Innovative View on Value Creation – Investigating Requirements for a Holistic Service Life Cycle Management

Sabine Janeschek and Matthias Gouthier

Setting the Stage – Annotations by the Editors

The previous chapters have shown in different ways the significance of customer-centric business. Even in manufacturing fields like mechanical engineering, companies have identified the profit potential of industrial services like repair services, technical support, or trainings and in consequence have expanded their service portfolio. By offering added value through industrial services, a mechanical engineering company can differentiate its offerings and gain a competitive advantage, which is likely to result in an increase in sales and market share. To distinguish their services and products and gain long-lasting customer loyalty, particularly mechanical engineering and IT firms make use of service life cycle management (SLM). SLM is different from product life cycle management (PLM), which examines the entire life cycle of a product, rather than the organisation as a whole.

SLM refers to a strategy that supports service organisations and helps them recognise their gross income potential. This is done by examining the service opportunities proactively as a life cycle instead of a solitary event or set of discrete events. But in contrast to the traditional PLM perspective, a corresponding and interlinked service life cycle approach is still in its infancy and empirical studies in this context are still rare. The chapter by *Sabine Janeschek and Matthias Gouthier* explores relevant requirements for a

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structured implementation of a SLM concept, which could guide firms and support them to implement such an innovative service-oriented management approach in a more standardised way.

10.1   Introduction

Companies focusing on products can offer supplementary service innovations to their customers with the goal to help them getting more value from the products themselves. By developing service innovations to support the core products, a company can differentiate itself from competitors, reach a higher share of revenue, increase revenue stability, and improve the relationship to the customer (Bettencourt, 2010). The structured elaboration of services from a life cycle perspective can be interpreted as an innovative approach, which can lead to an increase in value for the customer. In particular, the integration of an innovative service management approach—like a service live cycle management (SLM) concept—in a company's strategy can help companies handle services in a more effective and efficient way. This in turn supports companies in order to differentiate themselves from competitors and furthermore also increase revenue in the long run. Advantages for the company as well as for customers can be observed.

According to Meffert and Bruhn (2009) the analysis of a product life cycle or service life cycle aims at identifying general rules for single phases of the life cycle, with the goal to draw strategic decisions. Such a holistic perspective provides valuable information, and results in an increase in productivity and value for the company, i.e. the service provider, as well as for the customer. The relevance of life cycle management is not only a meaningful topic for academics, but is also a significant area for practitioners. Siemens AG with its Teamcenter solution is a very good example. Teamcenter is an integrated suite of product life cycle management (PLM) applications of Siemens and can be seen as an extension of a classical PLM as it includes SLM elements (Siemens, 2013).

But in contrast to the traditional PLM perspective, a corresponding and interlinked service life cycle approach is still in its infancy and empirical studies in this context are still rare. Therefore, there does not yet exist an all-embracing and holistic understanding of this concept. In particular, an elaboration of relevant requirements for a structured implementation of a SLM concept is missing. An elaboration and overview of necessary requirements would guide companies and support them to implement such an innovative service-oriented management approach in a more standardised way. As a consequence, the following research question is formulated:

What are the requirements for the structured implementation of a holistic service life cycle management concept?

Through an empirical study using personalised interviews, the authors aim at developing a deeper understanding regarding necessary requirements. Furthermore, the authors provide a catalogue of requirements for the implementation of a holistic SLM concept.

To investigate this topic in detail the chapter is structured as follows. In a first step, in order to elaborate this topic in-depth on the basis of a theoretical foundation, we present various recognised service life cycle models. In a next step, a comprehensive service life cycle model based on a cooperative research project is introduced. This research project with a duration of three years is funded by the Federal Ministry of Education and Research (Federal Ministry of Education and Research, 2014) and focuses on the "Dynamic, phase-specific management of services productivity (ServUp)" (ServUp, 2014). It consists of several subprojects. The subproject "Requirements on and concepts for a holistic and phase-spanning Service Life Cycle Management" will be presented within this chapter (support code: 01FL10087). Following the theoretical foundations in Sect. 10.2, we move on to our empirical study. In this section, we explain in detail our research methodology—sample and data collection, as well as the data analysis—and present our findings regarding the multiple requirements for the implementation of a service life cycle approach. Four propositions are derived which emphasise the importance of requirements related to the organisation itself, processes, employees, and customers. We conclude this chapter with the contribution of our results, further research, and managerial implications.

10.2   Conceptual and Theoretical Background

Before elaborating the requirements for the implementation of a service life cycle concept (see Sect. 10.3), various service life cycle models are introduced in this section. This theoretical framework aims at understanding the different perspectives of such a concept. In a second step, the service productivity life cycle will be introduced. Due to the focus of our research, this life cycle is appropriate and serves as basis for our empirical study focusing on requirements on a SLM concept (see Sect. 10.3).

