


Supporting Service Innovation Through a Value Development Framework

Yannick Lew Yaw Fung¹ and Arne J. Berre²

¹ Department of Informatics, University of Oslo, Oslo, Norway
yannickl@ifi.uio.no

² Networked Systems and Services, SINTEF ICT, Oslo, Norway
arne.j.berre@sintef.no

Abstract. Services have become a vital catalyst for economic growth worldwide. From a business perspective, innovation in services is regarded as being a key pillar in order to sustain the growth momentum of the service sector. The capability to create innovative services constitutes a complex problem for service providers. A major problem identified through a review of the literature concerns the lack of a service innovation framework that puts emphasis on the development of customer value or value being proposed by a service to customers. This paper presents a value development framework, called ServiceMIF, which can contribute to creating service innovation opportunities during service development through the creation of new or improved customer value. Ongoing preliminary trial results show that ServiceMIF can effectively help businesses to propose new or improved customer value while enhancing the quality of their service offerings.

Keywords: Service innovation · Value development · Service design · Service quality · Service experience

1 Introduction and Motivation

It is an undeniable fact that services have become a vital catalyst for economic growth worldwide. Service innovation is regarded as being a key pillar in order to sustain the growth momentum of the service sector. Despite considerable research efforts to understand and support innovation in services, organisations still face many difficulties in offering new service offerings to their customers.

In order to better understand the service aspects which can have an impact on service innovation, researchers and practitioners have been surveying various service innovation research streams such as New Service Development (NSD) [9] and Service Design [8]. While these research efforts are continuously reshaping the service innovation landscape in positive ways, a major problem identified through a review of the literature concerns the lack of a service innovation framework that puts emphasis on the development of customer value or value being proposed by a service to customers. The creation of new or improved customer

value is an essential goal of service innovation and is well recognised as being the next source of competitive advantage for service organisations [11]. This value that customers perceive and create through their service usage is linked to the set of individual benefits that a service proposes to its users [7]. The need for a framework to develop new or improved customer benefits is put forward based on a number of identified research gaps. A review of the service innovation literature over the past ten years, performed using Thomson Reuters' Web of Science¹ based on search terms and keywords including "service innovation", "value", and "benefits", indicates an absence of a value development framework to create new or improved customer value at the level of the individual benefits for customers. This is confirmed through extensive and critical reviews of the service innovation literature carried out by Droege et al. [5] and Carlborg et al. [3].

Service design techniques and tools [10], such as the service blueprint and the customer journey map, do not *explicitly* treat value as customer benefits that need to be managed and improved as part of service development. Moreover, popular service innovation methodologies based on a service marketing perspective, such as the outcome-driven innovation [2] and the FORTH methodology², concentrate their efforts *only* on the initial *ideation* phase of a service innovation process whereby new service ideas are produced. As a result, these do not consider the potential for innovation during the development of a service throughout its various phases of conception, production, consumption and feedback. The authors argue that ServiceMIF, the value development framework presented in this paper, helps in creating service innovation opportunities during service development.

2 The Value Benefit Template

ServiceMIF refers to the individual benefits that form part of the value proposed by a service as *value benefits*. Each value benefit is represented using a *value benefit template* which adopts a similar structure to that of a user story used to capture software requirements. Each value benefit describes the *service context* in which a service stakeholder performs a *service action* in order to trigger a *customer benefit*.

The service context describes the factors, in terms of 'Who' is interacting with the customer, 'Where' a service encounter is taking place, and 'When' a service encounter is happening, which typically involve some form of physical and/or virtual interactions between a customer and one or more actors from either the service provider's or the network partner's side.

A *service action* or activity refers to one or more operations that a service stakeholder, such as a customer, a service provider's employee, and a service network partner, *performs or would like to perform* as part of a service encounter. Such operations are the ones which will trigger the benefits for the customer. For the latter, a service action can be linked to the use of one or more senses of

¹ Web of Science: <https://webofknowledge.com>.

² FORTH Innovation Method: <http://www.forth-innovation.com>.

a human being such as hearing, sight, taste, smelling, and touch. For example, a customer who calls an after-sales service requires the use of hearing and voice so as to respectively hear and communicate with the called party.

