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Employee motivation in Product-Service-System providers

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Abstract

This research investigates how intrinsic and extrinsic motivation factors contribute to employee motivation in providers of Product-Service Systems (PSS). Employee motivation determines the quality of the delivered service and is thus an area of great importance for PSS providers. We present rich case-based data collected through semi-structured interviews, a survey and secondary sources. The analysis showed the particularly high importance of intrinsic and individual motivation factors such as the fulfilling nature of the work and skill development showing the ownership and pride service employees took in their work. Further, the organisation needs to set the context of high employee motivation by enabling flexibility and performance feedback. Our research contributes to the literature by providing a first empirical study of employee motivation in PSS providers and thus providing important insights on the implementation of a servitisation strategy.

Keywords: staff well-being; reward system, servitization, staff motivation, behavioural operations, organisation culture

1. Introduction

Servitisation, where manufacturing companies shift their business models by adding services to their offerings due to the increasing pressure from global competition (Vandermerwe and Rada 1988, Baines and Lightfoot 2014), is becoming increasingly important in industry. Examples are Grundfos who offer through-life support for their water pump systems, Vestas who provide operations and maintenance support for their wind turbines and wind farms, and BAE Systems who offer a range of operational support services for their manufactured products. In servitisation, business models evolve around the physical product where the provider offers additional support in the form of a Product-Service System (PSS) (Nemoto et al. 2015). PSS providers typically seek to increase customer demand, create lock-in situations and increase profits and cash-flow stability (Wise and Baumgartner 1999). However, many PSS providers fail to achieve these potential benefits (Neely 2008, Benedettini et al. 2015) due to difficulties in implementing a servitisation strategy. Services require fundamentally different operations to traditional manufacturing (Alghisi and Saccani 2015, Peillon et al. 2015, Rapaccini 2015). Operations in PSS provision are highly dependent on the individual service employee because they are the contact point with the customer (Bitran et al. 2008) and facilitator of the customer relationship (Kreye et al. 2014). The individual employee is central to realising the co-production of value between provider and customer (Neely 1999, Vargo and Lusch 2008, Smith et al. 2012) and thus core for the operations of PSS providers.

Individual employees' performance is determined by their motivation (Yeo and Neal 2004, Bendoly and Prietula 2008). Highly motivated employees deliver higher quality services (Grandey et al. 2011) and give increased efforts as they will *"give their service wholeheartedly to the organization, hence promoting organizational*

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effectiveness" (Ostroff 1992, p. 965). PSS providers need to consider their employees'

motivation because "*human motivations and actions play a pivotal role in the success of*

technology enabled value co-creation processes" (Breidbach et al. 2013, p. 437). In a

work context, motivation can arise from a multitude of motivation factors which can be

differentiated into intrinsic and extrinsic motivation (Gwinner et al. 2005). Intrinsic

motivation is an *"individual's excitement about their work activities and their interest*

in completing these activities" (Coelho and Augusto 2010, p. 426) and can arise from

the nature of the work activities (Hackman and Oldham 1976). Extrinsic motivation is

connected to the appreciation and recognition of the individual's contribution to

organisational goals (Hanna et al. 2000, Cordero et al. 2005) and can arise from

financial incentives (Besser 1995) and the social environment (Shepperd 1993).

Employee motivation is affected by the mix of these motivation factors which depends

on the specific context within the organisation (Bendoly et al. 2009).

Little insights exist on the impact of motivation factors in the context of PSS

provision. Many studies utilise experimental set-ups which allowed to control

environmental settings and thus to focus on motivation as a key variable in work

performance (Gwinner et al. 2005, Bendoly 2011). Other studies that are set in a

practical context typically focus on traditional manufacturing companies (e.g. Hackman

and Oldham 1976) or service-oriented companies such as telecommunication (Gwinner

et al. 2005), travel agencies (Wieseke et al. 2011) or retail stores (Grandey et al. 2011).

Employee motivation in the specific context of PSS provision has not been studied to

date. PSS providers differ in their organisation design and company set-up from both

traditional manufacturing companies and from service providers (Oliva and Kallenberg

2003, Kreye and Jensen 2014). Differences in the work context such as organisation

design determine the employees' motivation because of the complex facets and

interdependencies of the work environment in organisations (Bendoly et al. 2009, Tan and Netessine 2014).

This research explores this area by investigating the following research question (RQ): How do intrinsic and extrinsic motivation factors contribute to employee motivation in PSS providers? We present an in-depth case study of a successful PSS provider in the European healthcare industry. The findings present insights into the relative importance and role of intrinsic and extrinsic motivation factors in facilitating employee motivation in PSS provision. Our research contributes to the literature by providing a first empirical study of employee motivation in a servitized manufacturer. We thus expand the literature with regard to the implementation of a servitisation strategy through the motivation of employees in the service department.

2. Literature review

This section presents a review on PSS provision as the relevant context for our work. Then we present the literature on motivation theories where we draw out the relevant motivation factors concerning intrinsic and extrinsic motivation. Finally, we summarise the review in a conceptual framework.

2.1 PSS provision

PSS providers face specific challenges for employee management because they have to integrate fundamentally different approaches of production and service operations. In production, employees often have routine tasks within a specialised area of work (Daft et al. 2010, p. 30). A traditional manufacturing company can measure its performance constructs through e.g. cost reduction and productivity increase (Cordero et al. 2005) or by the number of product (parts) sold (Reinartz and Ulaga 2008). These measurable outputs of individual employees give a good basis for reward systems in traditional

manufacturing companies to increase employee motivation and align the motives and activities of individual employees with the company's goals.

