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# **Customer involvement in new service development**

**A theoretical review of academic studies related to customer  
participation in new service development processes**

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## ABSTRACT

This paper discusses customer involvement in service innovations. It gives a theoretical review of existing academic studies focused on service innovations and customer participation in new service development processes. It aims to develop a model of customer influence on market outcomes through customer involvement in different stages of new service development process. This influence is suggested to be indirect and modified by a number of service success factors. The goal of the research is to give a better understanding of customer roles in new service development processes and their influence on certain market outcomes. The model presents a number of hypotheses that are derived from the existing academic studies and need to be tested empirically. After validation the model could be used as a tool to describe and valuate customer participation in service innovations.

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## 1.0. INTRODUCTION

*This chapter provides an introduction to the thesis and gives a brief overview of the area of study. Firstly, it underlines the importance of studying services and service innovations. Secondly, it highlights customer role in service innovation process and underlines the importance of effective management of new service development process. Thirdly, it outlines the structure of the thesis, revealing the main issues covered in the theoretical review, which is supposed to create a solid background for further empirical research.*

### 1.1. Problem statement

Currently services represent a major part of the economy and a dominant source of employment. In 2011 services accounted for 62.9% of the world GDP and as of 2007 provided employment for 42.4% of the labor force, this way being ahead of agricultural sector (36.1%) and industry (21.5%) (CIA, 2012). The large figure representing the share of services in the world GDP includes not only the traditional service industries but also the service activities or services “encapsulating” goods produced by manufacturing companies (Howells, 2004; Oliva and Kallenberg, 2003) and information intensive services. The significant share of services in the world economy makes them an important object of economic and managerial studies.

Recently, the service sectors have experienced considerable pressures to innovate. The incentive to innovate came mainly from de-regulation, globalization of the service industry and increased competition (Menor and Roth., 2008; Menor et al., 2002; Lovelock et al., 2001). Customer expectations have heightened and customer demands have become more heterogeneous (Menor and Roth, 2008). Consumers have become more informed, empowered and active in interaction with companies and value co-creation (Prahalad and Ramaswamy, 2000). This change has been facilitated by advances in information and communication technology, including the widespread use of the internet, the appearance of new e-business models and standards, etc. (Hsiao and Yang, 2010; Wymbs, 2000; Bitner et al., 2000; Miles, 2000).

Due to the widely recognized importance of services in the economy, the management of new service development (NSD) process has become an important task for many service companies (Johnson et al., 2000; Fitzsimmons and Fitzsimmons, 2000; Johne and Storey, 1998; Meredith and Roth, 1998; Gallouj and Weinstein, 1997). Despite this, NSD remains “among the least studied and understood topics in the service management literature” (Menor et al., 2002, p. 136), in contrast to numerous researches and models related to product development. This is explained by ad-hoc nature of service innovations (Schilling and Werr, 2009), which tend to “happen”

rather than “occur through formal development processes” (Menor et al., 2002, p. 136). Also, Cowell (1988) stated that in services “there is a tendency to small, scattered changes instead of proper innovations” (cited in Sundbo, 1997, p. 437). Martin and Horne (1993) and Kelly and Storey (2000) underlined that there is a lack of strategic focus on NSD and developing competencies.

Most research regarding NSD is conceptual with empirical insights being not very well developed or advanced (Johns and Storey, 1998; Johnson et al., 2000; Froehle et al., 2000; Menor et al., 2002; Menor and Roth, 2008; Froehle and Roth, 2007). Lack of new service development methodologies makes services “generally underdesigned and inefficiently developed” (Froehle et al., 2000, p. 5). The knowledge of factors facilitating effective management of NSD process can be very helpful for companies willing to enhance their position on the market and achieve superior service outcomes. Therefore, the research aiming at establishing the right procedures for managing NSD process is important both for practitioners and academics (e.g. Cooper and Edgett, 1999; Bitran and Pedrosa, 1998).

Many NSD processes turn out to be a failure (van Riel and Lievens, 2004), which makes the scholars search for more efficient and effective methods of NSD (Syson and Perks, 2004). Possible reasons for failures in NSD processes are named to be lack of an efficient development process (De Brentani, 1995) and the lack of customer orientation and input (Martin and Horne, 1995). It is generally acknowledged that customer involvement in the NSD process results in a more successful service offering (e.g. Alam, 2002, Matthing et al, 2004, Atuahene-Gima, 1996; Cooper, 2001), however there has been little research on how managers can optimize collaboration with customer to produce superior financial and operational results.

## 1.2. Purpose and structure of the work

Taking into account the importance of effective management of NSD process and significant role of customer orientation and input underlined above, the current research is going to give an overview of academic studies considering the effectiveness of NSD process and supportive role of customer participation in the process. Particularly, the paper is going to study prerequisites for an efficient service development process, service success factors and the effect of customer involvement in different stages of NSD process.

The customer involvement term used throughout the paper suggests customer participation in company activities aimed at developing a new service offering. This participation may take the form of customer feedback on proposed management actions regarding new service development

(Alam, 2002) or customer actual involvement in design, development and commercialization of a service innovation (Magnusson et al., 2003).

The *purpose* of the work is to develop a framework for efficient customer involvement in the NSD process, which would consider the mediated effect of customer participation in different stages of service innovation process on the market outcomes.

The main assumption behind the developed model is that customer participation in NSD process has an indirect effect on the service market outcomes, such as sales performance and competitive performance. It is suggested that the influence of customer participation on the market outcomes is mediated by a number of service success factors discovered through analysis of the academic literature.

The *structure* of the work is as follows:

Firstly, the paper is going to discuss the notion of services, service innovations and customer role in the process. Secondly, it is going to present different models of NSD process and discuss success factors in developing new services. Thirdly, it will describe empirically supported NSD models considering customer participation in the service innovation process.

Critical analysis of the empirical models and service performance success factors will result in a new model of customer involvement in NSD process. This model derived from the empirical models and theoretical studies will present a theoretical framework subject to further validation and empirical testing.

The discussion of the literature review is going to be considered in the final part of the thesis. It will present a critical discussion of the definition of services, theoretical approach, methodological approach used within the literature and the input made to improve the knowledge and understanding within the area of research.

The conclusion is going to summarize the analysis of customer involvement in NSD process and discuss possible limitations of the developed model.

The thesis is supposed to contribute significantly to the existing academic studies related to customer involvement in NSD process and serve as a solid theoretical background for further research.

## 2.0. THEORETICAL BACKGROUND

*This chapter provides the reader with the understanding of services and specifics of service innovations, as well as particular role of customers in NSD process. The chapter presents different models of NSD process, including models considering customer participation, and discusses success factors in developing a new service. The findings from the literature are used to propose a model of mediated effect of customer participation in different stages of service innovation process, which is presented in the following chapter of the master thesis.*

### 2.1. The notion of services and service characteristics

Before discussion of new service development process and customer involvement in the process we need to define what is a service and service innovation and identify factors which explain why customer involvement is critical for development of a new service.

In the academic literature there are found numerous definitions of services. Some of them are presented below:

“an activity or series of activities of more or less intangible nature that normally, but not necessarily, take place in interactions between customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems” (Gronroos, 1990);

“economic activities offered by one party to another, most commonly employing time-based performances to bring about desired results in recipients themselves or in objects or other assets for which purchases have responsibility. In exchange for their money, time, and effort, service customers expect to obtain value from access to goods, labour, professional skills, facilities, networks, and systems; but they do not normally take ownership of any of the physical elements involved” (Lovelock and Wright, 2007);

“application of competencies for the benefit of another entity” (Vargo and Lusch, 2004);

“a time-perishable, intangible experience performed for a customer acting in the role of co-producer” (Fitzsimmons and Fitzsimmons, 2004).

The first definition highlights the purpose of services – to provide a solution to customer problems - as well as the process nature of services, which presents a number of activities aimed at a particular service result. The second definition emphasizes customer value that is derived

from services. This idea is also pronounced in the third definition, which together with provision of value for another entity highlights the use of competencies in providing the benefits. The fourth definition points out to the customers' role as co-producers in the process of service delivery as well as service characteristics distinguishing services from goods.

The above-mentioned considerations of services take notice of three service characteristics: service intangibility; service perishability and customer's role as a co-producer. The other characteristics usually cited in the academic literature are that of heterogeneity and inseparability (Schilling and Werr, 2009). The four out of five characteristics (simultaneity, heterogeneity, intangibility and perishability) form the famous SHIP characteristics, which were introduced in the early academic works considering services (Lovelock, 1983; Shostack, 1977; Zeithaml et al., 1985).

Later "customer participation" feature was added to the commonly recognized service characteristics (Fitzsimmons and Fitzsimmons (2004)).

These characteristics are usually named when comparison between services and goods is made. They draw some implications for the service development process making it differ from product development process and incurring differing managerial practices.

Below is presented a detailed discussion of the service characteristics and effect they play in defining service innovations:

### ***1) Intangibility***

Services are predominantly abstract and immaterial, which makes it difficult to inspect and examine them before purchasing (Edvardsson et al., 2000). They often present a set of activities/processes rather than "things" (Johney and Storey, 1998).

#### **Implications for NSD:**

Intangibility of services makes it difficult to test them in concept (Johney and Storey, 1998). Being processes rather than physical entities, services present a challenge when testing on a design stage due to the necessity to establish the whole service system with interlinked elements.

Besides, due to intangibility, modifications in services can be done easier and quicker than in physical goods, which implies another challenge related to keeping service quality intact. Many of the modifications when done quickly and without management approval or relevant



organizational learning can adversely affect customer service quality after the service is launched (Johney and Storey, 1998). This implies that certain adjustment levels should be discussed with the service employees in order to avoid too large modifications affecting service quality level.

Another implication of intangibility is that developments can be easily copied by competitors (Johney and Storey, 1998). Due to the fact that services are not patentable, copying can be hardly preventable. Therefore a firm that introduces a novel service must do it very fast to preempt any competitors (Edvardsson et al., 2000). This idea was also underlined by Alam and Perry (2002) who cited the opinion of one of the managers in their research: “Developing a superior service is important but a faster NSD process is also crucial in service industries. Customer involvement can speed up the development process...” (Alam and Perry, 2002, p. 523). Therefore, innovation speed plays a critical role in NSD process as it affects how quickly a service can enter the highly competitive market. Customer involvement in its turn is suggested to contribute to acceleration of the process of new service development.

## ***2) Customer participation in the service process***

Customers are receivers of services and their immediate participants. They can participate in both the production and delivery of services. Services usually involve customers in the role of co-producers by way of: 1) providing information and other inputs required for the process, 2) performing one or several activities in the service process, or 3) marketing the service through talking to others about personal impressions and perceptions of the service process. Through performing these actions the customers act as part-time employees and present a resource that contribute with, among other things, knowledge and information (Edvardsson et al., 2000).

Due to technology infusions in services, the role of customers in the service process is changing. The customers start playing a more active role in terms of identifying, creating, extracting and exchanging value (e.g. in retail banking sector customers are able to make telephone or computer transactions, direct deposits, and pay the bills themselves instead of actually going to the bank and have a teller do it for him). Now the customers often interact with a computer instead of a person, which makes the customer a sole producer of the service (Edvardsson et al., 2000).

### **Implications for NSD:**

As customers are immediate participants of the service process and present a resource contributing with knowledge and information, their participation in NSD process is crucial. Customers' feedback during different stages of the development process is important to define

whether the service follows the intended course of development. Modifications made in accordance with customer comments will affect both the service process and the outcome. In case the customer is a sole producer of the service, his role in NSD extends from providing feedback to designing, using and exchanging the value of the service with others. This independent role would mean almost total control over the process and the outcome of NSD process.

### **3) *heterogeneity***

Services are heterogeneous meaning that service process and outcome can differ each time a service is delivered. The range of the difference usually depends on how capital, customer or personnel intensive the service is (Edvardsson et al., 2000). Heterogeneity feature is partly related to the intangibility characteristic of services, which implies easiness of potential service modification, and partly to customer involvement in the production process and his/her individual input in the service delivery process.

A customer actively expressing his/her unique needs, demands and values affects both the service process and the outcome. This makes it hard to standardize and control the process as well as the outcome. In services where customer contact is limited, self-service technologies are widely introduced to cover the standard needs of customers. Automation of services allows eliminating relatively routine tasks of service employees making their work more interesting and freeing the time and efforts for tasks requiring close personal attentions. This personal attention can be used for discovering ways to vary service offerings and establish closer relationships with the customers (Edvardsson et al., 2000).

#### **Implications for NSD:**

Despite heterogeneity, customers have expectations to get the same service level as the others each time they buy the service (Edvardsson et al., 2000). In order to avoid large deviations in quality levels, quality standards and personnel training rules need to be developed during the NSD process in order to keep the service in line with customer expectations and ensure consistency in the rendered services. Also, automation of services or some parts of the service processes would allow standardizing some service routines to avoid large variations in the service processes and service outcomes.

#### **4) *Simultaneity***

Services are usually partly produced, delivered, consumed and marketed at the same time. This has the implication that quality must be built in as the service is developed. “Quality in services is not engineered in at the manufacturing plant, then delivered intact to the consumer. It occurs during service delivery.” (Parasuraman et al., 1985, p. 42). During the service development process customer’s participation as a co-producer of value is important and can influence significantly the service productivity and quality (Gummesson 1998).

