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**NEW SERVICE DEVELOPMENT (NSD) PROCESS IN
THE COLLABORATIVE NETWORKS CONTEXT:**
a study of NSD performance factors across its different
stages

Thesis submitted to Faculdade de Engenharia da Universidade do Porto –
FEUP to obtain the Doctor Degree in Management and Industrial
Engineering

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2011

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International Cataloguing in Publication - CIP

Z31n Zaninelli, Thais Batista.

New service development (NSD) process in the collaborative networks context: a study of NSD performance factors across its different stages / Thais Batista Zaninelli. – Porto, 2011.
xx, 276f.; 30cm.

Thesis (Doctoral Program in Industrial Engineering and Management) - School of Engineering, University of Porto – FEUP.

Advisors: Profa. Dra. Lia Raquel Neto Martins de Lima Patrício and Professor Dr. João Bernardo de Sena Esteves Falcão e Cunha.

References: f. 249-262.

1. New Service Development - Thesis. 2. Collaborative Networks – Thesis. 3. Performance factors - Thesis. I. Patrício, Lia Raquel Neto Martins de Lima. II. Falcão e Cunha, João Bernardo de Sena Esteves. III. Universidade do Porto. Faculdade de Engenharia. IV. Título.

ACKNOWLEDGMENTS

As the process of New Service Development, a doctoral thesis is very complex and involves steps that go from the thesis project to its completion. In this context, it would not be possible for me to develop throughout this study without extensive collaborative network that I came to establish with people who will be in my memory throughout my life and so I must express my immense gratitude.

First to my supervisor Profa. Lia Patrício, for all her teachings, example of professionalism, an example of a wife and mother, who in addition to all essential and indispensable help and guidance in all the phases of this study, believed in me and entrusted this work to me. Thank you!

To my co-supervisor Prof. João Falcão e Cunha for the collaboration and contribution in the development of this work.

To Eng. João Pessoa Jorge for the dedication and attention and for having entrusted this work, opening the doors of the company that provided the basis for the development of all this study and enabled contact with all the necessary people. My gratitude also extends to all the employees of this company and business partners who are also part of this study.

To the Fundação para a Ciência e a Tecnologia (FCT) for the financial support of this research.

To those that are more than my colleagues, my eternal friends made here in Portugal: Teresa Sarmiento, Carla Martins, Andreia Zanella, Nelson Pinho, Rui Carreira and Fabricio Sperandio who took part in an intense way in my life during those years together. We cried, we laughed a lot, we were accepted and rejected at conferences, studied hard, got tired and struggle... but we really celebrated too... partners who have never been seen before in a working group! Thank you for your strength, I love you!

To all the girls of the PRODEIG secretariat: Isabel, Soledade and Mónica for the precious help. Thank you!

To all my friends in Portugal and Brazil for the support and strength given throughout these 6 years in Portugal.

To all my family, without whose emotional and unconditional support even from far away, would not be possible to perform this study. Especially to my mother Terezinha Batista de Souza, to my brother Daniel Batista Zaninelli and to my father Ricardo Zaninelli (*in memoriam*).

To God for all the blessings and for placing in my life my eternal love, husband, friend, companion and confidant Helder Canelas, the most understandable and loving man I ever knew. Without this support it would not be possible to direct and conduct this study to a conclusion.

To my daughter Sabrina who is still not here with us, but that makes me see the world differently and behaved very well during these last crucial months of the thesis, with her good behaviour inside my belly, saving me from dizziness and sleepiness, typical pregnancy symptoms that I do not know what mean! **To her I dedicate this thesis!**

ABSTRACT

Nowadays, services are at the center of the economic activity and New Service Development (NSD) process has gained increased attention and has been described in the literature by a sequential process that emphasizes an organizational perspective. Given this increased attention, in the last decades, a remarkable number of researchers have attempted to identify factors that are crucial for the NSD process success. However, given the complexity involved in this NSD process, it can be carried out by the collaboration of a network of partner companies. In this way, it becomes increasingly relevant to promote global service research agendas that concomitantly draw on the interdisciplinary and crossfunctional perspective of academics and business executives. However, we can find in the literature Collaborative Networks and NSD process separately, but these two areas are not well connected.

This research aimed to understand the complex NSD process and how this process happens in the Collaborative Network context, contributing to (1) understand the factors that drive NSD process success (2) understand how CNs can potentiate NSD process and (3) how these CNs change along the NSD process stages.

The research started with an exploratory study involving four large shopping mall projects with the objective of charactering the main stages of the process and to analyze when and how CNs were formed along these different stages. After this exploratory study, a qualitative study was undertaken to get an in-depth understanding of CNs role in the NSD performance. The last stage involved a quantitative study to measure the impact of CNs characteristics in NSD process success.

This study identified desirable performance factors of NSD in the CNs context in large projects, analyzing how the factors evolve and how they influence the different stages along the NSD process. The study showed that some performance factors cross-cut all of NSD process, however, the relevance of these factors change along these different stages. Some factors are specific of the each single stage, that is, what is important in the early stages is not so important in the last stages.

On the other hand, CNs characteristics that contribute to the NSD performance were divided into two dimensions: (1) partner characteristics and (2) relationship characteristics. The partner characteristics correspond to characteristics that companies should have for the CN to be successful in the NSD context. The relationship characteristics correspond to the characteristics of the relationship established among the CN partners. These characteristics become crucial for the NSD success.

These results contribute for integrating CNs and NSD research to cope with the new challenges of large NSD projects. This study also brings new insights into how the management of CNs should evolve through the different stages of the NSD process to enable its success.

Keywords: New Service Development; Collaborative Networks; Performance factors.

RESUMO

Nos dias de hoje, os serviços estão no centro da actividade económica e o processo de desenvolvimento de novos serviços (DNS) tem ganhado crescente atenção e tem sido descrito na literatura como um processo sequencial que enfatiza uma perspectiva organizacional. Dada esta crescente atenção, nas últimas décadas, um número notável de pesquisadores tem tentado identificar factores que são cruciais para o sucesso do DNS. Entretanto, dada a complexidade envolvente no processo de DNS, este pode ser realizado através da colaboração de uma rede de empresas parceiras. Desta forma, torna-se cada vez mais relevante promover pesquisas globais de serviços que concomitantemente desenham numa pesquisa interdisciplinar e cross-funcional de académicos e executivos de negócios. Entretanto, podemos encontrar na literatura redes colaborativas e processo de DNS de forma separada, mas estas duas áreas não estão bem conectadas.

Esta pesquisa objectivou entender o complexo processo de DNS e como este processo acontece no contexto das redes colaborativas, contribuindo para (1) entender os factores que dirigem o sucesso do processo de DNS, (2) entender como as redes colaborativas podem potenciar o processo de DNS e (3) como estas redes mudam ao longo das diferentes fases do processo.

Esta pesquisa iniciou com um estudo exploratório envolvendo quatro projectos de centros comerciais de grande dimensão, com o objectivo de caracterizar as principais fases do processo e analisar quando e como as redes colaborativas são formadas ao longo destas diferentes fases. Após este estudo exploratório, um estudo qualitativo foi realizado para ter uma compreensão em profundidade do papel que as redes colaborativas têm no desempenho do processo de DNS. A última fase da pesquisa envolveu um estudo quantitativo para medir o impacto das características das redes colaborativas no sucesso do processo de DNS.

Este estudo identificou desejáveis factores de desempenho do DNS no contexto das redes colaborativas em projectos de grandes dimensões, analisando como estes factores evoluem ao longo das diferentes fases do processo. O estudo mostrou que alguns factores de performance são transversais a todo o processo de DNS, entretanto, a relevância desses factores se altera ao longo das diferentes fases. Alguns factores são específicos de algumas fases, ou seja, o que é importante nas fases iniciais do processo não é tão importante nas últimas fases.

As características que contribuem para o desempenho do DNS foram divididas em duas dimensões: (1) características das parceiras e (2) características do relacionamento. Características das parceiras correspondem às características que as empresas devem ter para que a rede colaborativa seja bem sucedida no contexto do processo de DNS. Características do relacionamento correspondem às características do relacionamento estabelecido entre as empresas que participam na rede colaborativa. Estas características se tornam cruciais para sucesso do DNS. Estes resultados contribuem para integrar pesquisas sobre redes colaborativas e DNS e cooperar com novos desafios para complexos projectos de DNS. Este estudo, também traz novos conhecimentos sobre como a gestão das redes colaborativas pode evoluir ao longo das diferentes fases do processo de DNS e capacitar seu sucesso.

Palavras-chave: Desenvolvimento de Novos Serviços; Redes Colaborativas; Factores de Desempenho.

RESUMÉ

Actuellement, les services sont au centre de l'activité économique et le Développement de Nouveaux Services (DNS) a gagné en plus d'attention et a été décrit dans la littérature par un processus séquentiel qui souligne une perspective organisationnelle. Compte tenu ces grands attentions, dans les dernières décennies, un nombre remarquable de chercheurs ont tenté d'identifier les facteurs qui sont cruciaux pour la réussite du processus du DNS. Toutefois, étant donné la complexité impliquée dans ce processus du DNS, elle peut être réalisée par la collaboration d'un réseau d'entreprises partenaires. De cette façon, il devient de plus en plus pertinent la promotion des programmes de recherche mondiaux de services, qui concomitamment tirent sur la perspective interdisciplinaire et transversal d'universitaires et de dirigeants d'entreprises. Cependant, nous pouvons trouver dans la littérature des réseaux de collaboration (RC) et un processus du DNS séparément, mais ces deux domaines ne sont pas bien connectés.

Cette recherche visait à comprendre le processus complexe du DNS et comment ce processus se produit dans le contexte d'un réseau de collaboration (RC), contribuant ainsi à (1) comprendre les facteurs qui déterminent le succès du processus du DNS, (2) comprendre comment le RC peut potentialiser le processus du DNS et (3) comment ces RC changent sur les étages du processus du DNS.

La recherche a commencé avec une étude exploratoire comportait quatre grands projets de centre commercial avec l'objectif de caractériser les principales étapes du processus et d'analyser quand et comment les RC ont été formés au long de ces différentes étapes. Après cette étude exploratoire, une étude qualitative a été menée pour obtenir une compréhension approfondie du rôle du RC dans la performance du DNS. La dernière étape a comporté une étude quantitative afin de mesurer l'impact des caractéristiques du RC dans le succès du processus du DNS.

Cette étude a identifié les facteurs de performance souhaitable du DNS dans le contexte du RC dans ces grands projets, d'analyser comment les facteurs évoluent et comment elles influencent les différentes étapes au long du processus du DNS. L'étude a montré que certains facteurs de performance recourent l'ensemble des processus du DNS, cependant, la pertinence de ces facteurs change au long de ces différentes étapes. Certains facteurs sont spécifiques de chaque étape, qui est, ce qui est important dans les premières étapes n'est pas si importante dans les dernières étapes.

D'autre part, les caractéristiques du DNS qui contribuent à la performance du DNS ont été divisés en deux dimensions : (1) les caractéristiques des partenaires et (2) les caractéristiques de la relation. Les caractéristiques des partenaires correspondent à des caractéristiques que les entreprises devraient avoir pour que le RC réussisse dans le contexte du DNS. La caractéristique relation correspond aux caractéristiques de la relation établie entre les partenaires du RC. Ces caractéristiques sont essentielles à la réussite du DNS.

Ces résultats contribuent à l'intégration des RC et de recherche du DNS pour faire face aux nouveaux défis des grands projets du DNS. Cette étude apporte également de nouvelles perspectives sur la manière dont la gestion du RC devrait évoluer à travers les différentes étapes du processus du DNS pour permettre à ses succès.

Mots-clés: Développement de nouveaux services; Réseaux de Collaboration; Facteurs de performance.

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LIST OF ACRONYMS

AMOS	Analysis of Moments Structures
CC	Commercial Center
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CN	Collaborative Network
EFA	Exploratory Factor Analysis
GFI	Goodness of Fit Index
KMO	Kaiser-Meyer-Olkin
ML	Maximum Likelihood
NPD	New Product Development
NSD	New Service Development
NFI	Normed Fit Index
NNFI	Non-Normed Fit Index
RMSEA	Root Mean Square Erros of Approximation
SEM	Structural Equation Modeling
SRMR	Standardized Root Mean Square Residual
SPSS	Statistical Package for the Social Sciences
TLI	Tucher-Lewis Index

Chapter I
INTRODUCTION

1.1 Introduction

During the last two decades, the deregulation and globalization of markets, as well as the internationalization of service companies, have made competition among service companies extremely fierce (Jaw, Lo et al. 2010). At the same time, increasing customer expectations, competition and speed of technological development means that service organizations must constantly look for new approaches to service design and delivery (Smith, Fischbacher et al. 2007).

These trends place service innovation at the heart of the company's competitiveness as constant adaptation in a turbulent environment requires a continuous flow of new offers (Stevens and Dimitriadis 2005). In this context, service innovation and New Service Development (NSD) process have gained increased attention. NSD implies the design, planning and execution of several activities and tasks to develop services in an optimal and complete way, avoiding failures of the new service in the market launch (Stevens and Dimitriadis 2005). NSD is seen as essential for enhancing profitability (or viability) of existing services through cost reduction and increased sales; attracting new consumers (Smith, Fischbacher et al. 2007).

Thus, it becomes increasingly relevant to promote global service research agendas that concomitantly draw on the interdisciplinary and cross-functional perspective of academics and business executives (Ostrom, Bitner et al. 2010) to study NSD process.

However, many processes of New Service Development (NSD) still stem from the New Product Development (NPD) field (Scheuing and Johnson 1993; Akamavi 2005) and some researchers still believe that existing manufacturing and goods-derived business processes can be readily applied to services (Ostrom, Bitner et al. 2010).

An empirical study with 780 European firms shows that manufacturing companies often present lack of special organization unit for service development, of service development strategy, and of service development process that is either not used or has been adopted from the development of goods (Edvardsson 2010).

It is well established that there is considerable diversity in New Product Development (NPD) processes among companies, ranging from highly formal stage-gate systems to none at all (Griffin and Page 1996; Alam and Perry 2002). Authors such as Gustafsson and Johnson (2003) argued that the NPD process has many tools, methods and stage-gate processes, whereas the New Service Development (NSD) processes tend to be relatively arbitrary and unstructured.

The NSD process has changed throughout the past years and nowadays it is concentrated in four generic phases, from the service idea generation to the service implementation (Edvardsson, Gustafsson et al. 2000). These phases can be carried out by a single company or by establishing relationships between inter-company partners of different sectors (Valkeapaa; Sodergard; Jaatinen 2006).

The academic interest in analyzing the relationship between innovative performance of companies and their recourse to external resources, especially through inter-organizational relationships has been growing over the last ten to fifteen years (Heidt. T.; Scott 2007; Tsai 2009).

There are several reasons which make the companies cooperate more and more with each other, being the access to new markets the most explicit objective. Due to geographical difficulties, in a foreign market, or by its own segmentation which demands specific knowledge about the customers and suppliers, the cooperation between companies from different sectors and nationalities in the Collaborative Networks (CNs) context speeds up the NSD process (Wheelen and Hunger 1986; Teece and Herbane

2002). In this context, better understanding of NSD in the context of CNs is needed to foster companies' innovativeness and competitiveness.

1.2 New Service Development and Collaborative Networks – *Fundamental Concepts*

Organizations face an unstable and often turbulent business environment. The marketplace for products and services is dominated by rapid changes in customer needs and by fierce competition, globalization and technical innovation (Ottenbacher, Gnoth et al. 2006).

The product sector has dominated the economy during several centuries, however, it was only in the XVIII century that the industrialized product development has appeared (Hubka and Eder 1996). By that time, some factors such as commercial and colonial expansion, scientific progress, politics, demographic evolution and transport development, enabled the British Industrial Development – known as Industrial Revolution.

Even countries that have historically focused on manufacturing are today experiencing rapid service growth; for instance more than 40% of China's GDP is now attributed to service (Ostrom, Bitner et al. 2010). The main activities of the service sectors are: commerce, management, transportation, education, health, hotel services, financial sectors and telecommunication (Zarifian and Salerno 2001).

In recent years, the economy of developed countries has shifted from being production oriented to being services dominated (ONeill and Palmer 2001) and nowadays, service innovation is essential for firms' competitiveness (Johnson, Menor et al. 2000; Fitzsimmons and Fitzsimmons 2001; Dörner, Gassmann et al. 2011). In this

context, stimulating service innovation has been set as a top service research priority (Ostrom, Bitner et al. 2010).

