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Service Consumer Model: Understanding and Describing Consumers for New Service Development

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ABSTRACT

Against the background of an increasing discrepancy between consumer access to an evergrowing range of products and being increasingly frustrated with the consumption processes, we propose a model for understanding and describing consumers and their behavior holistically. In this paper, a design science approach is used. The model is build on existing concepts such as the concept of consumer processes, user context, service-dominant logic, disconfirmation, activity theory, and event-driven process chains. The application of the model and its usefulness for improving new service development is demonstrated by an example.

Keywords

New Service Development, Service Innovation, Consumer Process, Consumer Context, Consumer Value, Service-Dominant Logic, Activity Theory, Event-Driven Process Chains, Disconfirmation Model

INTRODUCTION

Research in the field of new service development is receiving increased attention in academia and industry promoting service science as a key for sustained competitive advantage in today's service dominated economies (Chesbrough and Spohrer, 2006). This emerging field of service science focuses on the analysis, design and management of service systems.

These service systems become increasingly contact-intensive and complex (Womack and Jones, 2005). For developing new services that are effectively supporting consumers on the one hand and are produced efficiently on the other hand, the corresponding service system needs to be understood. As both the complexity of worldwide service systems as well as the worldwide service innovation rate are increasing, the challenge of developing new services fitting into existing service systems is becoming increasingly complex. The main driver that limits growth rates for service innovations are missing integration into existing service systems and thereby missing accessibility for consumers (Spohrer and Maglio, 2008).

Both parts of service systems, the front-stage as well as the back-stage need to be considered while developing new services in order to guarantee effectiveness and efficiency (Chase, 1981; Chase, 1978; Glushko and Tabas, 2008; Metters, King-Metters and Pullmann, 2006). However, in order to fully understand the requirements for the back-stage system, the requirements in the front-stage of the service system needs to be considered first. Service provider as well as consumers are involved in the front-stage co-producing value. Going one step further, it is necessary to fully understand the consumer in order to understand the consumer's involvement in the front-stage of a service system. However, traditional service development mechanisms mainly concentrate on the consumer's process comprising of involved service encounters. This does not imply an understanding of the consumer's activities, context, resources, preferences, goals, and events implicitly related to the service encounters.

In this paper we propose a model that captures and describes the service consumer's context and consumer's behavior in order to develop new services that support the consumer in its process of reaching certain goals and increase satisfaction.

RELATED RESEARCH

Concepts for new service development are often transferred from new product development (Menor, Tatikonda and Sampson, 2002). While it is important to adopt current knowledge of new product development, new service development literature suggests that the characteristics of services require special attention when developing new services. Products are the outcome

of a process; they are tangible and provide value to a consumer. Services are intangible and create value only through a service encounter in which service producer and service consumer interact together to create an outcome (Grönroos, 1998). Thus, new service developers require a deep understanding of the service consumer which is built on understanding consumer goals and consumer processes (Edvardsson and Olsson, 1996). The concept of consumer processes has already been incorporated by several authors. (Green and Simister, 1999) apply the concept of consumer process in the business to business context and use it to support strategic briefing and for conceptualizing potential solutions. (Alt and Puschmann, 2005) use consumer process for developing service offerings on portals. (Rajala and Savolainen, 1996) introduce a structured method and framework that integrates business processes and consumer requirement. (Donaldson, Ishii and Sheppard, 2006) apply the consumer value chain analysis to product design in order to better recognize product requirements and their priority with different users of a product. Those are not the only concepts recommended to be considered within the process of new service development.

Various approaches exist, that incorporate the consumer in the new service development process and thereby aiming in getting information on consumer dimensions such as consumer preferences. Whereas several concepts for consumer involvement have been introduced (Alam and Perry, 2002), no formalized model has been defined which can be used to articulate, describe and understand the findings that are generated through the involvement of consumers.

Existing concepts of user-modeling aim to describe consumer processes but are mostly limited on information systems, especially dialog systems and adaptive hypermedia systems (Jameson, 2002). In the field of adaptive information systems two concepts, user-modeling and context-awareness, are used to develop systems that observe the user and its context and derive generalizations and predictions about user and context (Heckmann, 2006). Nevertheless, those concepts are limited regarding their usage for new service development, since they are mainly focused on one product or technology (e.g. adaptive systems on mobile phones) and are limited on the interaction between the information system and the user.

