Employees' agency in the formalisation of knowledge-intensive business service processes: A cross-case comparison

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Abstract

Purpose – This study aims to identify and explain how different kinds of knowledge-intensive business service processes (KIBS processes) can be formalised without excessively limiting employees' agency, and thus flexibility in value creation. Previous research acknowledges the need to balance flexibility and formalisation but does not investigate how employees achieve this balance in various types of KIBS processes.

Design/methodology/approach – This paper employs a qualitative multiple-case study approach to compare employees' agency in six successful formalisation projects targeting different types of KIBS processes in three firms. Through a systematic mapping of employees' agency across the cases, this study reveals alternative patterns of formalisation that enable agency.

Findings – The findings reveal notable differences in employees' agency in the studied cases. When KIBS processes were scale-intensive and/or the culture favoured conformity, formalisation projects were centrally organised, and employees obeyed codified process templates, even though some agency remained. When KIBS processes were smaller scale and/or the culture favoured freedom, employees conducted formalisation projects autonomously and retained higher levels of agency in formalised KIBS processes.

Practical implications – Firms and business units providing KIBS should choose their formalisation approaches locally based on the scalability of the KIBS process, their employees' skill levels, knowledge bases and culture. Choosing the right approach enables flexibility while striving for efficient processes.

Originality/value – Previous studies suggest that formalisation benefits only some KIBS, but this comparative approach shows that a variety of KIBS processes benefit from formalisation if the formalisation approach is tailored to the context. Alternative patterns of formalisation are revealed to guide further empirical research on the topic.

Keywords: Formalisation, agency, value-creation processes, knowledge-intensive business services (KIBS)

1. Introduction

Service firms must be able to flexibly support customers' value creation (Brozovic et al., 2016). Often, such flexibility depends on employees' agency, that is, employees' ability to exercise individual judgment in value-creation processes (Feldman and Pentland, 2003) in order to match the firm's and the customers' processes and resources in meaningful ways (John et al., 2006). Employees' agency plays a major role in value-creation processes related to knowledge-intensive business services (KIBS) (hereafter *KIBS processes*), such as sales and delivery processes in software, business-to-business (B2B) consultancy and research and development (R&D) services (Strambach, 2008; Aarikka-Stenroos and Jaakkola, 2012). However, many firms are formalising their KIBS processes to increase efficiency and quality (Jaakkola, 2011; Rahikka et al., 2011; Bettiol et al. 2015). This paper defines formalisation as intentional efforts to make service sales and delivery processes more uniform and replicable by limiting variation and generalising knowledge (e.g., Organ and Greene 1981; Feldman and Pentland, 2003; Pentland and Feldman, 2008). The study aims to identify and explain how different kinds of KIBS processes can be formalised without excessively limiting employees' agency, and thus flexibility in value creation.

Previous studies report different effects of formalisation on employees' agency. Formalisation can support agency by enabling knowledge sharing and creating shared meaning, transparency and trust (Kärreman et al., 2003; Brivot, 2011; Rahikka et al., 2011). It can also excessively constrain agency if it limits employees' ability to support customers' situated value creation (Morris, 2001; Vaast and Levina, 2006; Sandholtz, 2012). These outcomes may depend on how the formalisation project is implemented — particularly on how employees are taken into account (Vaast and Levina, 2006; Brivot, 2011; Sandholtz, 2012; Wright et al., 2012). Furthermore, some KIBS processes may be more amenable to formalisation than others

(Consoli and Elche-Hortelano, 2010; Pina and Tether, 2016), which indicates that employees need more freedom in some KIBS processes. However, these differences have not been systematically and empirically studied at the level of the KIBS process. Many studies assume a uniform firm-level approach to formalisation (Morris and Empson, 1998; Morris, 2001; Kärreman et al., 2003; Rahikka et al., 2011; Bettiol et al., 2012) or analyse experiences at the individual level (Haas and Hansen, 2005; Skjølsvik, 2016), without making comparisons across KIBS processes. Because comparative studies are lacking, it is not known exactly how employees' agency should be taken into account in different types of KIBS processes. Understanding employee perspectives in greater detail can significantly contribute to the service studies addressing flexibility and formalisation (Brozovic et al., 2016; Skjølsvik, 2016). In addition to making employees' work meaningful, choosing a suitable formalisation approach for each KIBS process benefits firms and customers by supporting flexibility (Kärreman et al., 2003; Brivot, 2011).

To address this topic, this study compares employees' agency in six formalisation projects and in their outcomes, formalised KIBS processes, in three firms. The firms represent different businesses (management consultancy, insurance and software services), and the selected formalisation projects target KIBS processes that varied in terms of type of service, knowledge base and scale intensity of the process. The firms' employees perceived all six projects as successful. By comparing these successful formalisation projects, the study creates new knowledge about how different kinds of KIBS processes can be formalised without excessively limiting employees' agency. The paper demonstrates that formalisation can benefit many types of KIBS processes and reveals alternative approaches that firms use to enable employees' agency and thus flexibility in formalised KIBS processes. These findings can be further developed and tested in future empirical studies.

This paper begins by discussing the existing literature on the nature of KIBS processes, employees' agency in KIBS and the formalisation of KIBS processes. Next, the research methods and data are presented. The findings sections compare employees' agency across formalisation projects and formalised KIBS processes and analyse the potential explanations for the differences across the cases. The discussion section considers the implications of the findings for research and practitioners. The paper ends with a summary of the limitations of this study and suggestions for further research.

2. Theoretical Framework

2.1 Employees' agency and flexibility in KIBS processes

Services are generally viewed as processes (Lovelock, 1991; Edvardsson et al., 2005) which comprise performances that require flexibility (John et al., 2006). Employees' *agency* – their ability to influence their work, respond to new situations and make informed situated judgments (Feldman and Pentland, 2003) – ensures that these flexible performances support value creation and meet customer expectations (Ojasalo, 2001; Edvardsson et al., 2012).

Flexibility and agency are inherent parts of any service process, but they are highlighted in KIBS processes where employees develop unique solutions for customer firms (Alvesson, 2004). KIBS might be offered by specialised KIBS firms or by other firms as part of their B2B offerings, and they involve knowledge as an important input and output (Alvesson, 2004). In KIBS processes, employees display high skill levels and professional autonomy when solving complex problems (Alvesson, 2004; Strambach, 2008; Aarikka-Stenroos and Jaakkola, 2012). Agency enables improvisation and new knowledge creation (Aarikka-Stenroos and Jaakkola, 2012; Fosstenløkken et al., 2003). Employees can also transfer tacit knowledge directly across customer contexts (Strambach, 2008) and reinforce creativity in service innovations

(Giannopoulou et al., 2014). As new solutions spread among employees, these solutions gradually change KIBS processes (Fosstenløkken et al, 2003; Werr and Stjernberg, 2003). Therefore, KIBS processes are often continuously developing (Alvesson, 2004).

2.2 Formalisation as a trend influencing KIBS processes

The traditional view suggests that KIBS processes are informal and employees' agency is guided by professional expertise, tacit norms and collegial control (e.g. Robertson and Swan, 2003). In contrast, many studies report the increased formalisation of KIBS processes, along with service standardisation (Bettiol et al. 2015), modularisation (Rahikka et al., 2011) and productisation (Jaakkola, 2011; Valminen and Toivonen, 2011). Informal processes are viewed as ambiguous and inefficient while striving for efficient, scalable and profitable processes (Morris, 2001; Briscoe, 2007). Also, the effective application of knowledge is suggested to increase customer value (Martelo-Landroguez and Martin-Ruiz, 2016).

This paper defines *formalisation* as intentional efforts to make service sales and delivery processes uniform and replicable by limiting process variation and generalising knowledge (e.g. Organ and Green 1981; Feldman and Pentland, 2003; Pentland and Feldman, 2008). Formalisation is connected to the standardisation of process templates (e.g. Sandholtz, 2012) and the codification of knowledge (e.g. Brivot, 2001; Vaast and Levina, 2006). This paper assumes that formalisation increases the importance of such codified/standardised resources in KIBS processes (Organ and Greene 1981; Morris and Empson, 1998; Feldman and Pentland, 2003) – they are typical outcomes of formalisation projects (Feldman and Pentland, 2008). Here these codified resources are referred to as '*codified process templates*', comprised of written rules, service models, process blueprints and tools which are defined in formalisation projects.