In service-focused companies, outputs are difficult to measure. A suitable output variable may be service quality (Grönroos 2011); however, quality levels are difficult to control and evaluate in practice (Hawkins et al. 2015). It is difficult to identify or measure the individuals' contributions due to the complexity of influences (Shepperd 1993) and the lack of visibility of constructive behaviour (Kerr 1975). Furthermore, service providers need to apply a different approach to manage their service employees and time (Hawkins et al. 2015). Service employees requires high levels of operational flexibility with regard to responding to customer needs and maintaining customer relations (Nagati and Rebolledo 2012, Kreye et al. 2015). Thus, motivating service employees remains a challenge for many service-focused companies.

Due to the integrated nature of PSS offerings, servitised manufacturers face specific issues (Löfberg et al. 2015). Many PSS providers have a manufacturing and thus production-focused background (Vandermerwe and Rada 1988, Kreye et al. 2013, Peillon et al. 2015). They thus often have a tradition of motivating and rewarding their employees based on measurable outputs in comparison to defined targets. For example, Reinartz and Ulaga (2008) explain that product and services sales employees can face contradicting incentives if they are both rewarded based on the number and worth of sales. The reason for this contradiction is that individual product units often have a higher sales value (and thus motivational value) than individual service units. As a response, many servitised manufacturers create a separate organisation or department for their service business (Oliva and Kallenberg 2003). However, the service departments need to be aligned with the wider (manufacturing-focused) organisation (Alghisi and Saccani 2015). Thus, PSS providers need to integrate their production-

focused tradition with the service-focused activities in structuring their organisational processes and motivating their employees.

2.2 Motivation factors

Motivation is defined as the internal processes of employees which impact the directions, intensity and persistence of activities they take in a work context (Armstrong 2012, p. 54). To identify motivation factors, we will utilise the fundamental differentiation into intrinsic and extrinsic motivation (Gwinner et al. 2005). Most theories on motivation in a work environment include this fundamental differentiation. For example, Alderfer's (1969) theory of existence, relatedness and growth (ERG theory) defines motivation factors that arise from the opportunity to develop their abilities and skills (intrinsic motivation) and from the individual's environment (extrinsic motivation). Similarly, Herzberg (1966) described that motivation can arise *"by the work itself"* (quoted in (Armstrong 2012, p. 58) or by the work context. Due to the frequent use in the literature (Gwinner et al. 2005, Armstrong 2012, Latham 2012), we will draw on this fundamental differentiation to identify possible motivation factors within the context of PSS provision.

2.2.1 Intrinsic motivation

Intrinsic motivation *"energizes and sustains activities through the spontaneous satisfactions inherent in volitional action"* (Deci et al. 1999, p. 658). Intrinsically motivated employees see performance itself as a valuable reward for their efforts (Cordero et al. 2005, Coelho and Augusto 2010). Especially in the context of service provision, intrinsic motivation has been highlighted as a main factor to employee motivation (Hackman and Oldham 1976). Intrinsic motivation can be influenced by various factors within the work context that can enhance or reduce the amount of

intrinsic motivation an employee experiences. Specifically, fulfilling nature of the work, skill development, company perception and relatedness can be differentiated as factors for intrinsic motivation.

One of the most important determinants of intrinsic motivation is the sense of achievement and meaningfulness an employee experiences with their work (Hackman and Oldham 1980). This can be conceptualised as the level of *fulfilling nature of the work* which is defined as *"an internal state that is expressed by affectively and cognitively evaluating an experienced job with some degree of favour or disfavour"* (Brief 1998, p. 86, quoted in Whitman et al. 2010, pp.43-44). It is connected to interesting, challenging and exciting activities (Herzberg 1966, Coelho and Augusto 2010) where the employee can use they abilities and personal skills (Deci et al. 1999) resulting in high levels of job satisfaction. For example, Grandey et al. (2011) found a positive effect of service employees' job satisfaction on customer satisfaction in service provision. Job satisfaction can be increased by giving individual employees the ability to influence their own work output (McClelland 1965) through autonomy in organising the activities (Robertson and Smith 1985).

Another intrinsic motivation factor is the ability for learning and *skill development* (Panagiotakopoulos 2013). This can be linked to the need for growth defined in Alderfer's ERG theory (Alderfer 1969, 1972) and to Maslow's (1943) need for self-actualisation. The ability to develop their skills can increase employees' sustained high levels of motivation because it increases the feeling of employability and job security. This link has been observed particularly in service-focused companies (Panagiotakopoulos 2013).

Company perception can impact intrinsic motivation because the character and nature of a company affect an employee's level of self-esteem (Ashforth and Mael

1989). The affiliation to a company with a desired image reflects positively on the employee (McClelland 1965, Dutton et al. 1994) and created intrinsic motivation to live up to this desired image. Thus, the employee's perception of the alignment between organisational values and personal values are important. In contrast, a dissonance between personal and organisational values can reduce motivation (Suh et al. 2011).

Furthermore, intrinsic motivation can be impacted by the *relatedness* between the employee and the work environment on group level and between groups (Alderfer 1972, Whitman et al. 2010). Employees need to feel accepted, understood and the ability to influence working conditions actively. This can be attributed to the need for belonging within a wider social system (Maslow 1943). Thus, the relatedness to the organisational environment can facilitate intrinsic motivation.

