up and evaluate projects. This is done at a continuous basis and at project close-up." _AP11</i></p>

Table 1. Interview data (cont.)

Questions	Respondents response
What are the success criteria in your company?	<p><i>"The only criteria for us is customer satisfaction." __AP20</i></p> <p><i>"On time and budget and finishing the user stories/features (providing required functionality)." __AP13</i></p> <p><i>"Delivering on time is more important than finishing within budget." __AP5</i></p> <p><i>"Only criterion to judge success is to know if the customer is happy, and he buy more services." __AP8</i></p> <p><i>"To us happy customer is the only success criteria." __AP14</i></p> <p><i>"To my knowledge, the only criterion is money". __AP10</i></p> <p><i>"Meeting end user requirements is most important success criteria." __AP17</i></p> <p><i>"Customers got value of money only that way they will be happy and bring more business." __AP27</i></p> <p><i>"Criteria is happy customer and amount of money we got from the project." __AP18</i></p> <p><i>"The only criteria for us is that we get value of money, we invested." __AP31</i></p> <p><i>"The only criteria is money." __AP16</i></p> <p><i>"There are two aspects that need to be evaluated to judge project success or failure:</i></p> <p><i>"Customer satisfaction is judged by evaluation of forms and interviews. Interviews with the customer are done to judge, whether the delivered project has added the promised value and whether the customer would recommend us to someone else.</i></p> <p><i>If the company has made money.</i></p> <p><i>Both of the above, mentioned criteria, need to have answer in yes. If either of the criteria is not fulfilled the project is a failure from our perspective." __AP7</i></p>
Do you think that different stakeholders have different perceptions of the success?	<p><i>"Every stakeholder has different perspective of success and it depends on whom you ask. The technical staff is happy if everything worked nicely, no serious bugs, and we learnt something new. Management is happy if we get more customers or keep the existing one and ultimately advertisers money." __AP29</i></p> <p><i>"Developer's perspective of success criteria is to deliver complete stories within time. They care less about other success criteria." __AP6</i></p> <p><i>"Evaluation meetings with customers and end users are held to judge customer satisfaction. Success criteria is different for every stakeholder involved in the project. We as supplier judge success of the project if customer is happy and we made some money." __AP3</i></p> <p><i>"It depends on the point of view. The customer decides if the software is functionally sound and generates business value. The development team/maintenance team decides if the software is technically sound and is cost effective to maintain and add more features to." __AP16</i></p>

Table 1. Interview data (cont.)

How success criteria in agile software projects is different from other type of projects?	<p><i>“Customers are more involved in agile projects Whereas in waterfall suppliers and customers work at distant.” __AP5</i></p> <p><i>“In agile project, it is very easy for us to have a check on project. With every piece we deliver, we can assess the performance. With every delivery, we have a check with the customer that whether we are heading towards right direction. In waterfall, project delivery is done once it is fully developed therefore it is not possible to have insight whats going on during the course of the project.” __AP27</i></p> <p><i>“We have check after getting delivery of the product pieces. If we feel that the project is heading towards wrong, we can take measures to get it fixed. In worst scenario we can also stop it. In that case too we have certain working parts of the project. In waterfall this type of supervision is not possible.” __AP28</i></p> <p><i>“The main advantage of using agile method is communicative – the communication between supplier and customer is so much higher than with traditional methods that whatever is the outcome of the project, it’s hardly a surprise for either. So it’s usually a joint evaluation. Besides, projects which follow agile management approaches do require agreement under way, so they tend to be seen as successful (so long they are properly executed).” __AP2</i></p>
In your opinion, how project success can be achieved?	<p><i>“Project manger needs to be so skillful that he should take into account perspectives of different stakeholders.” __AP31</i></p> <p><i>“Continuous feedback from customers will make sure that how they perceive success.” __AP24</i></p> <p><i>“Getting continuous feedback from customer helps to get customer satisfaction at the end of the project.” __AP19</i></p> <p><i>“Customer involvement is very important in agile projects. When they are involved at every step of the project it is more easy to judge that whether they are happy with the product or not.” __AP21</i></p>
Follow up question	
How customer satisfaction can be achieved?	<p><i>“In agile, customer is involved in the development process therefore they can provide valuable feedback. We can use this feedback to improve the product and ultimately product delivered according to the specification of the customer which makes them more happy with supplier. Whereas in waterfall suppliers and customers work at distant.” __AP5</i></p> <p><i>“Customer can only be happy if they get more value for their money. Sometimes they are very unclear about what they want so we have to invest more time in understanding the requirements of the project. Once we understand and deliver the product.” __AP22</i></p> <p><i>“We need return on the investment we made. Since we are investing in the software project. We have to get maximum return on it. Once we are sure we are getting it this make us as customer more satisfied than anything else.” __AP25</i></p>