10.2.1 Service Life Cycle Models

Current studies offer various recognised service life cycle models. These models have some overlaps, but do also differ regarding their focus which can be on customers, the company itself, or the market as a whole. In consequence, no model can be substituted by another model nor is a single model most qualified for all strategic intentions. The use of a specific model strongly depends on the

intentions and objectives which should be reached by using a service life cycle model. In the following, for each focus (market, customer, and company) a renowned service life cycle model will be introduced.

Potts (1988) considers the market perspective regarding his service life cycle model. This life cycle consists of the four phases of rapid growth phase, transition phase, maturity phase, and end of life phase. In his work, a service life cycle is presented together with a product life cycle in one model. Moreover, in order to visualise the profitability of a service depending of the phase of the service life cycle, revenues are indicated over the whole life cycle.

Ives and Willinger (1999) focus on the life cycle from the customer's point of view, i.e. each phase should be looked at through the customer's eyes. This "Customer Service Life Cycle" consists of thirteen subphases which belong to four phases. It presents the customer's activities while making the purchase decision, the acquisition of the good or service, followed by ownership and ending with retirement of the product or service when it is no longer serving its purpose. Concentrating on this life cycle leads to an enhancement of customer relationships.

Katzan (2008) includes the management and customer perspective into his service life cycle model. This model consists of five elements, representing a forward cycle. The inclusion of feedback processes leads to a full circle. The model starts with a service strategy as main element, which is essential to ensure sustainability in service operations, and is followed by service design, service transition, service operation, and continuous improvement of the service. Through customer feedback, this closed loop information flow leads to constant optimisation of the service life cycle.

10.2.2 ServUp Approach: Service Productivity Life Cycle

Based on the previously described service life cycle models (see Sect. 10.2.1), Janeschek, Hottum, Kicherer, & Bienzeisler (2013) developed a new service life cycle model in the context of the cooperative research project "Dynamic, phase-specific management of services productivity (ServUp)" (support code: 01FL10083-88) which was funded by the Federal Ministry of Education and Research (Federal Ministry of Education and Research, 2014). The research project focuses on product-related services primarily of mechanical engineering companies, and aims at developing scientific principles and practical solutions for the dynamic, phase-specific management of services productivity along the service life cycle (ServUp, 2014).

While PLM and in this context the optimisation of a product from a life cycle perspective is in the mind of the majority of researchers and practitioners, many researchers and companies are still not fully aware of the relevance of a corresponding SLM. On the one hand, this is due to the fact that not enough focused and specialised studies regarding this topic exist, and on the other hand due to the difficulties companies are faced with while trying to implement such an approach. Therefore, the focus of the research project lies on SLM, and in this context on
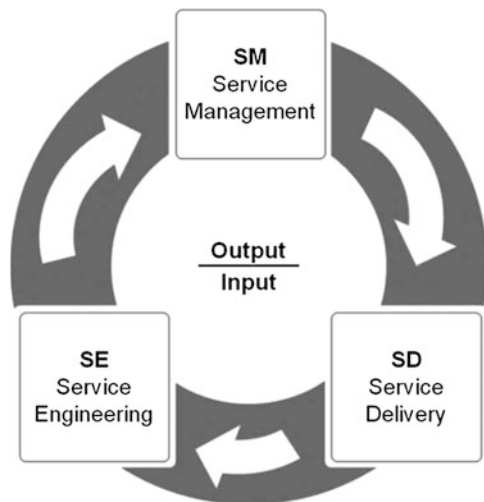
Fig. 10.1   Service Productivity Life Cycle (Source: Janeschek et al., 2013)

means in order to increase the productivity of services in each phase of the service life cycle as well as throughout the whole service life cycle (ServUp, 2014).

Based on an intensive project work and on recognised service life cycle models (see Sect. 10.2.1), a service productivity life cycle model was elaborated. This service productivity life cycle consists of the three phases service engineering, service management, and service delivery (see Fig. 10.1).

Faced with imperfect service situations, companies have to start developing new services or reengineer existing services in the service engineering phase. In order to increase productivity in this life cycle phase, process design aspects, characteristics of necessary resources, and customer requirements have to be considered. In the service management phase, companies gain an overall view of the services provided in a given period. The demand for a service on the one hand, as well as the actual number of service deliveries on the other hand, can be monitored. In order to judge whether a particular service offering is worthwhile, aggregated data are used. In this context it is necessary to have a closer look at key performance indicators (KPIs). Such KPIs can help to monitor the appropriate resource allocation and process performance of a company. In the service delivery phase, the service is finally delivered. During this delivery process, interactions between the involved partners, namely the service customer and the service provider, are relevant in order to share information which would be otherwise unavailable. For the service provider, this information is essential to assess service productivity and has a direct influence on the preceding and following phases of the service life cycle. To sum up, it can be stated that these three phases are interdependent. Data from the phases of service management and service delivery give valuable insights regarding service productivity in the engineering phase. Moreover, the service

engineering phase is a valuable source regarding service management and service delivery (Janeschek et al., 2013).

