D14.5 – Report on the Approach on the Customization of Service Lifecycle Mgmt

M18

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0.2	7.3.13	STRUCTURE OF DELIVERABLE
0.6	15.4.13	FIRST DRAFT
0.8	22.4.13	PEER REVIEWERS SEND THEIR COMMENTS
1.0	22.4.13	COMMENTS PROCESSED AND DELIVERABLE FINISHED

DELIVERABLE PEER REVIEW SUMMARY

ID	**Comments**	**Addressed (✔) Answered (A)**
1	Rename of technical tags to make the tags coherently	**Addressed (✔)**
2	Important terms should be written in bold to make it easier to read.	**Addressed (✔)**
3	formulate the chapters “executive summary” and “summary and outlook” simple and understandable	**Addressed (✔)**

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1. Executive Summary

Within this deliverable, the Service Lifecycle Management Framework is being competed. The last sub-phase of the **Service Operations Management** with its four alternatives of Re-Designing a service as well as the dismissal of a service in contrast to reusing it, are being described.

The **re-design** can be roughly divided into four cases. Starting from customers evolving needs, we could identify on the one extreme light adjustments within the service mostly based on orchestration of existing modules needing therefore limited effort to re-design; on the other extreme we could identify the need for basic changes within the service that need high effort and the re-thinking of the service design phase. The first variant is called “Customization of services”, the second is called “Individualization of services”. Both alternatives are based on the requirements of a customer to adapt an existing service to his own wishes.
In the case the service provider needs to trigger the re-design of an existing service, there are also two possibilities. If there are only minor changes such like troubleshooting and small enhancements to be made, the effort for re-designing the service is rather small. This variant is called “Service Improvement”. If instead major changes need to be carried out or the service needs to be re-invented, this is called “Service Re-Development”. If a Service is no longer economically relevant or it is replaced with another Service, it has to be removed from the Portfolio which is called “Service Dismissal or Decommission”.

The four alternatives of Service Re-Design all have different consequences for the process of Service Lifecycle Management. Due to the driver and the effort that has to be taken, the Feedback-Loop within the Service Lifecycle Management (from the Service Evolution phase back to preceding phases) looks different.
For Customization of Services, the modules are being developed within the first stage of the Lifecycle of the Service so that the process of re-design can start with the Service Design (part of Service Engineering).
An Individualization of a service, however, needs to begin with the Requirements analysis because the specific requirements of the customer need to be defined first, before designing the service, based on an existing service.
When a service improvement is performed, the feedback-loop can also start with the service design. Because existing errors and necessary enhancements are already acquainted, there is no need for further steps in the process such as Ideation or Requirements analysis.
In contrast to that, a Service Re-Development begins again with the ideation to create new ideas and to determine which changes have to be made.

The second main chapter in this deliverable is about the **customization** of Service Operations Management (SOM). Regarding the four different types of services, the customization of SOM with its sub-phases “Marketing”, “Service Sales”, “Service Delivery” and “Re-Design/ Dismiss” is being discussed and examples are being given. It was found out that each service type has its peculiarity influencing the different sub-phases of the SOM. Especially for the sub-phase of Service Re-Design some interesting relations can be identified: due to the degree of contact intensity and variety of the service, a re-design on the basis of a particular alternative may bring great advantages compared to the other three alternatives.

Within the MSEE Use Cases it was also analyzed if applied customizations models to the Service Operations Management could be identified. Therefore, a generic checklist for a customization framework for SLM within MSEE is being provided. However, the Customization of Service Operations Management has to be analyzed for each service to find out which adaptions can and have to be made for a successful customization of the respective sub-phases of SOM.

2. Introduction

2.1. Objectives of Deliverable D14.5

Deliverable 14.5 shall provide the further development and completion on the Service Lifecycle Management Framework for MSEE with its last sub-phases of Service Re-Design and Dismiss. Furthermore, an approach on the customization of the Service Lifecycle Management is being provided, in particular of the Service Operations Management. Using examples, these matters are being transferred to the MSEE Use Cases.

2.2. Structure of Deliverable D14.2

Deliverable 14.5 consists of two main and overall six chapters. At the beginning, the executive summary gives an overview of the contents of this deliverable. In chapter 2 the objectives and contents of this deliverable are being described.

Chapter three is concerned with the last part of the Service Operations Management, the subphase “Re-Design and Dismiss”. It will be explained the process of Re-Design of product-related services and from what alternatives it consists. These four possible ways of re-designing a service will be explained in more detail and examples from the MSEE use cases are used to illustrate the application of each alternative.

In the following chapter, the customization of Service Operations Management is explained. Therefore the framework model is used for the analysis of customization of SOM. Regarding different types of services (cf. D 12.2), the customization of SOM is explained using the MSEE Use Cases for the four alternative types of services. Finally, a generic checklist for the customization framework is being provided.

As usual, the last two chapters are the summary and outlook as well as the references used for this deliverable.

3. Reutilization Phase within the Service Operations Management

After a service or product-related service has been developed and has been successfully added to the portfolio of a company, it is monitored by the **portfolio management**, how the relevant service is in comparison to other service products of the company and how this develops in the course of time. If it is determined, for example, that a service produces declining demands, it is a sign that the requirements and needs of the customers are changing. It is therefore necessary to examine whether this service should no longer be offered and is thus removed from the portfolio or whether it is worthwhile to change the service to his improved variant to attract more customers once again.

3.1. Process for Re-Design of Product-related Services

The re-use or further use of existing services may therefore be an option for their abandonment. In the portfolio management phase it is tested continuously what trends are prevalent in the product-related service business so that predictions can be made which of the existing services offer further potential and which have already exhausted their benefits. For those services that continue to provide potential, measures are planned - they can be differentiated by two parameters, which leads to four alternatives: The first parameter indicates whether there is a *re-design* due to a **customer request** or whether an **internal impulse** leads to a further or new development of an existing service. The second variable for differentiation is the **intensity** with which the re-design is carried out, if only small changes and enhancements are made, or if significant changes are necessary.