A *customer benefit* is part of a set of benefits that customers expect to perceive through usage of a service. The latter provides benefits, both in terms of functional (what are the tasks a service accomplishes) and non-functional (how the tasks are being provided), to the customer.

3 The DISSECT Approach and Service Models

DISSECT is the value development approach of ServiceMIF and is comprised of five value development stages known as DIScovery, Solicitation, Evaluation, Capture, and Translation.

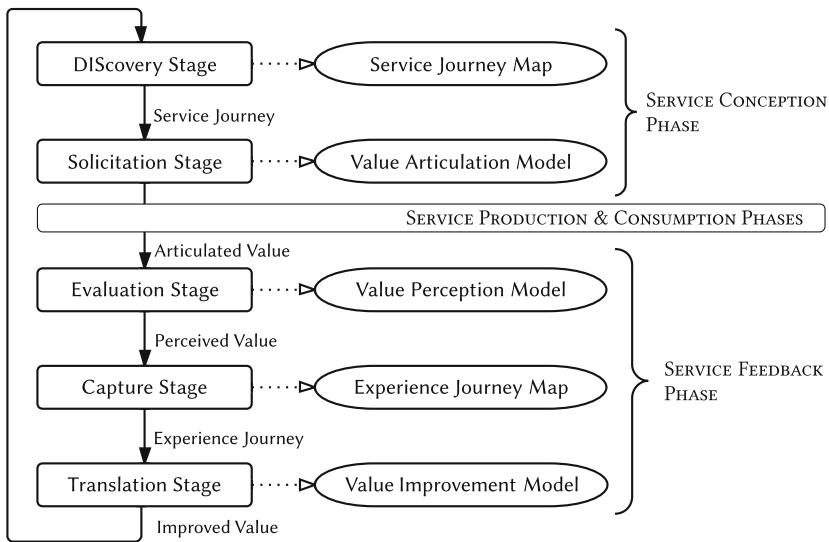


Fig. 1. The DISSECT stages and corresponding Service Models

As shown in Fig. 1, each stage is performed during a specific service development life cycle phase and produces a corresponding service model to process customer value as the latter flows from one stage to the next. The *end* of the Translation stage signifies that a “version” of a service has been developed. The DISSECT approach can then be re-executed for improving this service version.

3.1 First DISSECT Stage: DIScovery

The first stage of the DISSECT approach, called DIScovery, focuses on the discovery of two main aspects of a service, namely: (1) the identification of the points of service interaction in the form of touchpoints through which value

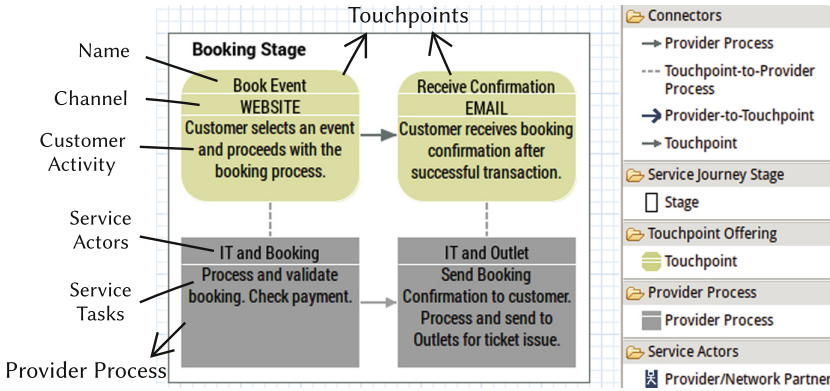


Fig. 2. The Service Journey Map of the DIScovery stage

benefits can be proposed to customers, and (2) the identification of provider processes that are necessary to support the proper execution of touchpoints. In effect, these two service aspects respectively define ‘where’ and ‘how’ value benefits can be proposed to customers of a service. The DIScovery stage makes use of a *Service Journey Map* whose model editor support, developed using the Eclipse Graphiti framework [6], is shown in Fig. 2 based on a small example of an online event booking service called *Concierge*.