2.2.2 Extrinsic motivation

Extrinsic motivation links to the need for recognition as described in most classic motivation theories (e.g. Maslow 1943, Herzberg 1966). Different factors have been differentiated including financial incentives, work-life balance and feedback from supervisors and colleagues.

Financial incentives have been highlighted and have had the longest history in the motivation literature. They can come in the form of regular pay, bonus pay or other monetary awards (Besser 1995) and can be particularly effective to encourage employees to engage in or complete a specific task (Deci et al. 1999). Financial incentives have been linked particularly to measurable outputs seen in, for example, traditional manufacturing companies (Latham and Locke 1979, Hanna et al. 2000, Cordero et al. 2005). However, they have received less attention in service-focused organisations.

Extrinsic motivation can also be provided by the organisation in the form of *work-life balance.* This relates to the organisation's policies, procedures, services and programmes which can be implemented in different ways (Armstrong 2012, p. 72). Motivation arises from the employee's influence on their activities and working hours. Specifically, the ability to influence and control when and how working activities are performed can increase the employees' extrinsic motivation (McClelland 1965, Armstrong 2012, p. 103). For PSS providers, this can manifest itself as flexibility and amount of extra time such as the need to work in evenings or weekends to cover emergency call-outs.

Positive feedback in the form of liking, approval or status can increase extrinsic motivation (Shepperd 1993). This effect also extends to social sanctions when failing to contribute (Shepperd 1993, Deci et al. 1999). Feedback has been found to be particularly effective in service-focused organisations (Gwinner et al. 2005). An important source of positive feedback and inspiration is the *supervisor* or direct manager (Panagiotakopoulos 2013). Supervisors can facilitate motivation spill-overs, i.e. the *"transfer of different components of motivation from the service unit manager to [service employees]"* (Wieseke et al. 2011, p. 215). For example, Wieseke et al. (2011) found that these motivation spill-overs play a strong role in facilitating employee motivation. *Colleagues* can also influence the overall group emotions and mood (Kelly and Barsade 2001) . Specifically, the ability and willingness to work collaboratively to achieve organisational goals can increase motivation (Brief 1998, Whitman et al. 2010). Thus, both supervisors and colleagues can be important sources of extrinsic motivation.

2.3 Conceptual frame

To investigate the importance and role of motivational factors in PSS providers, we draw on the literature presented in Section 2.2. In addition to the intrinsic and extrinsic

nature of motivation factors, they can also arise from individual and collective levels (Whitman et al. 2010, Armstrong 2012). Motivation can be connected to the individual employee specifically or to the organisational context such as the general work environment and organisational culture. Thus, a matrix of motivation factors can be identified as a combination of intrinsic and extrinsic vs. individual and collective factors. Table 1 depicts this matrix and summarises the different motivation factors described in Section 2.2. Table 1 will form the conceptual basis for our empirical investigations.

\<Please insert Table 1 about here\>

3. Method

To answer our RQ, we applied a single-case approach as a suitable method for this research for the following three reasons. First, motivation is a context-specific phenomenon (Bendoly et al. 2009, Tan and Netessine 2014) and thus requires the adoption of a research method that includes considerations of the organisational and market environments. The single-case approach seems particularly valuable for this purpose to focus on a stable organisational environment. The researchers were thus able to familiarise themselves with the industrial context and practical manifestation of the researched issue (Childe 2011). Second, current theory offers limited insights into the role of motivation factors in PSS providers. This research is thus exploratory and inductive in nature. Case-study research is a suitable method to gather practical insights into the issue by collecting rich datasets (Flyvbjerg 2006) and facilitate an in-depth discussion of the investigated phenomenon in its empirical richness and comprehensiveness to improve understanding (Siggelkow 2007). Third, the investigation of one PSS provider offered the advantage of selecting a polar extreme in the field, hence offering guidance and new insights (Yin 2009). The chosen case

company is a successful PSS provider and reputable employer for service employees.

3.1 Industrial setting and case study

The case company was an internationally operating PSS provider in the European

healthcare industry specifically as a provider for diagnostics equipment. The studied

PSS provider was chosen as a suitable case company for our research for the following

reasons. First, the company had an outstanding reputation as a PSS provider and

reputable employer on the market. It was thus an example of a successful PSS provider

to offer insights on best practices to further theory building (Siggelkow 2007) and

improve managerial practice (Barratt et al. 2011). Second, the European healthcare

industry is a suitable empirical setting because of the increasing shift towards

servitisation and the provision of through-life support for medical equipment (Kreye et

al. 2015). The healthcare sector is characterised by high levels of sector regulations that

define the conditions in the sector, creating a well-defined business environment with

strong economic pressures for companies to innovate. It furthermore creates the need

for PSS providers in the sector for retaining employees in the organisation to prevent

knowledge loss. Third, the case company had identified the need to improve their

reward system to encourage employee motivation. They were thus available for the

collecting the broad and in-depth data required to answer our RQ.

The unit of analysis is the case company's service department. This was

structured according to service and customer related tasks into five areas (see also Table

2): east, west, diagnostics, applications and call centre. East and west offered support

services for the customers and were the areas where service engineers provided

activities such as preventative and corrective maintenance. Diagnostics ensured the

operability of the equipment at the instrument level through monitoring of the

equipment's operations. Applications offered technical customer support in the form of

training and education on their equipment. The call centre took incoming customer calls for e.g. emergencies and communicated problems to the relevant employees within the organisation. These five areas were managed by three line managers or supervisors: one for west, one for east, applications and call centre and one for diagnostics.