The presence of service life cycle models demonstrates the growing importance of this topic. So far, the existing literature focuses primarily on the characteristics of the single phases of a particular life cycle. However, a detailed and in-depth analysis of the requirements for the implementation of a SLM concept is required. This will be elaborated in the following section.

10.3   Methodology and Findings

In addition to a PLM, a corresponding SLM approach, which is implemented in a structured way in a company, can lead to increased profits in the long run. But until now, there does not exist a uniform understanding on how to implement such an innovative service management approach. As a consequence—based on the Service Productivity Life Cycle (see Sect. 10.2.2)—this chapter aims at elaborating requirements for a structured implementation of a holistic and phase-spanning service life cycle concept. We therefore chose a qualitative research approach. Through the use of qualitative research, we aimed to gain a rich understanding and answers to our research objective, and furthermore practical implications through valuable information gained in the course of our in-depth interviews. Qualitative research is an appropriate method studying the requirements for the implementation of a SLM concept, as this flexible approach allows modifications and adjustments of the research focus and design in the course of the interviews (Malhotra, Birks, & Wills, 2012). This leads to an open nonbiased research (Maxwell, 2005).

10.3.1 Sample and Data Collection

Using a criteria-based approach, our interviewees were selected under the conditions, that they offer product-related services and have a strong service orientation embedded in their company. We focused on mechanical engineering companies to build up a mostly homogeneous group. In order to generate a qualified group of interviewees, we presented our research on the one hand at a conference of the largest engineering industry network in Europe and one of the key association service providers in Europe. On the other hand, we participated in a workshop of a benchmark group on "Operational Excellence", whose participants belong to mechanical engineering companies in Germany. Out of these two meetings, suitable partners for our research project could be identified. Furthermore, we asked our interview partners for further experts to interview (snowball technique; Malhotra et al., 2012). In sum, thirteen interviewees participated in our study concerning the requirements on a SLM approach. With a high service orientation in addition to product offerings in a business-to-business environment, the interviewees possess perfect requirements for our research. They were primarily directors of the service or sales department, CFOs, and CEOs of large mechanical engineering companies.

We conducted in-depth semistructured interviews between March 2013 and June 2013. We conducted the interviews face-to-face or via telephone. The interviews lasted between 30 and 60 minutes, were digitally recorded and transcribed verbatim afterwards. We used an interview guide which enhanced internal validity. As the researcher was the interviewer of each interview, consistency could be assured as well. We started the interview with an introduction of the topic and then asked our interviewees about their background, their work relating to services, and then continued with their usage of a SLM, explicitly the concrete requirements implementing and using a SLM concept in a company.

10.3.2 Data Analysis

We interpreted each interview as a single case. Using this method, the cases serve as independent experiments. In consequence, emerging insights can either be confirmed or disconfirmed by these independent experiments (Eisenhardt, 1989). We started our analysis and structured our data in this context by making notes. Then we analysed our collected data starting with a very detailed microanalysis and resulting in greater generality of the data (Strauss & Corbin, 1990). Throughout the analysis, we concentrated on various requirement categories regarding the implementation and usage of a SLM approach. We also tried to understand how these requirements are interconnected, and in general the importance of such a concept for a company. Through the identification of key narratives which were repeated by the different interviewees, we identified four groups of requirements.

This process of data analysis was conducted by three researchers who have an in-depth knowledge regarding the topic SLM. In a first step, these researchers analysed the data independently of one another. In order to guarantee well-grounded results, the findings were discussed in several workshops in detail afterwards, and finally four groups of requirements were elaborated in a second step. The requirements are illustrated in Fig. 10.2.