A service stage along with two touchpoints and two provider processes are shown on the diagram. The ‘Booking Stage’ is being performed by two touchpoints, namely ‘Book Event’ and ‘Receive Confirmation’, which are supported by two respective provider processes. For instance, *Concierge*’s ‘IT and Booking’ departments are the ones involved in the processing and validation of every booking transaction made by customers via the ‘Book Event’ touchpoint.

3.2 Second DISSECT Stage: Solicitation

The Solicitation stage of DISSECT involves soliciting the feedback of all the service stakeholders to articulate the right set of value benefits for the right customers using the value benefit template described in Sect. 2. This stage is concerned with *what* value benefits to offer and *why* these need to be provided according to three factors, namely: (1) customer needs, (2) value propositions, and (3) business capabilities.

Customer needs imply that value benefits must be connected to the latent needs and quality expectations of customers during each service encounter in the form of touchpoints and service stages. The articulation of value benefits based on customers’ needs ensures that a service’s “essential” offerings are covered. In addition, service providers must offer *value propositions* which contain *unique* value benefits aimed at the differentiation of a service from others. A service provider needs to ensure that it has the right *business capabilities* such as infrastructure, manpower, and expertise in order to support the provision

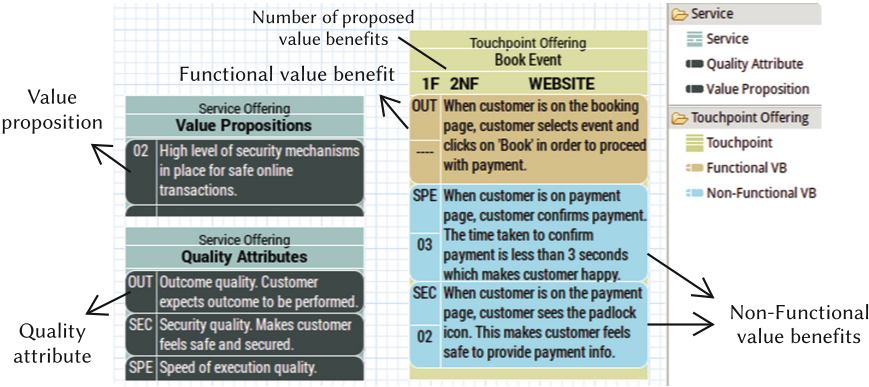


Fig. 3. The Value Articulation Model of the Solicitation stage

of value benefits through tasks performed by provider processes. Value benefits may need to be modified or removed if a service provider and its partners cannot guarantee their provision due to business constraints. For each articulated value benefit in a touchpoint, service employees need to confirm if all the tasks required to be performed by a provider process can reliably be provided based on the provider’s business capabilities. If many value offerings are competing for the same set of business capabilities, service providers may have to prioritise their value offerings based on their current business capabilities that they have.

The Solicitation stage makes use of a *Value Articulation Model* whose model editor support is shown in Fig. 3 based on a continuation of the *Concierge* example. Using the Service Journey Map produced during the DIScovery stage, one functional and two non-functional value benefits have been identified for the ‘Book Event’ touchpoint. Each value benefit can be assigned a quality attribute and one or more value propositions. Some of the service quality attribute tags shown in Fig. 3 include ‘OUT’ for outcome, ‘SPE’ for speed of execution, and ‘SEC’ for security. The value proposition numbered ‘02’ is thus assigned to the non-functional value benefit, ‘When customer is on the payment page, customer sees the padlock...’, which adheres to the security quality attribute.

3.3 Third DISSECT Stage: Evaluation

The Evaluation stage is aimed towards obtaining feedback from customers about their service experiences at the basic *value benefit level*. Later, the Capture stage will look at their experiences at the touchpoint and overall service levels. Each value benefit can be evaluated by customers according to three possible perception scenarios, namely: (1) fully perceived, (2) not or partially perceived (“lost”), and (3) perceived but not proposed (“extra”).