More comprehensive concepts (Edvardsson and Olsson, 1996), (Goldstein, Johnston, Duffy and Rao, 2002) do not provide the necessary level of detail in order to use them in a new service development process successfully. Several studies have shown that the key to successful new product and service development are in-depth knowledge of consumers and their needs (Cooper, 1993).

Another related area of research is the use of behavioral science in order to improve consumer experience (Chase and Apte, 2007). Nevertheless, no systematic approach has been formulated for integrating those ideas into the process of new service development.

Building on those research insights, the service consumer model presented in this paper can be used in an organization's new service development process to document the results of consumer involvement and to identify opportunities for differentiated services.

META MODEL FOR SERVICE CONSUMER MODELING

The objective of this meta model is to provide framework that can be used to comprehensively describe a consumer in regard to the dimensions involved in service encounters. We propose the following consumer dimensions:

Consumer Activities

Activities are the individual steps that results in a certain consumer process or consumer behavior respectively. This understanding is based on the identical psychological theory (Nardi, 1996). (Kuutti, 1996) introduced a hierarchy of activities and describes the different levels of an activity. An activity is on the highest level and consists of several actions. Actions themselves consist of chains of operations that are initially conscious but with enough practice it can be performed subconscious.

Consumer Goals

In our model consumer goals describe the desired outcome that the consumer wants to achieve. A goal can therefore be defined as "a mental image or other end point representation associated with affect toward which action may be directed" (Pervin, 1989; Austin and Vancouver, 1996). Therefore goals influence the direction of behavior by expressing what people are trying to accomplish and in a broader sense how they are planning to attain the goal in question and why they are pursuing the chosen course of action.

Consumer Processes

Consumer processes are described as the process that creates an outcome for the consumer (Edvardsson and Olsson, 1996). It is necessary to recognize that the behavior of consumers and the consumer process that represents this behavior is unique for

each individual consumer or consumer segment. Nevertheless it is possible to model the consumer process on the basis of reference models (Rayport and Jaworski, 2000).

Consumer Context

Several studies have shown that the design of systems benefits from the explicit study of the context of the users and consumers respectively (Nardi, 1996). The consumer's context describes the consumer as well as the environment with the goal to distinguish between different contexts as well as to understand changing contexts. Human context can be divided into internal context and external context (Gwizdka, 2000). Internal context describes the state of the consumer through a work context, personal events, communication context, and emotional state of the consumer. The external context describes the state of the environment and can be composed of location and proximity to other people and assets.

Consumer Preferences

Statements about the consumers closeness or distance towards certain activities and goals are called consumer preferences (Fridgen, Schackmann and Volkert, 2000). These preferences are then used in the composition of activities to processes which represents the consumer behavior. The consideration of consumer preferences is a key success factor for high consumer satisfaction because they implicitly reflect the consumers' expectations towards provided services (Verma and Thompson, 1999).

Consumer Resources

Consumer resources represent the assets and capabilities that support consumer activities. Assets can be categorized in tangible (e.g. car, mobile phones, and computers) and intangible (e.g. information, reputation, and social networks). Capabilities describe how efficient a consumer is in using his assets in order to reach a goal (e.g. computer literacy, car driving skills). This concept and its classification is transferred from the analysis of organizational assets and capabilities (Hooley, Saunders and Piercy, 2008).

Consumer assets as used in this article are different from the concept of consumer assets used from an organizational point of view where consumer assets represent the cumulated consumer lifetime value or consumer equity of an organization (Bolton, Lemon and Verhoef, 2004).

Consumer Value

Consumer satisfaction is the result of the consumer's subjective comparison between expected and perceived attributes. The key elements of satisfaction have been described with the disconfirmation model (Woodruff, Cadotte and Jenkins, 1983). This model is based on a comparison between expected and perceived performance and the three possible outcomes. These are negative disconfirmation if perceived performance is lower than expected, confirmation if perceived performance is similar to expected performance or positive confirmation if the perceived performance is higher than the expected (Walker, 1995).