10.3.3 Findings and Discussion

The importance of a holistic approach in order to implement an innovative service management approach in a company, and in this context the necessity to concentrate on several areas in a company in order to be successful with the implementation of a service management approach is also supported in literature. As Bettencourt (2010) states, a company has to consider potential causes of service failures with the goal to avoid them. There exist four areas where service failures could have its origins and therefore, these areas have to be carefully elaborated in detail. At first, it is essential to have a closer look at an organisation as a whole: how are the strategy, structure, values, and resources in this organisation? Furthermore, processes have to be taken into consideration. "Who is doing what at what time (when) in which place (where)" has to be answered. Thirdly, employees are an
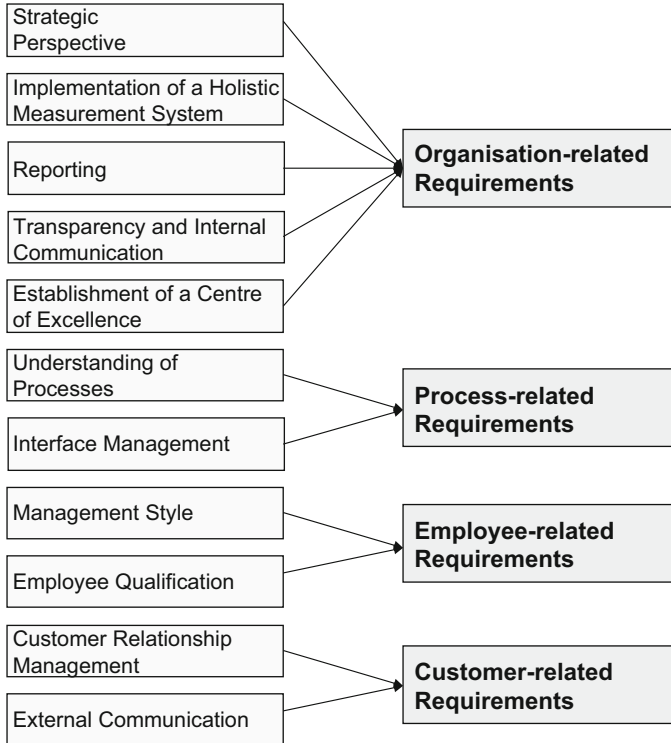
Fig. 10.2 Research Framework: Requirement Dimensions Leading to Meta-Groups of Requirements (Source: Own Illustration)

important element: factors regarding their role clarity, motivation, ability, and work environment have to be considered. Fourthly, also the role clarity, motivation, ability, and environment of customers have to be investigated. Keeping all four areas in mind and trying to control them enables a company to identify innovative service approaches which is in line with our results. This is an outcome which is essential to our strategy regarding the implementation of a SLM concept, which emphasises that a company has to focus and elaborate on different areas in a company to be successful.

In the findings and discussion section of this chapter, we elaborate in the following the requirements on a SLM based on the conducted qualitative interviews and current studies in detail. We start with a general framework and answer the following questions (see Sect. 10.3.3.1):

- How do the interviewees define SLM?
- In which area of the company is such a management concept valuable?
- Who is the user and under which conditions?

Building on these first findings, meetings with research partners, our conducted qualitative interviews, and based on an extensive literature review, we provide

evidence and identify four meta-groups of requirements with the focus on "organisation", "processes", "employees", and "customers". Each meta-group consists of several dimensions, which will be explained in detail (see Fig. 10.2 and Sects. 10.3.3.2–10.3.3.5). The understanding of this complex topic, the structured elaboration of the right and uniform requirements as well as finally the implementation of a SLM concept in a company lead to an increase in value for the company. Such a structured treatment of all service-related information through a SLM induces internal and external value-creation, i.e. additional value for the company itself as well as for the customer.

10.3.3.1 General Results

So far, there does not exist an all-embracing understanding of the concept "service life cycle management". Therefore we asked our interviewees how they define a SLM. The following statement represents well the view of our interviewees: *"SLM is a strategic direction of a company. It supports the company that everything [all actions regarding the product and especially the product-related service] goes well. And in this context it is of major importance, KPIs are involved. A SLM concept is useless, if it does not create any KPIs [which provide valuable hints for further strategic decisions]."* Consequently, this concept can be seen as a "medical file" of the product and related services; through the identified KPIs a company can observe the life cycle, and in this context actions corresponding to the product and related services. Moreover a company is also able to detect problems which give hints of great value regarding potential areas for action. Furthermore, it is possible to talk about "service prevention" in this case as well. An effective interpretation and usage of the KPIs can help to proactively identify relevant and useful services in addition to a product, and in this context strategic areas of action; the right interpretation even enables a company to work in an anticipatory way, which might in turn lead to a reduction of areas of actions.

The field of application ranges ideally through the whole company. Our interviewees confirmed that *"such a concept should be used and implemented in the whole company, integrating all processes."* This concept should be implemented in order to serve as a strategic platform, from which different departments can pull data; these data should be used to make strategic decisions for the respective department as well as for the company as a whole. Obviously, the service department profits the most from this concept, but the information is still of interest to the marketing department and the quality management department. It supports the employees in order to draw conclusions regarding the quality of the product and service, and moreover facilitates the implementation of a customer relationship management with the goal to manage interactions with customers in a more efficient way. Such a SLM approach is furthermore an advantage for the area of research and development (R&D) (in order to disclose problems relating to service history), and to the sales department. That data is also of relevance for the management of the company as it can support the strategic orientation of the company.