4.1 Summary of the findings

The findings suggested that the success criteria in agile projects are not very different from the success criteria identified for projects that follow a waterfall model. They typically include criteria that fall within the *project management success* category, such as delivering on time, on budget and according to the specifications. They also include criteria that fall into the *project success* category, such as customer satisfaction, providing value to the

customer, having an impact on business in the supplier organization, creating new opportunities in terms of new contracts, learning and sustaining the supplier business.

Based on information collected from the informants, we identified two fundamental differences that distinguish the perception of success in agile projects from that in waterfall projects:

Firstly, in agile projects, the evaluation is carried out on a regular basis after each increment. This regular and continuous measurement of success offers several advantages over projects that use the waterfall approach. These advantages, according to the informants, are as follows:

- 1- Continuous measurement of the project status brings the customer closer to the project and thus increases the level of commitment to the project. Commitment is important for providing feedback about the product;
- 2- Continuous measurement helps in detecting deviations and not least the causes of these deviations; this in turn reduces the level of uncertainty about how the project will evolve, particularly in terms of the remaining tasks and functionalities. The scope of the work in each increment is limited and therefore the achievement of results after each increment can be easily measured; this facilitates decision making on whether the project is heading in the right direction or not. In extreme cases, the customer will still have certain working functionalities even if the decision to halt the project is taken;
- 3- Continuous measurement allows for better knowledge sharing and a better trust level between the parties;
- 4- Perhaps more significantly, the measurement of success is performed jointly. That is, achieving a consensus about whether an iteration or a delivery is a success or a failure is based on a negotiated argument. This facilitates the consideration of a subjectivist view for the measurement of success.

Secondly, in agile projects, there is a stronger focus and greater emphasis on ensuring customer satisfaction. This customer satisfaction is measured in terms of how quickly the project delivered value. Delivering within the budget seems to be a less significant criterion in measuring success. Customer satisfaction is a broad term. From the interview results, we believe that the following conditions should be met to achieve this level of satisfaction:

- 1- Customers feel themselves to be involved in the process through continuous feedback and prioritization of features;
- 2- The customer has control over the project;
- 3- The customer obtains value for money and is able to see that each iteration is a step towards value creation.

The other findings are also in line with the project management body of knowledge. For instance, in agile projects as well, every stakeholder has a different perspective of success. From the customer's viewpoint, the success criterion is the value received for the money invested. The technical staff is happy if everything works nicely, there are no serious bugs and they learnt something new. The management is happy if the company gains more customers or keeps its existing ones. The developer's perspective of success is to deliver the complete features within the time and less emphasis is placed on other success criteria. Some respondents believe that success criteria are about finishing user stories/features within the time and budget, while others think that delivering on time is more important than finishing within the budget. These findings suggest that it is important to clarify and define the project success criteria as a joint effort between supplier and customer organizations before start-up. Therefore, it is a recommended practice to define the expected success criteria up front. To deliver business value to the customer, it is very important for the supplier and the customer to define the criteria for success at the start of the project. These criteria should be realistic, meaning that they need to be achievable and measurable. Different stakeholders should be asked to define clearly what, in their opinion, the end result of the project should be. Hussein [29] conducted an empirical study on 145 participants from different industries and pointed out the causes of changes in success criteria in Norway. Among other reasons, he pointed out the "lack of alignment of success criteria during the initiation phase" as an important reason for ultimately

failing to achieve success. He suggested that project success criteria should be defined during the initiation phase and used as a reference frame for the life cycle of the development [29].