Services that require only slight changes in order to continue to be sold successfully in the marketplace belong to the category **Improvement**. Services that require more extensive adjustments fall into the category of **re-development**. The other two options are the individually created or customized existing services, according to customer requirements. In the **individualization** a complete adaptation to customer requirements is made. **Customization** is when a smaller adjustment to the specific requirements of the customer is accomplished, made possible through prefabricated modules. The processes that are used in each of these options are explained in more detail below. Figure 1 shows an overview of these four alternatives for re-designing an existing service.

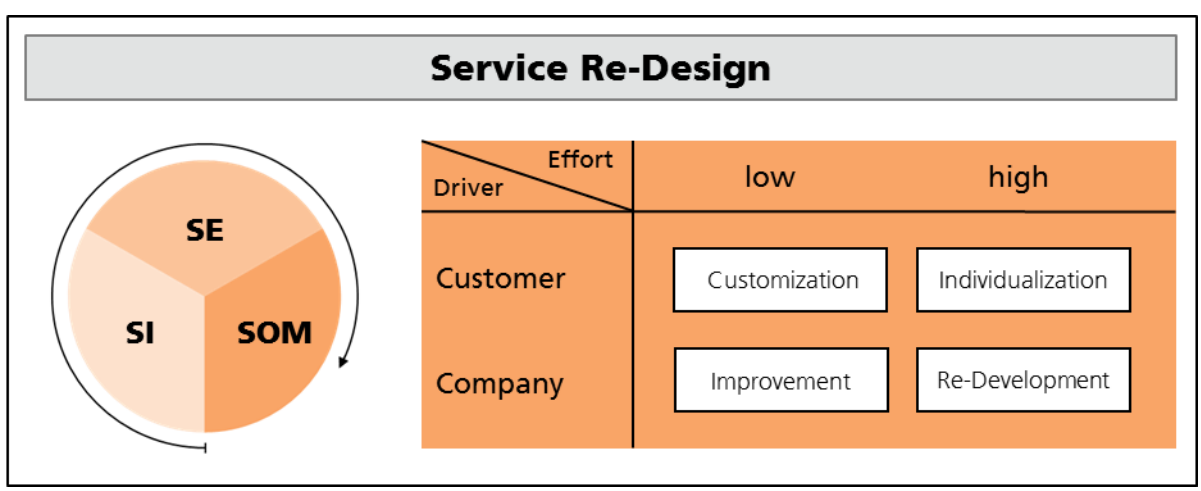

Figure 1: Four alternatives of Re-Designing Services

3.1.1. Customization/ Adaption to customer needs of Product-related Services

Customization is the easiest form of the re-design of a service. As seen in Figure 1, the customization begins with the customer who wants a service that the company cannot provide in this form. However, the company offers various other services that are similar or it has modules from which the customer can assemble the necessary components for his requirements. This combination of services or components of services is meant by customization. Through this modularization it is possible with relative little effort to offer various services, which are inspired by the desired requirements of the clients.

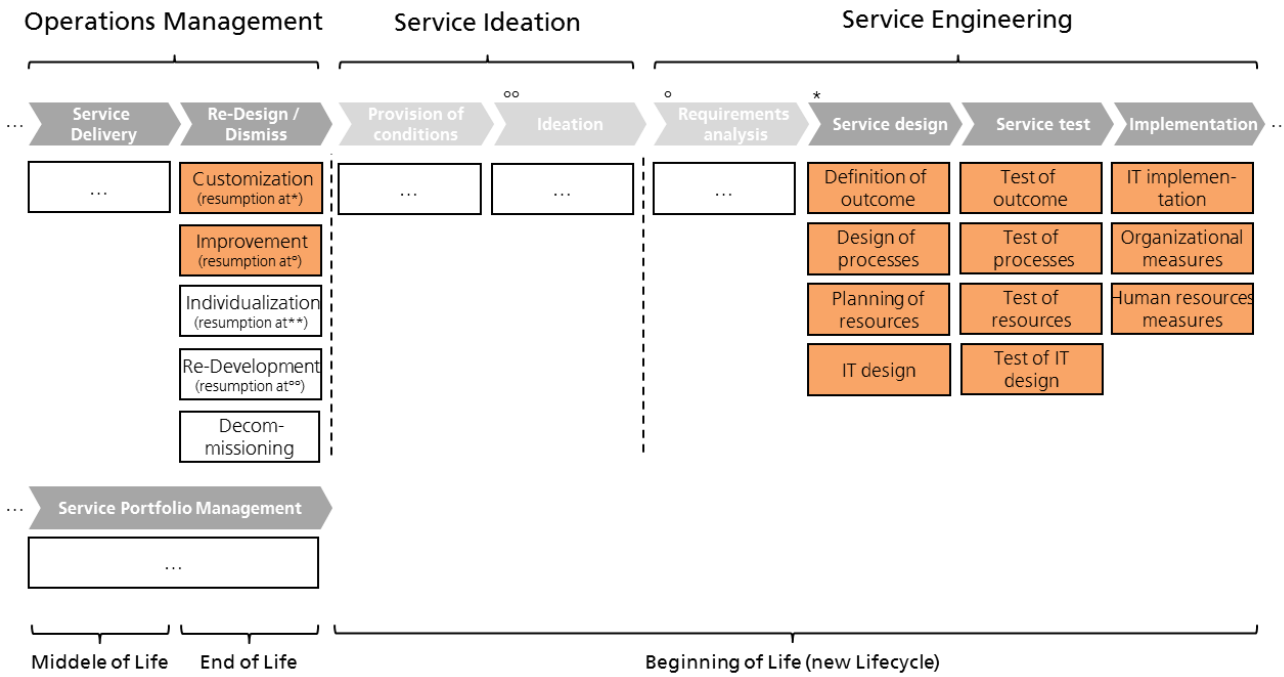

Figure 2: Process of Re-Design – Customization and Improvement

For the development process respectively the process of re-design, this means that the phase of the service ideation is entirely omitted because the modules for customization are developed in the first cycle of the SLM. The requirements analysis can also be skipped, because the customer has merely minor adjustments to their specific requirements, and the combination of existing modules is sufficient to satisfy this.