Formalisation can be seen to change two dimensions of KIBS processes in that it 1) increases the importance of codified process templates, which 2) subsequently changes how employees are allowed to exercise agency in KIBS processes. This study uses the term 'formalisation' instead of 'standardisation' to stress that firms can codify the process templates, but they cannot completely standardise how employees use such templates in KIBS processes. Even though codified process templates enable and constrain employees' agency in a desired way, some agency must remain; the employees always have some embodied knowledge and some discretion in their actions (Alvesson, 1993; Edvardsson and Olsson, 1996). Thus, employee and customer interactions cannot be replicated in a standardised manner. In particular, frontline interactions depend on employees' situated judgment and interpersonal skills (Alvesson, 1993).

2.3 Employees' experiences of the enabling and constraining effects of formalisation

Empirical studies provide mixed findings regarding the outcomes of formalisation for employees in KIBS. Table 1 presents the key aims, findings and new research gaps described in studies addressing formalisation from an employee perspective in KIBS firms, such as professional service firms. These studies, along with studies addressing KIBS processes in other types of firms (Kelley et al., 1996; Sandholtz, 2012; Vaast and Levina, 2006) and studies with somewhat different primary research focuses (Valtakoski and Järvi, 2016; Wright et al., 2012), have shown that formalisation can indeed yield benefits for employees that go beyond cost efficiency. Rahikka et al. (2011) found that the modularisation of construction engineering services helped customers to trust the firm. Brivot (2011) showed that codification increased transparency without creating resistance when employees retained control of their work in a law firm. Thus, increased process consistency may improve the professional reputation of employees (Brivot, 2011; Wright et al., 2012). Furthermore, Wright et al.'s (2012) and Kärreman et al.'s (2003) studies reported that codified templates created shared meanings

6

which helped employees cope with ambiguity. In addition to business services, studies addressing knowledge-intensive processes in other settings provide similar findings. Kelley et al. (1996) demonstrated that formalisation reduced inappropriate deviations in consumer-oriented bank and insurance services. Briscoe (2007) observed that formalisation increased the temporal flexibility of doctors by decreasing the person-dependency of their work.

Insert Table 1: Empirical research on employee viewpoints on the formalisation of KIBS processes in KIBS firms

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However, employees may also perceive formalisation as harmful and limiting their agency too much. It can prevent improvisation in novel customer situations, and employees' status might be threatened (Morris, 2001). Haas and Hansen (2005) revealed that codification helped junior consultants but was time-consuming for experienced consultants. Vaast and Levina (2006) showed how standardisation failed in an IT organisation because employees and customers were not listened to, while Sandholtz et al. (2012) demonstrated that professionals could not easily internalise standards created by other experts. Studies in other contexts suggest that if codified process templates do not support actual value-creation processes, employees may deviate from the templates either intentionally or unintentionally (Orlikowski, 2000; Pentland and Feldman, 2008), leading to the decoupling of the process templates from actual processes (Sandholtz, 2012; Gondo and Amis, 2013).

2.4. Employees' agency in formalisation projects and KIBS processes

The above review indicates that formalisation can enable employees' agency if it creates shared meaning, transparency and trust, thereby clarifying employees' work and helping them to make

appropriate situated judgments (Kärreman et al., 2003; Brivot, 2011; Rahikka et al., 2011; Wright et al., 2012). Formalisation can constrain employees' agency too much if their freedom is excessively curtailed, their necessary person-dependent knowledge is downplayed, or the codified process templates are not suitable for their work (Morris, 2001; Haas and Hansen, 2005; Vaast and Levina, 2006; Sandholtz et al., 2012). These findings resonate with the idea that formalised organisation can be either 'enabling' or 'constraining' (Adler and Borys, 1996; Adler, 2012). One pressing question concerns how to enable, instead of excessively limit, employees' agency in KIBS processes under various circumstances.

The above studies on KIBS specifically and formalisation more generally point out two issues. First, previous researchers call for employee involvement in formalisation projects so that their practical expertise can be captured within the codified process templates (Vaast and Levina, 2006; D'Adderio, 2008; Pentland and Feldman, 2008; Sandholtz, 2012). When employees and other important actors are involved, trust one another and strive toward similar goals, formalisation projects can clarify complexities and create a collective understanding of the best practices (Adler and Borys, 1996; Valtakoski and Järvi, 2016). In this way, formalisation projects can leverage employees' skills, thereby helping employees understand the principles of value-creation processes, which will in turn make them more capable of flexibly using codified process templates in customer situations (Adler, 2012).

Second, attention must be paid to exactly how formalisation projects change KIBS processes. The studies mentioned above indicate that codified process templates should leave sufficient room for employee agency and allow employees to identify instances which require creativity (Kärreman et al., 2003; Brivot, 2011; Wright et al., 2012). This is possible if organisational goals are congruent with employees' goals, power and other resources are distributed equally and codified templates allow for adjustments based on practical experiences (Brivot, 2011;

Adler and Borys, 1996; Adler et al., 1999). Under the opposite conditions, formalised KIBS processes can become coercive, lowering employees' motivation and value creation capabilities.

2.5 Different approaches to formalisation for different types of KIBS processes

Most of the studies discussed above analyse formalisation in either single- or two-case firm-level settings (Morris and Empson, 1998; Morris, 2001; Kärreman et al., 2003; Rahikka et al., 2011; Bettiol et al., 2012) or in individual-level cross-sectoral surveys (Haas and Hansen, 2005; Skjølsvik, 2016). Many of the studies assume a firm-level knowledge management system or strategy (Morris and Empson, 1998; Morris, 2001; Haas and Hansen, 2005; Brivot, 2011; Bettiol et al., 2012) and do not identify differences in employees' agency across KIBS processes between and within firms.

These process-level differences are important to consider because there is considerable heterogeneity across KIBS sectors (Asheim et al. 2007; Consoli and Elche, 2010, 2013; Pina and Tether, 2016). Some KIBS processes may benefit from a rigid formalisation approach, whereas others might not. Previous research suggests that three characteristics of KIBS processes may influence formalisation outcomes: the type of KIBS process and employees' related skill levels, the type of knowledge base, and scale intensity of the process. Consoli and Elche (2013) suggest that technology-intensive KIBS processes, excluding R&D, are amenable to formalisation because the spectrum of problem-solving options is known and front-line employees' skill levels are relatively low. In contrast, professional service processes are difficult to formalise because they require situated problem solving and complex cognitive and social skills (Consoli and Elche, 2010). In professional services room for improvisation is needed and formalisation should focus on work methods instead of content and outcomes (Alvesson, 1993; Kärreman et al., 2003; Bettiol et al., 2012).

Other researchers compare knowledge bases underlying KIBS and offer similar findings. Strambach (2008) and Pina and Tether (2016), following Asheim et al. (2007), suggest that KIBS processes that lean on analytic, science-based knowledge benefit from formalisation, whereas formalisation is more difficult in those KIBS processes using either symbolic (dealing with emotions and ideas) or synthetic knowledge (involving the pragmatic application of existing knowledge to solve local problems). In addition, the scale intensity of KIBS processes may influence formalisation choices; growing and large-scale businesses benefit from more formalisation than smaller ones (Maister, 1982; Hansen et al., 1999; Winter & Szulanski, 2001; Hydle et al., 2014).

Figure 1 summarises the research insights and the gaps that justify the present study. In conclusion, the previous studies suggest that formalisation may be beneficial when employees' agency is ensured both in formalisation projects and in formalised KIBS processes. However, sufficient levels of agency may vary across KIBS processes. There is a need for process-level comparative studies that will address contextuality and contingencies both purposively and systematically (Morris and Empson, 1998; Bettiol et al., 2015). The present study addresses this need, focusing on two research gaps. First, it analyses how employees' agency varies across *formalisation projects* targeting different types of KIBS processes. Second, it analyses how employees' agency varies across *formalised KIBS processes*.