A value benefit is termed as *fully perceived* when its enclosed customer benefit has been perceived or created by customers based on its service context and service action. A fully perceived value benefit for a service provider is a sign that

both its business processes and service personnel are effective at providing that particular value benefit to customers. Thus, a service provider should ensure that all its proposed value benefits are being fully perceived by customers.

A value benefit that has *not or has only been partially perceived* by customers is referred to as “lost”. This situation may arise from two possible cases. The first case, *not perceived*, involves customers not being able to perceive or create the benefit promised by the value benefit due to *quantitative or qualitative discrepancies* assuming that the service context and service action are unchanged. Therefore, the actual benefit perceived is different than the one described in a value benefit. For example, a quantitative discrepancy may be due to customers perceiving webpage loading times of more than five seconds whereas a value benefit promises a period of less than three seconds. An example of a qualitative discrepancy may arise when customers perceive a ‘Low’ level of satisfaction from the outcome of a booking transaction instead of the ‘High’ satisfaction level originally proposed and advertised by the service provider.

The second case, *partially perceived*, occurs when the proposed benefit has been perceived in a different service context or using a service action that was not described in the value benefit. Any deviations which affect the predefined service context or service action need to be investigated as this implies that the provision of the benefit is no longer predictable.

The third value perception scenario relates to a value benefit that is *perceived by customers despite not being proposed* by a service provider and is called an “extra” value benefit. The latter is one that has had *a genuine impact on the service experience of customers and is articulated from their viewpoints*. The causes for an “extra” value benefit may be due to the following reasons, namely: (1) the service provider overlooked the actual value benefit and considered the latter to be not important in the eyes of the customer, (2) the value benefit is the unintentional outcome of the tasks performed within one or more provider processes, and (3) the value benefit has been *indirectly and unexpectedly* produced by one or more proposed value benefits.

The Evaluation stage makes use of a *Value Perception Model* whose model editor support is shown in Fig. 4 based on a continuation of the *Concierge* example. Using the Value Articulation Model produced during the Solicitation stage, the functional value benefit, ‘When customer is on the...’, is marked as fully perceived as is the case with the non-functional value benefit ‘When customer is on the payment page, customer sees the padlock...’. However, the other non-functional value benefit has been partially perceived with customers perceiving a time of more than five seconds (shown as the red dotted arrow) to confirm payment transactions as compared to the three seconds promised by *Concierge*. Thus, this value benefit is regarded as being “lost”. Furthermore, there is an “extra” value benefit that was perceived by customers, namely ‘When customer is on payment page, customer sees that payment info...’.

3.4 Fourth DISSECT Stage: Capture

The fourth DISSECT stage, *Capture*, aims to capture the service experience of customers by analysing their levels of satisfaction or *emotional attachments*

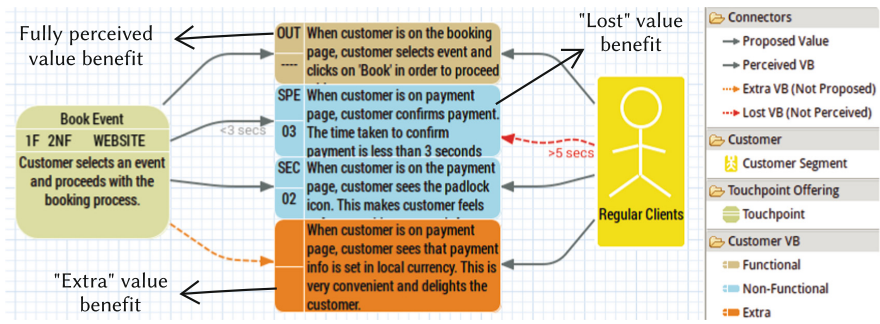


Fig. 4. The Value Perception Model of the Evaluation stage

towards the overall value perceived at both the touchpoint and service levels. To achieve this, two experience indices, known as Single Touchpoint Experience Index (STEI) and Cumulative Touchpoint Experience Index (CTEI), are measured.