Despite the importance of services in the actual economy, the New Service Development (NSD) process remains among the least studied and understood topics in the service management (Sundbo 1997; Tax and Stuart 1997; Edvardsson, Gustafsson et al. 2000; Menor and Roth 2007; Zomerdijk and Voss 2011). This area needs further research, as many processes of NSD still stem from the New Product Development (NPD) field (Scheuing and Johnson 1993; Stevens and Dimitriadis 2005).

Until recently several researchers accepted that “new services happen” due to luck, intuition, imagination or competitive action of the opponents (Scheuing and Johnson 1993; Menor, Tatikonda et al. 2002) instead of a formal process development. This paradigm started to be broken through two research fronts. On the one hand, several studies proved that the organizations that adopted formal innovation mechanisms had better opportunities to develop new services that reached their objectives (De Brentani 1991; Cooper, Easingwood et al. 1994; Edgett 1994). On the other hand, several researchers proposed innovation structured processes for new service development (Edvardsson, Gustafsson et al. 2000).

Empirical studies highlighted that companies using a formal procedure succeed more frequently, even if the duration of development process is longer (Eric Reidenbach and Moak 1986). These studies show that, using formal NSD processes increases the probability of having good results (Edgett 1994). However, at the moment, there is no consensus on a process that is considered.

Several researchers applied sequential models to NSD (Rosenfeld 1997; Tax and Stuart 1997; Martin, Horne et al. 1999; Edvardsson, Gustafsson et al. 2000; Alam and Perry 2002) that involves several stages ranging from service idea generation to market

introduction. According to Edvardsson, Gustafsson et al. (2005) the NSD process can be organized into four main stages: (1) service idea generation; (2) service strategy and culture gate; (3) service design and (4) service policy deployment and implementation. However, these stages can be changed depending on the organizational context and of the new service characteristics.

There is a complexity involved along all these NSD stages, and extant research has attempted to identify factors that are crucial for NSD success (Ojanen, Lanne et al. 2008). Understanding NSD performance factors is crucial to its success, to provide guidance for companies to build competences in the management of service development. Several factors affect the NSD performance along its different stages, such as: service characteristics, market orientation (Jaw, Lo et al. 2010) (Menor and Roth 2007), strategic focus on innovation (Edvardsson, Haglund et al. 1995; Johne and Storey 1998), appropriate resource commitment (Edgett 1994; Jong 2003), management support (Martin Jr and Horne 1995); (Menor and Roth 2007), and formal new service development process (Edvardsson, Gustafsson et al. 2000; De Brentani 2001); (Menor and Roth 2007).

Due to this complexity and performance factors involved in all NSD process, the different process stages can be carried out by several companies through the establishment of collaborative relationships helping to potentiate NSD performance (Valkeapaa; Sodergard; Jaatinen 2006). From the various forms of cooperation among companies, the most evident in the last years is the Collaborative Networks (CNs), involving the cooperation between two or more partner companies, customers or providers that intend to develop a new service or product together (Johnson, Scholes et al. 2007).

The CN phenomenon in the business context is relatively recent. It designates any type of network (relationships among people, groups and companies) that has some type of interaction, from the professional communities to the supply chain, and that has as main goals sales and profit generation through: P&D, export, product development and problem solution (Rosenfeld 1997).

A CN is constituted by a variety of entities (e.g., organizations and people) that are largely autonomous, geographically distributed, and heterogeneous in terms of their operating environment, culture, social capital, and goals (Camarinha-Matos and Afsarmanesh 2008). These entities collaborate to better achieve common or compatible goals (Lewis 1992; Rosenfeld 1997).

CNs can be formed by organizations through partnerships, virtual teams or strategic agreement, in which companies deliberately decide to start a specific common project, although they remain independent after a contract (Lipnack and Stamps 1994).

The relationships established with partner companies along the different NSD stages can influence the NSD performance and consequently new service success. These networks established between different stakeholders are increasingly adopted in the modern management with the aim of dividing risks, reducing costs, increasing quality patterns and optimizing product and service development processes (Johnson, Scholes et al. 2007).

Previous research indicates that only one in each five organizations have pre-established orientations to maintain relationship network success (Austin 2000). A formal management of this process is still hard to find, and is seldom effective. These studies show that CNs management requires a close relationship with value, ideas and trust exchange, which can build a strong commitment among all partners involved in the CN, potentiating the complex NSD process and by consequence the final service.

CN management, therefore, assumes an essential role in long term relationship success, capable of allowing partners to obtain top performance and a sustainable competitive advantage and ensuring success of NSD projects (Austin 2000).

In NPD and NSD, external partners represent a vital source of knowledge and collaborative potential (Stevens and Dimitriadis 2005). However, the collaborative role of the different stakeholders in NSD is still an unexplored area (Stevens and Dimitriadis 2005; Valkeapaa; Sodergard; Jaatinen 2006; Lusch, Vargo et al. 2010) and therefore deserves further research.

1.3 Research Motivation

Despite the growing interest in Service Innovation in the recent past, the NSD process is still understudied (Sundbo 1997; Tax and Stuart 1997; Edvardsson, Gustafsson et al. 2000; Syson and Perks 2004) especially when this process involves collaboration of a network of partner companies (Valkeapaa; Sodergard; Jaatinen 2006; Chen, Tsou et al. 2011).

The major literature focus is on collaborative innovation in inter-organizational relationships with customer stakeholders, ignoring the potential role played by other external stakeholders, such as suppliers, industry partners and research organizations (Mattsson 1997). Specifically, in NPD and NSD, a range of partners represents a vital source of knowledge and collaborative potential (Håkansson and Snehota 1989).

A large variety of cooperation work has emerged during recent years as a result of the challenges faced by business, social and scientific worlds and enabled by the rapid progress in the information and communication technologies (Camarinha-Matos and Afsarmanesh 2008). Much of the traditional innovation literature, however, is built on

the traditional manufacturer-active paradigm, which mostly ignores interactive relationships (Nelson and Winter 1977; Zaltman 1979; Camarinha-Matos and Afsarmanesh 2005; Noran 2009).

The relationships established with partner companies along the different stages of the NSD process can influence the NSD performance and consequently the success of final service. As already mentioned, these networks established between suppliers, distributors, opponents and customers are adopted to divide risks, reduce costs, increase quality patterns and optimize product and service development processes (Johnson, Menor et al. 2000).

Collaborative Networks between two or more stakeholders (companies, customers and providers) are now frequently formed to develop a new service or product (Lewis 1992; Camarinha-Matos and Afsarmanesh 2005; 2008).

Nonetheless, there is no consensual definition of Collaborative Networks (CNs). This situation constitutes a major obstacle for the interaction among experts from multiple disciplines involved in this area and creates an obstacle for the recognition of CNs as a new scientific discipline (Camarinha-Matos and Afsarmanesh 2005; Tether and Tajar 2008). Research on CNs is needed for the development of formal theories and models, not only to better understand the area but also as the basis for the development of methods and tools for decision-making (Camarinha-Matos and Afsarmanesh 2008).

In order to fulfill these gaps, this research contributes to understand how CNs can lead to NSD process performance and how these CNs evolve along the NSD stages. This research involved exploratory multiple case study, qualitative and quantitative studies in four complex NSD projects of a Portuguese Company that develops their activities internationally. The results contribute to (1) understand NSD process stages, (2) to identify the performance factors in the NSD process, (3) characterize the CNs created

along the NSD process, and (4) analyze how CNs influence NSD process performance along NSD stages.

1.4 Research Objectives

This research aimed at understanding how CNs can influence NSD performance and final service success. The study identifies CNs characteristics in complex NSD projects, analyzing how they can potentiate the NSD performance along the different stages.

In this context, the main research objective was to study the new service development process in complex projects involving multiple partnerships across its different stages, which involved the following sub-objectives:

- (a) To identify the different stages of complex NSD processes, and to understand how and where CNs were formed along these stages;
- (b) To understand NSD performance factors along its different stages;
- (c) To identify CNs characteristics and understanding how these characteristics influence NSD performance;
- (d) To generate recommendations for management of CNs in the context of complex NSD projects.

This understanding of CNs and how they impact NSD performance is very important for organizations to significantly improve their success rate in collaborative networks context.

1.5 Research Questions

To accomplish these objectives, the following research questions were defined:

(1) How do the companies organize themselves for complex NSD projects? Which are the main stages and performance factors of the NSD process?

(2) How does CN influence NSD performance? Which are CN Characteristics that potentiate NSD performance?

This research identified desirable characteristics of CNs in four complex NSD projects in different NSD stages (idea and conceptual development, construction, launch and operation). The research started with an exploratory multiple case study involving four complex shopping mall projects. The objective of this exploratory study (Sampieri, Collado et al. 2006) was to characterize the main stages of the process and to analyze when and how CNs were formed. After this exploratory study, a qualitative study (Charmaz, 2006) was undertaken to obtain an in-depth understanding of the performance factors of NSD process, how they evolve along the different stages of the process, CNs characteristics and how these characteristics influence NSD performance. The last stage involved a quantitative study with a survey administration to members of the collaborative network to measure the impact of the CNs Quality on NSD performance.

1.6 Research Contribution

NSD projects have become increasingly complex, involving CNs between several stakeholders. These CNs need further research, given the importance and crucial role that networks play in the different stages of the NSD process and service success.

In this context, it is necessary to identify how CNs can promote the NSD process performance through the identification and description of the stages and the performance factors that determine the success of the NSD throughout the different stages.

This research contributes to: (1) Better understand NSD stages and how CN are formed along these stages, (2) Better understand which are the NSD performance factors; (3) Comprehend how these factors evolve along NSD stages and (4) Better understand how CNs Quality influence the NSD performance. These results contribute for integrating CNs and NSD research to cope with the new challenges of complex NSD projects.

This thesis is organized into the following Chapters: After the Introduction in **Chapter I**. **Chapter II** addresses the Literature Review and Conceptual Background that covers studies on main concepts referring to this research, named New Service Development and Collaborative Networks. **Chapter III** explains the Research Design, which involves: (1) Research Design, (2) Empirical Ground and (3) Mix Method Approach. **Chapter IV** presents the Exploratory Multiple Case Study, which aimed to understand the NSD process, the main stages, activities, and actors involved in the process and analyzing how and where the CN was formed. **Chapter V** presents the Qualitative Study that aimed to identify the NSD process performance factors, to understand how this process happens in the CNs context, and to identify CNs characteristics that influence NSD performance. **Chapter VI** presents the Quantitative Study, aimed to measure the impact of the CNs Quality on NSD performance. **Chapter VII** discusses the research implications for CNs management, which involves the presentation of a proposal for the use of a communication platform and management of ideas between participating companies in the Collaborative Network of the NSD process.

The last section involves the Conclusion and Future Work as well as the research limitations.

Chapter II
LITERATURE REVIEW AND CONCEPTUAL BACKGROUND
"To preview what is going to happen, we need to understand what has happened before"

Nicolau Maquiavel

This section covers extant research related to “**New Service Development in the Collaborative Networks context**” that aims at identifying and understanding the NSD process, the performance factors in the NSD process and how Collaborative Networks influence the NSD performance success.

In this context, this research reviews the scientific literature based on three main topics: (1) New Service Development, (2) Collaborative Networks and (3) Collaborative Networks in the NSD process.

2.1 Service Concept and Service Characteristics

The service sector has grown significantly throughout the industrial world since the 1950s (Miles 2010). According to Grönroos, services provided only by companies in the “service sector” represented more than 77% of the value added in the USA and 73% of the value added in the United Kingdom (Grönroos 2007) in 2007. The service sector accounted for 79% (8.1 trillion dollars) of the U.S Gross Domestic Product (GDP) and in 2010 and it is estimated at 90% (Chen, Tsou et al. 2011). However, manufacturing companies also offer a number of services to their customers. Grönroos called these services “hidden services”, because in statistics they are registered as part of manufacturing’s contribution to GDP.

The world is now dominated by services, which have become the main source of employment in developed economies (Love, Roper et al. 2011), many of them with more than 70% of their GDP generated by services (Ostrom, Bitner et al. 2010). A large share of innovative efforts in business are related to the development of new services (Howells 2000).

There are various definitions of services, but most of them share keywords such as: activities, deeds, processes and performance (Lusch, Vargo et al. 2007). Grönroos' definition of services includes three major elements: (1) activities, (2) interaction and (3) solutions for customer problems. The author still identifies two different aspects in categorizing services, the type of service and the type of customer (Gronroos 2000).

Services are processes constructed by a set of more or less intangible activities which, generally, but not necessarily, are done by an interaction between the customers and the tangible and intangible resources of the service renderer entity (Edvardsson, Gustafsson et al. 2000; Fisk, Grove et al. 2000; Grönroos 2007).

Services may vary significantly in character, with a number of characteristics that distinguish them from traditional products and create specific challenges in relation to the development of new offerings (John and Storey 1998).

Sasser, Olsen et al (1978) identify some fundamental characteristics of services: intangibility; inseparability; heterogeneity and perishability, in the pioneer text-book of the service operation. However, intangibility presents the first and most exceptional service characteristics (Zeithaml, Berry et al. 1993; Fitzsimmons and Fitzsimmons 2001; Lovelock and Gummesson 2004).

Other characteristic of services is inseparability, that is, services are inseparable from those who provide them. In the other works, the suppliers and customers are integral parts of the service (Levitt 1981; Kotler 2000).

At the service industry, the service provider often produces and makes the service while the partial or complete consumption of the service occurs (Bowen and Ford 2002), so the client should be present throughout the service co-creation such as air transport, haircuts, medical appointments, cinema or shopping. In the service context, value is no longer embedded in tangible offerings but is co-created with customers through

relational exchanges in interaction experiences (Normann 2001; Vargo and Lusch 2004; Patrício, Fisk et al. 2011).

In this context, the central value of services is in the interaction which occurs at the moment of service render. This interaction is called in the service literature as “moment of the truth”, being this moment the period of time in which the customer understands the service quality level (Edvardsson, Gustafsson et al. 2000; Gronroos 2000; Froehle and Roth 2007).

As production takes place altogether with consumption, services cannot be stored (Normann 1993). Perishability is therefore another characteristic of services. In this way, there are no stocks as the services are perishable and more susceptible to large demand variations (Sasser, Olsen et al. 1978). This means that vacancies in hotel rooms, empty plane seats, free parking spaces, free cinema seats or empty restaurant tables are lost services.

In light of the aforementioned, the definition of service as an action or process with their characteristics is being historically used by several authors to delimit and defend the research area in services (Droege, Hildebrand et al. 2009). Meanwhile authors like Edvardsson, Gustafsson et al. (2005) identified an increased review in the academic community regarding the suitability of the definitions mentioned hereby to nowadays.

In this context, Edvardsson Gustafsson et al. (2005) developed a research to redefine the concept of services, allowing the development of future research supported by more adequate theoretical fields. Based on that essay, these authors conclude that to widen the knowledge on services, future research should adopt a definition of service based on three principles: (1) the service is a perspective and creation of value and not a category of offers; (2) the service focuses on the value observed by the customer and (3)

the co-creation of value with the clients is a key element, so that the characteristics of the relationship, interaction and process and experiences are the base of the service.

Following that understanding, the perspective given to the new concept of service is classified by Vargo and Lush (2004; 2009) as “*service dominant logic*” – *S-D logic*” which defends that the focus on services is not in the tangible resources, in the value inserted or in the transactions, but in the intangible resources with the abilities, information and knowledge, in the co-creation of value between the organization and customer and, especially in the relationships.

Customers are becoming crucial components in the NSD process, developing such an important and distinct role of co-workers as the one of the company. Customers have increasingly been playing the role of co-creators, developing services which adapt to customer own characteristics and creating experiences of personalized services (Edvardsson, Magnusson et al. 2006; Patrício, Fisk et al. 2011).

Thus, the quality of the service depends on where, how, when, by whom and to whom they are rendered, which turns the service highly variable. Services are rendered and consumed by people, and as there are different people all over the world, they could also behave differently each day. Services are heterogeneous because they cannot be rendered and consumed twice in the same way (Kotler 2000).

Despite the importance services, research has also been scarce when it comes to understanding and developing the process by which new services emerge in service companies, even though research on service innovation and/or new service development has grown into a respectable and vibrant field of its own in the past 20 years (see Figure 2.1) (Schilling and Werr 2009).