The fact that services are created and consumed simultaneously and cannot be stored influences the way they are managed. The manufacturing factory operates as a closed system, with inventory “de-coupling” the productive system from customer demand (Edvardsson et al., 2000, p. 35). Services, on the other hand, operate as an open system, where demand variations influence the whole system. In a service system overcapacity at one time can be followed by under capacity at another time. The changes in the available capacity affect the customers who are forced to wait in the condition of too high demand. The waiting time affects service experience, which in its turn can affect customers’ perception of the service quality. There should be found ways to handle under capacity in order to keep service quality unaffected. One solution could be to utilize the customers in the service process and let them do the tasks that the personnel normally do. In case of retailing this could mean, for instance, taking away the cashiers and letting the customers check out on their own. In case of banking services this could mean transferring some operations online, where customers could complete some banking tasks on their own without interaction with the service employees (Edvardsson et al., 2000).

#### **Implications for NSD:**

Service capacity should be considered as a factor affecting service quality and customers’ overall service experience. A number of solutions to avoid or soften the effect of under capacity could be tested together with the customers in the process of NSD in order to verify that the undertaken measures are sufficient to keep the perceived quality at high levels.

#### **5) *Perishability***

A service is a perishable commodity. It cannot be stored, and when not used it is lost forever. The full utilization of service capacity therefore presents a management challenge, because of considerable variation in customer demand. The fluctuations in demand often happen within a

short time, which is usually not sufficient for managers to do the necessary changes to match the fluctuations.

The demand, however, can be smoothed by using reservations or appointments, price incentives or demarketing peak times. As an option, service capacity can be changed through employment of additional labor, better scheduling of work shifts, encouraging customers to take up some of the activities on their own or use of self-service technologies (Edvardsson et al., 2000).

### **Implications for NSD:**

The company aiming at reaping sufficient benefits from a service in the long-term should consider the perishability factor and develop possibilities to smooth fluctuations in demand. During NSD process, testing the customers should be offered to consider different options of smoothing the demand including their participation in the process of service delivery with the use of self-service technologies.

The service features highlighted above suggest that special considerations must be taken into account when developing new services and improving the existing ones. Services have special features which make the development process different from that of traditional product development. They should imply different practices as well as different success factors for efficient implementation of NSD process. The general implication of all the service characteristics is that customers through sharing their knowledge and experience can contribute much more to the development of services than they can for physical goods. The value, however, is gained only if a company is able to “translate customers’ expertise into service improvements” (Gustaffson, 2003, p. 6)

## **2.2. Specifics of service innovations**

Service characteristics identified above suggest that service innovations differ from product innovations. The various definitions of a new service found in the academic literature illustrate the special character of service innovations.

For example, Menor et al. (2002) stated that it is important to consider both the newness of a service offering (“what” is being offered) and a service concept (“how” it is being offered”) and defined a new service as: “an offering not previously available to a firm’s customers resulting from the addition of a service offering or changes in the service concept that allow for the service offering to be made available” (Menor, 2000 cited in Menor et al., 2002, p. 138).

Tax and Stuart (1997) defined service innovations as modifications applied to the existing service system, operational process and participants. This definition illustrates that services present a complex system, where any modification concerning the system, process or participant can be regarded as a new service.

NSD process in its turn is defined as follows: “the set of activities, actions, tasks and evaluations that move a project from the idea stage through to launch” (Cooper and Edgett, 1999).

In addition to specifics of services and service innovations presented above, the literature highlights extra features differentiating service innovations from product innovations. For instance, Johne and Storey (1998) stated that, regarding *innovation types*, service innovations are often more incremental and less radical than product innovations; it is also highlighted that service innovations are less driven by technology (Cooper and de Brentani, 1991), as well as less based on R&D (Brouwer, 1997).

*Innovation process* is often found less formal in service firms than in manufacturing companies (Kelly and Storey, 2000) and characterized as “trial-and-error process” (e.g. DeJong et al., 2003) making it difficult to decompose the service innovation process into stages of a stage-gate innovation process. This made DeJong et al (2003) suggest a two-stage model for new service development process that would include only search stage and implementation stage. This classification is similar to what has been suggested by Menor et al. (2002) who identified two macro-stages in the development process: the fuzzy front end and the execution-oriented back end.

Regarding *innovation conditions*, the academic researchers emphasize high importance of human resources (e.g. De Brentani, 2001), especially knowledge resource and creative capital outside the traditional R&D institutions (den Hertog, 2000); internal cooperation and cross-functional teams (e.g. Gallouj and Weinstein, 1997). Also, the access to ICT as a resource is also found significant, especially for ICT-intensive firms, as the resource facilitates productivity growth (Triplett and Bosworth, 2003).

As for *innovation outcomes* of service innovations, they are usually presented in the form of qualitative rather than quantitative results. Typical results would be therefore customer value outcomes and strategic outcomes (DeJong et al., 2003). At the same time, cost efficiency and short term profitability effects would be less likely outcomes of service innovation activities (Nysveen and Pedersen, 2007)

In this thesis we are going to present a model that would consider customer involvement in the service innovation process and the effect of such involvement on the innovation outcomes. Innovation conditions will be suggested to be considered as moderators, whereas innovation types will not be considered at all. In the research we are going to apply synthesis approach, that presents the combination of assimilation approach relying on existing product innovation principles when describing and explaining service innovations and demarcation approach suggesting uniqueness of service innovations and requiring new principles developed specifically for service innovations (Drejer, 2004; Coombs and Miles, 2000). This approach is considered most suitable for describing service innovation, which currently take place not only in service firms but also manufacturing companies diversifying their business through service activities.

### 2.3. New service development models

As it was mentioned previously, innovation process is found less formal in service firms than in manufacturing companies (Kelly and Storey, 2000) making it difficult to decompose the service innovation process into stages of a stage-gate innovation process. DeJong et al (2003) suggested a two-stage NSD model including only search stage and implementation stage. This view on service innovation process seems to belong to demarcation approach considering NSD very different from new product development (NPD) process and simplifying it by limiting the number of available NSD stages.

In the literature, however, there are also found other models of NSD process considering a larger number of service innovation stages and suggesting similarity between NPD and NSD processes. As long as we decided to follow synthesis approach, we shouldn't discard these models but instead consider them in the thesis trying to find an optimal model for customer participation in NSD process. For better validity of our model we decided to consider only those NSD models that found empirical support in the academic literature.

So far, there have been developed just a few NSD models based on empirical research. One of such models is the model of Scheuing and Johnson (1989) who defined 15 stages in the NSD process:

- 1) formulation of new service objectives
- 2) idea generation
- 3) idea screening
- 4) concept development

- 5) concept testing
- 6) business analysis
- 7) project authorization
- 8) service design and testing
- 9) process and system design and testing
- 10) market program design and testing
- 11) personnel training
- 12) Service testing and pilot run
- 13) Test marketing
- 14) Full scale launch
- 15) Post launch review

The model is based on the analysis of academic literature within the field of new product management. The structure of the model, however, reflects special conditions present in service industries.

Scheuing and Johnson (1989) model was further developed by Alam and Perry (2002) who considered the role of cross-functional teams, parallel processing of the development stages and cycle time reduction.

Alam and Perry (2002) made the first attempt to create NSD model which would consider customer's involvement in the process. This way, they continued the line of thinking of Barabba (1995), Wind and Mahajan (1997) who underlined the need for creating a new service/product development model that would show customers input throughout the development process. Their research, however, concerned new financial service development only and was delimited to business-to-business transactions.

Alam and Perry's (2002) stages of NSD include the following phases:

- 1) Strategic planning
- 2) Idea generation
- 3) Idea screening
- 4) Business analysis
- 5) Formation of cross-functional team
- 6) Service design and process/system design
- 7) Personnel training
- 8) Service testing and pilot run
- 9) Test marketing
- 10) Commercialization

Alam and Perry (2002) suggested two versions of the model – one considering linear stages and the other one - concurrent stages happening simultaneously (e.g. parallel occurrence of strategic planning and idea generation; personnel training and service testing and pilot run). Alam and Perry (2002) were the first to distinguish between linear and concurrent stages. Besides, they were the first to suggest “formation of cross-functional team” as a stage in NSD process. They also emphasized the importance of customer involvement in NSD process, particularly their role in increasing NSD speed.

Discussing models considering customer participation in NSD process, we should note that most models carrying out empirical research in this area refer to the model of Johnson et al. (2000) who suggested four stages of NSD process: design, analysis, development and launch stage.

*Design* stage in new service development process suggests setting a new service strategy and objectives that would direct the flow of ideas limiting them to those only that have the highest profit potential. On this stage the formal strategy considering the target market and the performance goals is often defined. The design stage also includes the generation, evaluation and screening of ideas for new services (i.e. creation of the new service concept).

*Analysis* stage involves estimation of the potential profitability of the project and getting the approval from the company’s management to continue idea development.

During the analysis stage a company conducts a critical assessment of strategic, financial and market-performance potential of the new service concept. The analysis is aimed at defining how well the new concept matches the company’s other existing service offerings, satisfies the firm’s minimum ROI or market share goals and is consistent with the organizational strategy. In other words, it helps to identify the marketability of the newly created services.

In the *development* stage testing of the core services, the delivery system and the marketing campaign takes place, the users’ and frontline employees’ feedbacks are received and the personnel are trained to deliver the expected service results.

The development stage includes various activities and practices aimed at converting the service concept into a viable, marketable new service offering. During this stage, the service processes that make up the total service offering are elaborated and fine-tuned. The systems and infrastructure required for the delivery of the service are refined as well. The newly developed services are prototyped and tested during the development stage. The company starts training and preparing its personnel for delivery of the new service.

*Launch* stage involves delivering of the service offering to the market and reviewing the commercialization process with the purpose of making possible adjustments if necessary.

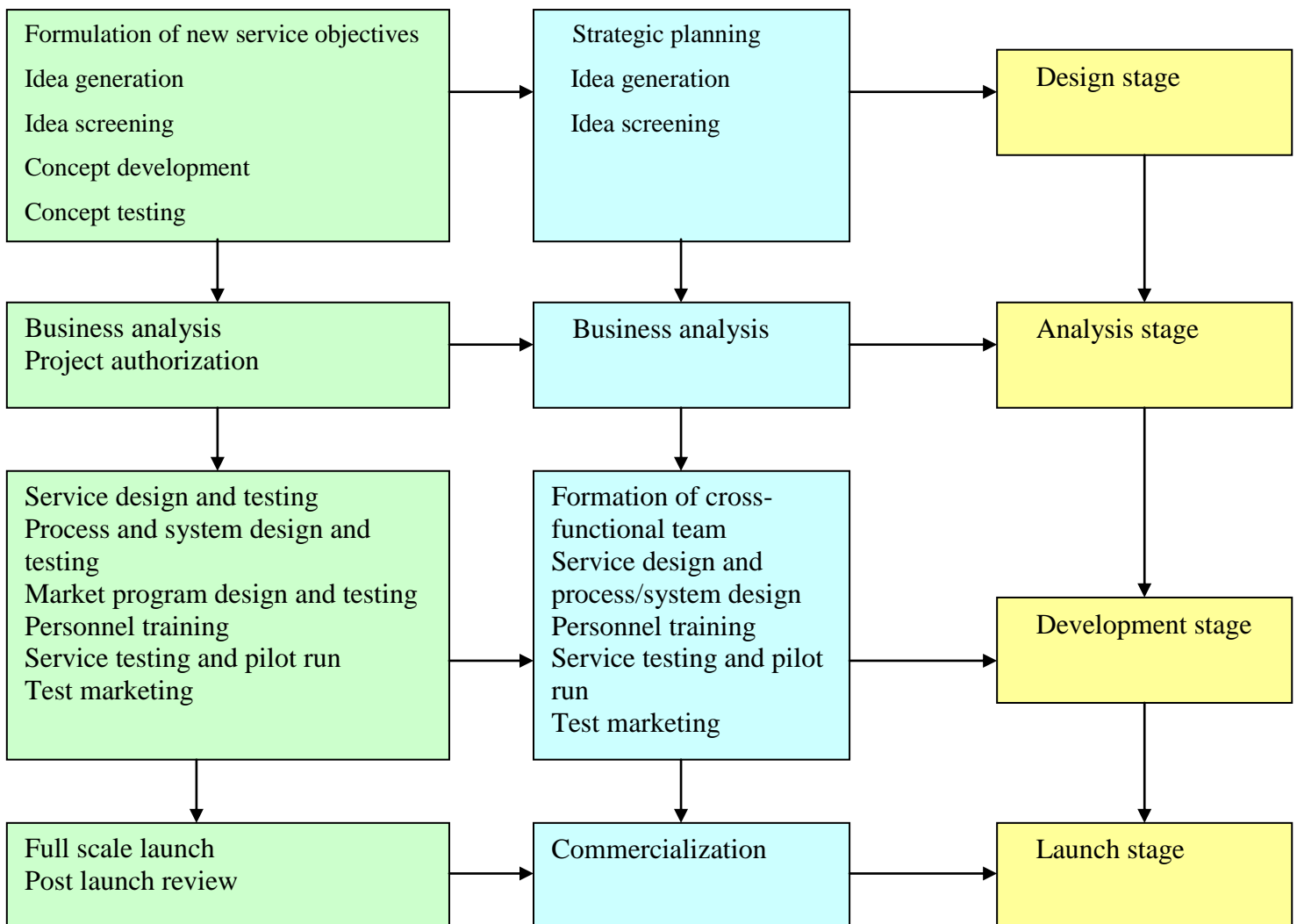
During the launch stage the new service is commercialized. It is promoted and advertized, customers are trained and their feedback is collected to ensure that the new service is delivering



the expected customer value. Besides, the service process is refined and possible drawbacks of the process are eliminated. After the launch stage is finished, post-launch analysis is carried out in order to assess how well NSD process matches the established service process standards.