Consequently, various people will use this tool and profit from it. The service technician will push data into the tool. The service planner can use the data for the evaluation of the results. In R&D, the developer can benefit from this concept to gather relevant information about developed products and related services. In the sales department, the salesperson can take advantage of that data for better negotiations with customers. As emphasised by the interviewees: *"This tool is an application with a push function [data are pushed into the tool] and a pull function [data are pulled out]."* It was elaborated that the best solution for this concept under these circumstances should be a multi-user application which is in use all day long.

Due to the complexity of the requirements on a SLM, it is hard to make this topic tangible immediately. Nevertheless, it was possible to elaborate four areas (focus on the organisation, processes, employees, and customers), which we want to concentrate on now.

10.3.3.2 Organisation-Related Requirements

The first area of requirements focuses on the organisation itself. It represents the broadest area, as it consists of five subdimensions (strategic perspective, implementation of a holistic measurement system, reporting, transparency and internal communication, and establishment of a centre of excellence).

The following findings were elaborated in the context of our interviews. Regarding the *strategic perspective*, a SLM concept can only be implemented, if the current company strategy highlights servitisation (Baines, Lightfoot, Benedettini, & Kay, 2009). This is a strategic perspective in which a concept, which mainly focuses on services, can be embedded. Furthermore, *the implementation of a holistic measurement system* is seen as an essential part for the success of a SLM concept. *"Without a holistic perspective, such a system can't be integrated. All departments have to be involved. To find an 'island solution' does not make sense. It is important to transport information from department A to department B. An island solution would lead to retention of all information in department A."* In order to be able to measure all relevant and complex issues, the integration of cross-department information is necessary. For the *reporting* of all relevant and complex issues, KPIs are mentioned to be very useful. *"Certain KPIs have to be elaborated and documented."* At first, management KPIs have to be worked out. Based on these KPIs, all department-relevant KPIs can be identified. This one group of KPIs is not possible without taking into account the superordinate ones and vice versa. In this context it is important, that such a KPI system has to be implemented by the management. To successfully implement an innovation like a SLM approach in an established company, the internal resources—the internal customers: the employees—have to be considered and integrated in this process. *Transparency and internal communication* are crucial factors throughout the implementation. *"At first, there exists a defensive attitude towards innovations. That has to be overcome."* There are, on the one hand, always employees (as promoters) who are in

favour and like innovative ideas. On the other hand, there are also careful ones. Therefore, the management has to become active and should explain the exact reasons for the present change. The different goals of the various stakeholders have to be considered as well in this context. *"You have to consider carefully what to say to which stakeholder at which time."* An internal communication and even an active change management are must-haves. The integration of internal customers in the implementation process through the *establishment of a centre of excellence* was also supported to be strategically important. *"The creation of an expert team which feels responsible and has the concrete knowledge about the new system is necessary."* At first the management has to fully support the implementation of a SLM concept. In a second step, a team of employees from different strategic important departments has to be established. This is the centre of excellence. This team has to be trained in order to become a specialist on the new concept. In a next step, each expert has to pass on this knowledge to his specific department with the goal to make the information available for all employees. The multiple organisation-related requirements demonstrate the evident importance of a stable organisation. Thus, this chapter implies the following proposition:

Proposition 1   *The implementation of the organisation-related requirements is a fundamental prerequisite for a successful implementation of a service life cycle management concept.*

10.3.3.3 Process-Related Requirements

Throughout our qualitative study, our interviewees emphasised that *"processes have to be defined. In order to integrate an innovative system [in an established company structure], processes have to exist. This is the main criteria for a successful implementation and a proper functioning."* The understanding of processes as well as an effective interface management represent two main process-related requirements. At first it is crucial that the processes are comprehensible, i.e. the *understanding of processes* is of major importance. It is not about the amount of information which is integrated in the processes, but about the understanding. The users of the innovative concept have to fully understand what they should do, and this is only realisable if the processes are well described. Furthermore, it has to be considered that the processes will be expanded through an additional process step in the short run. But in the long term a company benefits from this development, because some processes become useless and other become easier in the execution. Therefore, it is important that the management emphasises the goals and relevance of the implemented concept. The active collaboration between the departments has to be promoted. Such an *interface management* only works if all relevant data will be shared across all departments (see also Sect. 10.3.3.2) and the customers will be integrated as well (see also Sect. 10.3.3.5).