5. Discussion and analysis

In this section, we intend to discuss the findings outlined in the previous chapter. As the findings suggest, there are two interrelated differences between the way in which success or failure is measured in agile projects and the way in which it is measured in waterfall-based projects. One of the differences is related to the frequency of measurement and the other is related to the focus of this measurement. It is also observed that a higher frequency of assessment influences customer satisfaction positively.

1) Continuous assessment of status. This is perhaps the most fundamental difference that we observed in the findings. Continuous assessment and evaluation of the project status jointly with the client offer several advantages. We shall present the significance of these findings in light of the project management literature on related topics.

- Greater commitment. The importance of commitment (organizational commitment and commitment of the project organization) to project success is widely considered to be an important success factor [47],[49]. Fowler and Horan identified a combination of top management commitment and project team commitment as a force driving the successful development of IS projects [50]. Pinto and Prescott identified top management support as a critical success factor and suggested its dominance in the planning phase of the project life cycle [51]. McLeod and MacDonell (2011) emphasized the importance of top management commitment in projects as it plays various roles in the organization, for example influencing attitudes, creating a positive context for change, overseeing the development of the project and ensuring the availability of resources [52];
- A higher level of trust and a better sense of control. Trust is defined as the willingness to assume [53]. It is a complex concept because it is multi-layered, multi-disciplinary and multi-dimensional and changes over time [54]. Trust has an impact on decision making because decisions are made in light of the level of trust and the perceived risk [53]. Trust and control coevolve [55]; nevertheless, the challenge is to find the right mixture of the two because total control can lead project participants to feel that they are not trusted and can have consequences of a moral hazard nature [56]. Trust is perceived as an enabler of knowledge-sharing behaviors [57]. According to Lewis, interpersonal trust enables the quality of communication. In the project performance, the impact of trust can also be observed in its role in uncertainty management [58]. According to Atkinson et al., trust generates more open communication and therefore more accurate risk assessment [56];
- Reduced task uncertainty. Task uncertainty includes several variations or forms, such as difficulty (having difficult tasks ahead), interdependence between tasks and newness of tasks (never been attempted before) [59]. According to the author, these forms of task uncertainty have a negative impact on the level of perceived success or failure of projects. Continuous measurement helps in detecting the difficult tasks lying ahead. The scope of the work in each increment is limited and therefore the achievement of results after each increment can be easily measured; this facilitates decision making on whether the project is heading in the right direction or not. In extreme cases, the customer will still have certain working functionalities even if the decision to halt the project is taken;
- Considers the subjectivist view. This entails recognizing that different stakeholders in the same project might have different evaluations of the project. McLeod et al. studied several IS projects and concluded that project outcomes are interpreted differently from different stakeholder perspectives, and also potentially at different times, and are constructed through subjective processes of sense making [52]. Joint sessions of assessment therefore provide a better atmosphere for discussing these different and subjective views before reaching final conclusions about the outcome.

2) **A stronger focus on the impact on the customer.** This involves meeting specifications, satisfying customer needs and providing a return on investment for the customer. These are measured using a combination of objective measures, such as the number of functions delivered and time to delivery; they are also measured subjectively in terms of the sense of commitment, sense of better control, trust, sense of task certainty and ability to express subjective opinions.

6. Conclusions

The project success criteria from the supplier perspective in projects that use agile-based approaches are not significantly different from the success criteria used in projects that are based on waterfall models. The assessment of success or failure is based on criteria that typically fall into either the *project management success* category, such as delivering on time, on budget and according to specifications, or the *project success* category, such as customer satisfaction, providing value to the customer, having an impact on business in the supplier organization, creating new opportunities in terms of new contracts, learning and sustaining the supplier's business.

The paper, however, identified two fundamental differences that distinguish the perception of success in agile projects from that in waterfall projects. Firstly, in agile projects, the evaluation is carried out on a regular basis after each increment. This regular and continuous measurement of success offers several advantages, including:

- 1) Greater commitment and involvement from the customer;
- 2) A higher level of mutual trust between the supplier and the customer, which leads to better knowledge sharing;
- 3) Reduced task uncertainty, which provides more predictability about the direction of the project and better grounds for change control;
- 4) Room to consider multiple and subjective assessments by various stakeholders to achieve a consensus about the state of the project.