Insert Figure 1: Themes and gaps in previous research

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3. Research Methods and Data

3.1 Research design

The authors carried out an empirical study to compare employees' agency in formalisation projects that employees perceived to be successful but varied in terms of the type of KIBS processes being formalised. By comparing successful formalisation projects, the study helps to identify and explain how different KIBS processes can be formalised without excessively limiting employees' agency. The paper employs a qualitative, embedded multiple case study (e.g. Stake, 2005), in which the 'cases' include six formalisation project types in three firms. The case study approach makes it possible to gain novel insights and facilitates a richer understanding of employees' agency in the formalisation of specific types of KIBS processes (Yin, 1994). The embedded, comparative design balanced depth with breadth, allowing the authors to analyse formalisation projects in their contexts and contribute to theoretical development (Eisenhardt, 1989). The limited number of cases does not allow for generalisation to a broader population, but it contributes to existing theory with respect to its contextual explanations of differences between successful formalisation projects.

Theoretical replication (Yin, 1994) was used to select successful formalisation projects that addressed different types of KIBS processes. Three firms were selected to analyse differences that were potentially relevant for formalisation (e.g. Maister, 1982; Strambach, 2008; Consoli and Elche, 2013; Pina and Tether, 2016). The selected firms varied in their size and business domain (management consultancy, insurance and software business). In addition to inter-firm variation, the KIBS processes also varied within the firms in terms of service type and employees' skill level, the type of knowledge base, the scale intensity of the process and the degree of customisation/formalisation prior to the studied formalisation projects. The knowledge bases range from combinations of synthetic and symbolic knowledge (typically

associated with employees' personal skills and knowledge) to analytic knowledge (associated with technology-intensive processes). Scale intensity here refers to the number of actors (employees and customers) performing a KIBS process. This variety allowed a deeper understanding of the process-level characteristics that influence formalisation approaches.

The main empirical research question is as follows: *How can different kinds of KIBS processes can be formalised without excessively limiting employees' agency?* In line with the themes presented in Figure 1, this question is divided into three sub-questions addressing employees' agency both during formalisation projects and in formalised KIBS processes.

- *RQ1: How were employees allowed to exercise their agency during formalisation projects?*

- *RQ2: How were employees allowed to exercise their agency in KIBS processes after they were formalised?*

- *RQ3: What explains the differences between cases in terms of employee agency during formalisation projects and in formalised KIBS processes?*

3.2 Case contexts: Three KIBS firms

Two of the studied firms were small- to medium-sized KIBS firms (ManCo and SoftCo), and the third was a large firm providing KIBS as a part of its offerings (InsCo). Table 2 summarises the features of these firms, and their situations are described below in more detail.

Insert Table 2: The studied firms

ManCo is a small professional KIBS firm that offers customised management consultancy and training services to private and public organisations. It consists of teams with different areas of

expertise, each employing 5–20 consultants. The KIBS processes differed across teams. Some teams preferred unified team-based services and process models, but generally, the processes were very flexible and customised: the consultants decided individually which services to offer. They followed process templates loosely and relied on their individual skills, preferences and reputations. Freedom and the ability to enjoy one's work were prioritised over growth. Even though ManCo offered some analytical tools that rely on codified templates, its knowledge base consisted largely of highly experienced consultants' professional and experience-based (synthetic) knowledge. Symbolic knowledge also played a role in inspiring customers. However, ManCo aimed to create larger, collective offerings to increase the predictability and efficiency of its business and facilitate knowledge transfer. Formalisation aimed to respond to these goals.

SoftCo is a small technology-intensive KIBS firm that offers software products, product-based consultancy and consultancy related to its customers' business processes. While its software services were codified and rely on analytic, research-based knowledge (Pina and Tether, 2016), its growing consultancy business also involved synthetic and, to some extent, personified knowledge. SoftCo's KIBS processes were more uniform than ManCo's, but customer solutions relied on expert employees' skills and individual approaches. At the time of the study, SoftCo pursued growth and wanted to transform from a software firm into a service provider. The firm hired new personnel who had to be trained quickly. This required formalising the KIBS processes so that they could be easily repeated.

InsCo is a large firm that conducts business in the finance and insurance fields. This study focuses on its B2B insurance business, which includes consultancy and training (KIBS services) related to its insurance products. Most of InsCo's processes were scale-intensive (more than 100 employees performing the process in different locations), and its service

offerings and knowledge bases were already codified and modularised. Its KIBS processes, however, depended on employees' personified knowledge and situated judgments. InsCo's product development was based on rigorous market studies and calculations and thus bore some resemblance to an analytic knowledge base. However, its KIBS services relied on synthetic and, to a lesser extent, symbolic knowledge bases where a deep understanding of customer problems was crucial, although the skill levels of frontline personnel were lower than those in the other two firms. Lately, the firm had undergone a major change to offer holistic, customer-centric service packages. This required expertise from several subsidiaries and frontline employees' ability to interpret customer problems and provide expert advice. These requirements led to the formalisation of both micro-level sales processes and the processes through which InsCo's services were combined.

Formalisation in all three firms was linked with a developmental approach known as *the productisation of services*, which focuses on concretising, systematising and formalising services and processes in order to increase efficiency and effectiveness and make services easier to comprehend (Jaakkola, 2011; Valminen and Toivonen, 2012). The formalisation of KIBS processes involved the creation of codified process templates, including goals, scope, pricing models, contents, scripts and methods applied in sales and service delivery processes.

3.3 Data collection and analysis

The primary data consist of 29 semi-structured interviews, which are supported by observations, document analysis and 17 follow-up interviews (see Table 3). Interviews with nine to eleven individuals, from top management to consultants and salespersons, were carried out in each firm. The aim was to select informants who were engaged in formalisation projects and/or formalised KIBS processes. Key informants were chosen with contact persons from

each firm, and snowball sampling was used to select additional interviewees and thus ensure diverse viewpoints on formalisation.

A thematic interview outline was designed in which the interviewees were asked to describe a) their work, b) the nature of customer relations and services, c) recent service productisation and process formalisation activities (with a focus on successful projects) and d) their implications and effects. This thematic outline was used to encourage the interviewees to share their experiences and opinions as necessary. These data were supported by public and private documentation concerning the firms and their services, participant and non-participant observations in two or three formalisation workshops in each firm, as well as five or six follow-up interviews in each firm. All interviews lasted between 60 and 120 minutes and were recorded and transcribed. Appendix 1 shows the interview themes for both rounds of interviews. Workshop observations revealed how the employees discussed and evaluated formalisation with their colleagues.

Insert Table 3: Summary of the data

The analysis included three steps through which an understanding of the differences between the formalisation projects emerged and was reflected on against the previous literature. The first phase involved casing (Ragin, 1992), that is, the identification of successful formalisation projects. The nature of the KIBS process, the reasons for formalisation, the actual changes and the perceived effects of the formalisation projects on KIBS processes were coded. Based on the similarities and differences between projects within a firm, the successful formalisation projects were categorised into types, which were treated as cases. Their success was gauged based on the interviewees' judgments regarding the benefits of formalisation (see Table 4 for

details) and evaluated against their experiences of challenges in other formalisation projects. Secondary data strengthened the analysis: follow-up interviews revealed how KIBS processes evolved after formalisation, documentation ensured adequate understanding of the studied services and workshop memos supported the analysis of the effects of formalisation. Two types of formalisation projects were identified in each of the three firms, for a total of six cases. Table 4 presents the cases and the reasons for formalisation, changes and interviewees' estimates of the successful features in each case.