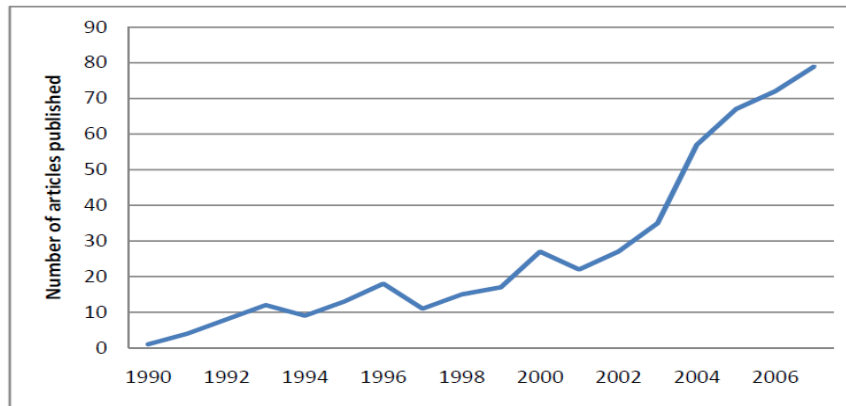


Figure 2.1: Number of articles including the terms “new service development” or “service innovation” in the EBSCO literature database 1990-2007.

Source: (Schilling and Werr 2009).

The increasing importance of services has led to the emergence of Service Science as an interdisciplinary field of inquiry focusing on fundamental science, models, theories and applications to drive service innovation, competition, and well-being through co-creation of value (Ostrom, Bitner et al. 2010).

2.1.1 Service Innovation

Innovation is the successful exploitation of new ideas and is a vital ingredient for competitiveness, productive and social gain within business and organizations (Catalyst 2010). This definition applies to all companies in the economy and is equally relevant to service innovation. Innovations in tangible products may be more easily recognized, possibly due to their physical and ‘codifiable’ nature (Tether and Tajar 2008).

In the recent past, the main focus of innovation research was primarily concerned with innovations related to technological artifacts or, in other words, products (Howells 2006; Droege, Hildebrand et al. 2009). Little scientific knowledge has, however, been acquired concerning the innovation process inherent to services (Nijssen, Hillebrand et

al. 2006; Spohrer and Maglio 2010) which has resulted in the fact that “current theory and understanding of the strategies and tactics for development of new services is inadequate (Menor and Roth 2007).

One of the first authors defining “new service” was Lovelock (1984). For him, new services are categorized in six groups (see Table 1.1, below), varying from Radical Innovation to Style Changes.

Table 2.1
New Service Types
Source: (Lovelock 1984)

INNOVATION TYPE	DEFINITION
New Businesses	New services, introduced in markets already served by products or services which generically serve the same needs.
New Services for the Organization	New services from the point of view of one organization, but that other opponents already offer in the market.
Extension lines of the Service	A solution that represents an extension of the service lines already existent.
Service Improvements	Changes that improve the characteristics of a current service operation.
Style Changes	The most common type of “new service”, which represents visible but modest changes that have an impact in the consumer’s perception, feeling and attitude.

In addition, the way organizations develop the service innovation process can have a very large impact on the measurable success of the innovation. Organizations need to find new or improved ways to generate, prioritize and manage service innovation from idea generation through the end of the development life cycle when the innovation becomes a new service platform or a complementary value-added service (Ostrom, Bitner et al. 2010).

Other authors propose studying alternative ways of classifying new services, such as Gadrey, Gallouj and Weinstein (1995) who propose that the innovation in services assumes two forms:

(1) To organize new solutions to satisfy the **new needs** that may be related to new levels of precision and exclusivity of the offer;

(2) To create more efficient ways (in terms of productivity, relevance, quality or technical aspects) to organize a solution to satisfy the **same kind of need**.

Gadrey, Gallouj and Weinstein (1995) proposal differs from Lovelock's (1984) in that it advocates that service innovation is linked to the change of the service concept from the organization point of view instead of focusing the service operation result from the external agents point of view (clients and market).

New Service is also defined concerning the "*change extension for an operation system of the existing services*". This definition is based on the fact that a service is formed by a set of interactions between participants (customers and co-workers), processes, technical systems and physical elements and that changes in such interactions may result in a new service (Tax and Stuart 1997).

Still according to Tax and Stuart from organizational perspective, any change in the service operations system that requires different competences from those already existing in the actual system could be considered as a new service. Such competences can be analyzed in three dimensions:

(1) **New processes**, that are fundamentally different from previous ones,

(2) New **abilities and knowledge** of the participants in the new service (clients and employees),

(3) New **physical facilities** (layout, people flux, environment and structure).

A key characteristic of service innovation is that it often changes the roles of providers, co-producers, and customers and alters their patterns of interactions. A service innovation can be viewed by some as a cost-efficient way to streamline information exchanges, reduce mistakes and ensure target levels of service quality (Ostrom, Bitner et al. 2010). Coordination and networking of different 'actors' within the innovation process can be very important (Tether and Tajar 2008) as well.

In this context, although the cited models propose, firstly, different and independent definitions of new service, they can be associated to compose a single and more complete scheme, where each one of the models forms a **dimension** of the set of changes that occur in an organization when this goes through a development process of a new service (NSD) – innovation process.

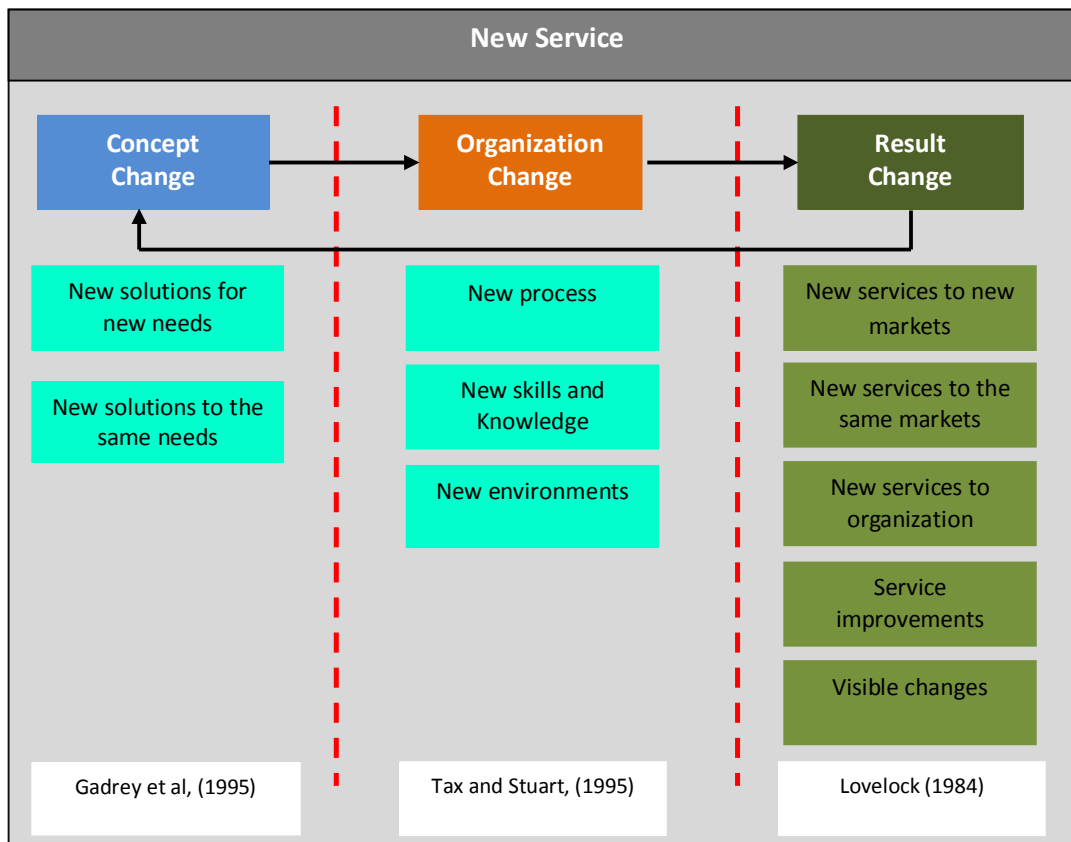


Figure 2.2: Definition of a new service according to the models of (Lovelock 1984; Gadrey, Gallouj and Weinstein 1995; Tax and Stuart 1997)

Source: (Quaggio 2007)

NSD definitions are sustained in the fact that it is not possible to isolate the service concept from the delivery process and service result, since these three dimensions are intrinsically linked in a service operations system and, seeing that, an intentional change in one of them can, inevitably, cause subsequent changes in the others (Menor, Tatikonda et al. 2002).

At a Shopping Mall service, for example, it could be decided to create an exclusive place for children to play, decorated in a thematic way and with tools and toys to entertain children while their parents do shopping. In this case, the Shopping Mall would create a new service based on facilities changes - according to the proposals of (Tax and Stuart 1997).

Nevertheless, according to the customer's point of view (in this case of the parents cited above), this new facility would be seen as an improvement of the service offer, that is, there was an improvement in an existing service (proposed by Lovelock 1984). Besides, when developing this space exclusively for children, the Shopping Mall would be, inevitably, enlarging its service concept to include a special attention for children while their parents or tutor are absent.

2.1.2 New Service Development

New Service Development (NSD) is a way of creating competitive advantage and value for customers by offering new or improved services. To achieve this, the NSD uses both tangible and intangible elements of production that increase the value-in-use or benefits for customers (Ottenbacher, Gnoth et al. 2006).

Due to the increasing complexity of the NSD process, research has shown that more formal and structured processes enable lower cost and service time to market

(Froehle, Roth et al. 2000). The NSD process therefore becomes an important competitive advantage in the current scenery marked by the strong competitiveness.

Comparing NPD and NSD a big difference exist in the output characterization, as the first creates a physical good, and NSD fundamentally creates actions (Edvardsson, Gustafsson et al. 2000; Menor, Tatikonda et al. 2002).

Although service innovation has gained increased attention, many models for New Service Development (NSD) process still stem from the New Product Development (NPD) field (Scheuing and Johnson 1989; Akamavi 2005). Being the service sector diversified by nature, it becomes difficult to preview and describe the actions which compose the overall development process. Recent studies present models to guide companies in the NSD projects, highlighting that each industry must adapt the process to its reality (Tax and Stuart 1997; Edvardsson, Gustafsson et al. 2000; Johnson, Scholes et al. 2007).

2.1.3 New Product Development & New Product Development Process

New Product Development (NPD) can be defined as the transformation of a market opportunity into a product available for sales. NPD starts with idea generation, and goes through the identification of consumer needs, concept development the definition of the activities and tasks to create a new product and its process (Bornia and Lorandi 2008) and finishes when this concept is produced (Krishnan and Ulrich 2001). The continuous development and market introduction of new products is an important determinant of a sustained company performance (Ernst 2002).

The NPD activities require high investments and sometimes involve many uncertainties. Developing and introducing new services in the market is not a success

guarantee and financial payback (Liboni, Takahashi et al. 2004). The development of successful products involves a dynamic and complex process that should be well structured, so that, at the time of its launch, the possibilities of success will be greater (Griffin and Page 1996).

An empirical study made by Allen and Hamilton (1984) estimated that 46% of the new product releases fail in the market. This study showed that in each eleven new ideas of new products, three start the development process, 1.3 are launched, but only one is successful (Griffin and Page 1996). In this context, it is necessary that companies have pre-established processes to ensure the success at the moment of the market release and management.

Extant research has identified best practices in NPD process (Booz 1982; Cooper and Kleinschmidt 1993; Griffin and Page 1996) that show that a good alignment between the objectives and strategies is crucial for NPD success (Griffin and Page 1996).

Much of this research concerns the analysis of the NPD process, which involves several stages, such as: creation, execution, detailed design, review and test of the new product. All the stages are supported by suppliers, managers, and marketing and commercialization departments of the Developer Company (Clark and Wheelwright 1993; Karlsson and Åhlstrom 1997). Table (1.2) presents some models to exemplify the stages of the NPD process (Clark and Fujimoto 1991; Slack 1993; Pahl, Beitz et al. 1996; Kotler 2000).

Table 2.2
NPD stages, according to Clark & Fujimoto (1991), Slack (1993), Pahl & Beitz (1996) and Kotler (2000).

Source: (Simões 2004).

Clark and Fujimoto (1991)	Slack (1993)	Pahl & Beitz (1996)	Kotler (2000)
Concept Generation	Concept Investigation	Project Specification	Idea Generation
Product Planning	Technology Investigation	Conceptual Project	Idea Selection
Product Engineering	Product development	Preliminary Project	Concept development and test
Process Engineering	Process development	Detailed Project	Marketing Strategy Development
Pilot Production	Pilot Production		Business Analyses
	Manufacture		Product Development
			Market Test
			Commercialization

The NPD process requires information and specific capabilities that involve different departments and members of the functional areas, characterized as a multidisciplinary activity (Mundim, Rozenfeld et al. 2002).

In this context, companies search the most efficient methods to speed up the product development process (Balbontin, Yazdani et al. 2000). An alternative is the cooperation between companies in the development process, that can contribute to process optimization, decrease time of the process development, cost reduction and market risk reduction (Gerwin and Meister 2002).

As mentioned before, due to the complexity of the NPD process, empirical studies show high failure rates of new products, especially in consumer markets (Urban and

Hauser 1980; Crawford 1987). It is therefore obvious that management is highly interested in learning about the factors which impact the success of new products.

2.1.4 New Service Development Process

NSD process has gained increased attention and is considered essential for company competitiveness. In line with this growth, organizations need to optimize the new service development process to work in the shortest time to market, allowing a successful market entry.

A clear understanding of the service concept is the starting point for reengineering of services processes and identifying the primary processes of value creation (Hill 1999). The new theoretical reasoning proposed by Edvardsson, Gustafsson and Roos (2005) about the service concept must stimulate new discoveries about the development process of new services in a more multidisciplinary approach.

According to Miles (2008), the growing acceptance of the Service Dominant Logic (Vargo and Lusch 2004) tends to reinforce the interest and motivation in developing a more profound research about the NSD process, influencing the manufacturer industry, in that the addition of services to a physical product is an increasingly important element in the innovation from the point of view of customers.

Nijssen, Hillebrand et al. (2006) highlight the differences and similarities between the NPD and NSD. The authors compared the elements of innovation in services and physical goods, such as (1) propensity to innovation and research and development intensity; and (2) results in terms of degree of innovation of the new product/service along with the company's overall performance.

The results show that the degree of innovation tends to be more important for the services industry than for physical goods, due to the impossibility of patenting services. As such, to gain sustained competitive advantage service companies should seek more radical innovation and constantly invest in improving their processes to develop new services (Nijssen, Hillebrand et al. 2006).

However, many service firms still have not adopted formalized or well structured NSD processes (Kelly and Storey 2000; Fitzsimmons and Fitzsimmons 2001) and are still using a “hit-and-miss approach” when developing new services (De Brentani 1989). Other service companies believe that new services “happen” due to luck, intuition, imagination or competitive action of the opponents (Scheuing and Johnson 1993; Menor, Tatikonda et al. 2002) instead of adopting a formal NSD process. These failures include unstructured concept generation and evaluation, insufficient testing prior to the final release of the service, and inadequate knowledge of the market, among many others (Froehle and Roth 2007).

The first works related to the NSD process systematization were published at the end of the 1980s and the first half of 1990s and are based mainly on the product development methodology created by Booz-Allen and Hammilton (1982). Some models used for the development of new products have proved to be suitable for service development, mainly those services which have a product component. However, these models do not consider the differences and challenges presented at the service rendering (Quaggio 2007).

According to Booz et al (1982) the model of NSD process is characterized by the linearity of the stages and the high level of control used. Shostack (1984) proposed two types of NSD process. The first is the *molecular model*, where different service elements are developed as independent units, which can be compared by customers individually

or combined. The second, called *blueprint*, is applied to projects with a high degree of formalization and documentation, using tools with diagrams, timelines, interdependencies and other project management tools. Both modalities proposed aim at reducing errors to achieve the desired characteristics of the service.

In this context, Lovelock (1984) found that, even when the company adopts a more rigorous process of NSD (blueprint-type), the new service often does not meet customer needs.

There is no standard model universally recognized for the NSD process, although some authors advocate that the NSD should follow a logical process, including a set of activities which are done in a sequential or parallel way (Tax and Stuart 1997; Edvardsson, Gustafsson et al. 2000; Alam and Perry 2002).

Some authors propose models for systematizing the development process (Martin, Horne et al. 1999; Menor, Tatikonda et al. 2002) while others research about the front line (Syson and Perks 2004) and the involvement of the customer in the development process (Kelly and Storey 2000; Alam and Perry 2002; Vargo and Lusch 2004; Edvardsson, Magnusson et al. 2006).