3.2 Data collection

To collect the empirical data, a predominant qualitative approach was utilised in line with the case-study approach (Siggelkow 2007). We utilised multiple sources of evidence to gather in-depth insights to answer our RQ (Yin 2009). We collected semi-structured interviews which offered qualitative, in-depth insights regarding the role of the motivation factors. Over a period of three month, we collected 25 semi-structured interviews with respondents from multiple managerial levels and functions in the service department. The interviewees were chosen based on their affiliation to the five areas and their tasks and levels of responsibility within the service department. The interviews followed a pre-defined protocol of the motivation factors listed in Table 1 to ensure completeness and comparability and were complemented by spontaneous questions based on the interviewees' responses. Interviews lasted between 30 and 60 minutes and were tape-recorded and sub-sequently transcribed. The data collection stopped when conceptual saturation was achieved, i.e. when the interviews did not yield substantially new insights with regard to our RQ.

In addition, we collected survey responses within the service department which focused on collecting quantitative data on the motivation factors and their importance within the case company. This provided context and further depth and breadth to our insights regarding the current situation of employee motivation in the studied PSS provider's service department. The survey responses were collected online and anonymously during a period of two weeks and covered the eight motivation factors

listed in Table 1. In total, 37 statements were included in the questionnaire which is presented in the Appendix. To measure the importance of the motivation factor, we utilised a 5-point likert-scale (1-not important to 5-very important) in line with suggestions by e.g. Robson (2011, pp. 303–306). Subsequently, they were asked to rate the statements according to the degree of fulfilment of the motivation factors in the case company. This was collected through a 7-point likert scale (1-strongly disagree to 7-strongly agree) according to Naor et al. (2010).

Table 2 depicts the participants for both types of data collection within the five areas of the service department as well as the total number of employees in these areas. Prior to data collection, the purpose of this study and link to the ongoing internal project of designing and implementing a reward system in the service department was explained to all employees and their participation was encouraged by their respective line managers. This explains the relative high response rate for the survey with 76%. In addition, we collected secondary data such as company presentations, documentations and internal communication material related to the ongoing project regarding the design and implementation of a reward system. This enabled the triangulation of findings and thus increased robustness of the insights (Flyvbjerg 2006).

<Please insert Table 2 about here>

3.3 Data analysis

The data analysis was undertaken iteratively utilising the different sources of evidence and combining them into an in-depth analysis of the motivation factors in the studied PSS provider. Specifically, the qualitative interviews and quantitative survey responses were analysed separately using different data analysis approaches. The interviews transcripts were analysed qualitatively through systematic, iterative coding into major thematic categories informed by our RQ and comprehensive literature review (Glaser

1992, pp. 45–77). The categories emerged from the theoretical framing and conceptual framework (see also Table 1) and through systematic combining of empirical findings (Walker and Myrick 2006). As part of the coding process, the authors travelled back and forth between empirical analysis, collection and the literature which facilitated theory building (Miles et al. 2014, pp. 292–293).

These insights were supplemented with the survey which was analysed using descriptive statistics. To measure the internal consistency and reliability of the motivation factors, Cronbach α was calculated (see Appendix). The reliability was assumed acceptable, if the Cronbach α was higher than 0.7, in line with e.g. Naor et al. (2010). To compare the survey responses between the five areas and three supervisors within the case company's service department, a single-factor analysis of variance (ANOVA) test was used as this required comparison of three or more samples (Lapin 1987, pp. 380–409). For an individual comparison of two groups, a t-test was conducted to further validate the results of the ANOVA test. In other words, the areas of *applications* and *call centre* were only included in the quantitative comparison of the complete sample due to the low number of survey respondents in both areas.

The initial findings were presented to the case company for verification and additional discussion which enabled further contextualisation and depth on the emerging findings and preliminary conclusions.

4. Findings

In this section, the findings are presented with regard to the case context, the importance of motivation factors and the role they played for the service employees.

4.1 Case context

The case company held annual meetings between service employees and their

supervisor to discuss the performance and feedback. In this meeting, the supervisor would give feedback regarding the employee's *"performance, their abilities/ qualities and potential"* (internal information material). The Service manager East elaborated on these meetings: *"We measure the goals in revenue targets. So areas with high sales in terms of value have a higher contribution to the revenue."* These meetings also aim to *"draw up [the employee's] development plan (… including) relevant courses in the coming period"* (internal information material). However, they experienced mixed results from this approach as the Service manager west explained: *"We want our service engineers to feel more ownership because our business is growing. But the discussions we have are often negative."* Thus, it was important to identify how to motivate their service employees and encourage them in a positive and constructive way.

Currently, the employees in the case company's service department showed relatively high performance in the eight tested motivation factors (measured through "agreement" in the survey) as depicted in Table 3. We found no significant differences between the five areas within the service department or between the three supervisors. The case company performed highest on the motivation factor "colleagues." The reason for this observation may be that the case company had strongly encouraged knowledge exchange between colleagues and promote formal and informal links within the service department shortly before the data collection presented in this paper. The case company performed lowest on the motivation factor of financial incentives. The relatively low performance for this factor was also one of the reasons of the case company to investigate this challenge within their organisation.