Insert Table 4: Cases: six formalisation projects

The second step was a within-case analysis addressing RQ1 and RQ2. This step iterated with the third step, a cross-case analysis, which helped to categorise the observations. Case-specific observations were first summarised, paying attention to employees' agency in formalisation projects and KIBS processes. Then, these observations were compared across cases to identify general categories. In response to RQ1, three ways in which employees were allowed to exercise their agency in formalisation projects were identified. These categories were labelled *participative centralisation*, *inclusive centralisation* and *local autonomy* based on concepts used in the previous literature (e.g. Adler and Borys, 1996; Quick and Feldman, 2011) (see Chapter 4.2). With regard to RQ2, how employees were allowed to exercise their agency in formalised KIBS processes was analysed in each case, and the findings were categorised into five types, ranging *from the ability to decide how to combine codified process modules in customer cases* to *the ability to deviate completely from the codified process template*. Also, *the degree of the codification of process templates* was analysed because the initial analysis suggested that this influenced employees' agency but also that the type of templates and agency could vary independently. Process templates were categorised into two types: *partially* or

completely codified process templates. These categories are explained in Chapter 4.3. Table 5 defines the empirical categories identified for RQ1 and RQ2.

Insert Table 5. Empirical categories and their features

The third step was a cross-case analysis in which the findings from different cases were compared (resulting in the categories presented above) and explanations for the differences between the cases were sought (RQ3, see Chapter 4.4). A replication tactic was used (Miles and Huberman, 1994), that is, recurring patterns were identified in the categories shown above. These patterns were then tested and modified via systematic case comparisons. Initially, all variations between cases were taken into account. Attention was paid to the situation before formalisation, particularly to *the types of services*, *KIBS processes* and *knowledge bases*. This analysis revealed a relationship between agency and KIBS process type. The feature most distinctively related to agency was the scale intensity of KIBS processes. Scale intensity was also linked to skill levels and knowledge bases. Additionally, cultural norms were found to be important, particularly in explaining within-firm differences (such as between Cases 1 and 2 at ManCo). These findings were compared with those of previous studies to identify and assess the theoretical explanations of the study, as well as the study's implications for further research.

4. Findings

4.1 Overview of the aims and outcomes of formalisation projects in the three firms

Formalisation helped the studied firms to develop larger or cross-organisational service offerings. It supported employees' agency when selling and delivering such offerings by clarifying the function and role of specific KIBS processes, which in turn helped achieve a

shared understanding of the service and integrate activities that were necessary for the larger offerings. ManCo's consultants combined their expertise to develop collective consultancy projects. SoftCo aimed to increase its project sizes and recruit new consultants. InsCo aimed to combine the expertise of its subsidiaries in a customer-centric manner. The interviewees estimated that after formalisation, services were easier to buy and sell, which increased sales across all three organisations. Formalisation made the work tangible enough to allow for profitable pricing and helped in the training of new employees. It also helped anticipate the interactions and outputs of different actors, thereby decreasing dependence on individual employees.

These benefits, summarised in Table 4 above, resemble the benefits identified in previous studies (e.g. Kärreman et al., 2003; Brivot, 2011; Rahikka et al., 2011; Adler, 2012). However, the interviewees also noted that some employees and customers were dissatisfied with codified process templates that were created in formalisation projects due to individual antipathies toward or lack of skills in applying such templates. This indicates that formalised KIBS processes still relied on employees' willingness and skills. Because these negative perceptions were exceptions and thus rarely mentioned in the studied cases, the formalisation projects were generally considered successful.

Overall, the analysis suggests that two facts may explain the positive perceptions of formalisation. First, the interviewees agreed on the need to clarify KIBS processes. Second, formalisation was tailored to the context, so it allowed employees to exercise their agency in a manner that was necessary and possible. Next, differences in employees' agency are discussed. Section 4.2 presents the differences regarding how employees were involved in formalisation projects (in response to RQ1). Section 4.3 analyses the differences in employees' agency in

formalised KIBS processes (in response to RQ2). Finally, Section 4.4 suggests explanations for the differences between cases (in response to RQ3).

4.2 Employees' agency in formalisation projects

Instead of relying solely on specialised service development staff, each formalisation project featured attempts to utilise the practical experiences of employees. Nevertheless, the manner in which employees participated in the projects varied from merely providing ideas to carrying out formalisation autonomously. Here, the different ways of organising formalisation projects are labelled *participative centralisation*, *inclusive centralisation* and *local autonomy* (see Table 5). Each firm seemed to take a different approach: participative centralisation was identified at InsCo, inclusive centralisation at SoftCo and local autonomy at ManCo.

In *participative centralisation* at InsCo, formalisation projects were centrally coordinated. Internal developers were in charge of formalisation projects and invited selected frontline employees to present ideas in specific development phases. This approach resembles the 'enabling formalisation' proposed in earlier studies of technology firms, in which employee involvement is considered important but formalisation is still a centralised effort (e.g. Adler and Borys, 1996; Adler et al., 1999). For example, in InsCo Case 1 (cases are hereafter referred to as C1, C2 and so forth), formalisation was centralised because the aim was to reduce firm- and person-specific variations in KIBS processes. Cross-organisational groups, comprised of developers and support personnel, identified common customer needs, developed solutions and created marketing and sales materials, which were delivered through training to employees. Frontline employees and users presented ideas and comments in development workshops, but decisions were made within the project groups. Frontline representation was important in grasping customer needs:

> *The staff at the headquarters [the developers], who don't have many customer contacts, they increasingly take our opinions into account; they listen to our views on customer needs and problems in our processes. We have noticed that since the collaboration became more intensive, we have been able to tackle the problems faster and more efficiently. (InsCo's sales team leader)*

In *inclusive centralisation* at SoftCo, formalisation was also centrally controlled but employees could also exercise their agency in decision making (see Quick and Feldman, 2011), as opposed to merely presenting ideas. Both managers and employees were involved in project groups. Experienced employees had the deepest expertise of the KIBS processes, but managers wanted to ensure scalability of processes to support the firm's growth. For example, SoftCo C2 focused on processes related to complex services, offered independently of software products. Initially, the services were customised because customers' situations and skills varied considerably. Experienced consultants were key actors in formalisation, because they possessed much of the required knowledge. They defined the process templates gradually through experimenting with various tactics in customer projects. The identification of successful process templates required hands-on expertise:

> *It [the service] is relatively young, and we have still been searching for what the service is really about; this is what we have been searching for, and we have developed it through trial and error. And we did not want to freeze it yet, like 'this is it'. (SoftCo Consultant No. 1)*

Local autonomy was identified at ManCo, where consultants designed their own team-specific KIBS processes. The teams had complete responsibility for their services, and their decisions were not coordinated at the firm level. The teams decided whether and how to pursue formalisation. Their decisions depended on team culture and led to different outcomes. Also SoftCo had autonomous formalisation projects in the beginning, but it centralised its formalisation projects as its service areas expanded. The findings regarding local autonomy

differ from previous studies, which present formalisation as a centralised project (e.g. Adler and Borys, 1996), but still resonate with studies showing that expert employees' autonomy is typical of professional service firms' innovation activities (e.g. Sundbo, 1997).

4.3 Employees' agency in formalised KIBS processes

The effects of formalisation projects on KIBS processes varied along these two dimensions: 1) the degree of codification of process templates (partially or completely codified templates) and 2) how employees were allowed or expected to use their agency when applying these templates in individual customer cases. These categories are shown in Figure 2 (see also Table 5).

Insert Figure 2: Formalised KIBS processes: codification of process templates and employees' agency

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Codified process templates defined the goals, scope, pricing models, contents, scripts and methods applied in KIBS processes, either completely or partially. In completely codified templates, all of these elements were defined. These templates were introduced at InsCo and in ManCo C2. None of these templates defined a single, standard way but resembled processes typical for modularised offerings in which alternative ways of responding to customer needs are defined (Bask et al., 2011). Partially codified templates were introduced at SoftCo and ManCo C1. There, only some elements were defined, while others were specified or created by employees in individual customer cases.

The process templates did not seem to fully determine employees' agency. What mattered more were the norms regarding how employees were allowed to apply the templates in customer

cases. In some cases, strict compliance was expected, whereas in others, employees were allowed to deviate from the templates either partially or completely.