The goal of our model is to present a view on reality that reflects what is relevant to the consumer in order to develop services that match and even exceeds the consumer's requirements.

Consumer Events

Events describe under what circumstances a consumer activity or a consumer process work or which state an activity or a process results in. The concept for event-driven process chains (van der Aalst, 1999) is used for describing the situation before and after an activity is executed and thus linking the consumer's activities.

Figure 1 shows the service consumer model with all consumer dimensions and their relations.

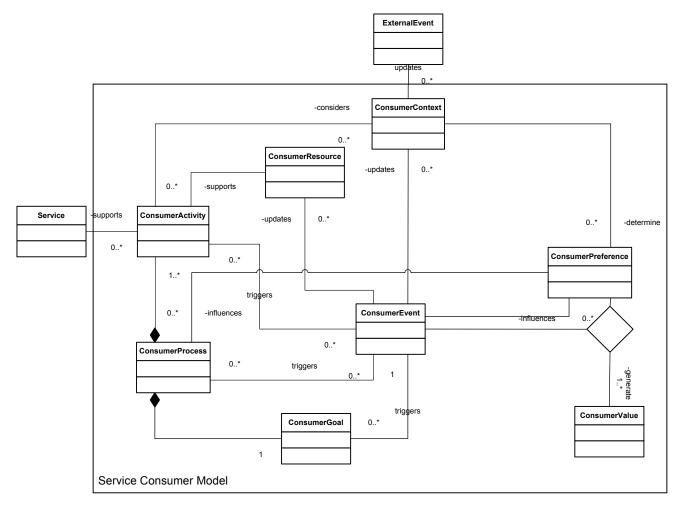


Figure 1. Service Consumer Model

APPLICATION OF THE SERVICE CONSUMER MODEL

Taking the service provider's point of view, service offerings can be subdivided according to the consumer service life cycle. It is argued that service providers "targeting the various activities that stakeholders will be engaged in as they acquire and use the product or related resources" are successful (Ives and Mason, 1990). A corresponding life cycle with the different stages of requiring, acquisition, ownership and retirement has been described (Ives and Learmonth, 1984).

Instead of only accounting for the different phases of the consumer service life cycle, it can be exemplary shown, that also systematically considering the different consumer properties can be helpful to provide a better consumer service and identify opportunities for improvement.

In the following, we describe the exemplary application of the framework for the retail industry.

Considering Consumer Activities Related to Retail

Support of certain consumer activities is the essential assignment of a service and a service instantiation respectively. Thus, the consumer is supported by several service instantiations within each consumer service life cycle. In the example above, the different consumer activities within the retail consumer service life cycle are supported by a book searching service, a local book selling service as well as a payment service.

The more service providers know about typical consumer activities within the consumer service life cycle, the more they are able to create a corresponding service offering and thereby increase sales. If, for example, a provider of a local book selling service (e.g. a bookstore) knows, that a consumer typically consumes a book searching service before he consumes the local book selling service, he could increase his sales by offering this book searching service or by collaborating with a corresponding service provider. Many traditional booksellers like Barnes&Noble for example offer also a book searching service over the Internet.

The sequence of activities structured according to the consumer service life cycle is sometimes referred to the term consumer process. Nevertheless, we show in the section on consumer processes that we take a different point of view.

Considering Consumer Goals Related to Retail

```
<?xml version="1.0"?>
<Consumer>
   <Requirements>
      <ConsumerGoal>Finding an interesting book</ConsumerGoal>
   </Requirements>
   <Acquisition>
      <ConsumerGoal>Getting the book</ConsumerGoal>
      <ConsumerGoal>Observing other bookstore consumers</ConsumerGoal> //Notice that this goal could also be an
        activity, depending on the point of view. The section on consumer processes clarifies the relation between
      activities and goal.
   </Acquisition>
   <Ownership>
      <ConsumerGoal>Relaxation</ConsumerGoal>
   </Ownership>
   <Retirement>
      <ConsumerGoal>Having more space in library
   </Retirement>
</Consumer>
```

Being aware of the underlying goals consumers have while using certain services, gives service provider the opportunity to enhance their service offering by providing services that support the consumer in reaching his actual goal.