Our results confirm findings from literature which stress that companies have to focus on processes in order to be successful in the area of services. Due to the characteristics of services, service research underlines that in addition to the established and well-known four Ps of the marketing mix, namely product, price, promotion, and place, three further components have to be added while concentrating on services. These three components focus on personnel, physical facilities, and process management (Magrath, 1986). Supporting our empirical results, processes are highlighted as one essential component of the service-oriented marketing mix.

In this context, the focus is on the effective elaboration of the single steps of the service processes, and on the allocation of the responsibilities to either the employees or the customers during the service processes. Moreover, a high degree of flexibility of the processes should exist. The needs and requirements of the customers have to be taken into account, even if this leads to slightly changed processes. Furthermore, the level of transparency of processes influences process quality. The higher the level of transparency, the better the employees as well as customers understand service processes (Homburg & Krohmer, 2009; Magrath, 1986).

Based on findings from literature and the results from our qualitative interviews, we conclude that processes are seen as one essential element in the implementation of such a new concept. Therefore we propose the following:

Proposition 2 *Structured and strategic well integrated processes are positively related to a successful implementation of a service life cycle management concept.*

10.3.3.4 Employee-Related Requirements

In this section, we will analyse the following two employee-related requirements: management style and employee qualification. Regarding the *management style*, the interviewees stated the following: *"The implementation of such an innovative concept—like a SLM—must be pushed and supported from a central and influential position in the company."* In this way, employees will accept and support the innovation. On the one hand, it is possible that employees will feel left out by the management and will therefore not be in favour of the new concept at first. But the fact that the concept would not be pushed by a central position on the other hand, could lead to the implementation of different concepts by various departments. This could end up in many competing approaches in one company, and this would in turn minimise the financial resources in the long run.

In this context, findings from literature have to be investigated. Bettencourt (2010) states that employees hold at least two different roles which are relevant to service innovation and about which the management should be aware of. On the one hand, employees have to be treated as internal customers of the company. On the other hand, they are an essential part of the service solution which directly

brings value to the customer. Taking this relevant role of the employees into consideration, service employees should definitely not be ignored and have to be included in the process of service concept creation, development, and design. Therefore, a company has to find a good solution regarding the management style, and find the balance between including employees, but at the same time not giving them too much power.

Moreover, the additional employee-related requirement *employee qualification* which was identified in the course of our interviews constitutes a very important aspect in this context. *"The employees have to be taught how to use this concept. If they do not understand why and how they should handle it, they will do it the wrong way"* (see also Sect. 10.3.3.2, establishment of a centre of excellence). The employees have to become aware that this concept is beneficial for every single employee who is in touch with services. This awareness leads to the willingness of training and to a conscious handling, which in turn leads to a correct interpretation of the output of the concept. As a consequence, the employees will be able to solve customer complaints in a more effective way.

Our results support the implications of the extended marketing mix. As elaborated in the context of process-related requirements, personnel (or employees as used in this chapter) together with physical facilities, and process management also represents an additional component to the classical four Ps marketing mix. Regarding the personnel in a company, it is of major importance to ensure employee competence. In order to implement an innovation and furthermore to handle customers' concerns and wishes, professional and social competence of the employees is crucial. Moreover, a high level of employee motivation is indispensable. Being confronted with motivated and open-minded employees facilitates the acceptance of an innovative concept—like a SLM approach—and in consequence its implementation. Therefore it is essential for companies to qualify and motivate employees (Magrath, 1986), which is in line with our qualitative interviews.

Combining the findings from our empirical study and literature, the elaboration of the employee-related requirements leads to the following proposition:

Proposition 3   *The integration of employee-related requirements is positively related to a successful implementation of a service life cycle management concept.*

10.3.3.5 Customer-Related Requirements

Our empirical study highlights that in the area of customer-related requirements a company should have a closer look at the factors customer relationship management and external communication. *Customer relationship management* seems to be inevitable for the implementation and integration of a SLM concept. Closely linked to this factor is customer integration. *"Towards particular strategic customers, there exists a close relationship and an open exchange of information."* The

relationship is regarded as a collaboration between the service provider and the customer. Throughout this collaboration, the customer is integrated in the development and implementation process of the SLM approach. As the customer is a part of the service process itself, he can give valuable information in order to make this concept even more useful and successful and to solve problems the service provider is even not aware of. The *external communication* of the benefits of such a concept towards the customer is also a complex factor. As this concept represents a competitive advantage, the service provider can actively promote this concept, which could lead to customer loyalty. But as a consequence, the customer would maybe like to gather some information from the implemented tool which the service provider is not willing to disclose. This is a dilemma and therefore the service provider has to decide depending on the significance of the customer if he will share his information.