The NSD process has changed throughout the last decades, evolving from linear models composed by sequential stages to complex models, focusing the process in four generic stages, from idea generation to market implementation, with the participation of the external agents through an iterative process to promote service success (Cooper, Easingwood et al. 1994; Edvardsson, Gustafsson et al. 2002).

2.1.5 New Service Development Process Stages

Several researchers applied sequential development models to NSD process (Tax and Stuart 1997; Martin, Horne et al. 1999; Kelly and Storey 2000; Alam and Perry 2002). Cooper, Easingwood et al (1994) organized the NSD process into 16 stages, including market research, business plan, information technology, development, agreement and post-launching evaluation stages. The author observes and concludes on the importance of unforeseen co-operative behaviours among company departments (Cooper, Easingwood et al. 1994). However, there is still a strong influence of the NPD process models, characterized by the innovation in services as a laggard compared to product innovation (Droege, Hildebrand et al. 2009).

The focus begins to change with some surveys that highlight the uniqueness of services and the need for their own models. Edvardsson, Haglund and Mattsson (1995) followed the development of two projects of new services, from the earliest stages until their release, and found that innovation in services is extremely very complex process relatively to control and planning. Although none of the two companies had a formal NSD process, it was possible to identify four major stages, as it can be seen in Figure 2.3: (1) Service idea generation; (2) Service Strategy and Culture gate; (3) Service Design and (4) Service Policy Development and Implementation. These stages can be supported by different departments inside the company and/or by external suppliers (Edvardsson, Gustafsson et al. 2000).

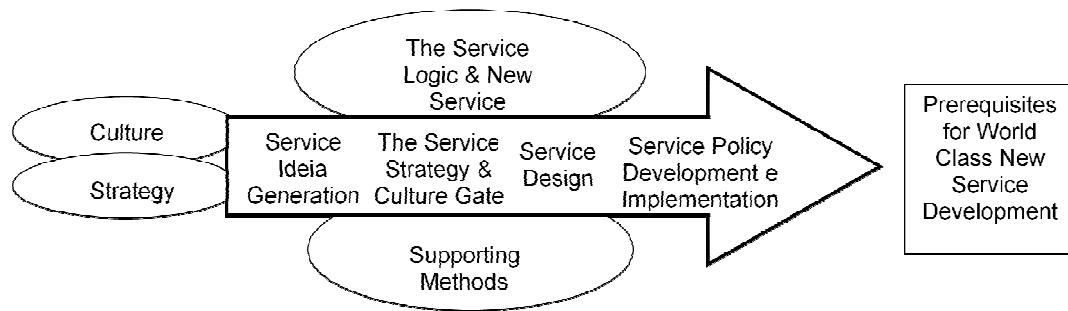


Figure 2.3: New Service Development Process.
Source: (Edvardsson, Gustafsson et al. 2000).

The **Service Idea Generation** stage involves the idea generation and its evolution in terms of sources, techniques and idea screening. In this stage customer needs are identified and the new service concept generation results from the identification of these market needs. The selection of new ideas helps determining the viability and idea potential to be successful in the market, before making financial investments in the project (Edvardsson, Gustafsson et al. 2000).

Before starting this stage, it is crucial to formulate an innovation strategy. Otherwise, it is easy to assume that the project will end up being a brainstorm of ideas which do not fit with the general objectives and strategies of the organization. Ideas can be generated in different ways, such as new technologies, and come from different sources, such as competitors or front line workers.

The **Service Strategy and Culture Gate Stage** involves the allocation of teams and suppliers which are going to participate in the development of the new project concept. This team should be formed with co-workers from multidisciplinary areas, in order to integrate distinct competences needed for the NSD process.

In the **Service Design Stage**, the concept, the system and the service process are designed. This step is crucial in the development process, as it is the one which has the greatest influence on the final service rendered (Tax and Stuart 1997). This stage also

involves the formal definition of the objectives for new service offering, such as target market and financial performance goals (Froehle and Roth 2007). In this context, service design is only one stage of the development process.

However, the new service design field has adopted a broader approach, involving understanding users and their context, understanding service providers and social practices, and translating this understanding into the development of evidence and service systems interaction (Evenson 2008). Others authors such as Zeithaml et al., (1990); Martin and Horne, (1999); Patrício et al. (2011) have used the service design stage to cover the whole process from idea to specification.

The **Service Deployment and Implementation Stage** completes the typical NSD process via practices that bring the new service offering to the market. Formalized promotions and advertising are usually considered appropriate practices during this stage. Gathering of marketing data and customer feedback is vital to ensure that the new service is providing what customers anticipated and to uncover any unforeseen lapses in the new service process (Froehle and Roth 2007).

The degree of formalization and control of the NSD process will depend on how many and which people have the autonomy and entrepreneurial behaviour for innovation. The initial stages are essentially complex and often poorly controlled whereas the final stages are highly formalized and controlled (Sundbo 1997). The author also emphasizes that the participation of customers in the NSD process is even more valuable in services than in physical products. This statement is consistent with the statements already made by Edvardsson, Gustafsson and Roos (2005) and Lusch, Vargo et al. (2007) about the new service concept.

So far we have been mentioning only linear NSD process; however, some researchers have proposed nonlinear frameworks, hoping to attain different perspectives and insights into the development of new services.

Johnson et al. (2000) abandoned the traditional linear models and added nonlinear elements to the NSD model, emphasizing the interdependence of design and development as well as the cyclical aspects of the new service creation process. Their work is among the first to critically examine the nonlinear nature of the new service design process (as it can be seen in Figure 2.4) (Johnson, Menor et al. 2000).

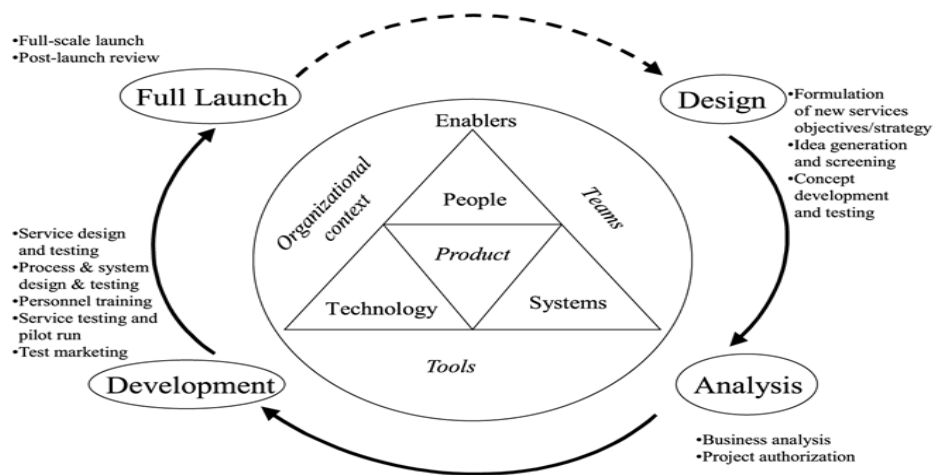


Figure 2.4: New Service Development adapted from Johnson et al. (2000).

A nonlinear model has also been developed by considering the organizational learning that can occur during the development of new services. An example of this is an empirical study of American financial firms (Eric Reidenbach and Moak 1986) which highlighted that companies using nonlinear and formal procedures succeed more frequently, even if duration of development process is longer .

This cyclic model of the NSD process is characterized by emphasizing the iterative and nonlinear character of four major stages: Design, Analysis, Development and Release, and contains as a central element the organizational understanding of the service concept, shared by the project team and by the organization.

In summary, the review of extant research reveals that NSD is a complex process given the intra- and extra-organizational relationships which are necessary to undertake all NSD stages (Albrecht 2000). Due to this complexity, a remarkable number of researchers have attempted to identify factors that influence the NSD process performance along its different stages.

2.1.6 New Service Development Process Performance Factors

NPD performance factors have been studied in the last decades. However, the typical service characteristics, such as: intangibility, heterogeneity, inseparability and perishability (Ojanen, Lanne et al. 2008) and the large growth of research in the NSD process field, have shown that new factors arise that differ from NPD process.

NSD performance factors have been studied as: critical factors, key factors or success critical factors, but there is not a common term covering this subject. In this research we adopt the term “**NSD performance factors**” to refer to all the characteristics that have a positive or negative influence in the NSD process performance and final service success.

The definition of success is a key concept in the study of product and service development process (Baker 1974). On the one hand, a revision about NPD and NSD does not allow us to identify “success” in an unequivocal way. Some researchers

highlight that if the stakeholders are satisfied with the new service, this can be considered a success (Smith and Fischbacher 2005).

On the other hand, according to De Brentani, financial factors (sales volume, market share and profitability) are the main factors in evaluating the results of a new service, determining its success or failure (De Brentani 1991). However, non-financial aspects are also important; for instance, the improvement of customer relationships, increase of loyalty, attracting new clients, repositioning the company, improving the image and opening new markets (Cooper, Easingwood et al. 1994). Based on these studies, success can be achieved when a company is able to develop a service that can create value not only for the customers but also for other stakeholders. However, since the evaluation of this value is given by stakeholder satisfaction (Gummesson 1998), success is a highly relative concept, a personal judgment formed by each stakeholder and consequently more difficult to measure (Zeithaml, Berry et al. 1993).

In the last decades empirical research has attempted to identify the factors influencing NSD performance. These NSD performance factors can be divided, into internal and external (Ojanen, Lanne et al. 2008).

Internal factors are associated with the strengths and weaknesses of the firm, such as innovation competence or design of the company's NSD process (Froehle and Roth 2007; Lusch, Vargo et al. 2007).

External factors, in turn, are related to how the benefits of the new services address the opportunities and threats in the market environment. These include, for example, the fit between customer needs and the service offer, and the fit between the new service and the existing portfolio. A number of studies have also focused on the contribution of supporting functions in the innovating organization, such as marketing, sales and distribution (Lusch, Vargo et al. 2007).

Based on extant research, these internal and external NSD performance factors can be classified, into five different groups: (1) Organizational Culture, (2) Marketing Factors, (3) Service Factors, (4) Market Factors, (5) Organizational Process, as shown in Table 2.3.

Organizational Culture involves the organization's principles, philosophy, guidelines, strategies, activities, cognitive processes and behavioural system. These factors consist of four different dimensions, such as: market orientation, quality approach, top management support and innovation culture (Ferreira, Neves et al. 2001).

Marketing Factors involve the marketing strategy employed, people's knowledge and distribution channel support (Storey and Easingwood 1993). Other studies also point out the firm's marketing capability, front-line personnel, market analysis, ability to communicate with clients (De Brentani and Ragot 1996).

Communication strategy and intermediary support (Easingwood and Storey 1993) are also important aspects of Marketing Factors. This type of communication has a great impact on the success of the new services, not only because it lets consumers participate in the development processes but also because the company can communicate the benefits of the services through these processes (De Brentani 1991).

Service Factors include the service competitive advantage and service-company synergy as essential elements. Service-company synergy constitutes a strong predictor of success. This factor is related to the degree to which the resources required to develop market innovations fit the firm's skills. In other words, this factor involves the firm's ability to benefit from its existing delivery systems, sales, market research system and managerial skills (Atuahene Gima 1995; Oldenboom and Abratt 2000).

Table 2.3
NSD Performance Factors

GROUP OF GENERAL FACTOR	NAME	SUB-FACTORS	RESEARCHERS CONSIDERING THE FACTOR
Organizational Culture	Market Orientation	1. Strong Consumer Orientation 2. Strong Company- Consumer Relationship 3. Marketing Intelligence	Atuahene-Gima (1995, 1996); Bean and Radford (2001), Bendapudi and Leone (2003); Bowers (1989); Cooper and De Brentani (1991); Cooper et al. (1994); Cooper and Edgett (1996); Cooper and Kleinschmidt (1995); De Brentani (1989, 1991, 1995, 2001); De Brentani and Cooper (1992); Drew (1995); Easingwood and Storey (1993); Edgett (1994); Edgett and Parkinson (1994); Edvardsson et al. (1995); Hillebrand and Biemans (2004); Johne and Storey (1998), Kahn (1996, 2001); Langerak et al. (2004); Lilien et al. (2002); Martin (1996); Martin and Horne (1995); Odelboom and Abratt (2000); Ottum and Moore, (1997); Santoro (2000); Storey and Easingwood (1996, 1998); Vazquez et al. (2001).
	Quality Approach	1. Quality Approach	Atuahene-Gima (1996); Cooper and De Brentani (1991); Cooper and Edgett (1996); Cooper and Kleinschmidt (1995); De Brentani (1989, 1991, 1995); De Brentani and Cooper (1992); Easingwood and Storey (1993); Edgett (1996); Edvardsson et al. (1995); Odelboom and Abratt (2000); Storey and Easingwood (1996, 1998)
	Top Management Support	1.Top Management Support	Atuahene-Gima (1995,1996); Bowers (1989); Cooper and Edgett (1996); De Brentani (1991; 1995; 2001); Drew (1995); Easingwood and Storey (1993), Edgett (1994); Edgett and Parkinson (1994); Edvardsson et al. (1995); Hillebrand and Biemans (2004); Johne and Storey (1998) Martin (1996); Martin and Horne (1995); Odelboom and Abratt (2000); Storey and Easingwood (1996, 1998).
	Innovation Culture	1. Innovation Culture	Bean and Radford (2001); Buckler and Zien (1996) De Brentani (1995, 2001); De Brentani and Ragot (1996); Drew (1995); Johne and Storey (1998); Storey and Kelly (2001); Storey and Easingwood (1996).
Marketing Factors	Marketing Efficiency And Effectiveness	1. Marketing Support 2. Marketing Efficiency and Effectiveness 3. Execution Quality Of Marketing Activities 4. Communication Strategy Effectiveness 5. Intermediary Support 6. Strong Company Reputation and Image 7. Front-Line Personnel 8. Strong Marketing Research 9. Customer Participation	Atuahene-Gima (1995); Cooper and De Brentani, (1991); Cooper and Kleinschmidt (1995); Cooper et al. (1994); De Brentani and Ragot (1996) Easingwood and Storey (1991, 1993) Edgett and Parkinson (1994); Storey and Easingwood (1993, 1996, 1998)

Table 2.3
NSD Performance Factors (cont.)

Service Factors	Differentiation Advantage	<ol style="list-style-type: none"> 1. Differentiation Advantage 2. Product/service Superiority 3. Technology Advantage 	Atuahene-Gima (1995,1996); Cooper and De Brentani (1991); Cooper et al. (1994); Cooper and Edgett (1996); Cooper and Kleinschmidt (1995); De Brentani (1989, 1991); De Brentani and Cooper (1992); De Brentani and Ragot (1996); Easingwood and Storey (1991, 1993); Oldenboom and Abratt, (2000), Storey and Easingwood (1993, 1996, 1998).
	Service/Company Synergy	<ol style="list-style-type: none"> 1. Marketing Resources Fit 2. Technology Resources Fit 3. Human Resources Fit 4. Financial Resources Fit 5. Service Expertise 	Atuahene-Gima (1996); Cooper and De Brentani (1991); Cooper and Kleinschmidt (1995); De Brentani (1989, 1991; 1995, 2001); De Brentani and Cooper (1992); Edgett (1994); Edgett and Parkinson (1994); Storey and Easingwood (1993, 1996), Oldenboom and Abratt (2000).
Market Factors	Market Potential	<ol style="list-style-type: none"> 1. Market Potential 2. Attractiveness 3. Market Growth 4. Attractive Company Position 	Atuahene-Gima (1996); De Brentani (1991; 1995, 2001); De Brentani and Cooper (1992); De Brentani and Droge (1985); De Brentani and Ragot (1996); Edgett (1994); Edgett and Parkinson (1994); Hart et al., (2003); Storey and Easingwood (1996).
	Service/Market Fit	<ol style="list-style-type: none"> 1. Service/Market Fit 	Cooper and De Brentani (1991); Cooper and Kleinschmidt (1995).
NSD Organizational Factors	Development Process	<ol style="list-style-type: none"> 1. Formality, Complexity and Proficiency 2. Development Process 3. Proficiency of Pre-development Activities 4. Speed in the Development and Launch 5. Proficiency in Release Process 6. Quality of Service Delivery 	Atuahene-Gima (1995, 1996); Bowers (1989); Cooper and De Brentani (1991); Cooper and Edgett (1996); Cooper and Kleinschmidt (1995); Cooper et al. (1994); De Brentani (1989, 1991; 1995, 2001); Drew (1995); Edgett (1994, 1996); Edgett and Parkinson (1994); Griffin (1997), John and Storey (1998); Storey and Easingwood (1996, 1998); Storey and Kelly (2001).