Many bookstores for example identified that typical consumers' goals were not only to get books (which could also be done on the Internet), but also to socialize and observe other bookstore consumers. Thus, coffee shops have been integrated and consumers get the opportunity to sit down, drink a coffee, socialize and increase sales.

Considering Consumer Processes Related to Retail

```
<?xml version="1.0"?>
```

```
<Consumer>
   <Requirements>
      <ConsumerProcess>Education process</ConsumerProcess>
      <ConsumerProcess>Leisure process</ConsumerProcess>
   </Requirements>
   <Acquisition>
      <ConsumerProcess>Weekend shopping process/ConsumerProcess>
      <ConsumerProcess>Process for online acquisition/ConsumerProcess>
   </Acquisition>
   <Ownership>
      <ConsumerProcess>Leisure process</ConsumerProcess>//Notice that in this example the consumer identifies its need
               for a new book and uses the book within the leisure process
   </Ownership>
   <Retirement>
      <ConsumerProcess>Clearing out process/ConsumerProcess>
   </Retirement>
</Consumer>
```

A consumer process comprises all the consumer activities necessary to reach a certain consumer goal. In the example above the consumer process for online acquisition could comprise the consumer activities "start computer", "log in", "start browser", "enter URL", "type in book title", "click on buy", "type in account information" and "confirm". Of course the level of granularity for defining processes and activities is variable. The corresponding consumer goal for this sequence of activities could be "book is ordered".

Based on this example it can be shown, that the specification of a consumer process depends on the specification of consumer goals. Thus, a consumer process does not necessarily (actually only in the most uncommon cases) comprise all the activities related to a consumer service life cycle. Considering the book example it is not the basic goal of a consumer to finally throw the book away. It could be the goal to finally read the book, whereas the consumer process for reaching this goal would comprise all the activities related with acquiring the book and reading the book. Taking a viewpoint with a higher level of granularity, "book is acquired" could also be defined as the consumer goal, whereas in this case, the corresponding consumer process would only cover the activities related to the acquisition of the book.

It is assumed that service provider having knowledge not only about the consumer activity that are supported by their service offering, but also knowing about the consumer process that comprises this activity, can increase sales. For example, a large German supermarket chain, Aldi, observed that many people are first buying books with recipes (consumer activity 1) and then are using their local food selling service, i.e. going to the supermarket searching for all the items they needed for a certain meal described in the book (consumer activity 2). Knowing this, they published a book with recipes describing only ingredients and brands that can be found in Aldi supermarkets. The book has sold 1 million copies (Ewing, 2004). Notice that the corresponding consumer goal is "all items needed for a meal are acquired".

Defining consumer reference processes could be a helpful task in order to identify certain patterns of consumer behavior and be able to align the service portfolio.

Considering Consumer Context Related to Retail

Consumer activities are performed within a certain context. The more service providers know about the context of potential consumers, the better services can be provided. Examples are the recently emerging variety of location-based services. Considering the current location of a consumer, for example personalized information can be submitted. Navigation systems use this feature in order to show near-by service offerings.

Notice that a navigation system itself is not a service but a consumer asset rendering a certain functionality. We will cover this aspect in the section about consumer resources. Nevertheless, providers of a service that fabricates navigation systems as well as providers of the service "selling navigation systems" need to be aware of those functionalities.

Location is one aspect of the consumer context. Other aspects are mood, age, time, past consumer experiences, buying history, environment, or health. Thus, one can also think of mood-based services or the emerging service offerings for aging people.

Amazon.com is a further example for a service provider considering the consumer context in order to improve its service. Amazon.com uses the consumer buying history for recommending books that are similar to those the consumer bought before. Thereby Amazon.com creates additional consumer needs and thus, increases its sales.

Being aware of future changes in a typical consumer context and the impact on the consumer activities helps to determine future impacts on the current service offering. It can for example be assumed that the average increase of employees' workload in Germany will lead to a decrease of shopping activities between 5pm and 7pm. Thus, German retailers could think of the consequences for their service offering.