The role and inclusion of customers in the context of the implementation of an innovative service management approach is also a crucial topic in research. "The best guide to discovering service innovation opportunities is knowing how customers define value and the types of customer needs that can direct meaningful service innovation" (Bettencourt, 2010, p. 1). As many companies do not know the service customers' definition of value, they are missing an essential ingredient to service innovation success. As a consequence it is essential to have a closer look at the customers in the implementation process of an innovative SLM strategy. Only by knowing their needs and definition of value, a company can create entirely new service concepts and can improve current services (Bettencourt, 2010).

Furthermore, our findings validate the concept of customers as co-producers; as many authors highlight that customers should be seen as co-producers of value in the service context, our research goes in the same direction. According to Vargo and Lusch (2004), there is a shift from the dominant logic with the focus on the exchange of goods to a new perspective on services, which primarily means on intangible resources, the co-creation of value, and relationships. In contrast to the perspective on goods where producers and consumers are viewed as ideally separated, consumers are involved in the production of value when concentrating on the service perspective. The consumer is seen as a co-producer of value. Spohrer and Maglio (2010) support this view. They state that value co-creation arrangements among distinct entities are the main characteristics of service systems. These entities create value together in a service system. Also Rust and Bhalla (2010) emphasise that "without a customer there is no business! What could be more obvious than that? Yet, merely because something is obvious doesn't mean it's easy to act on" (p. 62). Companies have to change about how they think about customers. Customers have to be seen as partners, a source that can create value and also revenue in the long run for the company. But therefore, a company has to be aware of the potential of customers and treat them accordingly (Rust & Bhalla, 2010). There has to be "a transition to the 'customers as assets' way of thinking" (Rust & Bhalla, 2010, p. 63). The integration of customers, i.e. customers as co-producers of value, enhances the success of a company.

It becomes obvious, that it is indispensable to integrate customers while elaborating and implementing a new service concept, like the presented SLM

concept in this chapter. Based on the literature and our empirical results the following proposition is stated:

Proposition 4   *The consideration of customer-related requirements is positively related to a successful implementation of a service life cycle management concept.*

The contribution of the four propositions, as well as managerial implications and the identification of further research are elaborated in the following.

10.4   Conclusion

10.4.1 Contribution

The primary aim of our study based on qualitative interviews was to elaborate the requirements for the implementation of an innovative service management approach, namely a SLM. As industrial services are often embedded in the company strategy with a focus primarily on products and are often not seen as an interlinked area, the implementation of a supportive concept with a focus especially on industrial services in addition to a traditional PLM approach constitutes an innovative strategic reorientation for companies. Our study contributes to the insufficient research with a focus on industrial services, where a structured elaboration of the requirements for a successful implementation of a SLM concept is missing, and gives valuable practical and academic insights.

Based on existing and respected service life cycle models and a newly developed service productivity life cycle model (see Sect. 10.2), we elaborated in a first step in the context of our qualitative analysis a framework for the implementation of a SLM concept. First of all, this strategic approach was described and defined, the field of application was determined and the users, who profit the most from it, were identified. On this basis, we developed four groups of requirements, each with a focus on the organisation, processes, employees, and customers (see Sect. 10.3). Furthermore four propositions in relation with the four groups of requirements were derived. The findings show that there exist numerous organisation-related requirements. We learned that these requirements are of central significance. A well-structured and organised company with a clear focus on services is necessary for the implementation of an innovative service management concept. Therefore, these requirements create the basis and are indispensable for a SLM concept. Without such a basis, the implementation will not be a success. Based on this group of requirements, three further groups of requirements were elaborated, namely requirements with a focus on processes, employees, and customers. We showed that these requirements are not only interdependent with the organisation, but they also influence each other (see Fig. 10.3).

This elaboration of requirements can be seen as a guideline and facilitates the implementation of such an innovative service management approach. As our

Fig. 10.3 Interdependencies
Between Requirements for
the Implementation of a
Service Life Cycle
Management (Source: Own
Illustration)
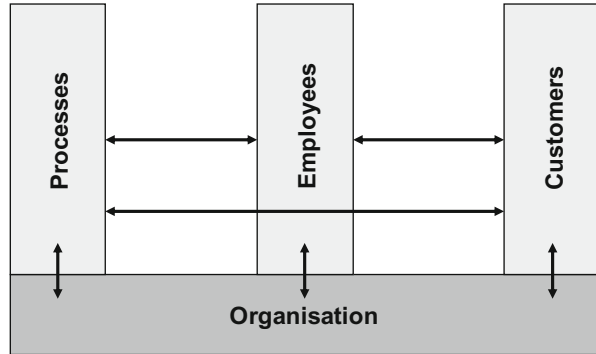
interviews revealed the importance of these groups of requirements, companies should try to concentrate on these in order to be able to implement such an innovative concept in a structured and successful way.