This fit can be the result of several elements: financial resources, marketing expertise, marketing resources, delivery systems, technology systems, product assortment, management expertise, market research expertise and so forth (Storey and Easingwood 1993).

Market Factors involve two basic aspects: the market potential and the service market fit. Basically, the market potential is defined by the level of market growth and market size (De Brentani and Ragot 1996) company market position, the level of customer loyalty and satisfaction with existing brands, the degree of familiarity with the product class and the lack of competition in the marketplace (Storey and Easingwood 1993; Cooper, Easingwood et al. 1994).

Services with a high service-market fit satisfy customer needs clearly, respond to important changes in customer needs or desires and are consistent with customer value and operating systems (Cooper and de Brentani 1991).

NSD Organizational Factors involve all the processes that are implemented for the correct development of a new service. Basically, this group includes the new service development process and the creation of a performance measurement system (John and Storey 1998).

According to De Brentani (2001) although the formalization of the NSD process is generally low in the service industry, companies that employ a formal NSD process, with clearly defined stages and tasks, based on these mentioned factors, obtain the best results in terms of success of the new service. In that context, for the new service to reach success, it must be truly innovative and unique in the eyes of the customer, in other words, the project of the new service must build an "advantage" to inhibit competition imitations and ensure better business results, while maintaining proper alignment with the company's skills.

To sum up, the literature review reveals that several empirical findings have shown the importance of the factors mentioned above as crucial to NSD performance. However, these factors have not been studied when the NSD process happens in the Collaborative Network context and do not analyze how these factors evolve through the different stages of the NSD process.

2.2 Collaborative Networks

“It has become necessary to cooperate to compete”
Ohmae (1989)

Due to the fierce market competition and new customer demands, service innovation has become essential for achieving and keeping the competitiveness (Dörner, Gassmann et al. 2011). To survive in this current scenario and better meet client needs companies are trying to re-invent their businesses and maintain their competitive advantage through collaboration (Bititci, Martinez et al. 2004).

Companies are increasingly opting for collaborative relationships with other businesses in the context of strategic outsourcing (Espino Rodríguez and Padrón Robaina 2006). Thus, the Developer Company of a new product or service endeavours to develop its central activities, delegating those secondary activities to its partners (Pires, Bremer et al. 2001). The collaborative relationship through the strategic outsourcing since the early stages of NPD and NSD have provided a reduction of time and cost of these processes.

The outsourcing strategy, basically, consists in the practice of transferring to others the responsibility of performing tasks considered as secondary within the organization. This practice, which began with the transfer of services to security, cleaning and feeding, now covers a large number of activities that were once done

internally by companies that can, according to those which adopted them, concentrate their activities on their core business (Paletta and Anchieta 2009). However, in the last ten years, new theories have appear that analyse outsourcing from other perspectives, such as the Resource-Based View of the firm (RBV).

Within the RBV of the firm, the core business approach provides one of the most powerful frameworks for explaining the reasons for outsourcing (Gilley and Rasheed 2000). This approach suggests that an organization must invest in the activities comprising its core business and outsource the rest (Prahalad and Hamel 1990; Espino Rodríguez and Padrón Robaina 2006). Therefore, A Resource-based View understands the company's resources as a base for its differentiation and for the development of competitive advantage (Amit and Schoemaker 1993; Foss 1996).

The collaborative relationship between partner companies in the outsourcing context has been studied in the Collaborative Networks (CNs) framework. CNs are increasingly feasible thanks to the fast development computer networks, which offer base conditions for the establishment of a networked society where new forms of collaboration are explored. In the last years a large variety of CNs have emerged due to the fast progress in the information and communication technologies (Camarinha-Matos and Afsarmanesh 2008).

Collaboration is defined as a type of cross-organizational linkage in addition to high levels of transparency, mindfulness, and synergies in participants' interactions (Emden, Calantone et al. 2006). CNs comprise a cross-business relationship, integrating knowledge and skills of different stakeholders, to implement projects of common interest and achieve strategic competitive objectives (Rycroft and Kash 2004; Williams 2005; Tsai 2009)

Research suggests that a company can advance its product and service innovation by interacting with different collaborators, primarily including suppliers, customers, competitors and research organizations (Tsai 2009). Suppliers usually have a greater expertise and more comprehensive knowledge regarding the parts and components which may be critical to the companies' new product and service development. Thus, supplier collaboration can allow companies to incorporate the expertise and different perspective of a supplier to improve its solutions or create new methods for product and service development (Bonaccorsi and Lipparine 1994; Eisenhardt and Tabrizi 1995).

In this context, CNs emerges as a real possibility for business development, based on association, complementarity, sharing, change and mutual support (Deck and Strom 2002). This trend has so far led to a growing interest in CNs and has led to the development of an extensive amount of empirical knowledge that now needs to be organized and leveraged (Camarinha-Matos and Afsarmanesh 2005).

These CNs may be formed between service providers and consumers, and among different providers. Such relationships can offer a variety of value propositions depending on the degree of multiple network members' involvement in value co-creation process (Ostrom et al, 2010) allowing the innovation and improved production efficiency in the process of NSD and NPD (Afsarmanesh and Msanjila 2010).

There are several drivers for the creation of CNs such as: (1) access to new technologies (Mohr and Speakman 1994; Tsai 2006); (2) creation or exploitation of new markets (Litter, Leverick and Bruce 1995); (3) risk and cost reduction and (4) value creation (Syson and Perks 2004).

Koza and Lewin (1998) highlights others reasons for establishing relationship swith partner companies in the CNs context, such as: the need of critical mass, co-specialization and learn. These reasons are presented in Table 2.4:

Table 2.4
 Three Main Types of the CNs according to Koza and Lewin (1998)
Source: (Koza and Lewin 1998)

CN'S TYPES	DESCRIPTION
(4) The need of critical mass	Dimension companies that participate in the network can reach by forming partnerships with competitors or complementary product suppliers. This can generate cost and price reduction for the final customer.
(5) Co-specialization	Allowing each partner to concentrate on the activities which are more suited to their abilities. It is very interesting for the companies which act in different regions of a same country and many times need specialized "manpower" such as, for example, local knowledge, marketing, customer support.
(6) Learn	To establish relationships with several partners and develop competencies which could be widely explored.

Due to geographical difficulties, such as the entrance in a foreign market, or by its own segmentation, which demands specific knowledge about customers and suppliers, the cooperation between companies of different nationalities most of the times accelerates the process of development of new products and services (Wheelen and Hunger 1986; Teece and Herbane 2002).

Although collaboration has become the next generation for NSD and NPD practices in a world where product and service innovation is increasingly challenging there has been relatively little academic research on collaboration in NSD and NPD processes (Emden, Calantone et al. 2006).

According to Camarinha-Matos and Afsarmanesh (2008) in the last decades a growing number of practical implementations show that CNs can assume different forms (Camarinha-Matos and Afsarmanesh 2008), as can be observed in Figure 2.5.



Figure 2.5: Some “manifestation” of Collaborative Networks.
Source: (Camarinha-Matos and Afsarmanesh 2008)

Based on Figure 2.5, CNs can be formed by organizations through partnerships, virtual teams and strategic agreement. Often among these CNs there are organizational junction, through which companies deliberately decide to start a specific common project, although they still continue independent after a contract (Lipnack and Stamps 1994). In this context, the concept of networks, strategic partnership and alliances, as well as other forms of the collaboration between companies, is being observed as a cooperation strategy by company managers facing the turbulent and complex business environment (Olave and Amato Neto 2001).

2.2.1 Collaborative Network Concept

Managers recognize the reality of adapting to a turbulent and rapidly changing global environment. They seek to reduce costs, create more flexible organizational designs and built competitive advantage around the core competences of the organization (Cravens, Piercy et al. 2000). However, sustaining competitive advantage

increasingly requires co-operation because a single company cannot execute its strategy without drawing the skills and resources of other organizations (Nieto and Santamaría 2007).

The 1990s and early 2000s correspond to the stage in which the cooperation phenomenon through the CNs has been described and interpreted in many different ways, depending on the background of the researcher (Kuhn 1975). However, there is not yet a common definition of basic concepts for CN (Leon 1998; Camarinha-Matos and Afsarmanesh 2005).

The CNs are complex systems, emerging in many forms in different application domains, and consist of many facets of which proper understanding requires the contribution from multiple disciplines (León and Amato Neto 2001). Therefore, CNs emerge as a real possibility for business development, based on association, complementation, sharing, change and mutual support (Tsai 2009).

In this research, we adopt the definition of CN as a set of independent organizations that collaborate between themselves, through the provision of goods and services in order to achieve common objectives, and are characterized according to the goals previously established from the relationship network (Lewis 1992; Rosenfeld 1997; Camarinha-Matos and Afsarmanesh 2008).

CNs focus on external interactions among autonomous entities; the roles of those entities; the main components that define the proper interaction among entities; the value systems that regulate the evolution of the collaborative association; and the emerging collective behaviour (e.g. trust, teamwork) (Camarinha-Matos and Afsarmanesh 2005). In this context, different forms of the CNs have been created and many projects in a broad range of sectors have been successfully developed through CNs with significantly increased value outputs (Katzy, Zhang et al. 2005).

2.2.2 Collaborative Network Characteristics

In spite of the consensus on the advantages provided by the establishment of CNs, there are also some important drawbacks that appear as strong barriers to the success of its development and consolidation (Spekman and Carraway 2006). When a group of companies decides to establish partnerships with the aim of developing a new project, different characteristics, whether tangible or intangible, should be taken into account (Austin 2001).

These characteristics can be classified along two different dimensions: (1) Partner Characteristics and (2) Relationship Characteristics (Glagola and Sheedy 2002; Radziszewska-Zielina, 2010).

CNs Partner Characteristics

CN Partner's characteristics are attributes that partner companies involved in the CNs should satisfy for developing activities in the complex NSD projects. Table 2.5 presents a summary of these characteristics, followed by a brief description and the supporting literature.

As shown in Table 2.5, for CN success, partners should have reasonably compatible **systems, structures and processes** (Wheelen and Hungar 2000; Arino, De la Torre, 1998 *apud* Camarinha-Matos and Afsarmanesh 2008). If a minimum of compatibility exists, the adaptation costs and the risks associated with the coordination process are minimized (Moffat and Archer 2004).

Table 2.5
CNS – Partner Characteristics

PARTNER CHARACTERISTICS	DESCRIPTION	AUTHORS
Compatibility of the structure, systems, culture and processes	To build successful CNS in NSD, partners should have reasonably compatible systems, structures and processes. This is an important requirement as the lack of compatibility brings high costs and risks associated with the process coordination.	Wheelen and Hungar, 2000, (Arino, De la Torre 1998 <i>apud</i> Kale, Dyer, Singh 2002; (Camarinha-Matos and Afsarmanesh 2008)
Shared skills and capabilities	For inter-organizational cooperation to be effective, it is necessary for companies to share knowledge, skills and abilities, with new partners. Sharing skills between firms can be crucial for the success of the partnership.	Dyer; Hatch 2004 <i>apud</i> Bornia and Lorandi 2008.
Previous partnership experience	The success of a CN also depends on partners' previous experience from past projects developed with partners. This past experience often represents an important capability, not only for the network establishment, but also for its management and development.	Anand and Khanna 2000; Emult and Kathawala 2001.
Flexibility	Given that the current market is constantly changing, companies should have flexibility to adapt themselves to market demand in terms of processes, changes in volume and mix of production or delivery time.	Léon and Amato Neto, 2001.
Customer Focus	A company that focuses on the customer and tries to create a closer relationship with the client by understanding its expectations and emotions is able to offer a better service, through a prompt response to customer demand.	(Jabnoun 2001; Smith, Fischbacher et al. 2007)

In this line, the compatibility of processes, systems and structures between partners is crucial as it involves partners' ability to work together in a productively with a clear orientation to outcomes. This compatibility is related to two aspects: (1st) working philosophy and (2nd) receptivity and cooperation for a collective solution of problems (Whipple and Frankel 2000).

Since there are many companies involved in a collaborative network to develop new services, companies that have the ability to **share skills and capabilities** help to create a harmonious work environment (Dyer; Hatch 2004 *apud* Bornia and Lorandi

2008). Thus, sharing of skills becomes a crucial feature for any company wishing to stay ahead of its competitors. This skills and capabilities sharing among the network partner companies also have an impact in the technological capacity of the firms (Hitt, Ireland and Hoskisson 2007).

Network success also depends on the partner's **partnership experience** in previous projects. Companies with accumulated experience in past projects in collaborative contexts can perform better than companies without previous experience. The abilities accumulated in other projects involving collaborative networks enhance the network strength and by consequence potentiate NSD process success (Anand and Khanna 2004).

In addition to this accumulated experience partner companies should be **flexible**, given the complexity involved in the NSD process and the vicissitude of market trends. Companies need to have flexibility to adapt themselves to process changes (Leon and Amato Neto 2001).

Still according to Leon and Amato Neto (2001) a flexible organization is able to adapt its processes, products and services to the needs of the market and of the client, always aiming excellence. Flexibility is a quintessential attribute in global economic instability times, where customer needs are constantly changing and technological development is hastily.

In this context, customers observe small differences between product offerings and services companies. The ability of organizations to combine activities to provide differentiated and innovative services is an attractive way in the development process of new services (Syson and Perks 2004).

Still according to Syson and Perks (2004) companies that focus on what the clients seek currently notice their needs and anticipate future expectations and market trends.

When these needs are identified, the NSD and NPD process can be adjusted and companies are able to develop and deliver differentiated products and services that will satisfy customers in their market or even reach new segments.

In summary, extant research reveals that it is extremely important for the organization responsible for the network formation to make a careful selection of partner companies, taking into account the aforementioned partner characteristics. This will facilitate the following stages of the project development, preventing future conflicts that may happen among partner companies.

Partner selection is one of the most crucial moments of the network formation and involves the three critical steps: (1st) the identification, (2nd) the selection and (3rd) the proximity with the new partners (Harbison and Pekar 1998).

It is highly important that the organization in charge of the network formation spends time to understand each partner and recognize that a suitable and detailed evaluation cannot be done with a single meeting, but rather based on a refined analytical process (Herrmann and Estes 2001).

In spite of uncertainties, conflicts and priority changes, some managers disregard the fact that partner's ability to work in a cooperative way is important to reach value creation in a network (Kelly, Schaan et al. 2002). Such managers usually reserve more time to select potential partners based on financial aspects, rather than managing the partnership in human terms. These managers tend to be more concerned about the relationship control than to its maintenance (Kanter 1994). Also, companies often focus on less important characteristics for partner selection, such as the company position in the market or its financial capacity, leaving behind more relevant aspects which could have a negative influence in the CN success (Duysters, Kok et al. 1999).

After the selection process of partner companies, this is, when the collaborative network for the NSD process is already formed, it is time to evaluate the characteristics that may influence the success of the relationship between partner companies in the network: CNs Relationship Characteristics.

CNs Relationship Characteristics

Relationship characteristics correspond to some attributes of the relationship established among the CNs partners. These relationship characteristics become crucial to CN success. Table 2.6 presents the key characteristics that can influence the success of the relationship network.

In some cases the relationship between partner companies is only established on the basis of trust, without a formal process that characterizes the compromise between companies (Balestrin and Vargas 2004). However, the **contract** is a very important feature for the success of the relationship network, as it is used to formalize the partnership and will work as a marker of the partnership relationship. It involves relationship planning, which defines the rules of its establishment and working (Zawislak 2002).

Trust is considered the main intangible asset of a cooperation network and is considered one of the most important and relevant characteristics for its success. Establishing and keeping trust in the relationship is a challenging aspect, due to cultural and institutional barriers (Child and Rodrigues 1999). Trust is crucial for the relationship since each partner depends on the other to achieve its own goals (Whipple and Frankel 2000) and mutual trust is an important characteristic for the maintenance of long-term relationships.

In order to reduce business risk, partners obtain agreement at decisions and develop constructive arguments. Trust helps by minimizing the need for hierarchical control. However, keeping this mutual trust requires continued effort, through value sharing, efficient communication, relationship investment and the establishment of clear rules.

In a network relationship, **communication** as well as information flow between all partners is of extreme importance for relationship success. The network manager should be apt to use the information and regularly disseminate the information to all companies involved in the network, in order to generate value aiming at relationship success (Yoshino 1996).