Based on these observations, employees' agency in the formalised KIBS processes was categorised into three types. In the first type, the process templates were completely codified and deviations from the templates were not allowed, but employees could *decide how to combine pre-existing process modules in customer cases*. They exercised their agency when interpreting customer needs and forming customer-specific solutions. The formalised KIBS processes at InsCo (C1 and C2) and in C2 at ManCo fall under this category. At InsCo C1, service packages were accompanied by rigidly formalised B2B sales and service delivery processes to reduce firm- and person-specific variations across InsCo. InsCo C2 focused on the formalisation of micro-level sales and customer care approaches so that every salesperson could easily start selling packages. Instead of presenting product details, the salespersons had to address the customer-specific business situation with compatible solutions. Formalisation aimed to ensure that everyone could do it, without leaning on individual customisation:

> *The most important thing is that the sales models and customer-centred solution models should follow the same template, regardless of the part of the country in which the customer interaction takes place and the office in question... (InsCo Developer No. 1)*

One of ManCo's teams (ManCo C2) followed a similar approach. Services and process templates were carefully codified, and their modules were changed only if the entire team agreed; individual improvisations were not allowed. The team wanted to ensure high-quality concepts and minimise entrepreneurial risks for team members. Its members even signed a team contract that ensured mutual care, an appreciation of team values and compliance with collective templates. The members preferred rigidly formalised processes, even though it contradicted the values nurtured in other teams:

We are systematic and disciplined; we have created models and methods that others [other teams] do not have. And we have [heard others say] we are straight-laced. We do not perceive it to be so. We have realised that once you have clear, collectively developed principles, you get a clear method that follows the principles. (ManCo Consultant No. 1)

In the second type, process templates were partially codified, and *employees were allowed to develop and apply new customer-specific modules*. Cases at SoftCo fall under this category. In SoftCo C1, the goal was to increase and simplify service sales by standardised project scopes and predefined project modules, whereas previous projects had been developed from scratch.

[We had] very little replication, and in every project, we had to wonder, from the perspective of the consultant, what to put in it and, from the perspective of the customer, what to offer. Then, we began to map systematically – okay, what are the services that we are actually already delivering, and could we make packages of some sort from them? (SoftCo Unit Manager No. 1)

Clear process guidelines decreased the firm's dependency on individual experts and helped train new consultants quickly. Nevertheless, some deviations were allowed because the range of customer problems could not be fully known prior to service delivery. In SoftCo C2, the range of customer problems was even broader, and deviation was more common. This was because services in SoftCo C2 were new and complex. Because customers' situations and skills varied considerably, these processes could not be rigidly formalised. Even after formalisation, employees could develop new knowledge and resources to solve customer problems.

In the third type, process templates were partially codified, and *employees were allowed to deviate completely from the codified process template.* ManCo C1 represents this category. Many teams at ManCo introduced partially codified process templates in order to explicate and leverage their collective expertise. These process templates clarified commonalities in their

activities and articulated collective offerings with names, value propositions, contents and project scopes. However, the application of these formalised templates in KIBS processes varied because the consultants retained the freedom to choose whether to offer the formalised services or develop their own, individual projects. This freedom was considered important not only in resolving customer problems but also in motivating consultants:

> *I think that particularly in [our] team, many of us are not motivated to do routine projects –* *and one of my aims, why I do everything we have done [in our team], is that I am constantly* *looking for interesting variations for myself, like 'wow, a new thing again, nice'. (ManCo* *Consultant No. 2)*

4.4 Explanations for differences in employees' agency in the studied cases

The above findings show that the cases varied in terms of both RQ1 and RQ2: employees exercised their agency in different ways in formalisation projects and formalised KIBS processes. To analyse potential explanations for these differences, attention was paid to the types of services, the knowledge bases, and the scale intensity of the KIBS processes, as well as other differences between cases. This analysis suggests that the *scale intensity of the KIBS process* explains much of this variation and that scale intensity was also associated with the *skill level* and *integration of knowledge bases* underlying the KIBS processes. Table 6 compares the studied KIBS processes and responses to RQ1 and RQ2. For simplicity, employees' agency is categorised from the lowest (+) to the highest (+++) levels of agency.

Insert Table 6: Cross-case comparison of KIBS process types and employees' agency

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Scale intensity ranged from KIBS processes which were replicated by small, intensively interacting teams (such as at ManCo) to processes replicated by functionally and

geographically dispersed teams (such as at InsCo). Scale and technology intensity of InsCo's processes seemed to explain why employees' agency in formalisation projects and formalised KIBS processes was limited. InsCo's process templates had to ensure consistent quality and efficiency in situations where tens or hundreds of employees delivered the service. Furthermore, the frontline employees did not have all the necessary knowledge to design such effective and profitable processes. The development and delivery of services were structurally separated and involved different types of knowledge. Developers possessed the analytic knowledge required in the development of profitable and scalable processes. Frontline personnel held the synthetic knowledge that was required in customer cases (Strambach, 2008; Pina and Tether, 2016). The findings indicate that participative centralisation at InsCo enabled the creation of scalable processes in a situation in which engaging every employee in formalisation projects was likely impossible, considering the number of employees. Furthermore, to ensure consistent quality, employees' agency in the formalised KIBS processes was carefully limited and supported.

In organisations with less scale-intensive processes, such as at ManCo, the consultants had higher skill levels and all the necessary knowledge regarding the KIBS processes in question. They knew customers' practical problems and the substance and structure of their services (i.e. synthetic and symbolic knowledge). Thus, they could decide whether and how to formalise their KIBS processes (local autonomy in formalisation projects). More room for agency also existed in the formalised KIBS processes, likely because the high skill level of the employees, the variable nature of customer problems and the possibility of discussing upcoming issues within teams enabled the development of consultants' well-grounded individual judgments. SoftCo was becoming a more scale intensive service provider, and it was positioned in between ManCo's and InsCo's formalisation approaches at the time of the study.

However, scale intensity, the separation/integration of knowledge bases and skill levels do not explain all the identified differences. ManCo's C2 showed a different pattern, where a small team decided to use a rigid, modularised approach that differed from the typical processes at ManCo. The interviewees explained this as *a cultural difference* between the teams. Whereas freedom was typically valued at ManCo, the team members in C2 deliberately limited their individual freedom in order to improve group-level conformity and quality. This indicates that the best approach for supporting employees' agency depends not only on process characteristics but also on the norms and values nurtured within the KIBS community.

5. Discussion

This study reveals how formalisation can be carried out in processes which are generally viewed as requiring high levels of agency and flexibility (Robertson and Swan, 2003; Werr and Stjernberg, 2003; Alvesson, 2004). The study provides empirical evidence regarding ways to formalise a variety of KIBS processes without harmfully limiting employees' agency and thus flexibility in value creation. The findings demonstrate that there is no 'right' way, but successful formalisation approaches vary between and within firms. These findings reflect the need to analyse service processes based on their distinct characteristics rather than generic sector-specific qualities (Strambach, 2008; Consoli and Elche-Hortelano, 2010; Pina and Tether, 2016). The findings question earlier assumptions that only some KIBS can benefit from formalisation (Consoli and Elche-Hortelano, 2010). By revealing differences in employees' agency in successful formalisation projects, the study indicates that finding a way to support employees' agency *at a sufficient level* is a key question which deserves more attention.

5.1 Theoretical implications

Previous service studies have approached the formalisation of value-creation processes from the perspective of value for the customer and for the firm (Sundbo, 2002; Bask et al., 2011; Carlborg et al., 2013; Brozovic et al., 2016), but they have not systematically analysed the importance of employees' agency in striving for flexibility within formalised processes. This study makes two key contributions.