The four stages described above structure the new service development practices that constitute the efficient new service development process.

If we aggregate the ten stages of Alam and Perry's (2002) model into four corresponding stages of Johnson et al. (2000) we can see that these models correspond well to each other. Alam and Perry's model developed from Scheuing and Johnson's (1989) model is also presented in the comparative framework below:



**Figure 1. Correspondence between various NSD models**

We found necessary to do this comparison in order to show that different NSD models refer to the same customer participation processes in service innovation workflow. The difference between the models is explained mainly by how detailed they present customer participation in

different stages of service innovation process. When a detailed description of each aggregated stage is taken into account, one can see that a model with aggregated stages corresponds to a model with the stages split into more detailed actions.

As most models considering customer involvement in NSD process refer to Johnson et al. (2002) model, we will also consider it as the main model for our research, taking into consideration the various processes taking place during the four main stages.

Alam and Perry (2002) proposed two versions of the model – one with linear and the other one with concurrent stages suggesting that two stages can occur simultaneously. In our research we will not distinguish between linear and concurrent stages of NSD process, as our model refers to the model of Johnson et al. (2000) who presented aggregated stages of NSD process. We consider the distinction between linear and concurrent stages in our case not necessary as the four stages represent quite independent and broad phases of NSD process. These phases include a number of concurrent actions (e.g. service testing and personnel training; business analysis and project authorization) that are already aggregated in larger phases of “development” and “business analysis” and don’t require further consolidation.

## 2.4. Customer involvement in service innovations

When discussing service characteristics, we underlined the importance of customer involvement in service innovations. Customer involvement in service innovations is sometimes recognized as the main difference between product development and service development processes (Alam and Perry, 2002; Ennew and Binks, 1996) and customer input and involvement in the service innovation process is suggested to be even more useful for services than for tangible products (Martin and Horne, 1995; Normann, 1991; Vermillion, 1999; Alam and Perry, 2002).

Through involvement in different stages of NSD process customers can supply information on their experiences and share their knowledge on how performance of the service can be improved. During NSD process customers provide “feedback of specific issues” as well as participate in “extensive consultation with users by means of interviews, focus group and team discussion” (Alam, 2002, p. 255).

The idea of collaboration with customers during the innovation process is not new. It was highlighted in the Customer Active Paradigm (von Hippel, 1988) and the open-innovation literature (Chesborough, 2003). Besides, the resource dependence theory (Pfeffer and Salancik, 1978) based on the open systems perspective of organization theory (Scott, 1992) emphasized the role of customer knowledge as a vital resource helping a firm to compete on the market. Information on customer needs and user experiences can be seen as a “resource companies depend upon for successfully developing new products” (Gruner and Homburg, 2000, p. 2).

According to Service Dominant Logic view the customer presents an operant resource which a company can use to facilitate innovation and booster competitiveness (Vargo and Lusch, 2004). The core of service logic is the process nature of services and the role of customers as actors and part-time employees in value-creating processes. The process nature of services suggests interaction with customers before the service is complete. Customer evaluation of the service is therefore done both regarding the service process and the service outcome. As the service process is important, the customer cannot be excluded from NSD process. New service introduction must be done with consideration of changed actions of the customers during the delivery process and customer perception of the process (Edvardsson et al., 2000).

Cooperation with customers allows getting important user knowledge (Blazevic and Lievens, 2008) and aligning customer needs with the developed market offerings, which increases chances for market success (Lusch et al., 2007). Edvardsson and Olsson (1996) highlighted that customer contributions to new service content and delivery mechanisms “help differentiate the product, can keep the offer simple enough to be readily understood by the target market, and contribute to product innovativeness and service quality” (cited in Melton and Hartline, 2010, p. 415).

The most extensive analysis of effects of customer involvement in NSD was made by Alam (2002). He studied service development process in the financial services and discovered the following positive effects of customer involvement:

- a better and differentiated service,
- reduced service development cycle time,
- user education,
- fast diffusion of service innovations,
- improved public relations and better customer relations.

In general, strong customer orientation is recognized to be an important contribution element for “superior new service performance” (Atuahene-Gima, 1996; Cooper, 2001). The “superior” service was achieved due to a more accurate and complete assessment of users’ needs and wants during interaction with customers (Alam, 2002), avoiding the development of unacceptable or unimportant features, and better users’ understanding of the new service.

## 2.5. Models considering customer involvement in service innovations

Despite the widely recognized role of customers in NSD process and benefits resulting from their involvement (Dahlsten, 2003; Magnusson et al., 2003; Martin and Horne, 1995) there are very few studies regarding customer involvement in NSD (Matthing et al., 2004). There are even fewer studies examining the impact of customer participation in different stages of NSD process on its outcomes.

So far, to the best of our knowledge, there are just a few models studying the mediated effect of customer involvement in NSD process on its outcomes that have been tested empirically.

One of such models is the model of Melton and Hartline (2010) who studied the effects of customer and frontline employee involvement in NSD process. The other model is the model of Carbonell, Rodriguez-Escudero and Pujari (Carbonell et al., 2009) who studied mediated effect of customer involvement on NSD outcomes. We are going to present the models and the empirical results of their testing and suggest a more robust model that would aggregate findings from the two models and consider the effect of additional factors.

Melton and Hartline (2010) studied the influence of customer and frontline employee involvement on sales performance and project cost efficiency through the influence on such project success factors as service marketability and launch preparation.

These factors were borrowed from the studies of de Brentani (1991) and Henard and Szymanski (2001) who defined them (alongside with other factors) as factors distinguishing between successful and unsuccessful service/product innovation projects.

*Service marketability* of a new service means that the new service offers

- a) a set of core performance attributes and supporting services,
- b) product familiarity to customers or simplicity in learning how to use the new offering,
- c) product quality, effective brand communications, frontline employee proficiency in executing the service, and broad distribution systems (Melton and Hartline, 2010)

*Launch preparation* involves

- a) effective training of knowledgeable and motivated customer-contact staff before the product launch, b) developing commitment of employees to provide superior service quality, and
- c) elaborate testing of the service offering, service process, supportive IT systems and marketing program designs (Melton and Hartline, 2010).

The effects of customer involvement considered in Melton and Hartline's study (2010) are sales performance and project efficiency, which were highlighted as important project performance measures by Olson et al. (1995) as well as Swink et al. (2006).

Sales performance denotes the extent to which the service innovation exceeds sales, market share, profit margin, usage, and return on investment objectives. Project efficiency is expressed in less than expected development costs, less than planned concept to launch time, and performance of the innovation below expected costs (Melton and Hartline, 2010).

Both sales performance and project efficiency refer to financial results of project innovation. Sales performance indicates a connection with the generated revenues and project efficiency relates to the overall costs of a new service.

The model of Melton and Hartline (2010) studied the extent to which customers and frontline employees are involved in different stages of the NSD process. It is aimed to discover whether greater involvement in one or more stages would increase the marketability of the new service or improve the firm's ability to launch the new service into the market.

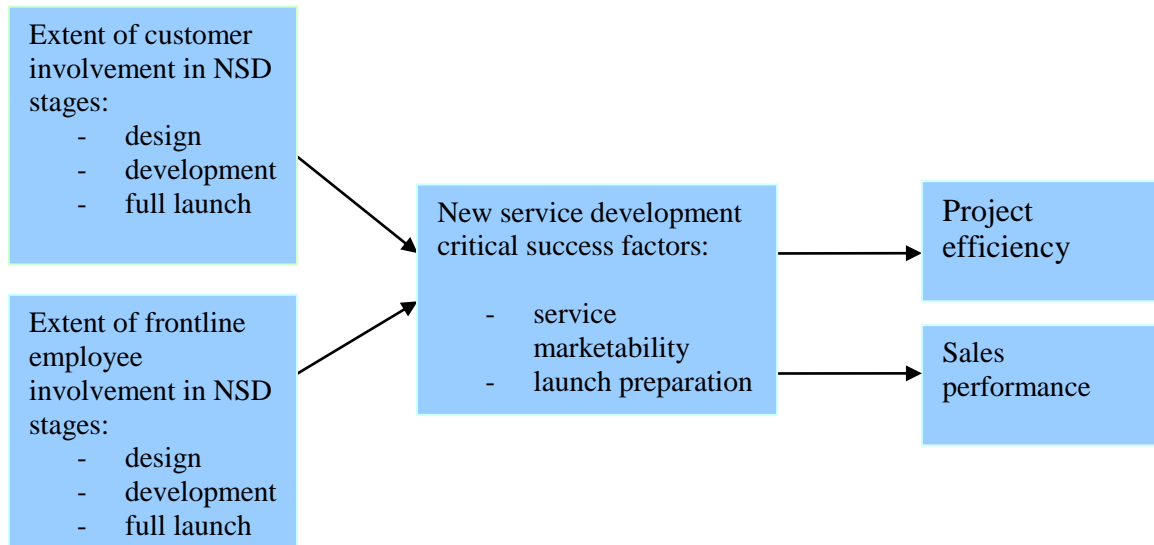
The model was developed on the basis of an exploratory study aimed at better understanding of the relationships between customer and frontline involvement in the NSD process and new service performance. Melton and Hartline (2010) conducted in-depth, open-ended interviews with service managers taking part in NSD process. The results of their interview showed that firms often involved customers in the idea generation phase and less often in prelaunch testing.

Customer involvement in the idea generation phase helped to define inefficiencies of the existing process and develop new service offerings that would provide greater value than competing offerings. Customer involvement in the pre-launch testing and post-launch evaluation helped to assure that the new service met or exceeded customers' expectations and that the company had the expertise to serve customers' needs effectively.

Melton and Hartline (2010) model studied the effect of customer and frontline employee involvement in three out of four stages of Johnson et al (2000) model: design, development and full launch. Customer involvement in the analysis stage was excluded from the research, because this is the stage where company's management takes full control over the NSD process selecting those service ideas that have the highest potential to provide benefits for the company.

Melton and Hartline (2010) study confirmed that customer and frontline employee involvement in the service development process can positively affect project results. Moreover, it showed that by studying the effects of customer involvement in certain stages of NSD, companies can define customers' optimal roles in the process as well as most suitable distribution of company resources for reaching the successful outcomes.

Melton and Hartline’s original model is presented below:

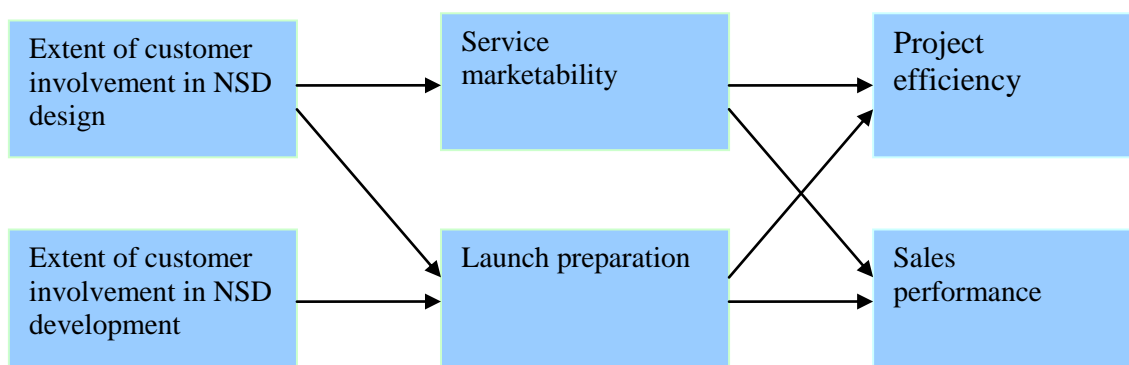


**Figure 2. A framework for effective customer and frontline employee involvement in new service development (adopted from Melton and Hartline, 2010)**

The results of Melton and Hartline’s (2010) study showed that customer involvement in the design stage positively affected innovation’s sales performance and project efficiency “through its contribution to improved marketability of the offering and preparation prior to launching the new service” (Melton and Hartline, 2010, p. 420).

Customer involvement in the development stage positively affected innovation’s sales performance and project efficiency through its positive impact on the firm’s preparation to launch the new service.