The *single touchpoint experience index* measures customers’ experiences or levels of satisfaction of the value perceived *from individual touchpoints*. If some customers have had bad service encounters through a particular touchpoint, then the latter may receive a poor STEI rating. Based on the feedback provided by customers during the Evaluation stage, all the “lost” value benefits that they have effectively not been able to perceive from a touchpoint can cause them to give this touchpoint a negative rating. On the other hand, touchpoints with few “lost” value benefits and additional “extra” ones can gain positive ratings from customers. A Value Perception Model can thus come in handy to investigate the root causes of poorly rated touchpoints.

The concept of a *cumulative touchpoint experience index* is different to that of a STEI. Instead of measuring customers’ experiences of a single touchpoint, a cumulative touchpoint experience index captures customers’ experiences of a touchpoint based on the *accumulated experiences of other touchpoints that are part of the service journey encountered so far*. Based on the CTEI ratings, poorly rated parts of a customer’s service journey, which can consist of a collection of consecutive touchpoints, can be clearly identified. The CTEI is based on the notion that while each touchpoint should provide maximum satisfaction to customers, the focus of attention should be on the customer’s end-to-end journey by taking into account the experiences of one or more touchpoints together. A cumulative touchpoint experience index can help in the identification of provider processes which need to be optimised or improved since the latter are responsible for supporting customer interactions across touchpoints.

The Capture stage makes use of an *Experience Journey Map* whose model editor support is shown in Fig. 5 based on a continuation of *Concierge*. An Experience Journey Map contains three experience bands for representing possible ‘BAD’, ‘GOOD’, and ‘GREAT’ service experiences. Using the feedback obtained during the previous DISSECT stages, the ‘Visit Website’ touchpoint was awarded

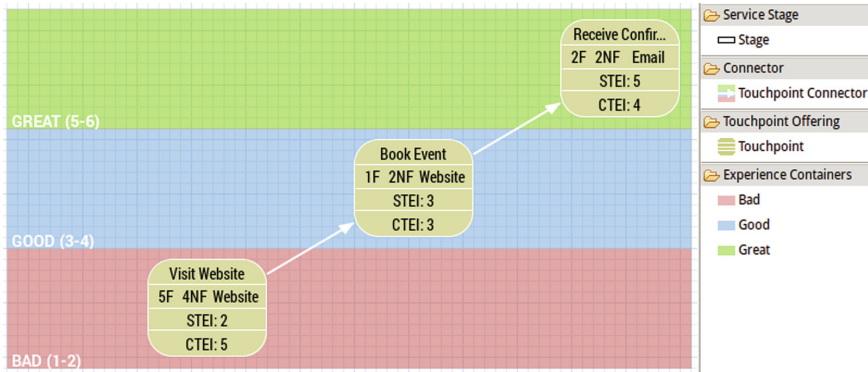


Fig. 5. The Experience Journey Map of the Capture stage

a STEI rating of two while its CTEI rating is five. This indicates that customers did not like the experience proposed by the ‘Visit Website’ touchpoint – possibly due to problems they faced while browsing *Concierge’s* website. On the other hand, a CTEI rating of five might be due to customers’ great experiences hearing about *Concierge*, for instance, from friends prior to visiting the website. Due in part to the bad experience perceived from the ‘Visit Website’ touchpoint, customers awarded the next touchpoint with a lower CTEI rating of three which indicates how customers’ cumulative experiences *may change* over time along a service journey. For instance, the last touchpoint, ‘Receive Confirmation’, illustrates how customers’ CTEI rating was upgraded as they perceived a better cumulative touchpoint experience from both ‘Book Event’ and ‘Receive Confirmation’.

3.5 Fifth DISSECT Stage: Translation

The *Translation* stage targets the improvement of a service at three interaction levels, namely: the (1) value benefit, (2) touchpoint, and (3) overall service. Each improvement objective consists in analysing responses gathered from customers during the Evaluation and Capture stages and translating them into improvement opportunities with the renewed participation of customers. The identification of these improvement opportunities is important so as to help service developers align customer needs with service offerings during the next executions of the DIScovery and Solicitation stages for developing the next version of the service.