First, it broadens the current understanding of employee involvement in formalisation projects (RQ1). The finding that employees participated in formalisation projects in all six successful cases lends support to previous studies that have emphasised the importance of employee involvement (D'Adderio, 2008; Pentland and Feldman, 2008; Sandholtz, 2012). The findings deepen previous knowledge by revealing the alternative ways in which employees exercise their agency in formalisation projects (*participative centralisation, inclusive centralisation* and *local autonomy*). Where previous research has identified the importance of finding common objectives and trust (e.g. Valtakoski and Järvi, 2016), employees' alternative roles in formalisation have not been specified. This study indicates that whereas centralised projects suit some KIBS processes, in others, autonomy may be important. The study suggests the following relationships that future research could test and explore.

The results suggest that formalisation projects are likely to benefit from participative centralisation if KIBS processes are scale-intensive, relevant knowledge is dispersed to several organisational sub-groups, frontline employees' skill levels are relatively low, and/or the organisational culture values conformity. In these situations, centralised decision making may be justified in order to align different perspectives, integrate pieces of knowledge and design scalable KIBS processes. Choosing representatives among employees is suitable approach in situations where it is likely impossible to engage them all.

Furthermore, the findings indicate that formalisation projects are likely to benefit from inclusive centralisation if the service areas are growing or moderately scale intensive, employees' skill levels are high, and employees possess the majority of required knowledge or formalisation requires hands-on experimentation with different designs. In these situations, inclusive centralisation allows more space for employees to experiment with different solutions, codify best practices and maintain some control over their work. Still, central coordination allows managers to guide development and estimate its strategic outcomes.

In addition, the results suggest that formalisation projects are likely to benefit from local autonomy if KIBS processes are small scale, frontline employees possess all the relevant knowledge of the processes, frontline employees' skill levels are high, and/or the organisational culture values individual freedom. In these situations, it is likely important to maintain employees' autonomy so that they can design processes which serve their work and enable flexible value creation for customers. As a conclusion from these findings, even a single firm may have different kinds of KIBS processes and, to become successful, formalisation should be carried out in a manner suitable for each specific KIBS process.

Secondly, the study contributes to previous studies of flexibility, efficiency and agency in knowledge-intensive services by distinguishing between different levels of employees' agency in formalised KIBS processes (RQ2). This process-level focus supplements previous studies that have been conducted either at the firm level, assuming a homogenous formalisation approach across processes (Morris and Empson, 1998; Morris, 2001; Kärreman et al., 2003; Rahikka et al., 2011; Bettiol et al., 2012), or the individual level (Haas and Hansen, 2005; Skjølsvik, 2016). The study demonstrates that formalisation approaches can vary within a firm, and that formalised KIBS processes can co-exist with informal KIBS processes even within a

single team. In ManCo C1, the formalised process templates seemed to act as optional resources that employees used when they chose to (Lehtonen et al., 2015).

The study suggests how employees' agency differs depending on the organisational culture and the scale of the formalised KIBS processes (e.g. Maister 1982). For example, relatively low levels of frontline employees' agency are likely to be sufficient for flexible value creation if KIBS processes are scale-intensive, relevant knowledge is dispersed to several organisational sub-groups, frontline employees' skill levels are relatively low, and/or the organisational culture values conformity. In such situations, agency relates to employees' ability to decide how to form customer-specific combinations using codified process templates. In a similar vein, relatively high levels of frontline employees' agency are likely beneficial for flexible value creation if KIBS processes are small-scale, frontline employees' skill levels are high and they possess all the relevant knowledge, and/or the organisational culture values individual freedom. In such instances, agency may include the ability to deviate from codified process templates to support customer value creation.

5.2 Practical implications

The findings indicate that the ability to balance flexibility and efficiency via formalisation depends on practitioners' understanding of the situation-specific requirements of value creation. The findings encourage firms to differentiate their formalisation strategies for different KIBS processes. Firstly, formalisation projects must allow the employees to capture their best expertise into the codified process templates. This requires identifying and engaging the employees who possess such expertise. Second, practitioners must define a context-specific way of allowing employees to exercise their agency when using codified process templates in customer cases. Practitioners should evaluate and describe when and to what extent deviations from codified templates should be made to support value creation. They should also ensure that

employees possess the knowledge necessary to make such deviations. When these issues are carefully considered, formalisation can benefit not only large firms with low skill levels and analytic knowledge bases (Consoli and Elche-Hortelano, 2010), but also small teams with highly experienced employees and synchronic and symbolic knowledge bases (e.g. Bettiol et al., 2013).

5.3 Limitations and future research opportunities

The study has certain limitations that invite further investigation. Because this study was qualitative and analysed a limited number of formalisation projects, the results cannot be generalised outside of the examined KIBS processes. However, similar formalisation projects are likely to be found in similar organisations, and the findings can be used in further research to focus attention on the conditions that might influence formalisation approaches. In addition to testing the findings on a broader sample, more research is needed to analyse employees' agency using evidence of both successful and failed formalisations projects. Where successful projects reveal the best practices and ideal conditions, failed projects might be revealing in terms of harmful formalisation and its triggers. Future research should also analyse formalisation projects longitudinally in order to determine whether employee involvement in formalisation projects influences the level of employees' agency in formalised KIBS processes (for example, if employees are more intensively involved in formalisation projects, will they design more flexible KIBS processes?).

Furthermore, this study solely focused on the employees' view, since it has seldom been addressed in previous research. Because value is co-created with customers and the interactions between employees and customers may differ across KIBS, future studies should explore customers' perspectives on KIBS formalisation as well. Future studies could, for example, explore formalisation from both employees' and customers' perspectives to discover how

mutual benefits can be obtained in different contexts. Finally, this study of KIBS provides insightful evidence of formalisation in distinctively flexible value-creation processes, but further research could also analyse employee agency in other types of services, such as industrial services and consumer services. This could reveal differences in the types of agency that are crucial for flexibility in a variety of value-creation processes.

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Insert Appendix 1

Table 1. Empirical research on employee viewpoints on the formalisation of KIBS processes in KIBS firms

Source	Method and context	Aims and findings	Scope choices and identified gaps justifying further research
Bettiol et al., 2012	Qualitative two-case study: design and communication service firms.	Aim: Analyses the relationship between standardisation and creativity in KIBS innovation. Shows that knowledge can be codified effectively in complex, creative service work (i.e. design). These KIBS firms can balance creative outputs with standardised working methods.	Studies employees' viewpoints of firm-level standardisation and creativity in KIBS. Explicates a further need to 1) explore how the changes in the entrepreneurial roles and strategic approaches may affect codification of the working method and 2) to compare firms in different industries to strengthen and generalise the results.
Brivot, 2011	Single-case study with multiple methods in a large law firm.	Aim: Examines whether centralised knowledge management systems contribute to a shift in power from professionals to managers in a professional service firm. Focuses on how a knowledge management system is used for knowledge codification and reuse, and how knowledge control may facilitate the re-distribution of power in the firm. Reveals that codification is useful when employees remain in control of their work: social control and self-control regulate knowledge use and retain individuals' independence.	Studies employees' viewpoints of the firm implementing a knowledge management system that changed the work practices. Single-case setting does not enable comparison. Focuses on the formalisation of knowledge management systems. Analyses control, not employee agency. Calls for more research on the bureaucratisation of service work.
Haas and Hansen, 2005	Interviews and survey with 191 respondents in a management, audit and tax consulting firm.	Explores the possibility that utilising the firm's knowledge resources to complete important tasks can have negative performance consequences. Tests the link between personal and codified knowledge and winning the bid, along with some moderating variables. Reveals that the usefulness of codification depends on the employees' level of experience: juniors benefit from it more than seniors.	Studies knowledge use statistically from the individuals' perspective in the front end of customer projects. Focuses on bids (i.e. certain customer assignments) rather than the formalisation approach or task. Points out the importance of situational factors in affecting the value of knowledge resources for the performance of task units within firms.
Kärreman et al., 2003	Two-case study with a consulting firm and a research-	Aim: Intends to reveal that also knowledge intensive firms may become bureaucratised and that such firms require context-sensitive management.	Studies standardisation of practices at the level of the firm, through personnel's experiences. Focuses on big firms.