The coordination of action across the network depends on the information flow among stakeholders – not just information about the provision of service and resource allocation but also information about customer needs, provider capabilities, and more. Opportunity lies not in technology for information sharing, but rather in the larger context of human communication (Spohrer and Maglio 2010).

An effective communication should involve all levels of organization and consists of formal and informal exchange of relevant information for a specific project which allows task coordination and partner learning (Junior and Ribeiro 2001).

Das and Teng (2000) highlight three reasons by which communication is a critical characteristic in a network relationship: (1) open and convenient communication allows partners to express their concerns and differences, which if not well solved can undermine the future of the relationship; (2) communication helps partners to build trust and (3) the communication provides the basis for a continuous interaction between partners, helping in the development of common values and goals.

Table 2.6
CNs - Relationship Characteristics

RELATIONSHIP CHARACTERISTICS	DESCRIPTION	AUTHORS
Contract	The contract is essential to any type of relationship between partner companies. Contracts indicate rules, responsibilities and duties, among several other aspects, in order to avoid future annoyances that may be harmful for the development of a project with quality.	Zawislak 2002; Peng and Kellogg 2003; Gomes-Casseres 1999; Whipple and Frankel 2000.
Trust	A critical and relevant factor for the success of a relationship in network is the trust between all the stakeholders involved in a project. To establish and maintain trust in the partner relationship is a challenging aspect, due to the crossing of cultural and institutional barriers which strongly support the trust in a shared common social identity, rules of acting and institutional elements.	Child 1999; Whipple and Frankel 2001; Austin 2001; Júnior and Ribeiro, 2001.
Communication	In a network relationship, communication is of extreme importance and the network manager should be competent to use the information, in order to generate value aimed at establishing the relationship first and consequently the objectives' success. The manager should also be ascertained of the dividing line between information which aggregates value and harmful information.	Yoshino and Rangan 1996; Maglio 2010; Das and Teng 1998; Júnior e Ribeiro 2001; Peng and Kellogg 2003.
Experience exchange	Experience exchange is a highly important factor and could be defined as a process by which a participating member of the Collaborative Network is directly affected by the other's experience.	Yoshino and Rangan 1995; Maglio 2010; Inkpen 1998.
Commitment	The authors highlight that when a stage is conducted, managers should articulate and understand the propelling factors of the network in order to emphasize the commitment of all the involved parts.	Harbison and Peka JR 1999).
Dedicated management	The network management assumes an essential role in the durable relationship and success formatting, capable of allowing partners to obtain a top performance and a sustainable competitive advantage, gathering value in the proposed project at the time of the network formation.	Zawislak 2002; Austin 2001; (Weiss and Visoni 2001).
Evaluation of Network Performance	Monitoring the collaboration and interaction process between companies in general, and not only monitoring the reached results, is highlighted as an important relationship factor.	(Doz and Hamel 2000). (Whipple and Frankel 2000); Yoshino and Rangan 1996); Zawislak 2002; Cravens, Percy and Cravens, 2000; Kaplan and Norton (1997).

In this context, an intense and structured communication provides the basis to **experience exchange** between companies that work in the network. The efficiency and knowledge acquisition is directly related to the absorbing ability (Inkpen 2000) and is an important value added for partner companies. Therefore, the experience exchange ability is critical, because without an active participation of the companies the experience exchange does not occur.

Successful companies define processes to spread the knowledge of better practices and internally try them. The most popular approaches include electronic systems of knowledge management, seminars and other activities developed together with partner companies (Herrmann and Estes 2001). Experience exchange is therefore a highly important factor and can be defined as a process by which partners of the Collaborative Network are directly affected by others' experience.

Research indicates that only one in each five organizations have pre-established orientations to maintain relationship network success (Austin 2000). A formal management of this process is still hard to find and is seldom effective. Previous studies show that network management requires a relationship with strong **commitment** between all partners involved in the CN and not only business administration.

Therefore, CNs should have a manager or group of managers especially dedicated to create and maintain a contact link for questions related to the network objectives. This person or group should be in charge of the stimulus of the cooperative relationship based on the company values and network strategies and objectives.

According to Ertel, Weiss and Visoni (2001) commitment involves the importance of a person who is fulltime dedicated to the CN. This person is frequently called the manager or relationship manager; he/she not only controls the business objectives and the project but also follows the daily relationship. The network manager occupies a key

position in the CN and is the direct responsible for its success (Gnyawali and Madhavan 2001).

Network **dedicated management** therefore assumes an essential role in long term relationship success, capable of allowing partners to obtain top performance and a sustainable competitive advantage, and ensuring success of NSD projects (Austin 2000).

Companies that systematically create more value by the network relationship with others adopt a managerial function dedicated to the network. Studies revealed that companies that have a CNs dedicated management reach 25% higher success rate on their long-term relationship (Kale, Singh et al. 2000).

The supervision of partner's contributions is a way of reinforcing the relationship and consists in the evaluation and supervision of the value added by partners related to the human, financial and material resources. The degree of assistance to the obligations for the success of the relationship shows the need for having a commitment and for this it should be supervised (Yoshino 1996).

With the same perspective, it is observed the importance of establishing the continuous performance monitoring, measured by indicators such as technologies, market, finance and results obtained. The CN supervision serves as a support to assure that common objectives are achieved for more time and to amplify the advantages of the partnership (Zawislak 2002).

Process of network evaluation is also essential, being considered that the biggest reason for the high failure rate in the network is the negligence given to performance evaluation of what was agreed, highlighting that only 31% of the networks have this formalized process. Cravens, Piercy et al (2000) advocate that performance evaluation of a partnership relationship should involve subjective criteria such as trust, commitment and other intangible criteria.

For the performance measurement, authors such as Kaplan and Norton (1997) developed the *Balanced Scorecard*. Balanced Scorecard is used for offering information created in a systematic way inside the to evaluate the value generation of the organization for current and future customers. The *Balanced Scorecard* illustrates how a company strategy is translated and it is based on five perspectives: (1) financial, (2) customers, (3) internal processes, (4) learning and (5) development.

In light of the aforementioned and besides the problems and challenges that companies face in the formation and in Collaborative Network management, this way of acting, or any other type of cooperation between companies, is increasingly necessary. Nowadays, in a global environment characterized by changing customer needs, competitiveness becomes more difficult without the usage of the technologies and abilities of the partner companies (Austin 2001).

Previous research has addressed CNs and NSD, characterizing these phenomena and identifying key success factors for CNs and process separately but these two areas are not well connected. Therefore, this research contributes to a better understanding of how collaborative networks can influence the NSD performance, integrating the study of these two emergent phenomena.

2.3 Collaborative Networks in New Service Development

Literature review demonstrates the crucial role of NSD for competitiveness of a service company (De Brentani 1995; Van Riel, Lemmink et al. 2004; Halinen and Jaakkola 2011). However, NSD process is very complex involving several stages from idea generation to service implementation (Edvardsson, Gustafsson et al. 2005) and different factors influence the performance of these NSD stages (Ojanen, Lanne et al.

2008). In this context, literature on a broad front emphasizes the role of the inter-organizational collaborative networks for NSD process (Pittaway et al. 2004).

According to the service-dominant logic approach, companies' survival in a network economy requires ability to learn, adapt and change in order to integrate resources with other actors and to offer competitively compelling value propositions to customers (Lusch, Vargo and Tanniru, 2010).

Despite the increasing interest in value creation at the level of service networks, NSD research hardly mentions the networking aspect (Halinen and Jaakkola, 2011). A literature review on inter-firm collaboration in the context of NSD reveals that studies on the topic have been scarce and have appeared in marketing journals only recently (Rusanen, 2009).

Research has mostly focused on customer and user involvement (Matthing, Sanden et al. 2004; Alam 2006; Espino Rodríguez and Padrón Robaina 2006) and the general significance of inter-firm relationships for NSD process (Eisingerich, Rubera et al. 2009). In one of the few network studies, Syson and Perks (2004) conclude that co-operation involving multifaceted networks of a wide range of actors may be a necessity for accessing the resources required for developing innovative services.

To sum up, based on literature review, five main categories of performance factors in the New Service Development process were identified: (1) Organizational Culture, (2) Marketing Factors, (3) Market Factors, (4) Service Factors and (5) Organizational Factors. Collaborative Network performance factors were organized in two main dimensions: (1) Partner characteristics and (2) Relationship characteristics.

The literature review shows that extant research has studied NSD process and CNs separately, but research on NSD process in the CNs context is still scarce. This research contributes to this gap, studying the process of NSD in the context of CNs. This research

identifies the factors that influence the successful performance of the NSD, analyzes how these factors evolve throughout the different stages, and identifies the characteristics of the CN that influence the NSD performance.

Chapter III
RESEARCH DESIGN

The review of extant literature related to New Service Development (NSD) process and Collaborative Networks (CNs) provided a first understanding of NSD performance factors as well as the role of CNs on NSD performance. However, literature review also revealed that further research is needed to better understand the role of CN in the NSD process. In this context, the main contribution of this research holds on the following research questions: (1) How do the companies organize for complex NSD projects? (1a) What are the main stages and performance factors of the NSD process? (2) How does CN influence NSD performance? (2a) What are CN Characteristics that potentiate NSD performance?

This chapter presents the research design that was defined to attain the research objectives. This chapter is organized in the following sections: 3.1 Research Design, 3.2 Empirical Ground and 3.3 Mix Method Approach.

Section 3.1 (Research Design) explains the overall research design, providing the methodology details to deal with each specific research stage that will be presented in each subsequent chapter. Section 3.2 (Empirical Ground) presents the empirical ground of the research and explains why it was considered a rich and appropriated ground to develop this research. Finally, section 3.3 (Mix Method Approach) describes the mix method approach adopted in this research.

3.1 Research Design

The literature review provided a rich view of NSD process, NSD performance factors and CNs. However, it also revealed that some knowledge gaps still existed regarding CNs influence on NSD performance. As already presented in Chapter I, the research objectives were:

- (a) To identify the different stages of complex NSD processes, and understand how and where CNs were formed along these stages;
- (b) To understand NSD performance factors along its different stages;
- (c) To identify CNs characteristics and understand how these characteristics influence NSD performance;
- (d) To generate recommendations for management of CNs in the context of complex NSD projects.

To attain these objectives, the research design adopted a Mix Method Approach with 4 stages, as shown in Figure 3.1: (1^o) **Exploratory Multiple Case Study**, (2^o) **Qualitative Study**, (3^o) **Quantitative Study** and (4^o) **Development of Implications for CNs Management**.

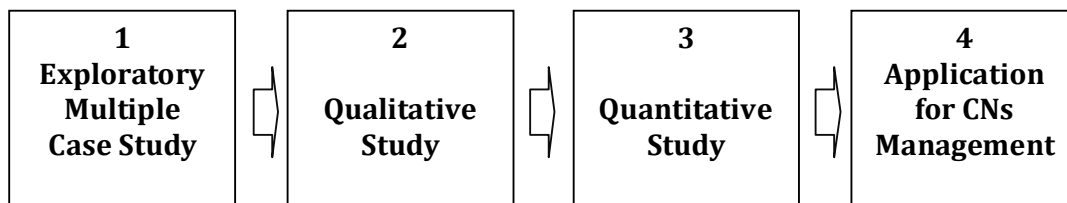


Figure 3.1: The four Stages of the research design.

The **Exploratory Multiple Case Study** aimed to understand the NSD process, to identify the main stages and activities of the process and to analyze when and how the CNs was formed.

The **Qualitative Study** aimed to identify and understand NSD performance factors, how they evolved along different stages and how the collaboration between partner companies influenced NSD performance.

The third stage of this research involved a **Quantitative Study** to measure the impact of CN Quality on NSD performance. In this stage, the results of the qualitative

study served as basis to develop a survey questionnaire according to scale development guidelines (Churchill 1979).

The last stage of this research involved a proposal of a set of recommendations and **implications for CNs Management** in the NSD context. This concerned the definition of a set of implications and the recommendation of a communication platform for companies working in collaborative networks within the NSD process. This platform enabled partners (a) to interact directly with each other and the Developer Company; (b) to exchange ideas, experiences and good practices in order to improve the service process; and (c) to involve partners in continuous improvement and create conditions for the recognition from its peers and superiors.

3.2 Empirical Ground

The Empirical ground is a “cut” that the research makes in terms of space, representing an empirical reality to be studied (Cruz Neto and Minayo 1994). Besides this cut, that refers to the *locus* of research, the author still highlights the importance of people and groups, which occupy a crucial space in social research.

In this research, the empirical field covered four complex NSD Projects of the Shopping Mall type that were developed in the CN context and which were at different stages of the NSD process. By studying several complex NSD projects in different stages, it was possible to understand how NSD performance factors evolved along stages and CN Characteristics that influence NSD performance.

The Developer Company of these four projects is an international shopping centre specialist, with the mission of “*bringing innovation and excitement to the shopping*”

*industry*¹. The company has an integrated approach to the shopping mall business including the ownership, development and management activities. The company's strategy allows to develop a recognized and unique know-how, which is used on the shopping mall development, as well as third-party projects and shopping center operation.

The company has earned an international reputation for the development of innovative services as well as for its management skills, and has been awarded with more international prizes than any other company in its industry².

The partnership policy of the Developer Company, both with international investors and local partners, allows the company to be financially strong and capable of quickly obtain an in-depth knowledge of the market and create new service opportunities.

The four complex NSD projects (*Boulevard Londrina, Guimarães Shopping, Leiria Shopping and Parque Dom Pedro Shopping*), located in Portugal and Brazil, were considered a rich field for this research once the main research objectives meet the characteristics of these four projects, which are:

- (1) The four NSD projects had the same development strategy, as they were managed by the same Developer Company;
- (2) The four NSD projects went through similar NSD processes;
- (3) The four projects were developed in CN contexts;
- (4) Each project was in a different NSD stage.

In a general way, the development time of a complex Shopping Mall project - from the idea generation stage to the operational stage - is approximately three years and

1 Information available on the site of the Developer Company.

2 Idem

involves several partner companies across all the process that goes from architecture companies to cleaning companies. The number of partners involved through all the development process, as well as the volume of investment and sales, change according to the project characteristics. To a better characterization of the four NSD projects under study, the Table 3.1 presents some specific characteristics of each one.

Table 3.1
Characteristics of the NSD projects

CHARACTERISTICS OF THE FOUR NSD PROJECTS				
<i>Characteristics</i>	Boulevard Londrina	Guimarães Shopping	Leiria Shopping	Parque Dom Pedro Shopping
Country	Brazil	Portugal	Portugal	Brazil
ABL*	48,000 m ²	31,500 m ²	44,312 m ²	121,000 m ²
Inauguration	2012	1995 and 2009 (<i>expansion</i>)	2010	2002
Stores	235	113	116	405
Parking Space	2400	1800	2000	8000

*Total shopping mall area.

These four complex NSD projects offered a rich ground for the study, as they involved a high level of complexity, with intense use of CNs along the process. The similarities between projects in terms of NSD process and CNs, also allowed for a better focus on the study of the evolution of NSD performance factors along the different process stages.

In this context, it was possible to achieve the research objectives as well as to answer the research questions, once, the characteristics of these four NSD projects were crucial and allowed the development of this study.

3.3 Mix Method Approach

To attain the research objectives, a Mix Method Approach was chosen and involved 4 stages, as already presented in Figure 3.1 (The four Stages of the research design). These stages were: (1) Exploratory Multiple Case Study, (2) Qualitative Study, (3) Quantitative Study and (4) Implications for CNs Management in the NSD context.

Exploratory Multiple Case Study

The objectives of the **Exploratory Multiple Case Study** were twofold. First, it aimed to understand the NSD process for the cases under study, identifying its main stages, activities, and actors involved. Second the study aimed to analyze when and how CNs were formed along the different stages to the NSD process.

Based on four complex NSD projects, this Exploratory Study involved a Multiple Study Case Approach (Yin 2009). According to Yin (2009) the study of the multiple case allows an analysis of the several cases in detail in its natural environment. This method was considered as the most appropriate to answer the first set of research questions, which were: How do companies organize themselves for complex NSD projects; and which are the main stages of the NSD process?

The study of the four complex NSD projects through the Exploratory Multiple Case Study allowed us to understand the existence of a formal and structured NSD process, which is characterized by different activities, stages and partner companies that work in the NSD projects. This stage also allowed understanding how and where CNs were formed for each NSD stage.

The study results provided the basis for the qualitative study that followed, as it allowed identifying the theoretically relevant interviewees for the qualitative sample and helped to develop the interview protocol.