<Please insert Table 3 about here>

4.2 Intrinsic motivation in PSS provision

The interviewees suggested a strong role of the fulfilling nature of the work in motivating them. Service engineer east 2 explained this: *"They are paying me to play with electronics, mechanics and computers. That is what I do in my spare time for free! It's a really nice job. [I also like] that people can be treated in hospitals because of the work I have done."* This suggests that the main motivation stemmed from the job characteristics and the employees' enjoyment of their activities and tasks. This insight was supported by the survey responses (see Table 4 for an overview of the survey results regarding the importance of motivation factors) which found that the most important motivation factor across the whole service department was the fulfilling nature of the work as an example of intrinsic motivation (we found no statistically significant difference between the five areas). The fulfilling nature of the work manifested itself also in *"my own personal pride in my job. I would like my name to be associated with knowledge and a good job"* (Application Specialist 1). Furthermore, customer feedback as an integral part of the service employees' jobs played an important role as the Service engineer east 3 explained: *"there is a problem, you solve the problem and the customer is happy again. That is a good feeling."* Thus, the broadly faceted nature of service employees' tasks with regard to the job characteristics, the pride in doing a good job and receiving positive feedback from the customer contributed to the strong role of the fulfilling nature of the work.

<Please insert Table 4 about here>

Employees were also able to develop their skills. This could be related to the job itself or skill development courses and seminars as highlighted by the Application specialist 1: *"Every day I learn new things. [And] if I go and say, 'I want this course,' [my boss will] say, 'Yes, you go ahead.'"* The survey results (Table 4) support this

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insight and showed high values for skill development. The investigations further showed that the case company supported personal development whether it was in-house or provided by external training as Application specialist 1 continued to explain:

> *"It is important to have clinical knowledge. You need all this background knowledge in order to give good application training to the doctors. (…) You have to know what the words mean. I get these classes. (…) I have just got cardiology course at a hospital in London. A course for doctors."*

The role of company perception in motivating the employees arose from comparison of company to personal values. In general, the employees identified with the company values as a high-quality PSS provider as this exemplar response by Service engineer east 1 explains: *"When things are made in [case company], they are normally very good. And I want to be part of that high standard."* One strong criticism – and demotivation factor – was the amount of administrative duties including paperwork and other bureaucracy as highlighted by service engineer west 4: *"there are some stupid regulations sometimes. And this is what annoys us."* This raises difficulties especially for the service managers as explained by the Service manager east: *"We spend a lot of time with reporting – control and monitoring. We have to monitor the business very closely and explain both ups and downs. (…) We [are made] responsible for our numbers and to make accurate cost estimates."*

The interviewees criticised the company with regard to relatedness within the organisation. Service engineer east 2 explained this as follows: *"it is so big that you cannot do anything, you cannot change one little thing."* The low role of relatedness arose also from the individual nature of the service work as explained by the Application specialist 2: *"You tend to work alone."* Collaboration between areas was found to occur mainly on the managerial level, for example when preparing a competitive bid as highlighted by the Service manager east; *"There's a good*

recognition if we win an order because we have worked together in pricing". Thus, the motivational role of relatedness could arise from the possibility to influence organisational processes and hence make the employees feel like they are being "listened to".

4.3 Extrinsic motivation in PSS provision

Financial incentives played a role in terms of the perceived fairness of the salary and other bonuses. Service engineer diagnostics 2 described: "*The salary is okay. It is not too much, not too low. It is just acceptable.*" Given this "acceptable" level of salary suggest that financial incentives played a relatively low role in motivating the service employees. This insight was supported by the survey results which showed that financial incentives were among the least important motivation factors for the studied PSS provider. Thus, employees were not dissatisfied with their financial payments but also did not gain any motivational force for their work.

The responses regarding the role of work-life balance differed between the interviewees. This finding could be explained by the fluctuations in the work load as highlighted by Service engineer east 4: *"There will be times during the year when you are very loaded. Sometimes, it gets very late before you get home. And, other days, you can sit in your office and relax a little.*" The survey results indicate a relatively high importance of work-life balance for employee motivation but showed also high levels of inconsistency between the service department (Cronbach α was only 0.58). This inconsistency of the responses could stem from the fluctuations in workloads at the time of data collection. This suggests that the force as a motivation factor is variable.

The role of the supervisor in motivating the service employees differed between the two areas of east and west ($p<0.05$). The supervisor of west seemed to perform

much better (average value of 5.2) than his counterpart in east (average value of 4.0). This difference arose from the supervisors personal abilities to engage and motivate their engineers. Service engineers in west highlighted the high motivation they receive from their supervisor, as Service engineer west 5 explained: *"This supervisor we have here is good. He is one of the best bosses in [the company], I heard. That is a motivation for us."* In contrast, service engineers in east explained the passiveness of their line manager as service engineer east 5 highlights: *"We do the job most of the time ourselves. The supervisor is only involved if something goes really wrong"* This has also led to strong frustrations amongst the employees as Service engineer east 1 highlighted that recognition from his supervisor was *"non-existent in my department"*. This difference in leadership style could also be observed during the interviews with the managers themselves. Service manager east did not talk about his personal interaction with his supervisees but highlighted the need for administrative tasks related to the three areas within the service department he was responsible for. In contrast, Service manager west highlighted the importance that motivating his engineers has to his own job satisfaction: *"I like the interaction with my staff. I have some very well-educated, kind, nice people, employed. I like to have a good laugh at the office together."* These results suggest that the supervisor can form a strong motivation factor or frustration.