The final model related to customer involvement looked the following way:



**Figure 3. Final framework for effective customer involvement in new service development (adopted from Melton and Hartline, 2010)**

In Melton and Hartline’s study (2010) customer involvement in development and full launch stages didn’t have statistically significant effects on service marketability. Service marketability is “the ability of the new service to satisfy clearly defined customer needs” (Melton and Hartline,

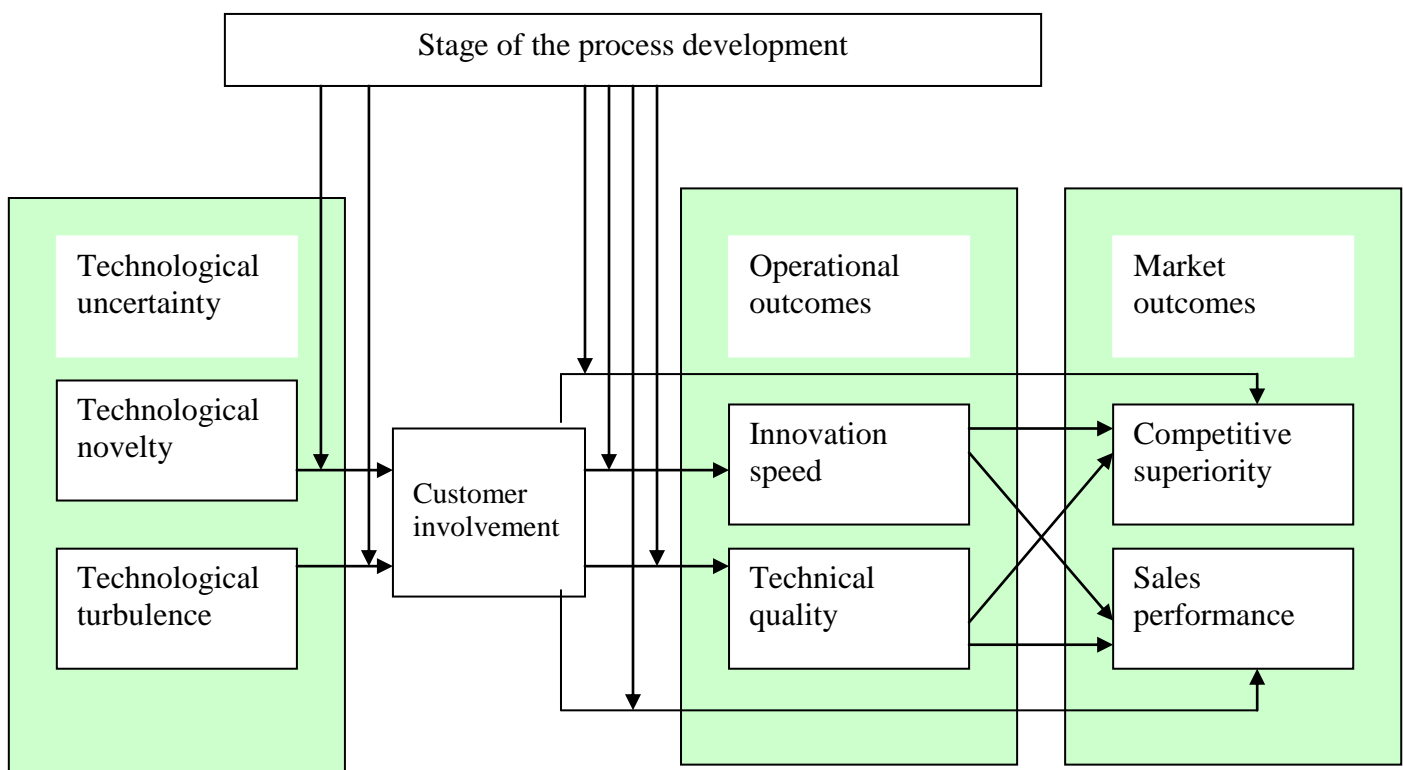
2010, p. 422). Since needs are defined in the design stage, customer participation in the development stage (by providing feedback on service, process, and marketing program design) “doesn’t affect how clearly needs are defined, but instead influences the thoroughness of launch preparation (through the refinement and rehearsal of service production and delivery procedures)” (Melton and Hartline, 2010, p. 422). Besides, customer involvement in the full launch stage will not influence the way customer needs are defined in the current project. The feedback received through customer involvement in this stage will only affect future modification of the service undertaken in a separate NSD project.

No effect of customer involvement in the launch stage on critical success factors such as service marketability and launch preparation was found in the course of the empirical study.

In general the research of Melton and Hartline (2010) showed that the early involvement of customers and frontline employees in new service development process “can result in better process design and greater customer perceived value” (Melton and Hartline, 2010, p. 414).

The second model considering customer involvement in NSD process is the one that was developed by Pilar Carbonell, Ana I. Rodriguez-Escudero, and Devashish Pujari (Carbonell et al., 2009). The model considered the influence of technological uncertainty on customer involvement, as well as the influence of customer involvement on market outcomes mediated by the effect on the operational outcomes.

The original model is presented below:



**Figure 4. Theoretical framework for customer involvement in NSD process (adopted from Carbonell et al., 2009)**

The model presents the mediated effect of customer involvement on market outcomes through the influence on operational outcomes such as innovation speed and technical quality. The model took into account the view of Menor et al. (2002) who pointed out that new service performance represents a multidimensional rather than unidimensional construct (Melton and Hartline, 2010) that reflects both operational effectiveness and marketplace competitiveness. This way, the influence of customer involvement on sales performance and competitive superiority is suggested to be mediated by the effect on operational outcomes, namely innovation speed and technical quality.

Tatikonda and Montoya-Weiss (2001) emphasized both operational and market outcomes as measures of new product/service performance. According to them, operational results reflect project work execution and development effort from an internal perspective, whereas market results reflect market success of a new service and assess the development effort from an external perspective. Tatikonda and Montoya-Weiss (2001) indicated that operational outcomes represent the main service-intrinsic characteristics that have an impact on market outcomes.

Carbonell et al. (2009) developed a model where they considered two operational outcomes important for service innovation: innovation speed and technical quality. Innovation speed describes the speed of activities between idea generation and market launch phases (Kessler and Bierly, 2002). This operational outcome is important for companies that wish to become market leaders and take a leading position on the market. As long as services are not patentable, speed of innovation plays an important role in defining the competitiveness of a company.

Technical quality describes how well the service matches specifications or performance and how reliable it is (Garvin, 1987). Menor et al. (2002) have stated that speed and quality are important operational outcomes of a service development process. Innovation speed and service quality are significant due to “shortening period of advantage common to many new services” and the challenge “to align service concepts with customer requirements” (Menor et al., 2000, p. 141).

Market outcomes refer to competitive superiority and sales performance. Competitive superiority refers to what the customers get (service results) and the company interface that the users experience (service experience). Sales performance reflects the sales, sales growth and market share performance of a new service (de Brentani, 1995).

The results of the study showed that there are no direct relationships between customer involvement and the competitive superiority and sales performance of new service offerings. This, however, didn't discard customer influence on the market results. Special feature of this influence is that it is indirect and mediated by customer's effect on the operational outcomes.

These findings correspond to the previous empirical findings indicating that customer involvement has an indirect impact on the final success of innovations influencing certain drivers



of new product performance (Atuahene-Gima, 1996; Campbell and Cooper, 1999). Another finding from the study was that customer involvement's impact on new service performance was independent of the stage of the development process. This gave support to Cooper's (2001) recommendation to seek customer input and feedback at every stage of the development process. This in a way contradicts to the results of Melton and Hartline (2010) study, which showed that customer involvement in the full launch stage does not influence the market results. However, in their model they considered the influence of customer involvement not on operational results (innovation speed, technical quality) but on "critical success factors" - service marketability and launch preparation. This implies certain limitations to the findings of Melton and Hartline (2010), who found no importance of customer involvement in NSD full launch stage on market outcomes. Consideration of other mediating factors rather than service marketability and launch preparation might support the importance of customer involvement in all stages of NSD process. In general, the results of the study indicated that the true value of customer involvement in the development process is not in the commercial outcomes, but in its potential to influence on the innovation speed and technical quality.

### 3.0. NEW CUSTOMER INVOLVEMENT MODEL

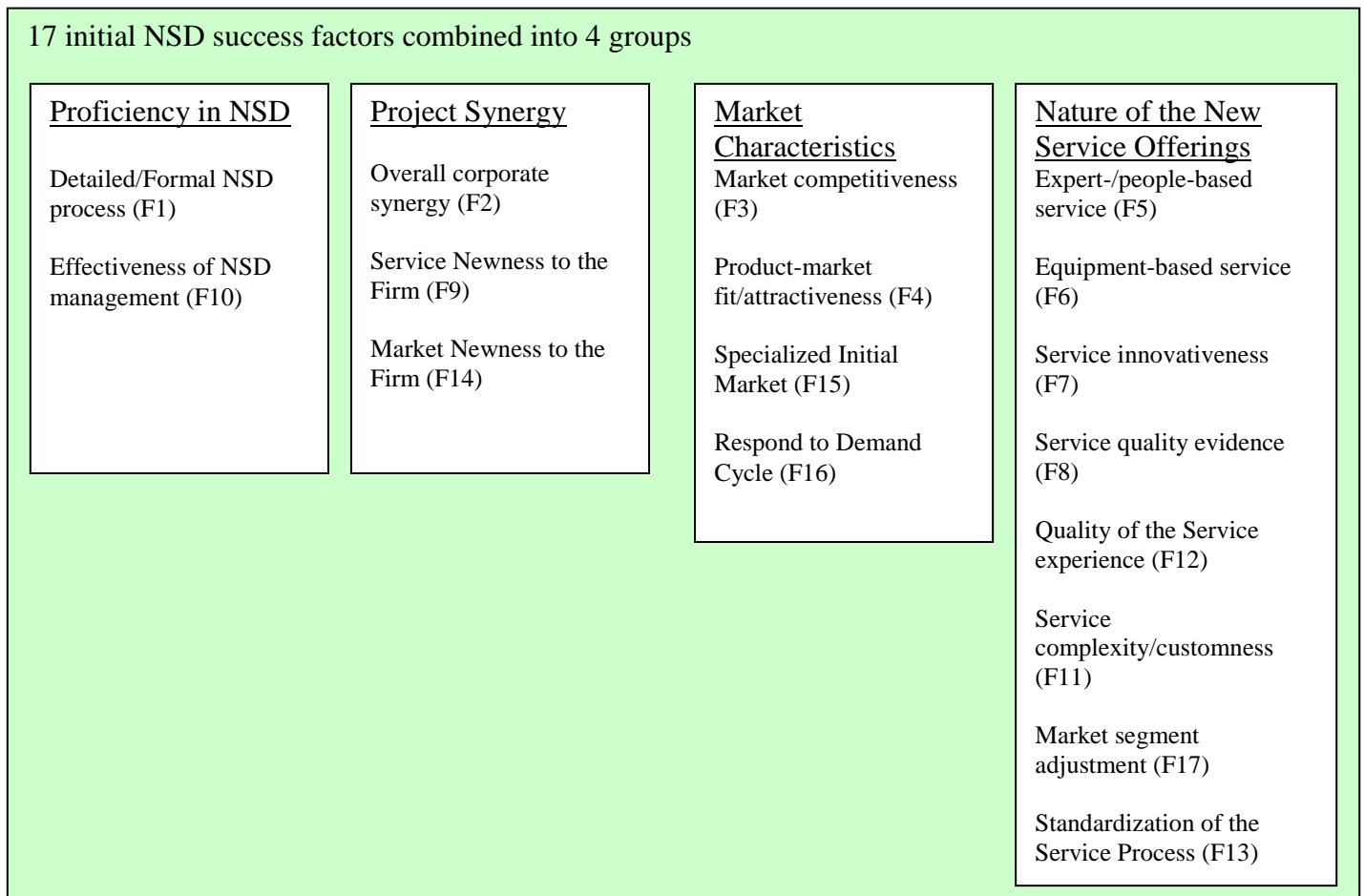
*This chapter introduces a new model of customer involvement in NSD process, which is supposed to present a more robust model than those currently available in the academic literature. The model is based on the empirical findings presented in the theoretical part of the thesis and considers additional factors, new service development critical success factors, as mediators of the effect of customer involvement on market outcomes. The presented model is theoretical and needs to be validated and tested empirically in order to provide managerial implications and suggestions for further research.*

#### 3.1. New service development critical success factors

The model of Melton and Hartline (2010) presented in the theoretical part considered two success factors identified by de Brentani (1991) and Henard and Szymanski (2001) – service marketability and launch preparation - who defined them (alongside with other factors) as factors distinguishing between successful and unsuccessful service/product innovation projects. The model of Carbonell et al. (2009) considered the meditative effect of two operational factors – innovation speed and technical quality.

When developing a new model we decided to extend the number of critical factors which mediate the influence of customer involvement on market outcomes in order to make the model more diverse and consider a broader set of relationships between customer involvement and the market results. We based the selection of critical factors on the research of Ulrike de Brentani (1991) who offered a broad set of factors to be considered important for new service success. The choice of de Brentani's factors is explained by the fact that she has done the most detailed research in the field of service success factors. She identified a wide set of factors that contribute to the service success and tested these factors empirically in order to single out those that are statistically significant.