Qualitative Study

This second stage, the **qualitative study**, had the purpose of understanding NSD performance factors and the role of the CNs on NSD performance.

This stage was based on Grounded Theory (Charmaz 2006) that involves a qualitative method centered in the theories and conceptual systems creation through the construction of inductive data analysis (Charmaz 2006).

Due to the Grounded Theory characteristics (presented in detail in Chapter V – Qualitative Study) this method was considered as the most appropriate to identify the NSD performance factors and to answer the second set of research questions, which were: (2) How do CN influence NSD performance; and what are the CN Characteristics that potentiate NSD performance?

The study was based on 39 in-depth interviews performed with managers of the developer and partner companies involved directly in the NSD projects. The qualitative study results provided an understanding of the performance factors in the NSD process and analyzed how these factors evolve across the NSD stages. The study also allowed identifying CN Characteristics, which we defined as CN Quality Factors, and analyzing how they influence NSD performance. These results served as the basis for the development of the conceptual model and the survey questionnaire for the next stage of the research: the quantitative study.

Quantitative Study

The qualitative study provided an in-depth understanding of CNs role in the NSD process and identified a large set of CN Quality Factors with a potential impact on NSD performance. However, its qualitative nature did not allow generalizations. In this context, the third research stage involved a **quantitative study**, which aimed to measure the impact of CN Quality on NSD performance.

This research stage was based on the survey questionnaire that aimed to identify which are CNs Quality that influence in the NSD performance. The survey questionnaire involved a battery of statements regarding CN Partner characteristics, CN Relationship characteristics and NSD performance and was administered to the four complex NSD projects.

The survey method shows advantages by its simple administration and by reliable data collection, as the answers are limited to the mentioned alternatives. Nevertheless, the interviewees can show some reluctance in giving the desirable information and answering to personal or structured questions and sometimes they determine alternative answers that can lead to beliefs and loss sensation. Despite these limitations, the survey is the commonest method in marketing research (Malhotra 1996).

The quantitative study involved the development and validation of a measurement scale for CNs Quality Factors, analyzing how they impact NSD Performance.

Scale Development Approach

After the definition of the conceptual domain of the constructs (CNs Quality and NSD Performance), the next stage was to develop a measurement scale (Churchill 1979),

that is, the generation of the statements/indicators that would be part of the survey instrument to measure CNs Quality and analyze their impact on NSD Performance.

This method requires a sound theoretical basis to define the research design and the concepts being studied. Therefore, the first stage of research involved a literature review that served as the background, already presented in Chapter II. This stage also involved the specification of the concepts to be measured, which in this case are CN Quality and NSD Performance.

According to Churchill and Iacobucci (2002) developing scales to measure attitude should follow several steps. These steps are: (1) specify the domain of the construct, (2) generate sample of items for the measurement instrument, (3) collect data, (4) purify the measure, (5) assess reliability with new data, (6) assess construct validity and finally (7) analyze the relationship between constructs. This research followed this scale development process to develop a measurement scale for CN Quality and analyze their impact on NSD Performance.

The final survey questionnaire allowed further development of the measurement scales through an iterative process, involving Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM). The EFA helped to identify the dimensions and purify the scales in an iterative process (Churchill 1979), using SPSS 17.

After EFA the process continued through Confirmatory Factor Analysis (CFA) in order to validate the measures by assessing model fit as well as construct reliability, convergent and discriminant validity (Hair, Anderson et al. 2006). The CFA was carried out using AMOS 19. Following the identification of the dimensions of CN Quality and NSD Performance, the process continued with a Structural Equation Modeling (SEM)

approach to study the relationship between constructs, analyzing the impact of CN Quality on NSD Performance (Marôco 2010).

Assessment of measurement scale validity and analysis of structural relationships

As already presented, the aim of the quantitative stage was to measure the impact of the CN Quality on NSD Performance. However, the CN Quality and NSD Performance are concepts that are not directly observable. According to Hair, Anderson et al. (2006) these concepts are denominated as constructs, that is, concepts that can be defined in theory, but cannot be directly measured. As such, it is necessary to develop indicators to represent it.

Psychometric Theory (Nunnally and Bernstein 1994) is the scientific area which covers this topic and highlights that the quality of the measurement instrument is essential for any scientific activities and it is a condition necessary for its credibility.

In this context, it was necessary to develop a valid measure to each construct and to establish relations between measures of different constructs. This research aimed to study the relationship between two constructs: CN Quality and NSD Performance. According to Blunch (2008) it was first necessary to develop valid measures for instrument, in order to understand how CN Quality influence NSD Performance.

The validity of an instrument refers to the fact that it really measures what was proposed (Lindeman 1972). According to Fachel e Camey (2000) the validity concept is often defined through the following question: *are you measuring what you really think it is measuring?* Vianna (1983) highlights four types of validity (content, construct, predictive and concurrent). To this research, the construct validity (instrument)

proposed was done by using techniques suggested by Marôco (2010) that involved three main forms: (1) Content Validity, (2) Predictive Validity and (3) Construct Validity.

Content validity is not determined by statistical measures, once it results from an assessment by experts who analyze the representativeness of the items regarding the concept to be measured. Undertaking a thorough literature review and a qualitative study to identify a rich set of potential indicators for the measure is important to assure that the measure reflects the concept being measured. Predictive Validity is related to the ability of the instrument to function as a predictor, present or future, of the other variable operationally independent. Analyzing how it relates and is able to influence related construct through SEM is a form of assessing predictive validity.

Construct Validity is related to the degree to which an instrument measures what it was designed to measure. It is based on the fact that the concepts to be measured are unobservable latent variables (Marôco 2010). In this research, three aspects of the construct validity were assessed: *convergent, discriminant and nomological validities* (Hair, Anderson et al. 2006).

Convergent validity – Assesses the degree to which two measures of the same concept are correlated. Here the research may look for alternative measures of a concept and then correlate them with the summated scale. High correlations here indicate that the scale is measuring its intended concept.

Discriminant validity – Is the degree to which two conceptually similar concepts are distinct. The empirical test is again the correlation among measures, but this time the summated scale is correlated with a similar, but conceptually distinct measure. Now the correlation should be low, demonstrating that the summated scale is sufficiently different from the other similar concept.

Nomological validity – Refers to the degree that the summated scale makes accurate predictions of other concepts in a theoretically based model. The research must identify theoretically supported relationships from prior research or accepted principles and then assess whether the scale has corresponding relationships.

Summarizing, convergent validity confirms that the scale is correlated with other known measures of the concept; discriminant validity ensures that the scale is sufficiently different from other similar concepts to be distinct; and nomological validity determines if the scale demonstrates the relationships shown to exist based on theory and/or prior research (Hair, Anderson et al. 2006).

Triangulation

Triangulation is a well know method of capturing and analyzing data through different perspectives, in order to reinforce construct validity of the results (Yin, 1994). This research involved different methods and approaches, in order to triangulate the results and enhance the reliability of the research. According to Yin (2009) research reliability can be assured through the use several evidence sources. The convergence of the results coming from several different sources offers an excellent degree of trust to the study. The triangulation process assures that the study findings are convincing and precise. Table 3.2 presents the types of the triangulation.

Table 3.2
Types of the triangulation.
Source: Martins (2008)

TRIANGULATION TYPES	
Data triangulation	Data are obtained from multiple sources.
Researcher triangulation	Several researchers give their opinions about study results.
Theory triangulation	The research is designed and data is analyzed through different theoretical perspectives – Data reading by different theory.
Methodology triangulation	Different approaches/methodologies are used for triangulation of the same study.

If the research findings are corroborated through the use of different data sources, different methods and different theoretical perspectives, then the study results are considered more robust and reliable. Based on Table 3.2 (Types of the triangulation), this study adopted three types of triangulation: data triangulation, theory triangulation and method triangulation.

Data triangulation was done based on documents provided by the Developer Company, such as reports and partnerships agreements, informal talks with managers (information collected in the exploratory study); data obtained through interviews (information collected in the qualitative study); data obtained through survey questionnaire (administered in the quantitative study). *Theory triangulation* was implemented upon extant literature review that covered different perspectives about NSD process and CN. *Methodology triangulation* used three research methods, such as: exploratory multiple case studies, a qualitative study and a quantitative study. All these information - taken from different sources – allowed for reliable and valid inferences about the NSD process in the CN context.

Based on this data triangulation, arising from exploratory multiple case study, qualitative study, quantitative study and extant literature, it was possible to identify the existence of a formal NSD process, which is characterized by professionalism throughout the process and by the type of companies that work in the CN in different stages of the NSD process; to understand the NSD process performance factors and to analyze how these factors change along the NSD stages; and to identify the CN Quality and analyze how they influence NSD Performance. Therefore, the exploratory, qualitative and quantitative studies provided a rigorous elicitation about the NSD process in the CNs context.

Implications for CNs Management

The research results showed that CN management is crucial for a good relationship between partner companies in the NSD context and has an influence on NSD success. The study revealed there was no online platform to allow direct interaction between the members of the CNs involved in the different NSD projects.

In this context, this stage involved the presentation of a proposal for the use of an application for CN Management in the NSD process, which will be presented in the Chapter VII. The main aim of this stage was to suggest the use of a communication / idea management platform so that partner companies' employees could interact directly amongst them.

The proposal for the use of an application of the CN management resulted from the study conclusions, which revealed that CNs were crucial for NSD success, and that communication was a key factor for CN Quality and NSD Performance. However, the study also showed that these companies did not have a CN communication platform,

which makes communication more difficult, especially when partnerships were in different countries, in this case Portugal and Brazil.

Therefore, after several meetings with six partner companies' managers in the NSD process operational stage (three from Brazil and three from Portugal) in three areas (cleaning, maintenance and security), a platform for the management of communication and ideas was presented and a practical demonstration was made. The main users of this platform will be the partner companies' employees that work directly in the NSD process operational stage.

The initial proposal was to put in use the platform for a period of six months, and based on these experience results, to extend its use to other partner companies involved in the NSD process. The project of this platform is better explained in the Chapter VII – Implications for CNs management.

In this context, the central idea of this application was to test a new communication platform to partner companies, offering them the possibility and opportunity to directly interact and exchange ideas about their activities. The focus of this application was to involve companies in the same sector that provide the same services to the Developer Company.

The expected results of this use involved two perspectives: (1) expected results for the Developer Company and (2) expected results for the partner companies. In the Developer Company context, it was expected that the use of this platform allowed for a perception, supervision as well as the possibility of a detailed assessment of the services being rendered by the partners in the NSD process, enriching the partnership between Developer and partner companies.

For the partner companies, the use of the mentioned platform was expected to create a direct communication channel with the other partner companies which render

the service in different shopping malls (Brazil and Portugal), to share ideas and good practices around their functions, creating in this way a mechanism to have their performance recognized by their superiors.

Thus, if these companies had the opportunity to meet and exchange experience on their service through a application to CN's management, the process of service delivered by these companies, as well as the relationship between them, can be optimized, once they would know the reality of their partners, being in this way able to complement its processes and services based on activities in other realities.

Based on what was mentioned, this research allows the understanding in-depth about both phenomenon under study: NSD process and CNs. Therefore, based on research results as well as in the recommendations generated, the companies involved in it demonstrated the interest by its results. Thus, these results can help these companies in management of their future NSD projects in the CN context.

Chapter IV
EXPLORATORY MULTIPLE CASE STUDY

The literature review provided different perspectives on the NSD process, NSD stages and CNs. However, an exploratory step was needed to get a first understanding about how the NSD process in the CN context happens.

The first stage of the research was therefore an Exploratory Multiple Case Study of the four NSD shopping mall projects, to understand the NSD process, its main stages, activities, and actors involved. This exploratory stage also provided an understanding of how and when CNs are formed and what CNs characteristics are most valued both in partner selection and networks operational management.

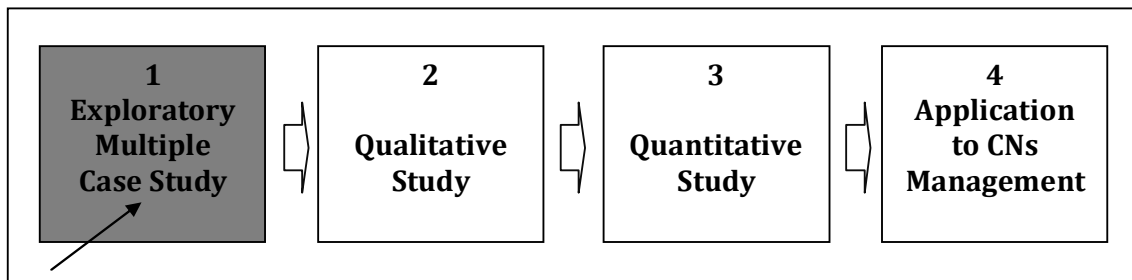


Figure 4.1: The Exploratory Multiple Case Study Stage of research.

The Exploratory Multiple Case Study Chapter is organized as follows: Multiple Case Study methodology, Sample Design and Exploratory Multiple Case Study Results, divided in: *New Service Development Process and Stages*, *NSD process activities and actors*, and *Collaborative Networks in the NSD Stages*.

4.1 Multiple Case Study Methodology

The Exploratory Study used a Multiple Case Study approach (Yin, 2009). This stage studied four complex Shopping Mall projects of a Portuguese company which develops

its activities internationally: two projects were located in Portugal and two were located in Brazil.

According to Yin (2009) the case study method allows researchers to preserve the holism and significant characteristics of real life – such as the individual life cycle, or organizational and administrative processes. In this context the researcher has no control on the events and variables, tries to catch the totality of a situation and creatively describes, understands and interprets the complexity of the cases. This method allows the penetration in social reality which cannot be achieved completely in quantitative evaluations. The case study method was therefore considered the most adequate to get a deeper understanding of each NSD project, with its stages and CNs.

In this exploratory stage of the research, the multiple case study method was chosen, as the objectives of this stage were to understand and characterize the NSD process as well as to study how and when CNs are formed throughout all the process stages. Therefore, it was necessary to research several environments in a natural context to describe the phenomena as it really happens. These facts are understood based on several evidence sources and the researcher does not directly intervene on these results but understands them. In this context, the exploratory study objectives meet the characteristics already presented about the case study method.

The exploratory multiple case study was based on participant observation, interviews and analysis of documents undertaken in São Paulo city – Brazil and Porto city and Lisboa city, both in Portugal. The company under study provided all necessary documents to analyze in detail the complex NSD process of shopping mall type. Based on participant observation of meetings with future partner companies, it was possible to have a first understanding of how and when CNs are established as well as how the selection process of partner companies happens.

Multiple Case Selection

To allow the study of the complex NSD process in different stages and in different environments, four case studies were chosen in four different shopping mall projects. As previously indicated, four projects of the NSD process were studied: (P1) Boulevard Londrina Project (early stages), (P2) Guimarães Shopping Project (construct stage), (P3) Leiria Shopping Project (launch stage) and (P4) Parque Dom Pedro Project (operational stage).

One of the main criteria for the selection of the cases was that each project was in a different development stage. As such, the first project was in the idea generation and concept development stage (early stages), the second was in the construction stage, the third in the launch stage and the fourth in the operation stage.

In this context, these four projects allowed the analysis of different stages of the NSD process as shown in Figure 4.2.

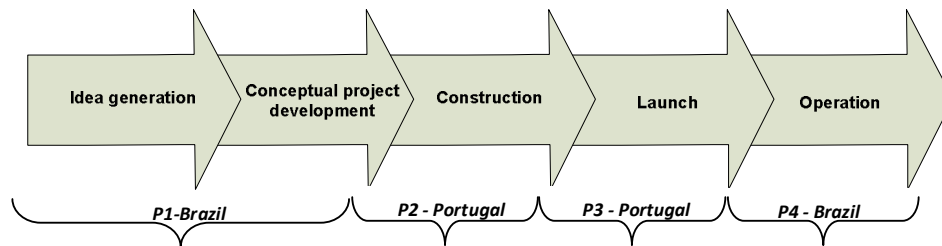


Figure 4.2: Distribution of projects across the NSD Process Stages.

The study of these four projects, in different NSD stages, was a rich research ground and provided interesting evidences about the NSD process, involved activities as well as the role of CNs along this process.

Data Collection

The data collection for the exploratory study involved two main steps. First, the researcher performed unstructured interviews with managers of the different departments of the Developer Company, and collected documents and reports about the NSD process. The documents were provided by the Developer Company and contained important information about the NSD process.

The interviews with managers of the different company areas were unstructured, which allowed understanding the specificities of the NSD process. These interviews were made while the researcher spent time in the company. The interviews covered topics related to the NSD process model, working routine of the departments involved in the process and working relationship between the different workers. The most relevant data were registered in writing during the interviews and at the end a summary of the conversation was made.