Value Benefit Improvement Objective. The *value benefit improvement* objective consists in identifying opportunities for proposing improved value benefits in the next version of a service. Three such improvement opportunities have been identified and termed as follows:

- Value Benefit *Addition*: refers to an “extra” value benefit that customers would like to be officially proposed.
- Value Benefit *Modification*: refers to an existing value benefit which has one or more of its components, including the service context or service action or customer benefit, modified.
- Value Benefit *Removal*: refers to an existing value benefit that customers would like to be removed and *not* officially proposed anymore.

Additionally, there is a *fourth* value benefit improvement opportunity which consists in basically taking no action on a value benefit. This implies that the latter can be considered to be proposed again in its current form in the next version of the service. Each type of value benefit discussed in Subsect. 3.3 can be improved based on the above improvement opportunities.

A *fully perceived value benefit* can be improved according to three improvement opportunities: value benefit modification, value benefit removal, and taking no action on it. The *modification* of a fully perceived value benefit occurs when customers are not fully satisfied with one or more components of the value benefit and would like to bring changes to them. For example, the service context component may not accurately capture the state in which customers perceive the benefits. Another reason can be due to an issue faced with the service action component that does not describe the right set of operations involved. Lastly, customers may wish that the benefit perceived is different to the current one. The *removal* of a fully perceived value benefit is due to customers finding it unnecessary to be offered because of its limited significance to their service experiences. This statement implies that the removal of such a value benefit should not have an impact on touchpoints’ STEI and CTEI ratings. The fourth and last improvement opportunity for a fully perceived value benefit is concerned with leaving it as it is without any modification. If customers do not require any modifications or removal operations to be made on the value benefit, then the latter is a good candidate to be offered again in the next version of the service.

A *not or partially perceived (“lost”)* value benefit presents itself as a warning sign for which the service provider should provide remedial actions. Two improvement opportunities are possible, namely value benefit modification and value benefit removal. The *modification* of a not or partially perceived value benefit is performed because customers have not fully perceived it. Consequently, customers have to point out the changes to be made either to the service or to the description of the value benefit such that they would then be able to fully perceive it. The *removal* of a not or partially perceived value benefit follows the same principle adopted for a fully perceived value benefit as discussed before.

A *perceived but not proposed (“extra”)* value benefit is one that has had a genuine impact on customers’ service experiences and can become a potential source of innovation for the service provider. To leverage the beneficial aspects of an “extra” value benefit, two improvement opportunities have been identified: value benefit addition and value benefit modification. The *addition* of an “extra” value benefit signifies that customers are satisfied with the benefit perceived and want the value benefit to be officially recognised and proposed. From a

service provider's perspective, the addition of an "extra" value benefit involves treating it as an officially proposed value benefit and thus making sure that business resources are properly allocated to ensure the value benefit can be offered. The *modification* of an "extra" value benefit follows the same logic used for a fully perceived value benefit since, by definition, an "extra" value benefit can be regarded as a value benefit that is fully perceived by customers. Thus, an "extra" value benefit is modified because customers are not fully satisfied with one or more of its components. After the "extra" value benefit has been modified, it can be added to the list of officially proposed value benefits.

Touchpoint Improvement Objective. The touchpoint improvement objective involves having an overview of the value perceived from each touchpoint and identifying touchpoint modification opportunities in terms of making *additional changes* to value benefits. Based on customers' assistance, service developers must investigate opportunities to upgrade the STEI rating of each touchpoint as depicted in the Experience Journey Map produced during the Capture stage. For example, if a touchpoint is given a STEI rating of two, customers must be asked about the changes that could be implemented on the touchpoint's value offerings in order for them to award a better experience rating of 'GOOD' and 'GREAT'. Apart from the addition, modification, and removal of value benefits, some customers can also propose to articulate *new value benefits* which they would like to perceive or create during their service experiences. These new value benefits can serve to fulfil *missing* customer needs that can improve customers' satisfaction of touchpoints present in a Service Journey Map.