De Brentani (1991) identified 17 criteria which could be used to measure new service performance. These criteria came from the analysis of empirical studies related to new manufactured goods. The criteria were selected such that they could also be relevant for services. The 17 factors identified by de Brentani (1991) were unified into four broad categories including Proficiency in New Service Development, Project Synergy, Market Characteristics and Nature of the New Service Offerings. The 17 initial factors are presented below:

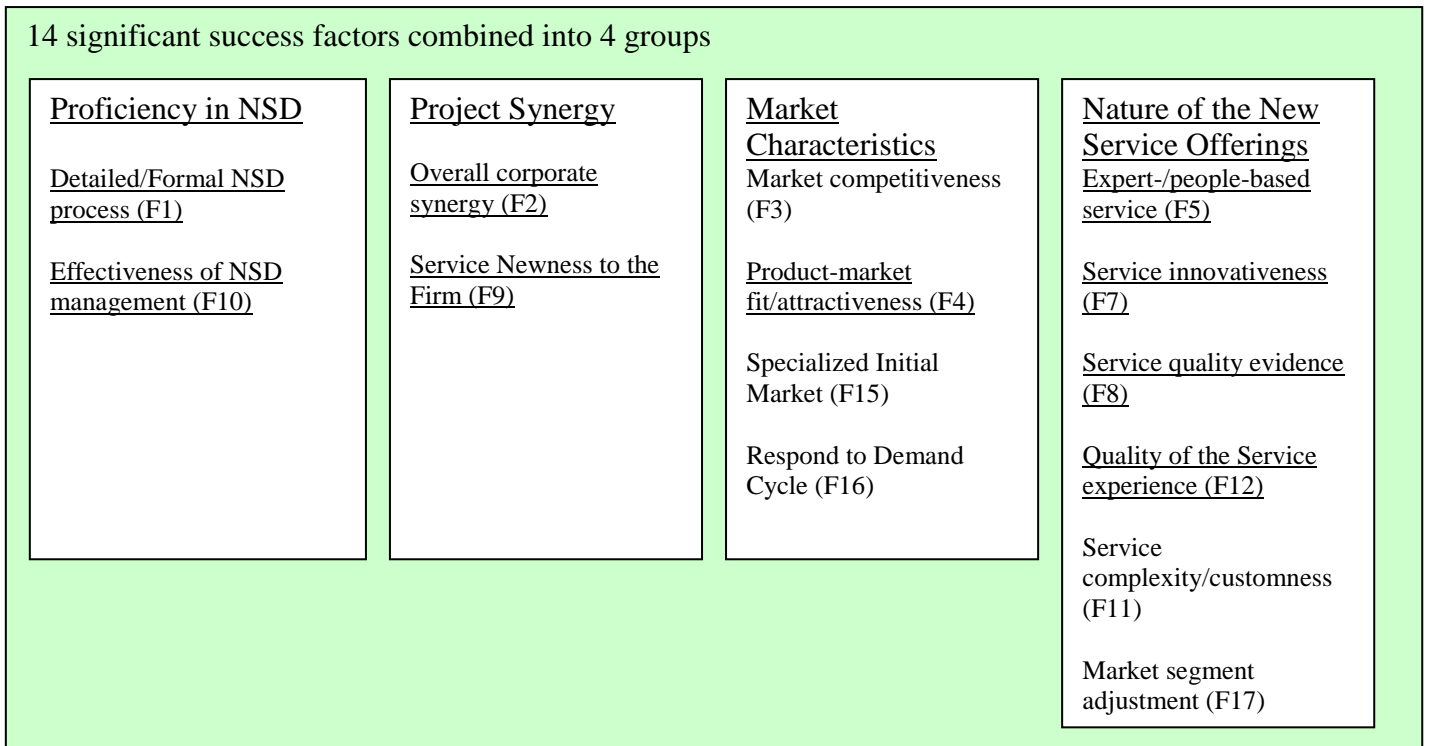


**Figure 5. Initial NSD success factors (adopted from de Brentani, 1991)**

The results of de Brentani’s empirical study showed that nine out of seventeen factors contributed most to the success of a new service and 3 factors (Market newness to the firm (F14); Equipment-based service (F6) and Standardized service process (F13)) were found to be non-significant determinants of service success.

Among 4 broad categories of factors the Market characteristics of the new service and the Firm’s proficiency in new service development played a highly significant role. Other categories – Project synergy and Nature of the new service offering - also played an important, but less significant role.

In the table below we present 14 factors found significant by de Brentani and underline 9 factors which importance in NSD success was found the highest. These factors will be later discussed in their relation to customer involvement in NSD process.



**Figure 6. Significant NSD success factors (adopted from de Brentani, 1991)**

The results of de Brentani (1991) research showed that “Product-Market fit/attractiveness” is very important for achieving high levels of sales performance. This is explained by the fact that new or improved services that meet customer needs and are aimed at markets with high growth potential are able to increase market share and enhance sales. This factor is similar to what has been defined as “service marketability” by Melton and Hartline (2010) in their research and presented as the critical success factor mediating customer involvement influence on the market outcomes.

De Brentani (1991) underlined that market potential alone is not sufficient for raising sales level. It is also important to implement NSD process effectively in order to increase sales. Therefore, a Detailed/formal NSD process (F1) and Effective NSD Management (F10) were also found significant for developing successful new services. Formality of NSD process, attention to detail, careful analysis and testing of ideas together with intensive training of the service personnel, efficient use of information technology and other resources of the firm implied by effective NSD management are important for success of a new service.

It was also found that when a company produces a service that matches its existing capabilities and resources and therefore has an Overall Corporate Synergy (F2), this service is likely to have a successful launch and relatively quick customer acceptance. The service that is not new to the

firm – F9 but presents a modification or improvement of the existing service was found to have high chances to succeed.

The five factors described above - Product-Market fit/attractiveness (F4), Detailed/Formal NSD process (F1); Effectiveness of NSD management (F10), Overall Corporate Synergy (F2) and Service Newness to the Firm (F9) - were found significant determinants of high Sales Performance.

As for Competitive performance, here the following factors played a critical role in defining service success: Service innovativeness, Service quality evidence, Quality of the Service experience and Expert/people-based service – the factors which are describing the nature of the new service offering.

Service innovativeness (F7) is very important for gaining a competitive edge. Services are often viewed as generic, and firms providing services need to differentiate themselves from the other companies in order to stay competitive on the market. Therefore, developing an innovative service can be seen as a way to support a company's competitive position.

Services are usually non-patentable, therefore the ability to generate an innovative service is considered an important pre-requisite for success in the highly competitive market. Companies, which are able to discover latent needs of their customers and use the information to develop a new service before their competitors, have high chances to gain a competitive edge and play an important role on the market in the long term.

Achieving differential advantage on the market contributes to exceptional competitive performance, or qualitative success of a new service based on customers' perception of the new service. Customers usually perceive superiority of a service in the form of the outcome of a new service, as well as the service process they experience. Improvements in the perceived service quality (F8) and service experience (F12) expressed in greater reliability, faster and more efficient process as well as better trained personnel (F5) can result in a highly competitive service. De Brentani (1991) found out that new services which emphasized customer interface or Service Quality Evidence and Superior Service Experience had a high success rate.

Service nature characteristics such as service quality and innovativeness were found to affect only competitive performance but not sales performance. De Brentani (1991) explained it by intangibility as well as relatively more long- versus shorter-term nature of the two success measures. She referred to Wind (1982) who stated that non-patentability of services “reduces the incentive for creativity by firms because success in the form of increased sales performance is often dissipated quite quickly through imitation” (Wind, 1982 cited in de Brentani, 1991, p. 54). This makes some companies prefer to concentrate on low cost/risk modifications and incremental improvements helping to get short-term sales results. Competitive performance,

however, can significantly affect sales in the long-run. Since it's the firm's reputation, rather than the service itself, that frequently influences buying decision, and because superior image can be developed over considerable time, some companies tend to focus their attention on the "longer-term objective of gaining a reputation for innovativeness and quality as a route to NSD success" (De Brentani, 1991, p.54)

Apart from the above mentioned factors supported in de Brentani's empirical research, the Market Characteristics of a new service were also confirmed to influence its competitive performance, particularly Product-Market Fit/Attractiveness (F4) and Market competitiveness (F3), although their influence was quite moderate. Therefore, product-market fit/attractiveness (F4) or the ability to solve important client problems was found to support not only the sales performance but also the competitive performance. This way, market-driven service companies are expected to be successful in their NSD efforts. If a company follows closely its customers and is able to develop new services quickly, it can make more timely responses to changed needs and the market conditions, accelerating sales and supporting its competitive position on the market.

Aggressive competitive environment (F3), on the other hand, was found to have a negative effect on company's performance. Sustaining a competitive edge in a highly competitive market with offerings which are not patentable and can be easily imitated is a very difficult task, which explains an adverse effect of market competitiveness on a service competitive performance.

NSD Proficiency and Project Synergy were also found to have a moderate effect on Competitive Performance. In case a new service fitted the Overall corporate synergy (F2) and the NSD process was managed efficiently (F1 and F10), meaning that it was properly designed, well launched and suited the firm's reputation, it had more chances to be positively perceived by the customers and seen as a service superior to the other offerings.

Cost performance was influenced by firm's proficiency in the NSD function, as well as efficiency and formality of NSD process and overall corporate synergy. Therefore, it was confirmed that exploiting the specialized pool of resources from different functions of the company, developing a supportive environment for innovation and making the new service leverage the production/delivery facilities and/or the expert and marketing resources already available are important for developing cost effective solutions. Also, commitment from management and frontline employees to the new service was found important for securing its success.

### 3.2. Development of a new model considering customer involvement in NSD process

In the theoretical part of the thesis we considered two models of customer involvement in NSD process. Both of them confirmed that customer involvement has an indirect effect on market outcomes, influencing directly certain success or operational factors, which in their turn defined the resulting market outcomes of a new service.

The model of Melton and Hartline (2010) considered the mediated effect of customer involvement on such market outcomes as sales performance and project efficiency, whereas the model of Carbonell et al. (2009) considered the indirect effect on sales performance and competitive performance. Sales performance and project efficiency reflect financial or quantitative results of project innovation, whereas competitive performance refers to strategic or qualitative outcome of a service innovation project.

In the study of de Brentani (1991) 4 groups of critical success factors were identified:

- 1) proficiency in NSD;
- 2) project synergy;
- 3) market characteristics, and
- 4) nature of the new service offerings.

Customer involvement, to our opinion, has an effect on factors from two of the four groups – market characteristics and nature of the new service offering, because these can be defined and modified using the information received from the customers. The other two groups – proficiency in NSD and project synergy - include factors that are not affected by the information provided by the customers or customer involvement in NSD process but are controlled purely by the company's management. Efficiency of the company's management in implementation of the NSD process, degree of formalization of the process as well as level of compatibility of the new service with the existing service offerings are controlled by the company's management and are unaffected by customer's perception of the process. It could be argued though that customers can assess efficiency of NSD process through their perception of the service delivery process and way of interacting with the service employees. The perception of efficiency of NSD process, however, is mediated by the customers' perception of quality of the service experience and quality of the service evidence, the success factors included in the group "Nature of the new service offerings". We will therefore claim that customer involvement has no effect on factors identified under "proficiency in NSD" and "project synergy" as these factors are under full control of the company's management.

In Melton and Hartline (2010) study customer involvement, mediated by service marketability and launch preparation, affected both sales performance and project efficiency, where sales performance denoted the extent to which the service innovation exceeded sales objectives, whereas project efficiency was expressed in less than expected development costs and time, as well as performance of the innovation below expected costs (Melton and Hartline, 2010). Less than expected development costs and performance of the innovation below expected costs are similar to the service outcome which de Brentani (1991) identified as “cost performance”. Less than expected development time, on the other hand, is similar to the operational outcome “innovation speed” highlighted by Carbonell et al. (2009).

De Brentani (1991) found cost performance to be affected only by those factors, which, to our opinion, are not influenced by customer participation in NSD process – Proficiency in NSD and Project synergy. As discussed above, part of the notion “project efficiency” is influenced by the factors not affected by customers and part of the notion reflects the essence of the operational factor “innovation speed” playing a significant role in mediating the relationship between customer involvement and market outcomes. Therefore, the inclusion of “project efficiency” outcome in the model seems to be unnecessary under condition that the operational outcome “innovation speed” is included as a mediator. For this reason, we decided to include in our model only two market outcomes - “sales performance” and “competitive performance”, and “innovation speed” as an important mediator of the relationship between customer involvement in NSD process and the service outcomes. The factors Sales performance and Competitive performance cover quantitative and qualitative results of a service innovation project. Inclusion of these factors in the model makes it reflect two important outcomes – financial results and strategic outcome.

Apart from “innovation speed” found significant in Carbonell et al. (2009) study we decided to include other mediators as well - Service market fit/attractiveness, Service innovativeness, Quality of service process and Quality of service outcome.

“Service market fit/attractiveness” is similar to what Melton and Hartline (2010) identified as “service marketability”. In their study, however, there are two definitions of service marketability:

- 1) “the ability of the new service to satisfy clearly defined customer needs” (Melton and Hartline, 2010, p. 422), and
- 2) “the new service offers a) a superior package of core performance attributes and supporting service, b) product familiarity to customers or ease in learning how to use it, c) product quality, effective brand communications, frontline employee expertise, and extensive distribution systems” (Melton and Hartline, 2010, p. 413).



The first definition is consistent with “Product market fit/attractiveness” factor of de Brentani (1991) identified as condition under which “the new service responds to a clearly identified customer need/problem and is consistent with existing client operating systems; the market exhibits a good potential for revenue and growth” (de Brentani, 1991, p. 45). The second definition is much broader and partly covers the notion of such success factors as “Product-market fit/attractiveness”, “Expert-/people-based service”, “Service quality evidence” and “Quality of the Service experience”.

Due to vagueness of “service marketability” definition, we decided to use “Service market fit/attractiveness” factor in our model, being defined as the ability to respond to a clearly identified customer need/problem.