Colleagues played a strong role in motivating the interviewees across the service department. Two engineers highlighted, *"I love the interaction with my colleagues, I love having them around"* (Service engineer east 2) and *"They are like my second family"* (Service engineer east 4). This was supported by the survey responses (see Table 4) which suggests that extrinsic motivation arose specifically from colleagues. Thus, the interaction with colleagues supported the service employees' motivation.

5. Discussion

This section discusses the findings with regard to the RQ in terms of intrinsic and extrinsic motivation factors. We explain these specifically with relation to the elements of our conceptual frame (Table 1). Table 5 summarises the findings and discussion of our study on motivation factors in PSS providers.

<Please insert Table 5 about here>

5.1 Intrinsic motivation factors in PSS provision

The findings showed that intrinsic and individual motivation factors such as the fulfilling nature of the work and skill development were the core motivation factors in PSS provision. This suggests the particular importance of the nature of the work (Hackman and Oldham 1980) in PSS provision as a strong motivation factor for employees. Specifically, our findings showed that the employees loved what they do and thus took strong ownership and pride in the outcome of their work. Our findings link to the manufacturing literature that link increased intrinsic motivation to quality (Cordero et al. 2005). This link between intrinsic motivation and quality has also been observed for service-focused organisations (Grandey et al. 2011). Our findings expand on these insights by showing that intrinsic motivation plays also a central role in PSS providers and enables the delivery of high-quality services.

Our study showed specifically the close relationship with the customer and their feedback regarding the delivered service quality as strong factors to increase intrinsic motivation. This role of customers in motivating providers' employees constitutes a novel and important contribution of this work because it highlights the role of customer interaction (Grönroos 2011) and long-term relationship (Vargo and Lusch 2008) in providing service quality. The close customer relationship gave a strong and tight

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feedback loop for service employees regarding the quality of their work and thus offered a sense of meaningfulness for the service employee (Hackman and Oldham 1980).

In comparison, intrinsic and collective motivation factors such as company perception and relatedness were found to be of lowest importance in the context of PSS provision. This contrasts suggestions in the literature that describe the importance of aligning organisational values with the employees' self-image (Dutton et al. 1994) due to the positive reflection on the individual employee through affiliation (McClelland 1965, Suh et al. 2011). One possible explanation for the contradictory observation in our study could be that the case company's values were aligned with the employees' values and were thus not causing any inconsistencies. This suggests that if employee and organisation values are aligned, the importance of this motivation factor reduces.

Our findings further suggest that intrinsic and collective motivation factors created the context for jobs and defined the effect and contribution of the activities of individual employees to the wider company. The findings showed that employees were frustrated by the lack of influence they had on organisational processes as they felt they were not listened to. This frustration hindered the employees' feeling of belonging within a wider social system (Maslow 1943) through limited interactions between groups (Whitman et al. 2010). Thus, intrinsic and collective motivation factors are least important for employees of PSS providers and can define the work context within the wider organisation.

5.2 Extrinsic motivation factors in PSS provision

The findings indicate that extrinsic motivation factors on both individual and on collective levels are of lower importance than the intrinsic motivation factors. Specifically, extrinsic and individual motivation factors such as financial incentives and

work-life balance posed the work context for the individual employee defining value of the individual employee's work for the PSS provider. The base salary was found to have a low impact on employee motivation once satisfactory salary levels were achieved in the form of fair payment. This supports descriptions in the service literature that describe the low role of financial incentives to motivate the service employees (Gwinner et al. 2005). Furthermore, our findings suggest that work-life balance motivated the service employees by creating flexibility with regard to the time of completing work-related tasks. Even though most employees regularly worked overtime, they appreciated the flexibility their job gave them in terms of time management.

The extrinsic and collective motivation factors such as supervisor and colleague feedback gave the service employees an indication of how they fulfilled their job activities. This aligns with suggestions in the literature that emphasise the effects of colleagues on the overall group emotions and mood (Kelly and Barsade 2001). Our study revealed that employees in PSS providers gain motivation from regular feedback regarding positive and negative performance. Particularly, the engineers were frustrated if they only received negative feedback as given by the Service manager east. This links to the literature by showing that particularly positive feedback motivates employees (Shepperd 1993, Deci et al. 1999). Our findings expand on the literature by indicating that a lack of such positive feedback demotivates. Thus, PSS providers can enhance employee motivation by increasing the amount of positive feedback they give to their employees.

5.3 Limitations

The limitations arise from the nature of the single-case approach as we focused on one PSS provider. Thus, the presented findings are context specific (Siggelkow 2007) within

the European healthcare sector. Case study research is often associated with observer bias and subjectivity in interpreting the findings (Yin 2009). We mitigated these limitations by triangulating our insights between multiple sources of primary and secondary data (Lewis 1998). Particularly the use of a survey to supplement the qualitative interviews was advantageous because this offered the possibility to triangulate insights. For example, the interviews showed some demotivation factors that were not confirmed by the survey results. For example, some engineers in service east highlighted their dismay with some cuts on salary add-ons such as use of their private cars. These were companywide cuts and were not mentioned by any other interviewees. Thus, supplementing the qualitative interview insights with quantitative survey insights limited the impact of method bias in our study.