The re-design process therefore only starts in Service Engineering, specifically in service design, where the service components offered by the company, are compiled by the customer to his wishes.

The modules to be developed in advance must be defined very precisely for customizing. It must be ensured that the single components of the service can be combined and complement each other. It must be clear which components are essential and which can be booked optional. It can be determined, for example, that the basic module can be combined with various types of additional modules, but not necessarily. These additional modules can be from different kinds, from simple addition to comprehensive value-added offerings.

In the use case of **BIVOLINO** this can be shown very clearly: The customer buys the basic product "shirt". For this purpose the cut and the material is selected. In addition, other options can be availed such as personalization with monograms or through the adjustment of the

collar shape, etc. Depending on customer requirements, this product can be customized by the service "Configurator Customizer".

In a similar way **TP VISION** provides its customers with a range of different services. Who bought the product "Philips TV device," can then access with its Smart TV countless apps. This allows target group information to be provided on the TV set an on Facebook, Twitter & co. friends of the user can see what he is currently looking at. Films can also be purchased at the video store, which can be viewed directly. Thus, according to individual needs customized services can be claimed, offered by the predetermined selection of **TP VISION**.

In B2B, there is also a selection of Philips TVs that can be customized using the services of **TP VISION**. With the combination of a system of choice, the television is made operational for the hotel business. In addition to the above functions, the hospitability TVs have the possibility to integrate the hotels own information pages.

3.1.2. Individualization of Product-related Services

The extended form of the customizing of services is referred to as Individualization. Here is the adjustment to customer needs beyond what are the predetermined modules in customizing - the customer is more demanding, which can not be satisfied with the various modules of customization.

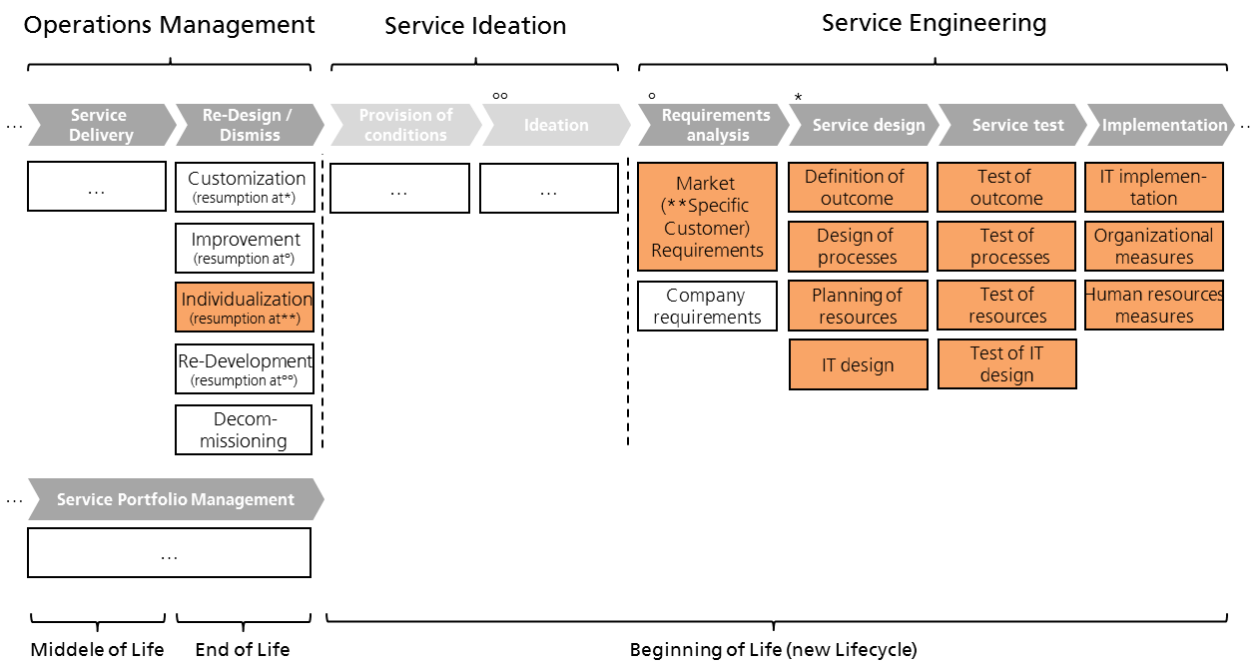

Figure 3: Process of Re-Design – Individualization

The example of this would be **BIVOLINO** using a completely different material that is not in the Customized Configurator to select or print the shirts with an individual pattern / logo. For this product-service combination it needs to be clarified what specific needs the customer has (requirements analysis) before the service can be adapted to the customer's wishes. So that these needs can be implemented, it must then be defined in service engineering, how the service will look like in the end, how the process is designed, and what resources are needed for this. For an individual pattern, the service component - the CC – has be expanded to include the ability to create your own patterns. Furthermore, **BIVOLINO** has to adapt his

production so far, that this pattern designed by the customer can be printed on the shirts. This last-mentioned possibility could then go back to the Customizing category since the printing of own designs would be modularized by providing this possibility within the CC.

Also in use case **TP VISION** an individual solution would be conceivable. For example, a hotel chain wants to provide Philips TV equipment in their rooms. However, this client is not satisfied with the apps offered by **TP VISION**, but he would prefer a specific app, that allows the hotel guests to make a restaurant reservation or to book additional services specifically from the hotel via the television in the hotel room. The development of a completely new app that is not based on an app already available and is written specifically to meet the needs of the client also represents an individualization.