The other mediating factor in Melton and Hartline (2010) study, launch preparation, has been identified as the one involving “a) effective preparation of expert and enthusiastic customer-contact staff prior to product launch, b) building commitment of employees to deliver superior service quality, and c) extensive testing of service, process, and IT systems and marketing program designs” (Melton and Hartline, 2010, p. 413).

This definition, to our opinion, describes the service development process rather than defines a mediating factor. The relationship that was found in Melton and Hartline (2010) study showed that customer involvement in design and development stages influenced launch preparation. In other words, customer involvement in the earlier stage (design) influenced the later stage (development) and customer involvement in the development stage influenced the development actions – staff training, building commitment of employees, testing and market program design. To our opinion, this finding does not contribute much to understanding of meditative effect of customer involvement in NSD process on service outcomes. Therefore, another set of factors should be offered to present the mediated relationship between customer participation in NSD and market outcomes.

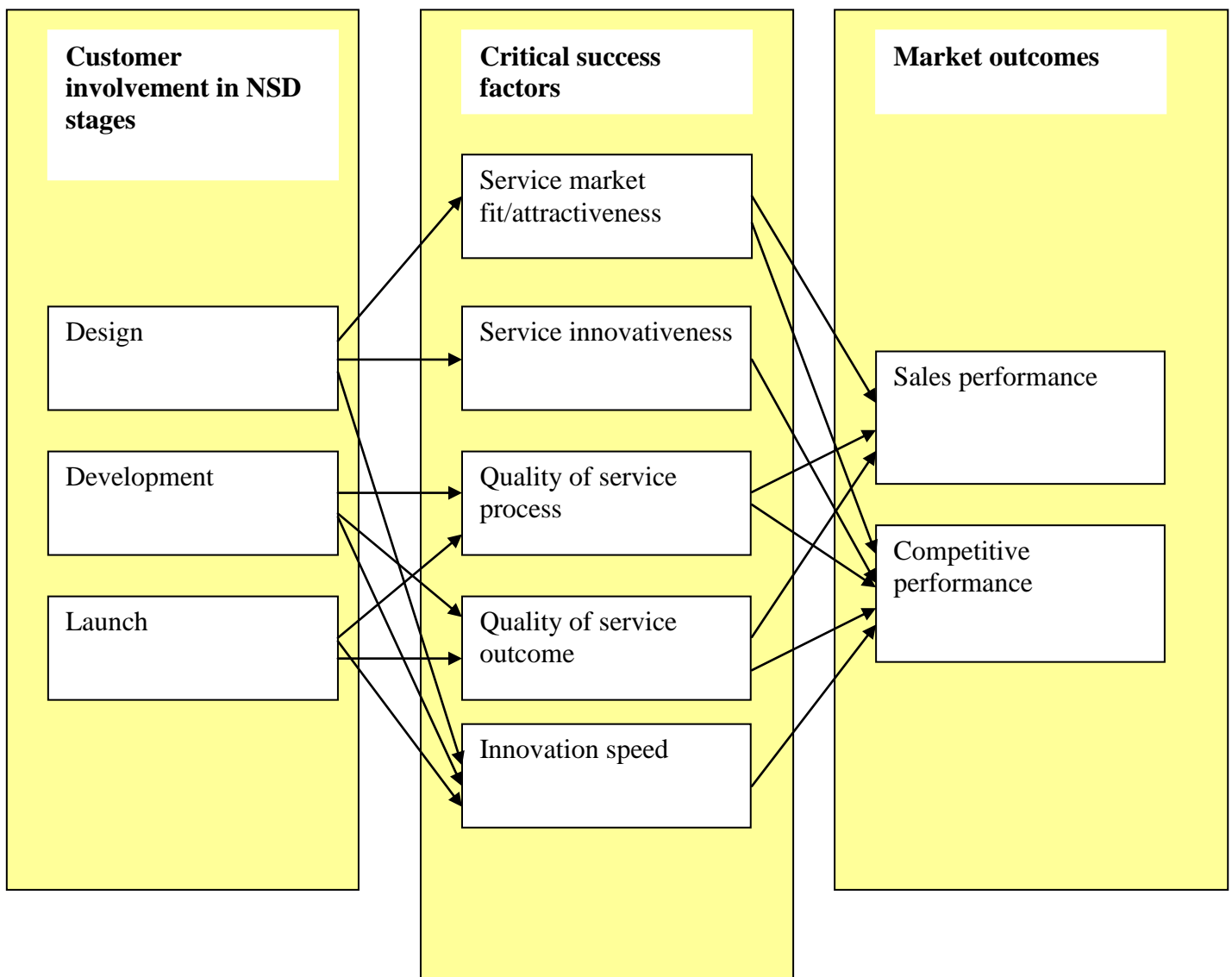
One of the factors we decided to use in our model is “Innovation speed” suggested in the study of Carbonell et al. (2009). Another operating outcome they considered was “technical quality” that describes how well the service matches specifications or performance and how reliable it is (Garvin, 1987). The term “technical quality” was used in the study of Carbonell et al. (2009) in connection with technological uncertainty presented in the model. In our model we decided to consider quality factors defined by de Brentani (1991) which cover the notion of technical quality but at the same time point out at two types of service quality – Quality of service process and Quality of service outcome as perceived by the customer.

Another factor we decided to include in the model is “Service innovativeness”. This factor was highlighted by de Brentani (1991) as the factor important for gaining a competitive edge. The

ability of a company to generate an innovative service is considered to be an important prerequisite for the company success in the highly competitive market. Customer involvement in NSD process can help company management to discover latent needs and use the information for development of an innovative service, which is supposed to facilitate company's advancement on the market.

The developed model also considers customer involvement in different stages of NSD process. The NSD stages we used in the model follow the stages identified by Johnson et al. (2000). The analysis stage, however, is excluded from consideration, as this is the stage where company's management selects ideas consistent with the company's strategy. Customers' knowledge in deciding issues related to company internal policies is not required, therefore customer participation in the analysis stage of NSD process is deemed to be irrelevant.

The final model developed through analysis of existing studies related to customer involvement in NSD process is presented below:



**Figure 7. Modified framework for customer involvement in new service development**

All the relationships in the model are suggested to be positive. The hypotheses statements are summarized in a table below:

<i>Hypothesis</i>	<i>Statement</i>
H1:	The extent of customer involvement in NSD design positively affects service market fit/attractiveness.
H2:	The extent of customer involvement in NSD design positively affects service innovativeness.
H3:	The extent of customer involvement in NSD design positively affects service innovation speed.
H4:	The extent of customer involvement in NSD development positively affects service innovation speed.
H5:	The extent of customer involvement in NSD development positively affects quality of service process.
H6:	The extent of customer involvement in NSD development positively affects quality of service outcome.
H7:	The extent of customer involvement in NSD launch positively affects quality of service process.
H8:	The extent of customer involvement in NSD launch positively affects quality of service outcome.
H9:	The extent of customer involvement in NSD launch positively affects service innovation speed.
H10:	Service market fit/attractiveness positively affects new service sales performance.
H11:	Service market fit/attractiveness positively affects competitive performance.
H12:	Innovation speed positively affects competitive performance
H13:	Service innovativeness positively affects competitive performance
H14:	Quality of service experience positively affects competitive performance.
H15:	Quality of service outcome positively affects competitive performance
H16:	Quality of service experience positively affects sales performance.
H17	Quality of service outcome positively affects sales performance.

The relationships identified between different elements of the model come from the results of empirical studies of Melton and Hartline (2010), Carbonell et al. (2009), de Brentani's (1991) research, as well as reflect findings of other academics.

In Melton and Hartline (2010) study the extent of customer involvement in NSD design stage was found to positively affect the service marketability of the NSD product. As we replaced the broadly defined term “service marketability” for “service market fit/attractiveness”, we hypothesize the following:

*H1: The extent of customer involvement in NSD design positively affects service market fit/attractiveness.*

In the design stage management of the company sets a new service strategy and formulates objectives to be reached throughout the new service launch. Customers participating in the design stage help to identify their existing needs and reveal latent needs. Besides, they help to design a service concept aimed at satisfying these needs and taking into account their participatory role in the service delivery process. Edvardsson and Olsson (1996) noted that customer participation in the concept and process development leads to value-added services with “customer-friendly” service processes. In sum, customer involvement in the design stage is supposed to contribute to designing a new service providing a solution to the identified customer problems. This solution, being aimed at meeting particular customer needs and developed with consideration of co-producing role of the customers, is supposed to be relevant for the customers, easy to use and therefore have a high probability of market acceptance (Gustafsson, 2003).

*H2: The extent of customer involvement in NSD design positively affects service innovativeness.*

Customers alongside with service development staff, front-line employees and competitors present an important source of service ideas (Edvardsson et al., 2000). In contrast with company employees customers are not bound by “functional fixedness” and can present “out-of-the-box” ideas that can result in genuine innovations (Matthing et al., 2004). These ideas might not always be technically feasible, but they would reflect user value (Magnusson et al. 2003) and be an important indicator of emerging customer needs. This way, customer involvement in NSD design stage is supposed to facilitate generation of creative ideas resulting in innovative service offerings.

*H3: The extent of customer involvement in NSD design positively affects service innovation speed.*

As mentioned above, customers can participate in generating service ideas. They also can participate in estimating user value of ideas generated by frontline employees and service development team. Timely provision of information on customer needs, feedback on potential service ideas and concepts are supposed to significantly reduce new service development time. Customer participation in generation and estimation of service ideas is suggested to sufficiently increase service innovation speed (Carbonell et al., 2009).

In the development stage testing of the core services, the delivery system and the marketing campaign takes place. The development stage includes activities aimed at converting service concept into a viable, marketable new service offering. Customer involvement in this stage is suggested to influence quality of service process, quality of service outcome and innovation speed.

*H4: The extent of customer involvement in NSD development positively affects service innovation speed.*

Customers play a role of co-producers in the service delivery process. They provide information and other inputs required for the process and perform one or several activities in the service delivery (Edvardsson et al., 2000). Customer participation in the service development stage is supposed to help to make quick adjustments to the service concept, provide adequate training to the front-line employees, discard certain activities and modify the others in order to deliver a valuable user experience (Carbonell et al., 2009). Saving time for elaborating unimportant service processes and focusing only on processes providing value for the customer is supposed to significantly increase service innovation speed.

*H5: The extent of customer involvement in NSD development positively affects quality of service process.*

The development stage includes various activities and practices aimed at converting the service concept into a viable, marketable new service offering. During this stage, service processes that make up the total service offering are elaborated and fine-tuned. Systems and infrastructure required for the delivery of the service are refined as well. The personnel are trained to deliver service results according to the service standards. Customers participating in this stage can provide their feedback on the perceived service experience. In case customer experience of the service does not match standards established in the service concept, modifications can be applied to the service system, infrastructure and work of the employees (Edvardsson et al., 2000). This suggests the ability of customers to influence the quality of service process by providing feedback on their service experience and recommendations for change.

*H6: The extent of customer involvement in NSD development positively affects quality of service outcome.*

Customers participating in the development stage can estimate not only service process, but also service outcome. Particularly, they can estimate if the received service offering provided expected customer value (Lusch et al., 2007). In case service outcome did not meet customer expectations, customers can provide their feedback and suggest modifications to the service delivery system. Also, acting in the role of a co-producer, customers influence service outcomes by performing certain actions themselves. In case they require training for performing service

actions or assistance from the service employees, they can report about these needs to the service development team so that they could introduce relevant changes to the service system.

During the launch stage the new service is commercialized. It is promoted, customers are trained and their feedback is collected to ensure that the new service is delivering the expected customer value. Besides, the service process is refined and possible drawbacks of the process are eliminated.

We suggest the following relationships:

*H7: The extent of customer involvement in NSD launch positively affects quality of service process.*

*H8: The extent of customer involvement in NSD launch positively affects quality of service outcome.*

The same reasons that were identified above for customer influence on service quality and service outcome in the development stage can be applied to the launch stage. Customers testing a new service in the launch stage can provide feedback on their perception of the service process their role in this process and perceived user value of the service outcome (Ulwick, 2005). They can suggest modifications to the service infrastructure, service processes, work of the personnel and their actions in the role of co-producer, this way influencing both service process and service outcome. Besides, customers can discuss factors affecting reliability of a service and consistency in service delivery process, also affecting their perception of quality of the service process and the service outcome.

*H9: The extent of customer involvement in NSD launch positively affects service innovation speed.*

Customer involvement in the last stage of NSD process can provide information for making final adjustments to the service system and service processes. This feedback can be used to provide modifications to the service system in a timely fashion and reduce the total NSD time. Besides, customer involvement in the launch phase is believed to support active word-of-mouth marketing (Edvardsson et al., 2000), which can speed up commercialization of a newly developed service. We therefore suggest that customer participation in NSD launch has the potential to increase service innovation speed.

Considering the influence of success factors on service outcomes, we posit the following:

*H10: Service market fit/attractiveness positively affects new service sales performance.*

The study of Melton and Hartline (2010) found a positive effect of service marketability on sales performance. A service, which meets customer needs, is expected to be highly attractive to the customers and therefore result in higher sales rates. In our model we substituted the term “service marketability” with “service market fit/attractiveness”. Taking into consideration the

results of Melton and Hartline empirical study we suggest a positive relationship between service market fit/attractiveness and new service sales performance.