10.4.2 Limitations and Further Research

Our elaborated four propositions extend the current literature regarding the requirements for the implementation of a SLM approach. Nevertheless, the findings are limited and further research is indispensable. As our data is grounded on mechanical engineering companies, generalisability is limited. Although our results give a structured overview of the requirements, it is necessary to investigate this complex area in different contexts to ensure generalisability. Solely the investigation of this research topic in different contexts can lead to representativeness of the results.

Furthermore, our research is limited to one country. In Sects. 10.3.3.4 and 10.3.3.5 we investigated employee-related requirements and customer-related requirements and highlighted, that employees as well as customers play an important role in the service life cycle; they act e.g. as co-producers or share valuable information with the management of a company. As services are obviously influenced by people, it would be therefore also of great interest to repeat this study in a different cultural environment.

In order to support and concretise the results, a quantitative study should be conducted. This would support the generalisability of our results. In addition, the inclusion of further variables as moderators would be of interest. Such moderators could be the size of the company or the corporate structure of the company, i.e. the number of hierarchical levels in a company.

To summarise, the existing research on SLM and in a first step on the requirements for a strategic and structured implementation of a corresponding management concept is still in its infancy. Until now, there is just limited knowledge and experience available in this research area. But as this chapter clearly shows, this topic holds significant potential for academics and practitioners and should therefore be investigated in greater depth.

10.4.3 Managerial Implications

Despite the potential to increase revenue, gain a competitive advantage, and create value through the sales of services, many companies are still not conscious of the relevance of a SLM concept. As the development and structured implementation of a SLM concept—in addition to an integrated PLM perspective—is directly linked to financial success for companies in the long run, it is of high importance to raise awareness for the potential of this new strategic orientation for a company. Not only academics, but also practitioners in particular, should not underestimate the relevance and potential of this topic.

Regarding the implementation, it is very important to consider the elaborated four groups of requirements. In this context, a structured integration and an in-depth investigation of all four groups is essential. The focus on only one group is not sufficient. Before starting to implement such an innovative concept, a company has to be aware of the complexity of such an implementation, and has to have enough capacities to focus on all four groups of requirements. In case that a company does only have limited capacities, the implementation is faced with severe difficulties, as the single groups are interdependent.

In this respect it is crucial to integrate employees (as internal customers) as well as customers (as external customers) in the implementation process, as they have a huge impact on its success. Therefore, the management board of a company has to communicate to its customers, i.e. the employees, and make them aware of the importance of this concept. The success of the implementation of an innovative approach can only be guaranteed, if employees have a positive attitude towards this innovation and are willing to be an active part of the implementation process. Furthermore, the influence of the customers for a successful implementation of a SLM approach has to be considered. As customers are a part of the service process, their needs and requirements have to be taken into consideration. Only through the integration of customers and the exchange of information between the service provider and the customer, an all-embracing understanding and implementation of this concept can be ensured. A professional customer relationship management is indispensable in this context.

Furthermore it can be stated that a company has to pursue a two-stage process in order to implement such an innovative service management approach. At first, a project management for the introduction of a new innovative concept like a SLM is of major importance. In a second step, a structured change management for a successful implementation is indispensable. Confronted with a radical innovation, there often exists a resistance to change. This resistance has to be addressed (Lovelock & Wirtz, 2010).

In summarising it should be highlighted that the implementation of a SLM—in comparison to a PLM—is due to the nature of services a special challenge for traditional companies with a primarily focus on technical products. But despite all the challenges a company is faced with, this study makes very clear and highlights, that the implementation constitutes a task a company can solve if the elaborated requirements are taken into consideration. It is a challenge which results in multiple benefits for the company itself.

Expert's View

Dr. Ralf Gitzel
  ABB AG

Question: How and where will innovation in services increase productivity?

Ralf Gitzel: Process industry (i.e. chemical, pharmaceutical, food & beverage etc.) will profit from technology-centered support services provided by the asset vendors which allow those companies to focus on their core competencies. Currently, the complexity of process automation assets (sensors, actors and especially the control system) is increasing due to accelerated technological progress.

Companies who use these assets can no longer afford to develop the required knowledge in their own companies—it is too much and changes too fast. As a result, they prefer to rely on specialists in the employ of the asset vendor. Thus, they can concentrate more on their core competency (e.g. refining oil) which means increased productivity for them.

Question: What will affect the rate of change? What are the accelerating and inhibiting factors?

Ralf Gitzel: Creating new services is hampered by the fact that they are essentially crafted as unique items. Originally, hardware design and software engineering faced the same challenges. The introductions of modules, templates and standardised components has helped to increase the speed of HW/SW design. If a similar level of maturity can be reached on service design, this will increase the pace of change. On the other hand, if such developments are not possible, this will inhibit faster service developments.