The individualization of services, however, is always associated with high effort, since with every request initially the requirements analysis and the further steps of service engineering have to be performed. With customizing this process is done only once. Although it is then significantly more extensive, in the subsequent Customizing process, performed independently by the customer on the basis of modules, it is much easier because it is standardized.

3.1.3. Improvement of Product-related Services

Improvement of the services usually comes not from the customer, but directly by the company. Mostly, these are errors that could be eliminated or small adjustments to the graphical user interface (e.g. the troubleshooting in apps from **TP VISION** or the design of the CC from **BIVOLINO**), process optimization (e.g. automation, such as automatic feedback on mobile devices at **INDESIT**), etc. In contrast to the re-engineering of product-related services (cf. chapter 3.1.4) in the improvement the weaknesses of the service is known or there is already there the idea of what should be changed in order to improve the service.

The process loop that will be made in the improvement, therefore is similar to the process of Customizing (cf. Figure 2): Since the company already is aware of what should be changed, added or improved in the relevant service, the part of the requirements analysis is therefore redundant and the process is directly linked to the service design again.

Examples of this can be the apps of **TP VISION**. The apps provided by the company are regularly updated. It will be offered extensions that have more features or they can be improved (cf. chapter 3.1 in Deliverable 52.2: 2nd innovation cycle).

3.1.4. Re-Development of Product-related Services

If a profound restructuring of a service or major changes need to be made, it is called a re-engineering. In this option of the re-design of services, also the company is the driving force. In Re-Engineering it is intended to achieve strong changes. The process is therefore starting already in the ideation phase. As seen in Figure 4, a very large feedback loop is needed. Except for the sub-phase “Provision of conditions” the whole process of service engineering is performed again. As the company strives for a serious change of service (e.g. because thereby increasing market share is hoped for or it aims for a USP), the process starts again with the ideation phase.

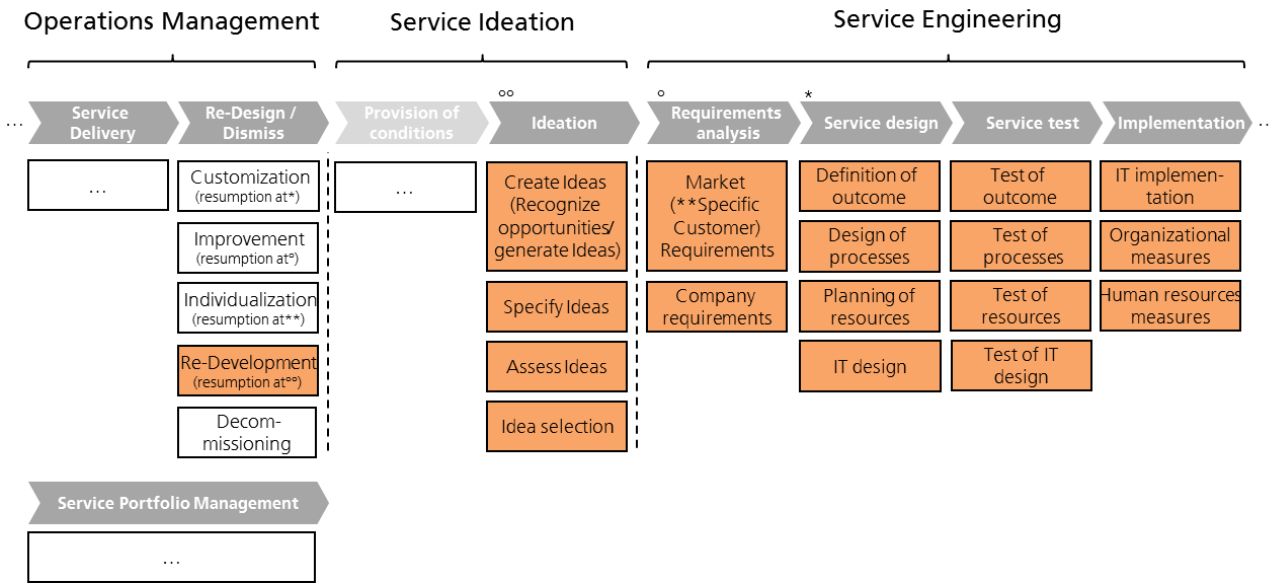

Figure 4: Process of Re-Design – Re-Development

An example of this can also be **TP VISION**: The Smart Messaging and Notification service is to be introduced into the innovation ecosystem in the first cycle only as additional feature to the existing TV Guide. Already TP Vision has planned to introduce an extensive new feature in the second innovation cycle, which is carried out through a re-engineering. The service will be developed newly to a great extent. There are Facebook and Twitter integrated and the user is involved actively in the service.

Another example is shown by **BIVOLINO's** former change of the measuring process. Like his competitors, **BIVOLINO** used to tailor his shirts by questioning the customer for many different body sizes. This process assumes that the customer has a tape measure. Further he has to take a lot of time for the process of measuring. In addition he cannot take all of his body measurements alone, so he needs support of another person. Furthermore, the error rate or the fit of the shirts of **BIVOLINO** at that time was much worse than today. This can also be seen in comparison with **BIVOLINOs** competitors. The current measurement process at **BIVOLINO** clearly becomes easier for the customer. He is asked only for a few measures that usually he already knows. A tape measure is no longer necessary. **BIVOLINO** has redesigned its entire measurement process in the context of a re-engineering. A lot of research lies behind the simplification for the customer. But it has found a way to quickly and conveniently find out the optimal size of the customer, in addition, the fit of the shirts was significantly increased. The feedback loop that **BIVOLINO** then has completed to design its service from scratch again, both benefits the company itself as well as the customers.