Source	Method and context	Aims and findings	Scope choices and identified gaps justifying further research
	intensive pharmaceutical firm.	Demonstrates that traditional managerial control and standardisation of practices prevails also in knowledge-intensive firms. Bureaucratic mechanisms may help to cope with the inherent ambiguity in knowledge work, but core work processes should not be standardised ("selective bureaucratisation").	Firm size may be related to bureaucratisation, but cultural differences may be more important in specifying the type of standardisation. Identifies a need to understand other types of knowledge-intensive firms and "selective bureaucratisation" better.
Morris, 2001	Longitudinal qualitative single-case study in a consulting firm.	Aim: Examines whether and how the paradox of knowledge sharing vs. knowledge as a source of professional status is resolved in a professional service firm. Suggests that codification is suitable for certain tasks and employees, but not all. Individuals approach codification and their professional roles in different ways depending on their background and capabilities.	Studies consultants' experiences of the firm's approaches to codification. Single-case setting does not enable comparison. Emphasises knowledge as property; particularly relevant to professional (complex) services. Difference between simple and complex services pointed out as a factor relevant to the suitability of codification/standardisation.
Morris and Empson, 1998	Comparative exploratory two-case study: accounting and consulting firms.	Aim: Examines forms of knowledge and knowledge management strategies within professional service firms; develops a framework linking the firm's knowledge base and organisational structure. Argues that the nature of the knowledge base is central in defining the firms' knowledge management strategies (codified vs uncodified). A variety of knowledge bases can be leveraged in the same firm. Organisational culture, context and human judgment may affect whether and how codification can be used.	Compares knowledge management strategies between two firms, based on the personnel's experiences. Points out the multiplicity of knowledge bases within the same firm. Expresses a need to 1) compare systematically firms with different knowledge bases and strategies and 2) control for other background factors such as size, market environment, technology and age.
Rahikka et al., 2011	Single-case study in a professional engineering and construction service firm.	Aim: Examines the influence of modular services on customers' value perception in professional services. Suggests that service modularity is linked to trust and customers' value perceptions. Shows that different aspects of modularity (processes, organisation, service modules) are	Analyses a firm's approaches to modularisation, both through employees' and customers' perceptions. Single-case setting does not enable comparison. Focus on customers' view and service offering – employees' experiences of service work or process not covered.

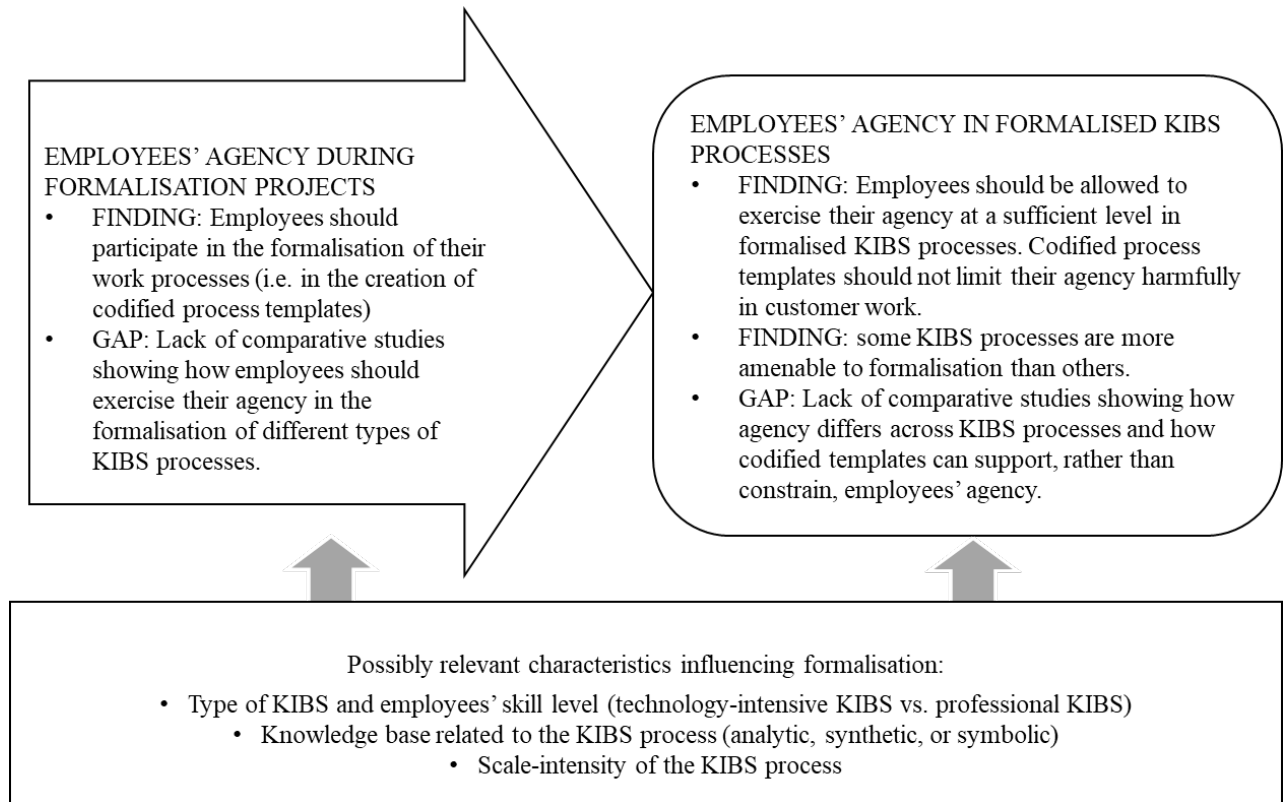| Source	Method and context	Aims and findings	Scope choices and identified gaps justifying further research
		linked to different customer value outcomes.	Emphasises the customers' role in specifying whether modularisation is possible and whether employees can consider alternatives in the service event.
Skjølsvik, 2016	Interview study with 51 buyers of consulting services in 16 large organisations and 27 consultants.	Aim: Explores the contradictory logics of formalisation (goods logic) vs. service logic in professional service relationships. Finds that formalisation appears differently at the firm level and at the individual level, and differently for different customers. The need to balance the contradicting logics at both the individual and firm levels defines the nature of the relationship.	Focuses on individuals' viewpoints to goods vs. service logics, both from the buyers' and service providers' perspective in the service relationship. Focuses on a certain type of service (consulting) – identifies a need to 1) understand other types of services, 2) study different personal service relationships (instant vs long) and 3) study multiple logics and co-produced service value.

Figure 1. Themes and gaps in previous research

EMPLOYEES' AGENCY DURING FORMALISATION PROJECTS
- FINDING: Employees should participate in the formalisation of their work processes (i.e. in the creation of codified process templates)
- GAP: Lack of comparative studies showing how employees should exercise their agency in the formalisation of different types of KIBS processes.

EMPLOYEES' AGENCY IN FORMALISED KIBS PROCESSES
- FINDING: Employees should be allowed to exercise their agency at a sufficient level in formalised KIBS processes. Codified process templates should not limit their agency harmfully in customer work.
- FINDING: some KIBS processes are more amenable to formalisation than others.
- GAP: Lack of comparative studies showing how agency differs across KIBS processes and how codified templates can support, rather than constrain, employees' agency.