Secondly, there is a strong emphasis on customer satisfaction. Customer satisfaction is measured in terms of how quickly the customer obtains value from the project. The continuous assessment of success after each iteration also has a significant, positive impact on the way in which the customer evaluates the project outcome.

Our final conclusion is that this study demonstrates the importance and consequences of continuous and regular assessment of project status, regardless of the type of approach followed in the project. This continuous assessment increases the level of commitment, mutual trust, knowledge sharing and predictability and provides the stakeholders with opportunities to express their subjective and changing views on the project status. All these factors contribute positively to the overall satisfaction with the project.

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References

- [1] K. Jugdev and R. Müller, "A retrospective look at our evolving understanding of project success," *Project Management Journal*, vol. 36, no. 4, pp. 19-31, 2005.
- [2] M. A. Awad, "A comparison between agile and traditional software development methodologies," Honors Programme, Computer Science and Software Engineering, University of Southern Australia, 2005.
- [3] B. Boehm and R. Turner, "Management challenges to implementing agile processes in traditional development organizations," *Software, IEEE*, vol. 22, no. 5, pp. 30-39, 2005.

- [4] D. Cohen, M. Lindvall and P. Costa, "An introduction to agile methods," *Advances in Computers*, vol. 62, pp. 1-66, 2004.
- [5] D. Baccarini, "The logical framework method for defining project success," *Project Management Journal*, vol. 30, no. 4, pp. 25-32, 1999.
- [6] C. S. Lim and M. Z. Mohamed, "Criteria of project success: an exploratory re-examination," *International Journal of Project Management*, vol. 17, no. 4, pp. 243-248, 1999.
- [7] S. Lipovetsky, A. Tishler, D. Dvir and A. Shenhar, "The relative importance of project success dimensions," *R&D Management*, vol. 27, no. 2, pp. 97-106, 1997.
- [8] A. J. Shenhar, D. Dvir, O. Levy, and A. C. Maltz, "Project success: a multidimensional strategic concept," *Long Range Planning*, vol. 34, no. 6, pp. 699-725, 2001.
- [9] L. A. Ika, "Project success as a topic in project management journals," *Project Management Journal*, vol. 40, no. 4, pp. 6-19, 2009.
- [10] A. D. Wit, "Measurement of project success," *International Journal of Project Management*, vol. 6 no. 3, pp. 164-170, 1988.
- [11] L. McLeod, B. Doolin and S. G. MacDonell, "A perspective-based understanding of project success," *Project Management Journal*, 2012, vol. 43, no. 5, pp. 68-86, 2012.
- [12] J. Wateridge, "How can IS/IT projects be measured for success?," *International Journal of Project Management* vol. 16, no. 1, pp. 59-63, 1998.
- [13] A. Munns and B. F. Bjeirmi, "The role of project management in achieving project success," *International Journal of Project Management*, vol. 14, no. 2, pp. 81-87, 1996.
- [14] R. Atkinson, "Project management: cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria," *International Journal of Project Management*, vol. 17, no. 6, pp. 337-342, 1999.
- [15] M. Freeman and P. Beale, "Measuring project success," *Project Management Journal*, vol. 23, no. 1, pp. 8-17, 1992.
- [16] A. M. Aladwani, "An integrated performance model of information systems projects," *Journal of Management Information Systems*, vol. 19, no. 1, pp. 185-210, 2002.
- [17] T. Saarinen, "An expanded instrument for evaluating information system success," *Information & Management*, vol. 31, no. 2, pp. 103-118, 1996.
- [18] P. Yetton, A. Martin, R. Sharma and K. Johnston, "A model of information systems development project performance," *Information Systems Journal*, vol. 10, no. 4, pp. 263-289, 2000.
- [19] L. C. Stuckenbruck, "Who determines project success?" in *Project Management Institute (ed.) Proceedings of the 18th Annual Seminar/Symposium*, Montreal, Canada, 1986, pp. 85-93.
- [20] M. Cuellar, "Assessing project success: moving beyond the triple constraint," in *International Research Workshop on IT Project Management*, Nord-Carolina, USA, 2010, pp. 19-28.
- [21] D. Dvir, S. Lipovetsky, A. J. Shenhar and A. Tishler, "In search of project classification: a non-universal approach to project success factors," *Research Policy*, vol. 27, no. 9, pp. 915-935, 1998.
- [22] R.F. Cox, R.R. Issa and D. Aherns, "Management's perception of key performance indicators for construction," *Journal of construction engineering and management*, vol. 129, no. 2, pp. 142-151, 2003.