6. Conclusions

This research investigated the research question: How do intrinsic and extrinsic motivation factors contribute to employee motivation in PSS providers? We presented insights from a successful PSS provider based on rich and in-depth case data. The findings showed that particularly intrinsic motivation factors such as the fulfilling nature of the work and skill development are important for service employees in PSS providers because these enable the employees to take ownership and pride in their work. The motivation can be further increased by direct customer contact which gives a further indication of the value the individual service employee adds through their work. In comparison, extrinsic motivation factors such as work-life balance and feedback from supervisors and colleagues created the work context in the form of performance feedback and flexibility and were thus less important.

Our research contributes to the literature in servitisation and PSS provision. We provide a first empirical study of employee motivation in PSS providers with in-depth

insights into the effects of different motivation factors. We thus further theory building in the area of implementing a servitisation strategy and show the specific culture that needs to be created in the service department of a PSS provider to encourage employee motivation. We show the particular importance of intrinsic motivation factors such as the fulfilling nature of the work in facilitating employee motivation which arises particularly from the flexibility of service activities and closeness to the customer. Our research thus furthers our understanding on the implementation of a servitisation strategy by demonstrating the cultural differences in PSS providers in comparison to traditional manufacturers and service-focused businesses.

This research provides strong managerial implications for employee management in PSS providers. First, PSS providers need to enable intrinsic motivation factors such as the fulfilling nature of the work and skill development to ensure that their employees perform well and take pride in their job. Specifically, the regular interaction with the customer plays an important role through giving purpose and feedback. Second, managers of PSS providers can further enhance employee motivation by providing a suitable context for work activities through, for example, enabling flexibility of time management, giving fair base salaries and enabling individual employees to influence processes in the wider organisation. These contextual factors will enable high levels of employee motivation in PSS providers. Third, our research suggests that reward systems that give financial incentives for their employees as often found in traditional manufacturing companies are not useful in a servitisation context. Instead, suitable incentives can be provided by, for example, informally administered positive feedback and social rewards that stimulate knowledge sharing between employees.

Our research points towards important areas for further work. First, our study focused on a provider that encouraged customer contact for most of their service employees. Studying PSS providers with de-coupled processes between front and back office service employees would further enrich the insights of motivation in PSS provision. Second, the impact of different organisational reward systems on motivation in PSS provision poses a significant need for future research. Rewards can impact different motivation factors positively and negatively. Further work needs to investigate this link in practice to further theory building in the area and form more concrete and informed suggestions for PSS providers. Third, different industrial contexts may vary in their support for motivation factors. Our study focused on the European healthcare industry. Other sectors such as energy or aerospace and defence may offer different contextual factors that can enhance or suppress some motivation factors. Investigating these settings would further enhance our understanding of employee motivation in PSS provision.

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Appendix

Survey statements

	Importance Cronbach α	Agreement Cronbach α
Fulfilling nature of the work	0.89	0.84
1. I find my work fulfilling and worthwhile		
2. I feel that I am making best use of my abilities in my work		
3. I have responsibility over my work and activities		
4. I have influence on my tasks and work routine		
5. I have sufficient authority to do my job well		
6. I feel that my work makes a difference to our customers		
7. Regular feedback from our customers motivates me in trying to provide better services.		
Company perception	0.78	0.89
8. I talk about this organisation to my friends as a great organisation to work for		
9. I am proud to tell others that I am part of this organisation		
10. I am extremely glad I chose this organisation to work for, over others I was considering at the time I joined		
11. For me, this is the best of all organisations for which to work		
12. I identify with my organisation's vision and values		
Relatedness	0.75	0.64*
13. Generally speaking, everyone in [our department] in [case company] works well together		
14. We work as partners with other functions in [case company] (project management, sales)		
15. We believe that cooperative relationships will lead to better performance		
16. My suggestions are taken seriously around here		
Financial incentives	0.87	0.82
17. I feel encouraged through monetary incentives such as my salary and pay contribution		
18. I feel encouraged through monetary incentives such as bonuses, pensions or other financial schemes		
19. I feel encouraged to pursue company objectives by the existing reward system		
20. The reward system in my organisation is fair at rewarding people who accomplish plant objectives		
21. Our reward system really recognises the people who contribute the most to our company		
Supervision	0.62*	0.79
22. Managers in this organisation believe in face-to-face contact with engineers		