Possibly relevant characteristics influencing formalisation:
- Type of KIBS and employees' skill level (technology-intensive KIBS vs. professional KIBS)
- Knowledge base related to the KIBS process (analytic, synthetic, or symbolic)
- Scale-intensity of the KIBS process

Table 2. The studied firms

	ManCo	SoftCo	InsCo
Industry	Management consulting	Software and consulting	Financial and insurance services
Nature of business	Professional KIBS services	Professional and technology-based KIBS services and software products	B2B service products and supplementary professional KIBS services (*focus of the study*)
Type of knowledge base	Synthetic with symbolic knowledge elements	Synthetic but software development involves analytic elements	Synthetic but service development involves analytic features
KIBS processes before the studied formalisation projects	Small-scale, customised processes	Medium- and small-scale processes including both formalised and customised elements	Scale-intensive, formalised processes with some customised elements
Nr of personnel (category)	<100	<100	<5000
Turnover MEUR (category)	<10	<10	<2000

Table 3. Summary of the data

	ManCo	SoftCo	InsCo
Interviewees' positions	10 consultants, including managing partners	2 top managers 3 unit managers 2 account managers 1 marketing manager 2 team leaders 1 developer	1 top manager 2 unit manager 3 development managers 1 chief underwriter 4 business/sales developers 2 sales team leaders
Primary interviews	**9**	**9**	**11**
Follow-up interviews	**6**	**6**	**5**
	2 group interviews, 5 persons interviewed 2–3 times	*4 persons interviewed twice*	*2 persons interviewed 2–3 times*
Secondary data	Documentation, observation in 2 workshops	Documentation, observation in 3 workshops	Documentation, observation in 2 workshops

Table 4. Cases: Six formalisation projects

Case	Type of KIBS process	Reason for formalisation	Formalisation actions	Perceived effects on KIBS processes
InsCo C1 (Case 1): Formalisation of cross-organisational processes related to B2B packages.	Consultancy as part of B2B insurance packages. Scale and technology intensive. Most processes were formalised but subsidiary firms operated independently.	Products difficult for customers to comprehend. Synergies between firms and processes were missing.	Cross-organisational, mass-customised packages were defined with modular structures and process templates. Individual deviations were not allowed.	Sales were increased, personnel were proud of new offerings. Cross-organisational knowledge increased. Customer satisfaction depended on salespersons' skills.
InsCo C2: Formalisation of micro-level sales interactions related to B2B packages.	Scale- and technology-intensive processes. From the customers' perspective, coordination between services was lacking.	Selling modularised offerings required ensuring and unifying employees' sales competences.	Sales process templates were defined. No deviations were allowed.	Customer centricity increased: customer knowledge was prioritised over technical knowledge. Variations remained as some salespersons used their old tactics.
SoftCo C1: Formalisation of consultancy services and processes related to software products.	Technology-intensive but customised processes with medium-scale intensity: contents depended on individuals' skills.	Dependence on 'heroic' consultants problematic due to growth.	Project sizes and modules were standardised. Templates for sales and delivery processes were created. Variations in customer cases were allowed to some extent.	Sales, profitability and project sizes increased. Consultants were socialised more rapidly. Informal knowledge sharing was easier. But some customers disliked standardised contents.
SoftCo C2: Development and formalisation of new consultancy services and processes.	Technology-intensive, small-scale processes in new and complex service area, where a small team developed the service through experimentation.	Service was too ambiguous for the customers and salespersons. Sales processes were too resource intensive.	Sales and delivery process templates were created, but details were not specified. Some modules were codified, others evolved through experimentation.	Delivery was easier, even though KIBS processes were still evolving and varied across customer cases. Sales material was improved but could be made clearer.

ManCo C1: Formalisation of key consultancy services and processes within teams.	Small-scale, customised processes: consultants sold their personal expertise. Some standardised methods were shared among consultants.	Need to improve knowledge transfer, quality and predictability in sales. Desire to sell collective projects without compromising individual autonomy.	A number of services and KIBS process templates were defined, including names, value propositions, pricing models and tools/contents. Individual variations and deviations were allowed.	Collective projects increased team spirit. Sales were increased and delivery was easier. Consultants used process templates depending on personal desires and customers' needs.
ManCo C2: Rigorous formalisation of team's consultancy offerings and processes.	Small-scale, customised processes: consultants sold their personal expertise. Some standardised methods were shared among consultants.	Desire to create reliable team-level offerings and to minimise members' entrepreneurial risk.	Team contracts, KIBS process templates and competence requirements rigidly defined. No individual variation allowed.	Sales and profitability increased alongside larger projects with ensured quality. Safer income for members. Common language with customers. However, some members changed teams due to inability to follow rules.

Table 5. Empirical categories and their features

Main categories	Empirical sub-categories and their features	Cases where the category was identified
RQ1: *Employees' agency in formalisation projects* = the manner in which employees were allowed to exercise their agency in formalisation projects.	*Participative centralisation:* formalisation projects were centrally coordinated and employee representatives were involved as idea generators and commentators.	InsCo C1 (Case 1) InsCo C2
	Inclusive centralisation: formalisation projects were centrally coordinated, but employees were involved not only as idea generators but also as decision-makers.	SoftCo C1 SoftCo C2
	Local autonomy: formalisation projects were not coordinated at the firm level. Employee teams could decide autonomously whether and how to formalise their KIBS processes.	ManCo C1 ManCo C2
RQ2: *The degree of codification of KIBS process templates* = the extent to which process templates (including goals, scope, pricing models, contents, scripts and methods applied in sales and service delivery processes) were codified.	*Completely codified process templates:* all the elements of process templates were codified (i.e. goals, scope, pricing models, contents, scripts and methods). Any expert employee could repeat the process easily.	ManCo C1 InsCo C1 InsCo C2
	Partially codified process templates: some elements were codified while others were specified/created by employees in customer projects. Employees need tacit knowledge to carry out the process.	SoftCo C1 SoftCo C2 ManCo C1
RQ2: *Employees' agency in KIBS processes* = the extent to which employees were allowed to exercise situational judgment regarding how to use the process templates in customer cases.	*Employees were allowed to decide how to combine codified process modules in customer cases:* employees followed the process templates but used their own agency when deciding how to combine the modules in customer cases.	InsCo C1 InsCo C2 ManCo C2
	Employees were allowed to develop and apply new customer-specific modules: employees could change/replace some modules in the process template in order to meet customer expectations.	SoftCo C1 SoftCo C2
	Employees were allowed to deviate completely from the codified process template: employees could decide whether to offer the formalised service and follow the codified process template in their customer cases.	ManCo C1

Figure 2. Formalised KIBS processes: codified process templates and employees' agency

| | **The degree of codification of process templates** | |
	Partially codified process templates	Completely codified process templates
Employees' agency when using the codified process templates in KIBS processes No deviations allowed, but ability to decide how to combine codified process modules in customer cases		ManCo C2 InsCo C1 InsCo C2
Some deviations allowed: ability to develop and apply new customer-specific modules	SoftCo C1 SoftCo C2	
Ability to deviate completely from the codified process template in customer cases	ManCo C1	

Table 6. Cross-case comparison of KIBS process types and employees' agency

Case	Type of KIBS process	RQ1: employees' agency in formalisation projects	RQ2: employees' agency in formalised KIBS processes
InsCo C1	Consultancy as part of B2B insurance packages • Scale- and technology-intensive formalised processes • Synthetic and analytic knowledge bases, separated • Lowest skill levels of frontline employees	+ Participative centralisation	+ Employees were allowed to decide how to combine codified process modules in customer cases
InsCo C2	Sales processes related to B2B packages • Scale- and technology-intensive formalised processes • Synthetic and analytic knowledge bases, separated • Lowest skill levels of frontline employees	+ Participative centralisation	+ Employees were allowed to decide how to combine codified process modules in customer cases
SoftCo C1	Consultancy related to software products • Medium-scale technology-intensive but customised process • Synthetic and analytic knowledge bases, partially integrated • High skill levels	+ + Inclusive centralisation	+ + Employees were allowed to develop and apply new customer-specific modules
SoftCo C2	Consultancy related to organisational architecture and other complex services • Small-scale technology-intensive but customised process • Synthetic and analytic knowledge bases, partially integrated • High skill levels	+ + Inclusive centralisation	+ + Employees were allowed to develop and apply new customer-specific modules
ManCo C1	Management consultancy • Small-scale customised processes • Synthetic and symbolic knowledge, integrated knowledge bases • High skill levels	+ + + Local autonomy	+ + + Employees were allowed to deviate completely from the codified process template
ManCo C2	Management consultancy • Small-scale customised processes • Synthetic and symbolic knowledge, integrated knowledge bases • High skill levels	+ + + Local autonomy	+ Employees were allowed to decide how to combine codified modules in customer cases

+) lowest level of agency; + +) medium level of agency; + + +) highest level of agency