- [23] A. Fowler and M. Walsh, "Conflicting perceptions of success in an information systems project," *International Journal of Project Management*, vol. 17, no. 1, 1999.
- [24] J.K. Pinto and D.P. Slevin, "Critical success factors in R&D projects," *Research Technology Management*, vol. 32, no.1, pp. 31, 1989.
- [25] L.W. Smith, "Project clarity through stakeholder analysis," *The Journal of Defense Software Engineering*, vol. 4, no. 9, 2000.
- [26] K. R. Linberg, "Software developer perceptions about software project failure: a case study," *Journal of Systems and Software*, vol. 49, no. 2, pp. 177-192, 1999.
- [27] D. Basten, D. Joosten and W. Mellis, "Developing a situational model of information system project success," in *AIS Special Interest Group for Information Technology Project Management (ed.) Proceedings of the 6th pre-ICIS International Research Workshop on IT Project Management*, Shanghai, China, ch. 10, 2011, pp. 5-17.
- [28] D. Christenson and D. H. Walker, "Understanding the role of 'vision' in project success," *IEEE Engineering Management Review*, vol. 32, no. 4, pp. 57-73, 2004.
- [29] B. A. Hussein, "Causes of change to project success criteria: a study based on project management practices in Norway," in *PMI Research and Education Conference*, Limerick, Ireland, 2012, pp. 250.
- [30] M. L. Korzaan, "The influence of commitment to project objectives in information technology (IT) projects," *The Review of Business Information Systems*, vol. 13, no. 4, pp. 89-97, 2009.
- [31] D. Dvir, and T. Lechler, "Plans are nothing, changing plans is everything: the impact of changes on project success," *Research Policy*, vol. 33, no. 1, pp. 1-15, 2004.
- [32] S. Barney, A. Aurum and C. Wohlin, "A product management challenge: creating software product value through requirements selection," *Embedded Software Design (JSA)*, vol. 54, no. 6, pp. 576-593, 2008.
- [33] B. Boehm, "Value-based Software Engineering: Overview and Agenda," in *Value-Based Software Engineering*, USA:Springer Berlin Heidelberg, 2005, pp. 3-14.
- [34] S. Nunnenmacher, J. Jung, G. Chehrazi, A. Klaus, C. Lampasona, C. Webel and M. Ciolkowski, "A preliminary survey on subjective measurements and personal insights into factors of perceived future project success," *Proceedings of the 5th ACM / IEEE International Symposium on Empirical Software Engineering and Measurement*, September 22-23, Alberta Canada, 2011, pp. 396-399.
- [35] J. F. Wateridge, "Delivering successful IS/IT projects: eight key elements from success criteria to review via appropriate management, methodologies and teams," *PhD. dissertation*, Business and Management Brunel University, London, England, 1996.
- [36] J. Procaccino and J. M. Verner, "Software practitioner's perception of project success: a pilot study," *International Journal of Computers. The Internet and Management*, vol. 10, no. 1, pp. 20-30, 2002.
- [37] K. Walsh and H. Schneider, "The role of motivation and risk behavior in software development success," *Information Research*, vol. 7, no. 3, pp. 27-36, 2002.
- [38] S.O. Ogunlana, "Beyond the 'Iron Triangle': stakeholder perception of key performance indicators (KPIs) for largescale public sector development projects," *International Journal of Project Management*, vol. 28, no. 3, pp. 228-236, 2009.
- [39] T. A. DeCotiis and L. Dyer, "Defining and measuring project performance," *Research Management*, vol. 22, no. 1, pp. 17-22, 1979.