23. Our supervisors encourage the people who work for them to work as a team

24. In this organization, management is based on facts, not on intuition or tradition

25. I feel encouraged through praise from my supervisor(s)

Colleagues	0.77	0.79

26. I get along well with my colleagues and like spending time with them

27. I am happy asking colleagues for help in difficult situations

28. I freely share my experience and knowledge with my colleagues if they ask for my help

29. I am happy to engage in teamwork exercises with my colleagues and supervisors

30. I feel encouraged through praise from colleagues

Work-life balance	0.56*	0.58*

31. I am happy with my work-life balance

32. I have flexibility over my work schedule which allows me to deal with private matters when needed

33. I can decide freely about my work schedule without the need to ask my supervisor(s)

34. I need to work a lot of extra hours and over time

Skill development	0.77	0.94

35. My company has various programs to develop my skills

36. My organisation allows me to follow my career goals

37. I can develop my professional skills in this company

* Results not reliable as value <0.7

Tables and Figures

Table 1: Motivation factors in work context

	Intrinsic	**Extrinsic**
Individual	*Fulfilling nature of the work* in terms of interesting, challenging and exciting activities (Coelho and Augusto 2010) that allow an employee to use their abilities and personal skills (Deci et al. 1999) *Skill development* facilitating long-term motivation because increases a service employee's feeling of employability and job security (Panagiotakopoulos 2013)	*Financial incentives* including base pay, bonus pay and special monetary rewards (Besser 1995) can increase the effectiveness in work processes (Cordero et al. 2005) *Work-life balance* can increase motivation through flexibility in working hours and extra-time (Armstrong 2012, p. 72)
Collective	*Company perception* in terms of alignment between organisational and individual values of the employee facilitates motivation through affiliation (McClelland 1965, Suh et al. 2011) *Relatedness* to the work environment to facilitate the feeling of acceptance and understanding (Alderfer 1972, Whitman et al. 2010).	*Supervisor* feedback can be a source of inspiration and motivation (Wieseke et al. 2011) in terms of appreciation and recognition of individual contribution to meeting targets (Hanna et al. 2000) *Colleagues* support motivation through social rewards by improving liking, approval and status of the employee (Shepperd 1993)

Table 2: Study participants for survey and interviews

Area within services	Total number of employees	Nº of survey respondents	Interview participants	
			Total Nº	**Titles**
East	10	10	6	Service manager East Service engineers East 1-5
West	17	15	8	Service manager West Service engineers West 1-7
Diagnostics	16	7	6	Service manager Diagnostics Service engineers Diagnostics 1-5
Applications	5	4	3	Application specialists 1-3
Call centre	2	2	2	Service controllers 1 + 2
Total	50	38 (76%)	25	

Table 3: Case company's performance with regard to the motivation factors (1-strongly disagree to 7-strongly agree) presenting mean value and (standard deviation)

Category	Motivation factor	East	West	Diagnos tics	Applicati ons	Call centre	Total	Rank
Intrinsic motivation	**Fulfilling nature of the work**	5.86 (1.12)	5.93 (0.98)	5.82 (1.12)	5.54 (1.22)	5.57 (0.14)	5.83 (1.13)	2
	Skill development	5.03 (1.66)	4.96 (1.02)	3.81 (0.98)	5.67 (0.99)	5.00 (0.30)	4.84 (1.12)	6
	Company perception	4.84 (1.43)	5.13 (1.26)	4.69 (1.16)	5.60 (0.86)	5.40 (0.60)	5.04 (1.31)	4
	Relatedness	4.83 (1.47)	5.50 (1.12)	4.79 (1.47)	5.50 (1.08)	5.38 (0.88)	5.18 (1.37)	3
Extrinsic motivation	**Financial incentives**	4.00 (1.80)	3.71 (1.96)	3.97 (1.42)	4.20 (2.00)	4.60 (0.20)	3.93 (1.84)	8
	Work-life balance	4.90 (1.63)	5.32 (1.18)	5.00 (1.42)	5.69 (1.20)	4.63 (0.88)	4.91 (1.44)	5
	Supervision	4.03 (1.61)	5.22 (1.32)	4.64 (1.66)	4.44 (1.94)	5.25 (0.25)	4.72 (1.63)	7
	Colleagues	5.72 (1.21)	6.00 (0.81)	5.71 (1.05)	6.20 (0.48)	6.10 (0.25)	5.90 (1.00)	1

Table 4: Importance motivation factors for case company (1-not important to 5-very important) presenting mean value and (standard deviation)

Category	Motivation factor	East	West	Diagnostics	Applications	Call centre	Total	Rank
Intrinsic motivation	**Fulfilling nature of the work**	4.20 (0.84)	4.28 (0.62)	4.69 (0.47)	4.68 (0.40)	4.43 (0.29)	4.38 (0.69)	1
	Skill development	4.27 (0.67)	4.00 (1.02)	4.52 (0.95)	4.58 (0.95)	4.67 (0.32)	4.26 (1.10)	3
	Company perception	3.52 (1.05)	3.44 (0.96)	3.89 (0.78)	3.70 (1.28)	3.50 (0.00)	3.57 (1.02)	8
	Relatedness	4.00 (0.90)	4.13 (0.73)	4.50 (0.57)	4.38 (0.53)	4.25 (0.25)	4.20 (0.76)	5
Extrinsic motivation	**Financial incentives**	3.86 (0.84)	3.71 (1.08)	3.94 (0.86)	3.40 (1.02)	3.40 (0.00)	3.74 (0.99)	7
	Work-life balance	4.25 (0.73)	3.98 (0.72)	4.57 (0.42)	4.56 (0.33)	4.75 (0.00)	4.26 (0.72)	3
	Supervisor	3.90 (0.93)	3.70 (0.86)	4.29 (0.57)	3.88 (0.64)	3.75 (0.25)	3.88 (0.86)	6
	Colleagues	4.34 (0.76)	4.09 (0.66)	4.46 (0.46)	4.40 (0.48)	4.50 (0.13)	4.28 (0.70)	2

Table 5: Main insights regarding the motivation factors in PSS providers

	Intrinsic	**Extrinsic**
Individual	Core motivation factors in PSS provision because it defines the nature of the work and enables the employees to take pride in their work Motivation is further enabled through customer feedback which gives an indication of the value the individual service employee provides	Provides the context of the individual employee's work environment through fair salary and flexibility in time management Medium importance for PSS provision
Collective	Create the context of work activities within the company through positioning the individual's work in the wider organisation The lack of influencing working conditions in the organisation can create frustrations for the individual service employee	Provides an indication of the performance of the individual employee through positive and negative feedback from colleagues and supervisors The lack of positive feedback can create frustrations for the individual service employee