Considering Consumer Preferences Related to Retail

Consumer preferences influence the decision, what alternative set of activities (i.e. consumer process) a consumer should choose in order to reach his goals. The more service providers know about consumer preferences the better they can adjust their service offering in order to give direction to the consumer choosing a set of activities supported by their services.

Consumer preferences are determined by the consumer context. Again, Amazon.com is a good example: consumers with similar buying history (i.e. similar context) might have similar preferences. Thus, it is assumed that if a consumer with a similar buying history buys a book, the other consumer will also like the book.

Coming back to mood-based services, it can be assumed that consumer preferences also change with a change of the consumer's mood. Today for example, many call center employees are trained to change their behavior according to the perceived mood of the consumer. Also hotels, restaurants and other service provider can offer a customized service for each consumer by tracking the consumer preferences.

Considering Consumer Resources Related to Retail

```
<?xml version="1.0"?>
<Consumer>
```

```
<Requirements>
      <ConsumerResources>No new book</ConsumerResources>
     <ConsumerResources>Contacts, who have good book recommendations</ConsumerResources>
   </Requirements>
   <Acquisition>
     <ConsumerResources>Car</ConsumerResources>
     <ConsumerResources>Driving license</ConsumerResources>
     <ConsumerResources>Information how to get to the bookstore
     <ConsumerResources>Money</ConsumerResources>
   </Acquisition>
   <Ownership>
      <ConsumerResources>Book</ConsumerResources>
   </Ownership>
   <Retirement>
      <ConsumerResources>Trash can/ConsumerResources>
   </Retirement>
</Consumer>
```

Consumer resources render functionalities that support certain consumer activities. To get to the bookstore (a consumer activity within the consumer process "book acquisition" for reaching the goal "book is in bookshelf") it is for example possible to use the driving functionality of the consumer resource "car" instead of consuming another transportation service such as a bus service or a train service. Within a service-dominant logic (Lusch and Vargo, 2006), the consumer process for acquiring a car (corresponding to the consumer goal "own a car") involves amongst others the consumer activity "buy car" which is supported by the service "sell cars" and leads to the consumer event "car is property of consumer" (see section on consumer events) which leads to an additional consumer resource, i.e. the car itself.

Consumer resources can be physical things but also a contact list, other information, or skills such as speaking Chinese. All of those consumer resources can render functionalities that support consumer activities such as talking to someone in Chinese by using the functionality "speak Chinese" (notice that this functionality could for example also be rendered with a tool able to translate in real time).

Considering Consumer Value Related to Retail

Consumer value is generated by events that have a positive or negative impact on the consumer satisfaction. Thus, the value itself can be positive or negative. Whereas consumer preferences are generic values influencing consumer processes, the consumer value is the value actually generated within a period of time and determining the satisfaction of a consumer. Depending on the preferences of a consumer, i.e. his generic values, each event is evaluated regarding the actual value generated for the consumer. In the example above, value could be generated by reading an interesting book. Based on the preferences of a consumer, the value is higher or lower.

Again, the accumulation of all the values over time determines the satisfaction of a consumer. However, an underlying function of time needs to be considered, since recent events have more influence on the satisfaction than earlier events.

Considering the actual value of events related to a provider's service offering enable a continuous improvement. For that feedback procedures need to be implemented. Amazon.com is again the ideal in taking advantage of this. By asking consumers, if a review they just read was helpful, they are able to improve their review service by showing the most helpful reviews on top of a page. Many hotels also implemented feedback procedures by asking consumers if they like their hotel stay. Nevertheless, it is crucial to know the events, activities and processes related to specific feedback in order to improve services. Otherwise, the wrong conclusions might be drawn and service quality even decreases.