Service Improvement Objective. The third improvement objective of the Translation stage takes place at the overall service interaction level and focuses on the improvement of customers' service experiences across touchpoints for the entire service journey or parts of it. Based on the CTEI ratings of touchpoints in the Experience Journey Map created during the Capture stage, customers can express their concerns about gaps or problems they have encountered with the service delivery or with the proposed value benefits. Using a similar approach as that adopted for the touchpoint improvement objective, service developers must investigate opportunities to upgrade each touchpoint's CTEI rating along a service journey or parts of it with the help of customers. These service improvement opportunities consist in the creation of new touchpoints as well as the modification and removal of existing ones.

The *creation of new touchpoints* can be attributed to customers willing to have additional service encounters that better connect touchpoints together and enhance their end-to-end service experiences. A Service Journey Map can be used to redesign the service journey based on customers' inputs. The *modification of existing touchpoints* is concerned with the identification of additional touchpoint modification opportunities, based on the articulation, addition, modification, and removal of value benefits, which were previously not identified during the previous value benefit and touchpoint improvement tasks. The *removal*

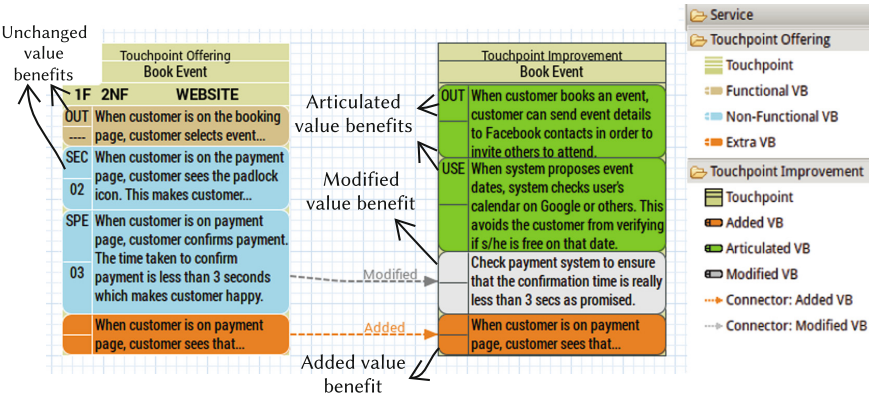


Fig. 6. The Value Improvement Model of the Translation stage

of existing touchpoints can occur if customers feel that one or more touchpoints are not necessary and can thus be safely removed without impacting the STEI and CTEI ratings of other touchpoints.

The Translation stage makes use of a *Value Improvement Model* whose model editor support is shown in Fig. 6 based on a continuation of the *Concierge* example. The four value benefits which were evaluated during the Evaluation stage are now shown in a ‘Touchpoint Offering’. No action will be taken on the first two value benefits since they are left unchanged – probably due to customers having fully perceived them and having not identified ways to further improve them. The third value benefit, ‘When customer is on payment page, customer confirms payment...’, however, was not fully perceived by customers. Thus, this “lost” value benefit needs to be *modified* (e.g., by identifying the cause(s) of the non-perceived benefit) for customers to perceive the promised payment confirmation time of less than three seconds.

The “extra” value benefit now becomes an ‘added’ value benefit in ‘Touchpoint Improvement’ indicating that customers would like this value benefit to be officially proposed in the next version of *Concierge*. In addition to the ‘modified’ and ‘added’ value benefits, two new value benefits have been articulated for the ‘Book Event’ touchpoint. These new ‘articulated’ value benefits can contribute to the outcome and usability quality of *Concierge*.

4 Conclusion

This paper has presented a value development framework that can contribute to creating service innovation opportunities during service development. This framework relies on a practical approach that comprehensively examines how to create innovative service offerings by taking into account key service factors affecting both businesses and customers. Current research is being carried out to validate the five-stage process of the DISSECT approach based on real-world

case studies, involving the European CITI-SENSE project [4] and others, with the help of both academic and industry partners. Furthermore, the integration of ServiceMIF with OMG's Value Delivery Modelling Language [1] for modelling both customer value and a service provider's business-focused value, such as revenue, market share, and employee satisfaction, is being envisaged.

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