4.1. Introduction to the Customization of Service Operations Management

Although the topic of Service Lifecycle Management (SLM) has gained increasing importance, no theoretical or empirical research so far has been conducted on the topic of customization of SLM related to e.g. company size, service product offerings, service types or other indicators. The result of this is that no framework so far exists to use for, apply to or shape towards the context and purpose of MSEE. This leads to the challenge, to first define such a framework and second to find indicators within the use cases of MSEE that support this customization framework. Therefore, the next chapters of D14.5 are focusing on defining such a framework for the **customization of SLM** (chapter 4.2 and 4.3), applying this framework to the different use cases of **BIVOLINO**, **IBARMIA**, **INDESIT** and **TP VISION** (chapter 4.4) focusing on the phase of Service Operations Management and to analyze and discuss the findings of doing this (chapter 4.5). The data basis for framework development and application can be found in the deliverables D.12.3 and D.52.1. Additional desktop research has been conducted on the participating use case companies.

4.2. Framework model for the analysis of customization of SOM within MSEE

The objective of this chapter is to describe a framework model for the customization of SLM that can be used for application on the use cases of MSEE. As a starting point, the SLM framework described in D14.1 and D14.2 will be used as well as the service types described in D12.2. These two dimensions will be put together in a simple matrix and then be filled with contents and information based on the use case descriptions available in D52.1 as well additional desktop research results, as described in figure 5.

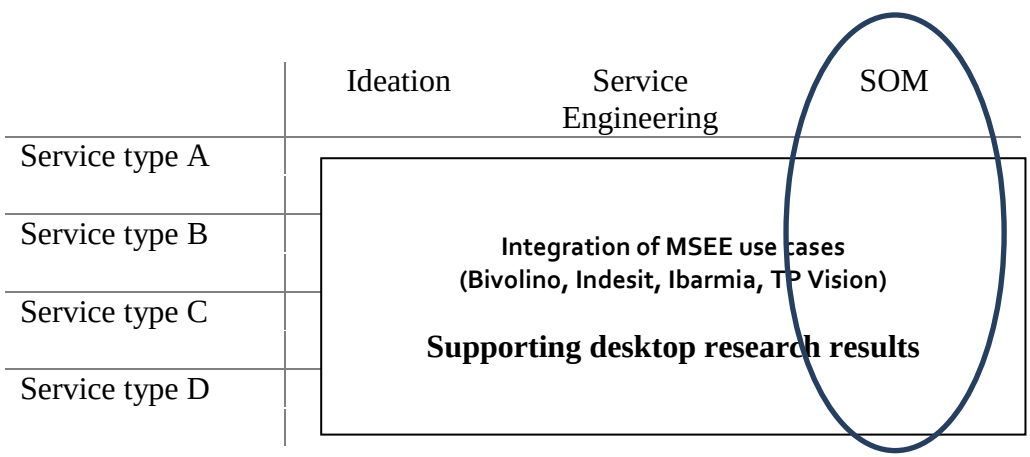

Figure 5: Framework model for the analysis of customization of SLM within MSEE

The framework and contents for the SLM phase of Service Engineering have been described in D14.1, which is why in the following we are focusing on the SLM phase of Service Operations Management and focus on the individual needs of each service type and service business within the use cases within MSEE.

4.3. Customization of SOM regarding different types of Services

Regarding the different types of services that were characterized in Deliverable 12.2, there can be described some aspects for the customization of the SOM phase within Service Lifecycle Management. Within the various sub-phases of SOM, there need to be set different focuses by virtue of the four types of services. As a reminder, the four types of services that are differentiated regarding contact intensity and variety are shown in figure 6.