Considering Consumer Event Related to Retail

```
<?xml version="1.0"?>
<Consumer>
   <Requirements>
      <ConsumerEvent>Recognition that no unread book is in bookshelf
   </Requirements>
   <Acquisition>
      <ConsumerEvent>Arrive at bookstore</ConsumerEvent>
      <ConsumerEvent>Book is paid</ConsumerEvent>
      <ConsumerEvent>Book is a consumer resource/ConsumerEvent>
   </Acquisition>
   <Ownership>
      <ConsumerEvent>Sitting in bus
/ConsumerEvent> //Notice that often an event could also be a context of a consumer.
               However an event is rather a change in context, in this example the moment when the consumer enters
               the bus and sits down.
      <ConsumerEvent>Read part of the book/ConsumerEvent
   </Ownership>
   <Retirement>
      <ConsumerEvent>Book is finished/ConsumerEvent>
   </Retirement>
</Consumer>
```

Consumer events always occur if there is a change in anything that is relevant for the consumer. The relevancy is determined by the circumstance that an activity, a process or a goal is triggered, that the status of a resource changes, that the context changes, that consumer preferences are influenced, or that a value for the consumer is generated.

Having knowledge about consumer events related to a provider's service offering might lead to competitive advantages. Knowing for example the exact time a potential consumer is retiring service providers could initiate activities for being the first in advising the retired consumer of a certain offering.

DISCUSSION

It is assumed, that service providers being aware of the proposed consumer dimensions and considering them in the development of their service offering will be more successful in the long term. The suggested model gives service providers the opportunity to perform consumer segmentation not only according to traditional classification schemes, but based on a systematic and complete analysis of the consumer dimensions as well as an understanding of their interrelations. Identifying similarities across several consumer dimensions is far more powerful for creating a service offering that really suites the individual consumer than clustering consumers only based on currently used dimensions such as age or gender. For the book shopping example it might be useful to differentiate consumers based on specific goals, such as consumers searching for a book and consumers scanning randomly through books. This could be done regardless of the gender or the age of the consumers. Nevertheless, it could be the case, that older people have different needs while scanning randomly through books than younger consumers do. Thus, it would be good to combine consideration of age (i.e. the consumer context) and goal type. Additionally, it might be helpful to know if an older consumer, scanning randomly through books, has preferences for getting help in terms of recommendations or not and thereby also adding consumer preferences to the segmentation.

Research needs to be done on what the right level of granularity is reasonable for different decisions. It might for example be helpful to observe the way a consumer is moving through a bookstore in order to offer services that keep the consumer in the shop. However, it does not make any sense to track for example the movement of the consumer's arms while walking through the store. In general service providers tend to consider single consumer domains on a rather high level and there is the belief that there is potential for improvement.

Current trends in research enable the ability to consider the suggested consumer dimensions. Empathic research approaches for example trigger increasing efforts in observing consumers without explicitly asking them for their needs. Thus, not only explicit but also implicit needs can be identified and considered. Through sophisticated observing methods for example, it is possible to get knowledge about and understand the consumer processes that embrace specific service encounters. How does the consumer for example behave after the service encounter happened?

In addition, developments summarized under the term "web 2.0" give service providers the opportunity to access databases with tons of knowledge about potential consumers. Sophisticated data mining algorithms and tools enable service providers to analyze and use that information in order to understand consumers better and adapt their service offering to the specific context of the consumer. Twitter is a good example on the potential that so called web 2.0 websites offer. On Twitter, consumers continuously post any comments about their situation, their thoughts, their location and other information. By systematically accessing and evaluating this information service provider can increase their knowledge about potential consumers dramatically. Nevertheless, a structured and explicit process needs to be established in order to get value out of those activities. The proposed model helps to channel efforts and guide service providers in not only considering a random subset of consumer dimensions, but getting a holistic picture of the consumer's decision processes.

By doing repeated analyses over time it is also possible to identify trends for specific consumer dimensions. Continuous evaluation of the entries in online forums or typical online rating sites could for example lead to the identification of a change in preferences of a certain group of consumers. The impact of those changes on a provider's service offering might help in an early identification of necessary adjustments.

The proposed model serves as a basis for triggering activities, helping in better understand potential consumers and thereby offering opportunities for developing an improved service offering. As further research it is planned to use the proposed model as a framework for evaluating service providers aiming in identifying best practices. In addition, the model can be used as a basis for implementing a consumer decision support system showing on a high level the dimensions influencing consumer decisions and the relations between those dimensions.

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