*H11: Service market fit/attractiveness positively affects competitive performance.*

In addition to Melton and Hartline (2010) results, de Brentani (1991) found that Product market fit/attractiveness has also an effect on competitive performance. This effect, however, is quite moderate compared with other success factors affecting competitive performance. Nevertheless, the factor is significant for supporting competitive position on the market, as through consistent solving of important client problems a company gets a distinctive place in consumers' mind and is prioritized in the situation of consumer purchasing choice.

*H12: Innovation speed positively affects competitive performance*

Carbonell et al. (2009) found out that innovation speed has a strong influence on competitive performance and no effect on sales performance. A strong influence on competitive performance can be explained by the fact that the ability of a company to develop a new service offering faster than their competitors is important for keeping the existing customers not only satisfied, but excited about offerings of the company that is able to develop new solutions quicker than its competitors and enlarge the total package of offered services, this way increasing switching costs and loyalty of its customers. Taking into account results of empirical study of Carbonell et al. (2009) we suggest that innovation speed has a positive effect on competitive performance.

The study of Carbonell et al. (2009) found no effect of innovation speed on sales performance, which can be explained by the fact that service innovation speed doesn't change the essence of the service offering (quality, delivered customer value) but affects the time when the service offering is delivered to the customers. This way, it doesn't influence characteristics of a service that would affect its sales performance but has an effect only on the company's competitive position and long-term market performance. Following the logic above we suggest no relationship between innovation speed and sales performance.

*H13: Service innovativeness positively affects competitive performance*

Service innovativeness was highlighted as a critical success factor in the study of de Brentani (1991). This factor was found to be an important determinant of competitive performance of a company. Due to service intangibility and view of services as generic offerings, innovativeness is found to play a significant role in distinguishing one service company from another. In accordance with de Brentani's findings and taking into consideration such service characteristics as intangibility we suggest that there is a positive relationship between service innovativeness and competitive performance.

Technical quality according to the research of Carbonell et al. (2009) was found to affect both sales performance and competitive performance. In our model we substituted the notion of

technical quality with Quality of service process and Quality of service outcome, highlighting the process nature of services and importance of both service process and outcome for perception of quality. These two types of service quality are believed to affect both competitive performance and sales performance of a company.

*H14: Quality of service experience positively affects competitive performance.*

*H15: Quality of service outcome positively affects competitive performance.*

According to de Brentani (1991) competitive superiority is defined in terms of what the customers get as a result of the service delivery (service outcome) and what kind of company interface they experience (service experience). In case a new service outcome is highly reliable and delivers the expected customer value, the service process is fast and efficient and the service employees are well trained and flexible in adjusting to changing to customer needs, customers perceive such service offering as superior to the competitive offerings and place the company high in their preference list. In a while, customers develop relational ties to the company able to satisfy their needs with superior service offerings (Chan et al., 2010). Such relational ties generate competitive advantage for a service firm. Competitors find it hard to imitate such relational ties, what makes such ties a significant contributor to competitiveness of a service company.

*H16: Quality of service experience positively affects sales performance.*

*H17: Quality of service outcome positively affects sales performance.*

De Brentani (1991) found out that service quality affected only competitive performance but not sales performance. De Brentani explained the result by distinguishing between short-term and long-term sales performance. She mentioned that companies prefer to focus on competitive performance that can significantly affect sales in the long-run. Since it is the firm's reputation, rather than the service itself, that frequently influences buying decision, and because superior image can be developed over considerable time, some companies tend to focus their attention of the "longer-term objective of gaining a reputation for innovativeness and quality as a route to NSD success" (De Brentani, 1991, p.54). This way, service quality was found to affect competitive performance, which was supposed to affect sales performance in the long-term.

In the research of Carbonell et al. (2009) there was made no distinction between short-term and long-term sales performance but there was found a relationship between technical quality and sales performance.

In our research we would like to test if there is a relationship between quality of service experience and service outcome, which make up quality of a service offering, and sales performance. Having contradicting results achieved by de Brentani (1991) and Carbonell et al. (2009) that might be explained by different treatment of the period for assessment of "sales



performance” we would like to test if there is a positive relationship between service quality and service outcome on the short-term sales performance, sales results for a period no longer than financial year.

In the model above we identified a set of relationships that are supposed to explain the effect of customer involvement in NSD on resulting market outcomes. In accordance with the research of Melton and Hartline (2010), Carbonell et al. (2009) and supportive findings of Atuahene-Gima (1996) and Campbell and Cooper (1999) we suggested indirect influence of customer involvement in NSD on service outcomes. We supposed that the influence is mediated by certain drivers of new service performance suggested in the research of de Brentani (1991), Melton and Hartline (2010) and Carbonell et al. (2009). The relationships discovered in the previous studies and supported empirically were taken as guidance in describing the mediated relationship between customer participation in NSD, service performance drivers and market outcomes.

Customer participation was considered in three stages of NSD process, which is in accordance with Cooper’s (2001) recommendation to seek customer input and feedback at every stage of the development process. “Analysis” stage of NSD process was deliberately excluded from the model, as this is the stage on which company staff takes internal management decisions concerning the new services. Customer participation on this stage is deemed unnatural, therefore customer participation in the analysis stage is not considered in the model.

In sum, the model described above is supposed to present a more robust model of customer involvement in NSD process than those currently available in the academic literature. It describes a complex network of relationships between customer involvement in NSD process, critical performance drivers and market outcomes.

The model has to be validated and tested empirically in order to make a solid contribution to the existing academic literature and provide managerial implications for the companies striving to improve their competitive position and increase sales.

#### 4.0. DISCUSSION OF THE LITERATURE REVIEW

*This chapter provides a critical discussion of definitions of services and their implication for customer involvement in new service development process. Besides, it discusses theoretical approach used within the paper and methodological approach used within the analyzed literature. Finally, it gives a critical analysis of the proposed framework of customer involvement in new service development process and contribution made to better understanding of customer roles in service innovations.*

Services have become an important object of economic and managerial studies, which is explained by their increasing role in the world economy. Due to increased attention to services both from the academics and practitioners, there has been an extensive research related to specifics of services and their effective management.

Through time definitions of services changed reflecting changing paradigms and shifts in service analysis.

The earliest definition we cited reflects service characteristics and the process nature of services and underlines the interaction taking place between customers and service employees aimed at providing solution to customer problems:

“an activity or series of activities of more or less intangible nature that normally, but not necessarily, take place in interactions between customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems” (Gronroos, 1990).

A later definition also points out at specific service characteristics and process nature of services presenting them as experience in which a customer plays the role of co-producer:

“a time-perishable, intangible experience performed for a customer acting in the role of co-producer” (Fitzsimmons and Fitzsimmons, 2004).

Another definition presented by the authors of Service-dominant logic – Stephen Vargo and Robert Lusch - reflects the essence of the academic view considering creation of value through application of relevant resources:

“application of competencies for the benefit of another entity” (Vargo and Lusch, 2004);

The latest definition of services we cited in our paper is the one of Lovelock and Wright (2007). It presents the most extensive definition of services emphasizing service ability to provide solutions to customer problems, access to resources and time-based or rental type of using these resources:

“economic activities offered by one party to another, most commonly employing time-based performances to bring about desired results in recipients themselves or in objects or other assets for which purchases have responsibility. In exchange for their money, time, and effort, service customers expect to obtain value from access to goods, labour, professional skills, facilities, networks, and systems; but they do not normally take ownership of any of the physical elements involved” (Lovelock and Wright, 2007);

These definitions show development of the academic thought in relation to services. First definitions focused on the process taking place between the customers and the service company and later definitions described resources exchanged in the course of such process. In the first definition the value was presented to the customer in the form of “solution” from a company, whereas in the last definition the value was presented in the form of “access” to resources. Participatory role of customers in a service process is emphasized in most definitions, but the extent of this participation ranges from accepting solutions presented by the company, to co-producing and getting access to resources allowing to obtain customer value.

Customer role of co-producer emphasized in the service definitions, suggests that customers play an important role in the service process, including new service development process. Customers participate in the service process providing information and other inputs required for the process, performing service activities and marketing the service through word-of-mouth. While performing these activities customers act as part-time employees and present a resource that contributes with, among other things, knowledge and information (Edvardsson et al., 2000).

Due to the highlighted importance of customer participation in the service process, their involvement in NSD process is suggested to be crucial. Customers involved in the service design stage can provide innovative service ideas and facilitate service concept development (Magnusson et al., 2003; Matthing et al., 2004). Their feedback during the development process can be used to adjust service processes and provide better training for the front-line employees (Carbonell et al., 2009). Customers participating in the launch stage can provide information for final adjustments in the service delivery process and support service commercialization through active word-of-mouth marketing (Edvardsson et al., 2000). In case customers are sole producers

of a service, their role in NSD extends from providing feedback to designing, using and exchanging resources with other participants in order to create customer value.

Despite the widely recognized importance of customer involvement in service innovation process (Martin and Horne, 1995; Normann, 1991; Vermillion, 1999; Alam and Perry, 2002) and benefits resulting from their involvement (Dahlsten, 2003; Magnusson et al., 2003; Martin and Horne, 1995) very few models consider customer involvement in NSD process. Even fewer studies examine the impact of customer participation in different stages of NSD process on its outcomes.

One of such models is the model of Melton and Hartline (2010) who studied the effects of customer and frontline employee involvement in NSD process. The other model is the model of Carbonell, Rodriguez-Escudero and Pujari (Carbonell et al., 2009) who studied mediated effect of customer involvement on NSD outcomes. In our research we presented the original models and the empirical results of their testing and suggested a more robust model that aggregated findings from the two models and considered the effect of additional factors.

This way, the theoretical approach applied in this paper included analysis of the existing models studying customer involvement in new service development process and their modification on the basis of information available in the academic literature. Particularly, success factors identified by de Brentani (1991) were used to extend the two models and include additional factors mediating the relationship between customer involvement and service outcomes. The model derived from analysis of the academic literature is purely theoretical. No empirical research was made to confirm the hypotheses suggested in the model. Empirical testing of the model would enlarge the scope of work beyond requirements for Master thesis written by an individual student. A separate research is therefore needed to validate and test the model in order to provide managerial implications for practitioners. For now the paper presents an interest for the academics only, proposing a network of relationships between customer involvement and new service outcomes.

The methodological approach used within the analyzed literature is similar in a way that the authors first provided results of a theoretical review and/or qualitative analysis within a set of selected companies and afterwards presented results of empirical testing, which helped to adjust the original frameworks. Below we present methodology used by Melton and Hartline (2010), Carbonell et al. (2009) and de Brentani (1991), whose results laid the basis for development of a more robust model of customer involvement in NSD process.

In order to analyze methodology used by different authors in a consistent way we suggest the following framework:

- 1) Description of the initial analysis – analysis of the academic literature and/or qualitative research;
- 2) Description of the quantitative analysis – locus of study; sample size; service industries involved in the research; participants of the survey and the response rate;
- 3) Contributions to the academic literature, limitations and suggestions for future research.

This framework is supposed to give a consistent overview of the three studies and provide a critical insight of their input for our research.

The study of Melton and Hartline (2010) apart from the literature review included an exploratory qualitative study. The study included in-depth, open-ended interviews with service managers involved in different stages of NSD process. The interviews were held with managers of nine service firms in the health care, public records research, employee benefits, assessment and placement, and business telecommunications support sectors. Findings from the exploratory study and a literature review were used to generate hypotheses for the empirical study.

Data for the empirical study were collected from firms representing financial, health care, education, technology, legal, transportation, government, agricultural and entertainment service sectors. The sectors were selected due to their high levels of innovation activity. Surveys were sent to service firms across all regions of the United States. Of the 3773 surveys sent, only 160, however, made a usable sample. These represented large, medium as well as small service firms. The respondents were high-level decision makers having strategic planning responsibility and able to report on the outcomes of service innovation initiatives undertaken in their organizations. Melton and Hartline (2010) research contributed to the NSD literature by extending the types of industries studied beyond the traditional financial and health care service industries. Besides, the geographical distribution of the respondents located in different states of the USA contributed to better generalizability of the results. The main finding of the study was that it is not sufficient to be customer-oriented and look for customer input in the NSD process. Customers should be involved in a structured development process at its specific stages and their involvement should produce particular results (such as, for example, improved service marketability and launch preparation). These results will allow in their turn to achieve successful financial results and high levels of service utilization. This way, the model of Melton and Hartline (2010) provided a framework for planning effective customer involvement in the NSD process.

The limitations of the research, however, concerned limited size and diversity of the sample related to low response rate. Melton and Hartline (2010) suggested studying the effects of customer and frontline employees on a more diverse sample as well as extending the number of determinants of new service performance.

The second model discussing customer involvement in NSD process is the one of Carbonell et al. (2009). They considered customer involvement in NSD process and their influence on a broad range of performance criteria reflecting both operational and market outcomes of the service development effort. Carbonell et al. (2009) stated that apart from a few studies (e.g. Alam, 2002; Gruner and Homburg, 2000) there is a shortage of empirical research using a decompositional approach to studying the significance and performance effects of customer involvement in different stages of the development process. Their research contributed to the literature by filling the gap related to insufficient knowledge about performance effects and benefits associated with involving customers in the NSD process.