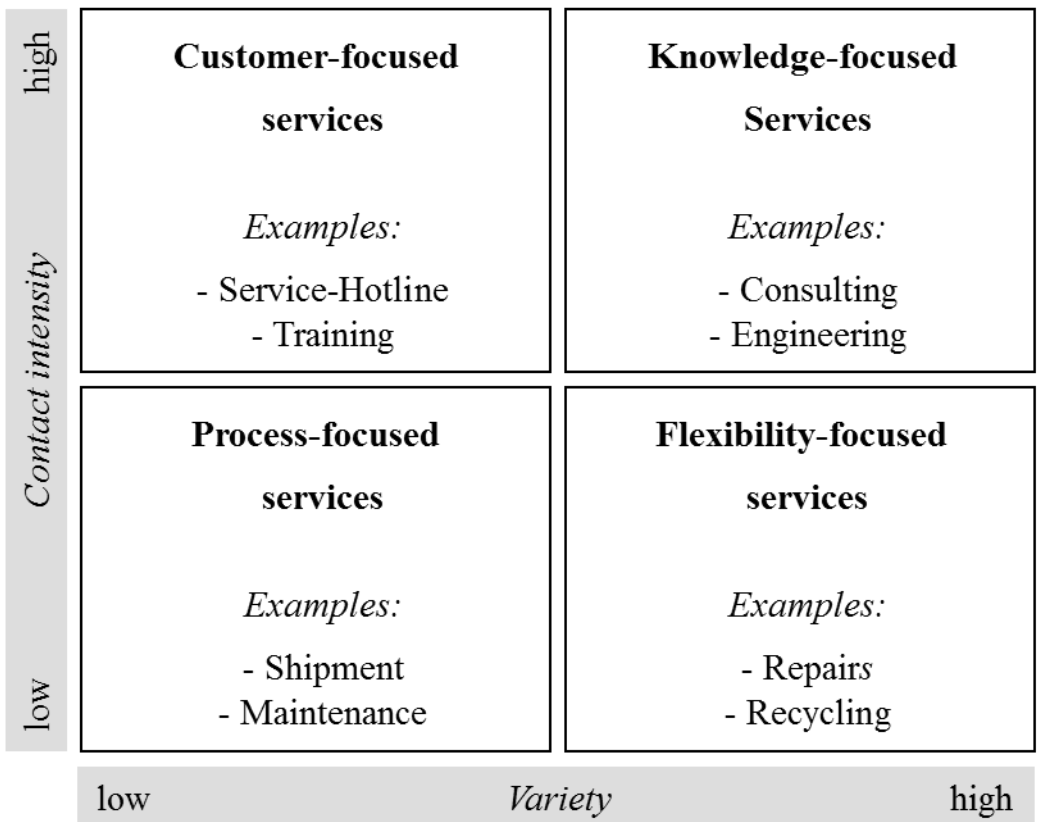

Figure 6: Service Typology

4.3.1. Customization of SOM for Customer-focused Services

- *Marketing*: Customer-focused Services are characterized by high contact intensity but low variety. The individuality of each service of this type occurs in the delivery phase, but not in the marketing phase. Still, the option for customer-oriented individualization is marketed. Due to the low variety of Customer-focused Services, marketing can rely on a very lean description of the core offering, without having to describe a large number of specifications or configuration options. If this type of service is not demanded by customers anymore, or if the degree of individualization required is too cost-intensive and a re-design does not offer a solution of these problems, the service is dismissed.

- *Service Sales*: Because of the required degree of individualization of Customer-focused Services, individual advisory is important in order to support the customer in gathering information about the service. Dialogic (face-to-face) communication to the customer plays an important role in order to give exactly the information the customer needs for the decision making to use a service. A the services are customer-individual but the variety is low, sales persons do not have to diversify their knowledge and sales

approach based on the service itself but rather on the customer types (e.g. industry, size).

- *Service Delivery*: Due to the high contact intensity of Customer-focused Services which means a high degree of interactivity with customers, the task of Service Operations Management is to deal with interaction management. This also implies spontaneous reactions on suddenly occurring incidents involving the customer side. In order to harmonize the service to customers' needs in an efficient way, the communication (e.g. channels, methods, contact persons) has to be managed.

- Re-Design/ Dismiss: Due to the high contact intensity of customer-focused services, there are two suitable ways of re-design for such services – individualization and customization. Since with these two alternatives, the customer is in the foreground and the starting point for the feedback loop, the essential characteristics of customer-focused services may very well be worked out here. Using the example of a training you can see the customization: Although the content of a training workshop should be the same, depending on the participants and their individual knowledge and interests, however, the process is created a little different each time.

4.3.2. Customization of SOM for Knowledge-focused Services

- *Marketing*: Knowledge-focused Services are characterized by both high contact intensity and high variety. Due to the complexity and the individualization degree of a service offered to a single customer, it is not possible to market the service describing the characteristics in a detailed way, which means to describe all possible specifications and combinations. Because the service depends on the individual customer (e.g. their industry, problem, strategy), it can be marketed on high-level only, outlining or highlighting possible characteristics and specifications, and showing examples. An example are consulting services; very often, customers are addressed by categorizing service offerings by industries (e.g. pharmacy, aerospace, food), or by showing a variety of references and customers, so that customers will ask for an individual proposal.

- *Service Sales*: Due to the project character of Knowledge-focused Services, the disposition of capacities highly depends on each single proposal which is a task of service sales. Nevertheless, as this service type is based on specific know-how, management skills, and combination of experts to solve a customer's problem, service sales can be organized based on the division of labor principle. A customer's problem can then be addressed by an individual proposal, resulting in an individual planning of required resources. Furthermore, dialogic (face-to-face) communication to the customer plays an important role in order to give exactly the information the customer needs for the decision making to use a service.

- *Service Delivery*: Because of the project character of Knowledge-focuses Services, Service Operations Management here has a coordinative function regarding the service projects being executed, known as project controlling. This includes the responsibility to decide whether to accept or not to accept certain projects due to capacity or knowledge restrictions. As the single experts work on different projects, the human resource allocation exhibits the form of a matrix, e.g. Person A contributes to projects A, B, and D, while Person B contributes to projects A and C, and so on.

- Re-Design/ Dismiss: In the knowledge-focused services, the individual support or advice to the customer is in the foreground. This results in a great variety of design options of the service. Because there is so much individuality, an individualization as process of re-design is suitable for customization of SOM for knowledge-focused services – in principle it is already the basis for this kind of services. If this type of service is not demanded by customers anymore, or if the degree of individualization required is too cost-intensive and a re-design does not offer a solution of these problems, the service is dismissed. As it is a knowledge-intensive service type, it has to adapt to changing technological or frame conditions. If the expertise is not available within the company, or cannot be established in time or cost efficient, decommissioning can also be an option here.

4.3.3. Customization of SOM for Process-focused Services

- *Marketing*: Process-focused Services are determined by very low contact intensity as well as a very low variety. Therefore they are highly standardized services. For marketing it becomes apparent that these preconditions lead to reliance because the provision of the services is not affected by strong customer contact, or from a wide variety. Marketing can in this case rely on the high reliability of the service quality and use this to promote the service. Also the possibilities of customization of the service by providing modules, the service delivery can be carried out automatically and with low contact intensity between company and customer. This also can be used as an advantage for marketing, because here also a certainty in providing the service can be given.

- *Service Sales*: For this part of the Service Operations Management, process-focused services can be offered as basis services. For example is the shipment part of **BIVOLINO's** customized shirt service: Without the shipment, the value of the shirt can't be established, therefore process-focused services are often included in services packages.

- *Service Delivery*: The planning of resources and capacities as well as the providing of such services is quite simple with process-focused services. Due to their high standardization, these elements are usually very similar, if not identical (e.g. shipment)

- *Re-Design/ Dismiss*: In the process-focused services the essential is the most rapid and high-quality execution of tasks. Since hardly any customer contact is needed and the variety of options is rather low, it is recommented with this type of services to optimize the delivery process. The high level of standardization offers the potential by improvements and automation to make the process faster or to improve quality at the same duration of it. The Improvement of services, which comes from the company itself, is particularly suitable for this, as it pursues these same goals. Besides a lacking demand on the side of the customers, a reason to dismiss this type of service could be that the quality is not sufficient under automation but the costs are too high for specialized or manual service process activities (e.g. result of an automated maintenance process is defective).