- [40] O. Pankratz and C. Loebbecke, "Project managers' perception of IS project success factors – a repertory grid investigation," *Proceedings of the 19th European Conference on Information Systems*, June 9-11, Helsinki, Finland, 2011, pp. 2102-2113.
- [41] O. Pankratz, D. Basten, F. Pansini, M. Terzieva, V. Morabito and L. A. Anaya, "Ladder to success – eliciting project managers' perceptions of IS project success criteria," *International Journal of Information Systems and Project Management*, vol. 2, no. 2, pp. 5-24, 2014.
- [42] N. Agarwal and U. Rathod, "Defining 'success' for software projects: An exploratory revelation," *International Journal of Project Management*, vol. 24, no. 4, pp. 358-370, 2006.
- [43] R. Müller and R. Turner, "The influence of project managers on project success criteria and project success by type of project," *European Management Journal*, vol. 25, no. 4, pp. 298-309, 2007.
- [44] P. Savolainen, J.J. Ahonen and I. Richardson, "Software development project success and failure from the supplier's perspective: a systematic literature review," *International Journal of Project Management*, vol. 30, no. 4, pp. 458-469, 2012.
- [45] J. Johnson, J. Crear, T. Mulder, J. Lynch and L. Gesmer (2015, November 15), *Success Redefined* [Online]. Available: <http://blog.standishgroup.com/post/23>.
- [46] P. Advice, "Study design in qualitative research—2: Sampling and data collection strategies," *Education for Health*, vol. 13, no. 2, pp. 263-271, 2000.
- [47] V. Braun and V. Clarke, "Using thematic analysis in psychology," *Qualitative Research in Psychology*, vol. 3, no. 2, pp. 77-101, 2006.
- [48] B. A. Hussein, "Factors influencing project success criteria," *Proceedings of the 2013 IEEE 7th International Conference on Intelligent Data Acquisition and Advanced Computing Systems (IDAACS), IEEE Conference Proceedings*, vol. 2, pp. 566-571, 2013.
- [49] B. A. Hussein and O. J. Klakegg, "Measuring the impact of risk factors associated with project success criteria in early phase," *Procedia – Social and Behavioral Sciences*, vol. 119, pp. 711-718, 2014.
- [50] J. J. Fowler and P. Horan, "Are information systems' success and failure factors related? An exploratory study," *Journal of Organizational and End User Computing*, vol. 19, no. 2, pp. 1-22, 2007.
- [51] J. K. Pinto and J. E Prescott, "Variations in critical success factors over the stages in the project life cycle," *Journal of Management*, vol. 14, no. 1, pp. 5-18, 1988.
- [52] L. McLeod and S. G. MacDonell, "Factors that affect software systems development project outcomes," *ACM Computing Surveys*, vol. 43, no. 4, pp. 1-56, 2011.
- [53] R. C. Mayer, J. H. Davis and F. D. Schoorman, "An integrative model of organizational trust," *Academy of Management Review*, vol. 20, no. 3, pp. 709-734, 1995.
- [54] E. Lau and S. Rowlinson, "The implications of trust in relationships in managing construction projects," *International Journal of Managing Projects in Business*, vol. 4, no. 4, pp. 633-659, 2011.
- [55] A. C. Inkpen and S. C. Currall, "The coevolution of trust, control, and learning in joint ventures," *Organization Science*, vol. 15, no. 5, pp. 586-599, 2011.
- [56] R. Atkinson, L. Crawford and S. Ward, "Fundamental uncertainties in projects and the scope of project management," *International Journal of Project Management*, vol. 24, no. 8, pp. 687-698, 2006.

- [57] A. Wiewiora, G. Murphy, B. Trigunaryah and K. Brown, "Interactions between organizational culture, trustworthiness, and mechanisms for inter-project knowledge sharing," *Project Management Journal*, vol. 45, no. 2, pp. 48-65, 2014.
- [58] D. E. Lewis, "An investigation into the relationship between product innovation, trust, and diversity," *Accounting & Tax Database*, Capella University, Ann Arbor, 2014.
- [59] S. Blili, L. Raymond and S. Rivard, "Impact of task uncertainty, end-user involvement, and competence on the success of end-user computing," *Information & Management*, vol. 33, no. 3, pp. 137-153, 1998.
- [60] T. Diefenbach, "Are case studies more than sophisticated storytelling? Methodological problems of qualitative empirical research mainly based on semi-structured interviews," *Quality and Quantity*, vol. 43, no. 6, pp. 875-894, 2009.

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