The research model of Carbonell et al. (2009) hypothesized direct and indirect relationships between customer involvement in different stages of NSD process and the market outcomes, the indirect relation being mediated by the operational outcomes. These relationships were hypothesized on the basis of analysis of the existing academic works considering service outcomes and customer involvement in NSD process.

The empirical study of Carbonell et al. (2009) was conducted in Spain, and a total of 807 companies participated in the survey. Only large firms (more than 75 employees) were involved in the research explained by the fact that large companies are more likely to have a formalized procedure for NSD process. The selected firms represented different industries – utilities, retail, transportation, information companies, finance, banking and insurance, technical service, administrative and support services, as well as health care and social assistance. A total of 102 questionnaires to the survey were returned, which showed a response rate of 12.6%. No details of the participant positions in the companies were given in the research description.

The study of Carbonell et al. (2009) found no direct relationships between customer participation in NSD process and the market outcomes of new service offerings. However, the authors of the research found that instead of direct effect on market outcomes such as competitive superiority and sales performance, customer involvement had an indirect effect by affecting market results via the operational results (e.g. technical quality and innovation speed). These findings were in line with the previous empirical research showing that there is no direct impact of customer involvement on the final success of innovations. Instead, there's effect of customer participation on some drivers of the new product performance (Atuahene-Gima, 1996; Campbell and Cooper, 1999). Besides, the empirical study of Carbonell et al. (2009) found that customer participation's influence on new service performance is independent of the phase of the NSD process. This agrees with Cooper's (2001) recommendation to search for customer input and feedback at every stage of the development process.

The study of Carbonell et al. (2009) illustrated how customer participation in NSD process gets translated into improved new service performance. The true value of customer participation in the NSD process was found to be not in the commercial results but in the potential to influence such drivers of service performance as innovation speed and technical quality.

The limitations of the study included the diversity of service industries included in the analysis. Objective values, as it was stated by Carbonell et al. (2009), can be obtained only within a certain industry. Secondly, the same informant provided data in each company for independent and dependent variables. Therefore, Carbonell et al. (2009) suggested validating the empirical results in future researches using multiple data sources. Thirdly, the response rate was quite low. Also, Spain as a context of the study, limited the generalizability of the results to other national contexts. However, the results obtained from Spain increased understanding of the role of customer in service innovation processes in other contexts than USA and allowed to demonstrate the universality of the concept. Carbonell et al. (2009) suggested that similar research conducted in another country could provide additional insights and understanding of the effects of customer participation in NSD process. They suggested three extensions of the model. Firstly, other measures of operational and market outcomes could be used. Secondly, direct and moderating effects of various market conditions could be considered. Thirdly, performance implications of the type of customers involved in different phases of the service innovation process could be analyzed.

The third research we are going to present is the one of de Brentani (1991). Despite the fact that the research is more than 20 years old by now, it is still considered to be relevant and used as a reference by the academics (e.g. Ottenbacher et al., 2006; Alam et al., 2006). Also, service marketability factor in Melton and Hartline (2010) model came from the analysis of de Brentani (1991) research, which suggests actuality of her study and its relevance for the current paper.

De Brentani (1991) presented a set of service innovation success factors that were based on new product success factors identified in the literature. Particularly, she used empirical findings of Myers and Marquis (1969), Rothwell (1972), Cooper (1984), Maidique and Zirger (1984). These studies, despite different methods for data collection and locus of the study (USA, Canada, UK) showed similar and consistent results, which de Brentani (1991) used in her study.

Also, de Brentani (1991) studied the way companies measure new product success. She found that there are financial (e.g. profits, sales in Crawford, 1980) and non-financial measures (“technical success” – creativity and innovativeness and “market success” – competitive uniqueness) that estimate customer perception of success relative to competitive products.

The research project of de Brentani (1991) was aimed at studying the factors stipulating success and failure of new services in the business services sector. After identifying the performance

measures from the academic literature and assessing their relative importance, de Brentani (1991) conducted an empirical research to verify which of the factors could be used for new service development.

She selected 184 companies known to be active in service innovation activities and including 12 business service sectors. De Brentani conducted interviews with managers of 95 companies investigating the strategic role of new service development, internal and external factors that facilitate or disturb the innovation process, the management of NSD process and NSD performance. The interviews provided the information used for designing and testing the questionnaire in the second phase of the study. In the second stage of the research the original sample was expanded to include 184 companies and this time the locus of analysis was new services introduced by the companies for the last 5 years. The managers presented one project that was a success and another one that was a failure and developed definitions of a successful and unsuccessful NSD project.

The participants of the research study rated the projects on each of 121 items: 104 items described the nature of the service and the NSD project, corporate fit, the market and internal environment and NSD process employed by the company. 17 items measured managers' perception of the extent to which the project had succeeded or failed as regards one general and sixteen specific performance measures. Projects were described and performance indicators measured using seven-point agree/disagree Likert scales. In total, 148 managers in 115 firms filled in the questionnaire making company response 62.5 per cent.

During the interviews de Brentani identified 75 factors affecting NSD process. This large number of variables had to be reduced to a smaller number, which would include reliable items with high item-to-total correlation. The principal component analysis and Cronbach alpha reliability analyses were applied to remove the insignificant variables and items that were purely descriptive. The final selection of items was limited to 17 variables only, which accounted for 60.1 per cent of the total variation.

Reliability of 17 factors was estimated as ranging from adequate to very good and suggested internal consistency of the items. Many factors that de Brentani discovered were similar to the dimensions identified previously for innovations in physical products. This illustrates that development and marketing of goods and services share similar features.

After identifying 17 factors characterizing new service projects de Brentani (1991) investigated which of the dimensions are critical for the new service success. As a result of this study 14 out of 17 factors were found significant for new service success.

One of the main findings of de Brentani (1991) was that a lot of dimensions that describe and influence the success of new business services are common not only for services but also for



physical products. This way, she illustrated that some of the paradigms coming from new product development field can also be applied to services.

No limitations were mentioned in the reported study, as well as no suggestions for future research. The research presented an extensive study of factors that are critical for new service development and have to be taken into account for effective management of NSD process.

Our framework was developed on the basis of theoretical review of the existing academic literature, focusing particularly on models of Melton and Hartline (2010), Carbonell et al. (2009) and success factors identified by de Brentani (1991).

It took into account suggestion of Melton and Hartline (2010) to extend the number of determinants of new service performance and in addition to the financial measure “sales performance” included the strategic outcome “competitive performance”. It also considered the indirect effect of customer involvement on service outcomes underlined by Carbonell et al. (2009) and identified indirect relationships between customer involvement in NSD process and service outcomes. In the set of performance drivers we included the modified versions of “service marketability” factor from the study of Melton and Hartline (2010) and “technical quality” factor from the study of Carbonell et al. (2009) resulting in “Service market fit/attractiveness”, “Quality of Service process” and “Quality of Service outcome”. To these factors we added the operational factor “Innovation speed” found significant by Carbonell et al. (2009) and “Service innovativeness” highlighted by de Brentani (1991) as the factor important for gaining a competitive edge. In accordance with the empirical findings of Carbonell et al. (2009) and following Cooper’s (2001) recommendation to search for customer input and feedback at every stage of the development process we hypothesized relationships between critical success factors and customer involvement in three of the NSD stages – design, development and launch. The relationships identified in 17 hypotheses of the framework were derived partly from the studies of Melton and Hartline (2010) and Carbonell et al. (2009) and partly came from the analysis of de Brentani’s (1991) success factors and other findings in the academic literature.

The literature review and the framework are supposed to present a solid background for further empirical research that could provide managerial implications for effective involvement of customers in the NSD process. After validation, the framework is supposed to be a managerial tool for assessment of customer participation in different stages of service innovations and more effective integration of this external resource into company’s development processes.

The summary of findings from the literature is presented in a table below. This table provides an overview of the studies that laid the foundation for our theoretical framework:

<b>Study</b>	<b>Focus of the research</b>	<b>Methodological approach</b>	<b>Contribution to the theory</b>	<b>Limitations</b>
Melton and Hartline (2010)	Study of customer and frontline employee influence on NSD performance	<ul style="list-style-type: none"> <li>- theoretical review</li> <li>- exploratory research (in-depth, open-ended interviews with NSD managers of 9 service firms)</li> <li>- empirical research (surveys sent to highly innovative service firms in the USA, 160 respondents representing top-level decision-makers in large, medium and small firms)</li> </ul>	<p>The study provided framework for planning effective customer involvement in the NSD process:</p> <ul style="list-style-type: none"> <li>- customers should be involved in a structured development process at its specific stages;</li> <li>- customer involvement should produce particular results (e.g. improved service marketability; launch preparation).</li> </ul>	<ul style="list-style-type: none"> <li>- limited size and diversity of the sample related to low response rate;</li> <li>- limited number of determinants (service marketability; launch preparation) of new service performance</li> </ul>
Carbonell et al. (2009)	Study of antecedents and outcomes of customer involvement in NSD	<ul style="list-style-type: none"> <li>- theoretical review</li> <li>- empirical research (surveys sent to firms representing different service industries in Spain, 102 respondents from large companies)</li> </ul>	<p>The study examined customer influence on both operational and market outcomes of NSD.</p> <ul style="list-style-type: none"> <li>- the influence on market results is indirect and mediated by operational outcomes;</li> <li>- customer participation's influence on new service performance is independent of the phase of NSD</li> </ul>	<ul style="list-style-type: none"> <li>- too large diversity of service industries included in the analysis.</li> <li>- the same informant provided data in each company for independent and dependent variables;</li> <li>- low response rate;</li> <li>- limited generalizability of the results</li> </ul>
De Brentani (1991)	Study of success factors in developing new business services	<ul style="list-style-type: none"> <li>- theoretical review</li> <li>- exploratory research (interviews with managers of 95 companies)</li> <li>- empirical research (surveys sent to business service companies; 148 respondents in 115 firms)</li> </ul>	<p>The study identified 17 reliable/14 significant factors for new service success.</p> <p>Many of the factors relevant for new service success are relevant for physical products as well.</p>	<ul style="list-style-type: none"> <li>- scope of research limited to business services only</li> </ul>

**Table 1. Summary of the main studies presented in the theoretical review**

## 5.0. CONCLUSION

*This chapter provides an overview of the paper underlining critical findings found within the literature review, providing insights on the developed framework, highlighting its limitations and suggesting issues for future research.*

Nowadays, service sectors experience considerable pressure to innovate. This pressure comes from changing macro-economic conditions as well as more active role of customers in the service process enabled by developments in the information technology.

To be successful on the market innovations should be developed with the consideration of existing and emerging customer needs, customer role of a co-producer in the service delivery process and customer perception of the received user value. Through involvement of customers in NSD process companies have the opportunity to embrace the significant customer knowledge and use it to develop successful service offerings.

Despite the underlined importance of customer involvement in service innovation process, not so many researchers studied customer roles in NSD process and their effect on service outcomes. The available studies consider a limited number of performance drivers influenced by customer participation in the NSD process. Besides, they present different service outcomes influenced by customer involvement in service innovation process. Relationships identified between customer involvement in various NSD stages and market outcomes seem to be incomplete and require further consideration. Due to these reasons, we developed a framework for efficient customer involvement in the NSD process, which is supposed to present a more robust model of customer involvement in NSD process than those currently available.

The framework is developed on the basis of literature review, particularly studies of Melton and Hartline (2010), Carbonell et al. (2009) and de Brentani (1991). Selection of these studies is explained by their relevance to the research and a limited choice of other academic studies covering the topic. Decompositional approach emphasized by Carbonell et al. (2009) was used to studying the significance and performance effects of customer involvement in different stages of the development process. After critical analysis and modifications applied to some of the elements in the models of Melton and Hartline (2010) and Carbonell et al. (2009), we presented a new model considering customer involvement in NSD process. Critical success drivers identified by de Brentani (1991) were used to extend the model's drivers of new service performance.

Service characteristics and their implications for NSD process were considered when developing hypotheses describing relationships among the model's elements. Customers' role of a co-

producer was also considered when describing their possible input in various stages of NSD process.

The developed framework presents a purely theoretical model. In order to be used as guidance for effective customer involvement in NSD process it should be validated and empirically tested. The model uses empirical data of studies conducted in different countries, covering various service sectors and having different generalizability levels. In order to present a reliable framework for managerial implications our model has to be tested on a large sample, covering various participants representing large- or medium-sized companies, preferably in the same or adjacent service sectors.

The current model is limited to description of customer participation in the company's NSD process only. It does not consider customers' role as a sole producer of a service, where their role in NSD would extend from providing feedback to actual designing, using and exchanging resources with other participants in order to create customer value. A separate research considering customers' independent role in creating customer value would be needed to study this issue.

Regarding the proposed model, further research could consider the role of moderating factors in the NSD process, such as new service synergy or compliance with the existing services and image of the company, company's proficiency in NSD process, type of customer involved in NSD process, etc. The moderating factors are supposed to influence both drivers of new service performance and service outcomes, which might affect the hypothesized relationships of customer participation in service innovation process.

To conclude with, we should say that the current research presents an extensive analysis of services and studies considering customer involvement in NSD process, this way providing a solid theoretical background for further research. Besides, it develops a model considering the mediated influence of customer participation in NSD process on its outcomes. Finally, it proposes certain limitations to the developed model and puts forward suggestions for further research. This way, it provides a relevant contribution to the existing academic literature and suggests important insights for further research.

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