4.3.4. Customization of SOM for Flexibility-focused Services

- *Marketing*: Flexibility-focused Services are determined by low contact intensity but high variety. They can be standardized partly, i.e. single components can be defined and marketed modularly. As a consequence, marketing can rely on the high reliability of the service quality of the predefined service components and use this to promote the service portfolio (as conglomerate of the service modules) as a whole.

- *Service Sales*: The Service Operations Management for Flexibility-focused Services has two components. First, it concentrates on the standardized part (the modules). Second, the individual aggregation of modules to a holistic service is an important task. Furthermore, in order to handle the amount of different service modules, there has to be a variety management, dynamically adapting to the consequences of service module aggregation. Supporting customers in the decision making to use a service or a specific configuration of this service type in the form of advising is an important option in order to reduce the complexity of the service from the customer's point of view (e.g. assurance advisory).

- *Service Delivery*: The planning of resources and capacities as well as the providing of such services is quite simple with Flexibility-focused services. Because of the possibility to standardize single service modules, the resources required to deliver the whole service are usually scalable, possibly complemented by resources to manage the variety and combine the resource factors when combining different modules. However, this service type cannot be standardized totally because there are too many variants influencing the execution (e.g. repair service for different machines with different types of technical faults possible, need for a technician to make a diagnosis).

- *Re-Design/ Dismiss*: In Flexibility-focused Services, an efficient execution of service processes within the company is important – analogously to Process-focused Services. So the first trigger is the company itself with its processes as action field for re-design. Additionally, as it is a service type with high variety and thus complexity, technological progress is seen to be another possible trigger for changes in the service. E.g. in contrast to a process focused service, a repairing service some special-purpose machines cannot be standardized totally because the technician has to do some manual work or makes an individual diagnosis of the technical fault. If there is a technical revolution that replaces the need for human failure detection and decision, the repairing service can be re-designed using the new technology. Further frame conditions could also be a trigger and source for changes (e.g. regulatory framework). If this type of service is not demanded by customers anymore, or if the degree of variance and customization required is too cost-intensive and a re-design does not offer a solution of these problems, the service is dismissed. As it is a technology- or frame condition-dependent service type, it has to adapt to associated changes. If the expertise is not available within the company, or cannot be established in time or cost efficient, decommissioning can also be an option here.

Within this section, "re-design" was described considering the possibility of customization, individualization, or improvement (cf. figure 1). This means that a re-design within the same service type was regarded only. Another possibility albeit representing a more far-ranging strategic decision is to pursue the more radical form of re-design, a re-development of a service. All the same if it is a Process-, a Flexibility-, a Customer-, or a Knowledge-focused Service, there could be a re-design towards another service type. E.g. a formerly Process-focused Service could be decided to be changed to a Customer-oriented Service, or a

Flexibility-oriented Service could be changed to a Process-focused Service. Then the move on the x-axis of figure 6 would be equal to a move on the continuum between automation (less variance) and specialization (more service variance); and the move on the y-axis could be seen as a move on the continuum between isolation (from customer contact) and integration (of customer contact).

4.4. Customization of SOM within MSEE use cases

The goal of this chapter is to look into details of the use cases in MSEE and to identify criteria that can be used as indicators for a customization of the Service Operations Management phase of Service Lifecycle Management.

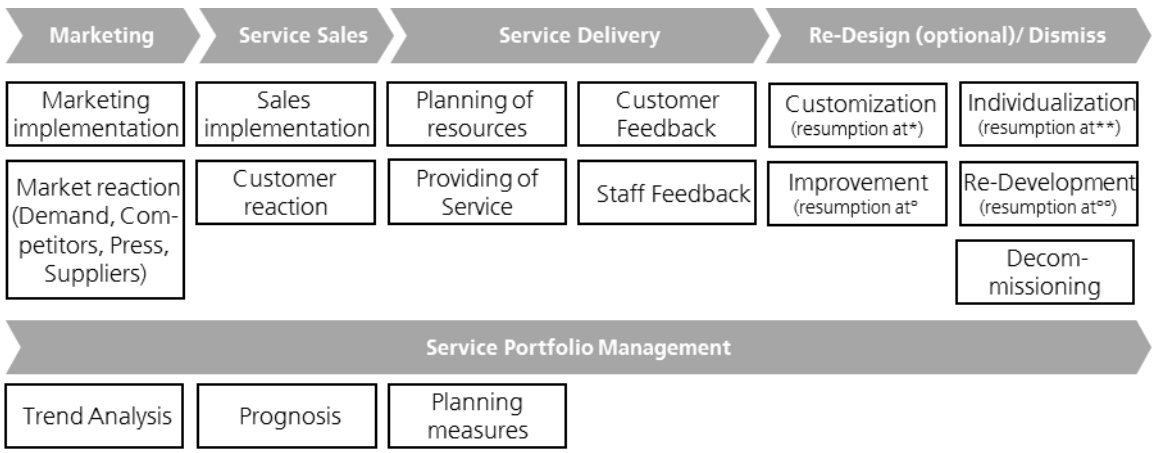

Figure 7: Elements of the Phase "Service Operations Management"

4.4.1. Customization of SLM/SOM for BIVOLINO: Shirts Customization Service

BIVOLINO is offering a pure process-focused service, delivered by a standardized back-office IT-Systems and related process activities. There is little variance in operations and delivery of the service offering. The service portfolio and service delivery processes are highly standardized and supported by Information and Communications Techniques infrastructure and the use case description leads to the conclusion, that there is little up to no customization needed or allowed within service operations management.

However, within the **BIVOLINO** workshop at Fraunhofer's ServLab, there were found some interesting ideas on how to customize the company's SOM. For instance there can be implemented marketing elements within the website that suggest target group oriented design proposals or buttons to share one's own shirt design via Facebook. Furthermore the customer feedback can be customized as well: there can be offered various ways to give feedback about the ordered shirt, e.g. via E-Mail feedback or with a poll on the website or Facebook.

4.4.2. Customization of SLM/SOM for IBARMIA: Intelligent Machines Maintenance Services

IBARMIA's smart and autonomous Machine-Tools Maintenance Services will also be highly process-oriented and standardized but with less customer interaction than in the traditional maintenance services. The use case description indicates that the customization of SOM depends on the complexity of the installed machine and the problem, anomalies or incidences occurring in the machine.

4.4.3. Customization of SLM/SOM for INDESIT: Carefree Washing Service

INDESIT is moving from a traditional manufacturing enterprise which manufactures products and sells them to customers to a solution provider for washing machines. Their services are also mainly process based but with a high touch of customer interaction and customization potential. The use case description indicates that the service lifecycle is adapted towards the phases of ideation, initial service creation and engineering (service birth) up to service reengineering and evolution, but gives no further and detailed information.

4.4.4. Customization of SLM/SOM for TP-VISION: Smart Messaging and Notification Service

TP VISION's smart messaging and notification service is also highly standardized with a high touch of customer interaction for instance through social media. From the description of the uses case the customization seems to be necessary depending on the source of innovation (types of content providers or users) and the degree of co-creation.

Little evidence can be drawn from the description of the use cases on what detailed indicators or criteria are responsible for strategic or operative decisions on customization within SOM and SLM in total. So far, overall indicators can be summed up into a generic checklist for companies, functioning as guideline on what companies should be aware of when thinking about customization of SLM.

4.5. Customization framework for SLM within MSEE: a generic checklist

The goal of this chapter is to describe criteria and indicators which we believe support the customization decision within SLM or are influenced by such a decision in form of a generic checklist usable for companies. Overall, the customization of the phases and activities within a SLM seem to depend on as well influence the following criteria:

Criteria	**Description**
Service type	Different service types require different strategies for development, engineering, implementation and operations. That is why a SLM should carefully consider the specifics of the service type from the beginning and customize development and operations activities accordingly.
Company Size	Different company sizes require different strategies for SLM. Company Size is affecting the ability for customization in terms of available resources and competencies. Smaller companies might not have the capacity and resources to customize their service lifecycles accordingly.
Organization Structure	Organization structure is affecting the ability for customization in terms of decision making processes for customization. Clear responsibilities, informal structures and designated teams or departments responsible for the service business ease the customization efforts.
Servitization level	Different Servitization levels require different strategies for development, engineering, implementation and operations. That is why a SLM should carefully consider the specifics of the Servitization level from the beginning and customize development and operations activities accordingly.
User and stakeholder integration	The degree of user and stakeholder integration into the service lifecycle affects SLM approaches. Customization needs to be done for the specific phases where users and stakeholders are integrated and for the intensity of their integration.
Role of tangible and intangible elements	Customization is also affected by the role and intensity of tangible and intangible elements inside the service solution. A high degree of tangible elements might allow little customization for specific user and stakeholder demands or requirements or for the use of specific methods and tools.
Organization of development processes	Customization strategies must also consider the type of organization of development processes for products and services. Different development approaches (e.g. products

	and services are developed individually, products and services are developed in parallel with individual development process, product and service development is integrated) might influence the customization capability and strategy, especially during Service Engineering inside SLM.
Methods and tools	Methods and Tools used during development and operations need to be customized according some of the criteria mentioned above (e.g. role of customers and stakeholders, intensity of customer and stakeholder integration, company size, organization of development processes, Servitization level, role of tangible and intangible elements, service type).

Table 1: Checklist for the customization of SLM

4.6. Conclusions

Little information and evidence could be found in literature, research and publications about indicators and criteria on how to customize a SLM approach. Furthermore, no case studies or other empirical observations have been published so far. The use case descriptions within MSEE give little information as well. This was leading in to a generic checklist for companies to create awareness and a guideline for the customization of SLM. The checklist so far is a result of the discussion and analysis within MSEE use cases and does not guarantee completeness as its present state. It functions as a first attempt for a guideline for companies what they should be aware of when thinking about customization of SLM. We suggest further investigating the use cases during implementation and operations and to adapt and extend the checklist accordingly. Furthermore, details about the decision process and customization process specific to each service type would also complement the suggestions so that companies get a clearer picture about the customization activities, efforts and benefits.

5. Summary and Outlook

This deliverable is covering the last parts of the Service Lifecycle Management Framework to its completion. The last sub-phase of Service Re-Design and Dismiss is being described and examples from the MSEE Use Cases are being given for each of the four alternatives that can be carried out to Re-Design an existing Service either triggered by a customer or the company itself, also differentiated by the effort that has to be taken. It is shown, which steps of the Service Ideation phase or the Service Engineering Phase have to be taken again for re-Designing an existing Service. The reasons for the specific point to restart the development process are explained and the feedback loops are shown in several graphics.

Moreover, a first approach on the customization of the Service Operations Management is being provided. To transfer the findings to the MSEE context, case studies from the use cases are being utilized. The four types of services characterized in previous deliverables (cf. D 12.2) are used to describe the particularities that occur within Service Operations Management. It is shown that each type of service has several possibilities to adapt the Service Operations Management with its different subphases. Examples are given that characterize the options for customization of the Service Operations Management for these four types of services.

It will also be analyzed which alternatives of the Service Re-Design are most suitable for each service of the MSEE Use Cases so that strategies for further development of those services can be planned. This will be implemented in D14.6 at M24.

6. References

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