The interviews are denominated unstructured for not having followed a structure previously conceived. According to Vergara (2005), an unstructured interview is almost “a conversation left apart”, however with a specific objective of collecting the necessary data. The choice of this type of interview was made due exploratory nature of this first stage, and by understanding that this is a way that allows more liberty to explore the research topic when it is still scarcely understood. All the managers involved in this interview were aware that this research was being developed in the company.

The second activity focused on understanding the partner company selection process for NSD projects, through participant observation in meetings with Developer Company managers as well as managers of the partner companies. The meetings for selecting CNs partners companies were recorded.

Participant observation as a research method is characterized by intense social interactions between researcher and research subjects, being a procedure where the data is collected in a systematic way (Bogdan and Taylor 1975). The attendance to these meetings was of extreme importance to the understanding of partner company's selection process. These meetings were done in 2009 and allowed the comprehension of the relevant factors for the company selection that will be part of the CNs in the NSD process.

In this context, this first stage of research helped understanding the complexity of the NSD projects, through the analysis of all reports and documents and participant observation. This stage allowed for the evaluation of the NSD process, as well as to understand how and when the CN's are formed. The exploratory multiple case study results also served as basis for the development of the interview protocol used in the qualitative stage of the research.

Data Analysis

The reports and documents provided by the Developer Company were analyzed in detail through Content Analysis Technique (Valentim 2005) and classified by NSD stages and CNs.

Content Analysis is considered a technique for data processing that aims to identify what is being said about a topic (Vergara 2005), which in this research, involves NSD process and CNs. This technique works with textual material such as texts that are developed within the research process (interviews, protocols, papers, among others).

In this research stage, the meetings for selection process of the CNs partner companies were recorded and literally transcribed and analyzed based on Content Analysis Technique (Valentim, 2005) with the support of NVivo software.

Using the NVivo software, the collected data were categorized according to main objectives of the exploratory study, which were: (1) to understand the NSD process and (2) to identify how and when that CNs are formed across the NSD process stages. Therefore, these collected data were categorized in two main topics: (1) NSD Stages (2) Partner selection process and CN Characteristics along the NSD process, as can be observed in Figure 4.3.

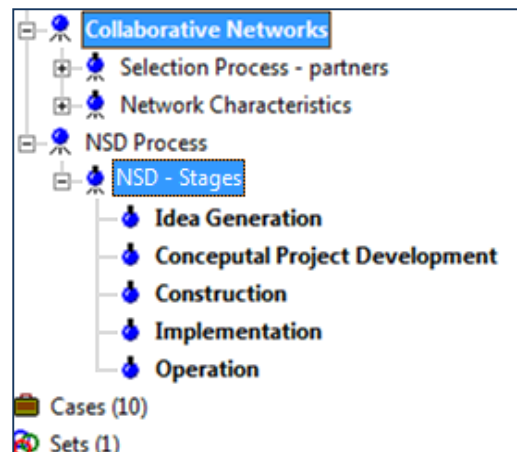


Figure 4.3: Categorization to data analysis – Exploratory Multiple Case Study (NVivo software).

The results from the exploratory multiple case study served as basis to start the next stage of the research - qualitative study, namely to help developing the interview protocol and defining the qualitative sample of companies to be studied.

4.2 Exploratory Multiple Case Study Results

Data analysis allowed a better understanding of the NSD Stages, activities, processes and departments involved in each NSD stage, as well as to understand how and when the CNs were formed. The study also enabled the identification of the main criteria to select companies for the CNs.

4.2.1 New Service Development (NSD) Process and CNs in the NSD Stages

The exploratory multiple case study showed that the process of developing new services in the four complex projects followed a cyclical pattern. This means the process of developing new services does not end, but is constantly evolving.

Five main stages were identified in the NSD process cycle: (1) idea generation and (2) conceptual project development (stages 1 and 2 are defined as early stages in this research), (3) construction, (4) launch and (5) operation. However, the study results revealed that after the service is launched and the operation stage begins, the process doesn't stop. The company is always looking for service improvements that involve an evaluation of the service being provided and an evolution to keep up with new market trends and changes in customer needs. This constant evaluation by the Developer Company is ought to happen given the high competition in the market and the great speed in which customer needs and preferences change. Figure 4.4 depicts the NSD process Cycle.

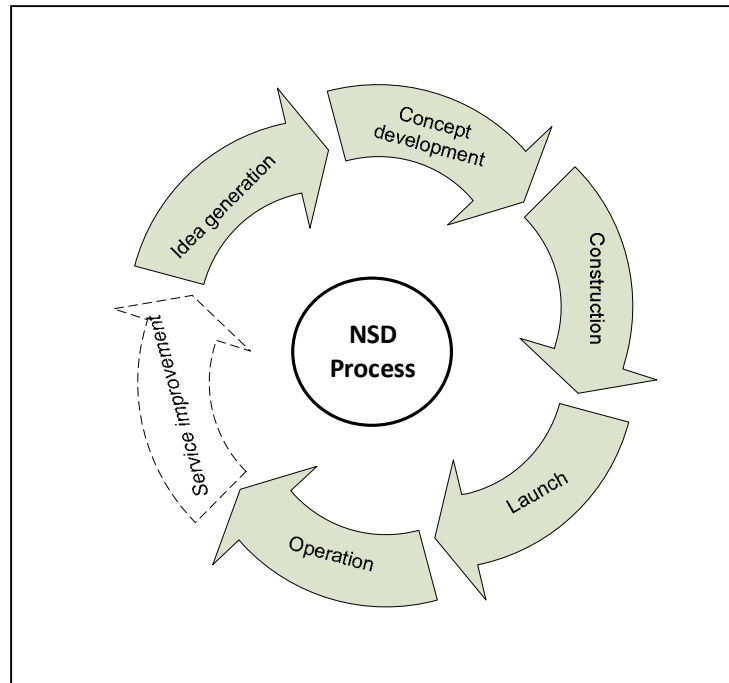


Figure 4.4: NSD process cycle.

The exploratory study results also revealed that each NSD process stage is developed by different departments of the Developer Company and different partners companies. However, the participation of these companies evolves along all NSD stages. Based on these results, to better understand which are the departments as well as partner companies that have participation in NSD stages, the following sections present the characteristics of each single stage separately.

Idea Generation

The idea generation for a new service is the departure point to the NSD process. The idea generation is the systematic and continuous search for new service opportunities, as without new ideas there are not new services to develop.

For a better understanding of which are the activities as well as how and where the CNs are formed in this stage of the process, the complex NSD project 1 - Boulevard Londrina, located in Brazil, served as the first case study.

Based on exploratory study results, the main objective of the Idea Generation stage is to develop a new idea for a new service or improve an existing service. According to data analysis, companies continuously search for new ideas and not only when there is a specific demand, showing that their culture is directed to innovation.

These corroborate the findings of Porter (1990), who says that “innovation is a new way of doing things that is commercialized”- is an essential ingredient for the company’s competitiveness. In the context, companies whose policies are directed to innovation have a higher possibility to keep a competitive advantage and, as a consequence, success in a market characterized by increasingly demanding customers.

The case study results shown that the NSD idea generation stage follows a set of activities and processes previously established by the company. These activities are developed mostly internally through different departments of the Developer Company, which is the service owner.

In this context, when the company wants to develop a new service or improve a service that already exists, the first activity is to search for the opportunity, which can happen in two ways:

(1) The Developer Company develops an in-depth market research that identifies regions or cities in the world, where there is the need for a New Service that the Developer Company intends to offer. These market studies collect information such as: number of city’s inhabitants and the surrounding region, per capita income, number of families with children, investments being made by other companies in the region and potential competitors.

(2) A company or a local investor proposes a partnership to the Developer Company with the aim to expand a new service in the region, becoming a partner of the Developer Company in the final project, or selling a suitable location for the new service.

Whether the new service idea is generated by opportunity search or other company's proposal, a structured and well documented process is crucial to prevent that potential ideas are lost. Some of the generated ideas can be very interesting but not viable to be developed or implemented at that moment. In this context, companies that have policies to document the generated ideas not immediately implemented, and that store them for a future analysis, can accumulate this knowledge and explore it later on.

These results corroborate the study made by Kelly and Storey (2000) in British companies. The study suggests that, for a company to be competitive in the market, it should properly store processes and knowledge in the organization's memory through documentation and not only in people's memory.

The study results showed that one the main activities involved in Idea generation stage is searching for opportunities through a detailed market research. This market research is internally developed by the company that will offer a new service (Developer Company) except if there is interest from an investor and an offer to create a partnership.

The activities of this stage are considered by the Developer Company as its core business when a significant strategic importance for the company. As such, the company performs these activities mainly internally, to maintain confidentiality of the new service ideas and to prevent competitors from accessing them.

Thus, the search for the opportunity and the market study are developed internally by the Developer Company of the new service, without partner companies. However, in some cases the Developer Company may have an initial business partner (if there is an

investor). We can classify this relationship (between the Developer Company and the business partner) in CNs context as *strategic partnership*, once the external company involved in this stage has a participation in the costs and profitability in all its life cycle.

This type of relationship is classified as a *strategic partnership*, once both companies will share resources to explore new markets. Although there is no solid definition for the term *strategic partnership*, it can be defined as an agreement whereby two or more companies start working together, combining resources and competencies to achieve gains in productivity and innovation (Tecee, Pisano and Shuen 1997).

This way, at the idea generation stage, the number of partnerships is small or inexistent, since this stage involves activities of the "*core business*" of the Developer Company. Strategic activities are made at this stage, such as the identification of potential customers, the study of market trends, and definition of the new service mission statement, which will differentiate it from those already existent in the region.

The study results also show that the team that develops this stage is composed by experts, which corroborates Edvardsson's findings (2000), which highlight the importance of having specialized and multidisciplinary teams in the NSD process. These results reveal that companies that develop services should select people of different knowledge areas to develop functions with multidisciplinary training.

In the specific case this study – complex Shopping Mall project, if the new service idea is considered feasible, the result of the idea generation stage is a complex document with detailed information about the new service and region where the new service will be possibly developed, as well as financial information about the new project. Scheuing and Johnson (1993) state that for the new service project proposals to succeed the priority is a detailed analysis of a new idea and an examination of its implications based on information from opportunity search and market study.

This document should gather information on services that will be available to potential customers; investments needed and expected profitability of investment. This document is internally assessed by the economic research or New Business department and forwarded to the Direction Board for review of the viability of the New Project and final approval of the New Service idea. Kelly and Storey's study (2000) noted that 35% of the researched British companies considered the financial implications (investments and profits) as a decisive factor to continue or not with a NSD project.

In short, the results of the exploratory study show that it is essential to have a structured process with pre-defined activities to generate potential ideas for new services, based on concrete and detailed market research. Therefore, it can be inferred that companies with formal and documented process model are more prone to achieve success through NSD projects.

In this NSD process stage, the activities are developed internally by different departments and the CNs are practically inexistent. This fact takes the company to invest on its employees, contracting workers from multidisciplinary areas to have a complete and heterogeneous vision of the new service. This stage is the beginning of all the NSD process and the generated information will serve as the basis for the development of the following stages. This stage therefore influences all subsequent stages of the NSD process, with a significant impact on NSD success.

Conceptual Development Stage

After the idea generation approval, the next stage of the NSD process involves the Conceptual Model Development of the new service. To better to understand which are the activities as well as how and when the CNs are formed in this stage, the NSD project

1 - Boulevard Londrina, located in Brazil, served as the subject of study. This same project served as a basis for both stages (Idea generation and Conceptual Model), as both stages are part of the early stages of the NSD, and they happened along the research project.

The exploratory study results revealed that the New Service Development Concept builds on the information created in the Idea Generation stage. The objective of this stage is to transform the new service idea (intangible concept) into a tangible concept, with concrete specifications of the new service proposal, describing the value proposition the company wants to offer to future clients.

In this stage, the company evaluates existing service gaps in the region where the project will be developed, comparing the service proposal with those already existent. This evaluation, which is carried out with the information about market trends and customer needs, is the basis for the development of this stage.

Benchmarking is also used to analyze in detail what possible competitors already offer in this region. According to Camp (1992) Benchmarking is the search for industry best practices that lead to superior performance. In a global way, it is seen as a positive and proactive process in which one company understands how another company performs specific activities with the aim to adopt similar measures.

In this stage of the process, the central concept of the new service is defined, as along with supplementary services that will facilitated and add value to the core service. The results show that for the Developer Company, in the new service (shopping mall) is not the first one in a specific region, supplementary services are crucial to assure differentiation, and can be sometimes more important than the core offering itself.

The exploratory study of the Boulevard Londrina project showed that the conceptual development stage involves the following activities: (1) definition of core

service, (2) definition of supplementary services, (3) development of detailed conceptual projects, such as layout, lighting, electrical installations, security, landscaping and geographical location, and (4) the main processes and activity plan for the execution, delivery and future maintenance of the service.

The results show that, when the Developer Company creates a new service concept, multidisciplinary management teams are essential to develop a differentiated and complete core offering. Customers are heterogeneous and will have different vision about the proposal of the new service value, so it's crucial to work in multidisciplinary teams to address this heterogeneity. This core concept is internally developed, as according to the information. It involves the know-how that is crucial to the core competencies and core business of the Developer Company, and as such the company wants to keep the absolute secrecy of this core.

The service concept is therefore internally developed by the Developer Company through the architecture and development departments, and partner companies are not involved. This internalization has the strategic purpose of keeping know-how preserved, and assures that this critical stage is well performed.

Based on what was mentioned, the results showed that the activities involved to develop the service concept, that is, the definition of the core offering are carried out "*in house*" without interventions of the external partners. These activities are: (1) study of the market trends; (2) study of the characteristics of the potential customers; (3) analysis of the characteristics of the region where the service will be offered, (4) study of the services that are already offered in the same region by potential competitors (5) definition of the geographical location and (6) definition of the conceptual design of the new service.

Thus, the Developer Company, of a new service endeavours, to develop its core concept, delegating other activities of this stage to partner companies through strategic outsourcing. These partner companies are contracted in the networks context, to transform the conceptual design of the new service in several different areas of executive projects in detail. These activities involve: (1) air conditioning project, (2) lighting project, (3) landscaping project, (4) electricity project, (5) architecture project among others, that is, all activities necessary to transform the conceptual project in an executive project. However, these areas can range according to the type of service that the Developer Company wants to offer.

The collaborative relationship with external companies since the early stages of NSD process provides a reduction in time and cost of the process. As already presented, the outsourcing, consists in the practice of transferring to others the task of performing tasks considered as secondary within the organization (Paletta and Anchieta 2009). This first CN is formed by partner companies with the aim of executing the activities that were defined by the Developer Company around the central concept of the new service, as the Developer Company is not able or it is too costly to develop these activities internally.

In this specific case – Boulevard Londrina, the first CN begins with the participation of some retailers who will be part of final service. These partner companies are named “anchors”, that is, partners considered strategic for the NSD success once they are famous brands all over the world and attract customers to the Mall. The relationship between the Developer Company and these retailers is close, as they have a strong and long partnership relationship, and one depends on the other for the service to be a success.

When the Developer Company wants to establish a CNs in this stage of the NSD process, a tender is opened for designer companies or external consultants in several areas to propose to develop the necessary projects at this stage (conceptual projects).

The collected data and the feedback from partner company selection meetings reveals that the main selection factors used by the Developer Company are price and technical abilities. Both factors are very important to select the partner companies, but there are other attributes that the Developer Company should observe, such as: mission, vision, culture, brand reputation and partnership experience. If these attributes are not identified and managed they can cause problems, not only at this stage, but also in the subsequent stages of the NSD process. These problems involve: culture and vision incompatibility, delay in project development and bad relationships between partner companies.

These results highlight that, apart from evaluating the factors related to the project presented, the Developer Company should spend time in the selection of these companies, evaluating not only the characteristics of the project, such as price and technical ability, but also detailed characteristics of the companies, to prevent future problems that can damage NSD Performance. This stage of partner company selection, according to Elmuti and Kathawala (2001) is perhaps the most important step in creating a successful Collaborative Network.

The partner selection process at this stage in the Boulevard Londrina case can be illustrated with the selection of lighting experts.

When the Developer Company opens the tender, inviting the companies to offer their lighting services for a new project of a new Shopping Mall, the Developer Company provides some basic information about a new project for the companies that will

compete in the bidding, so they have the necessary information to develop their referred projects to participate in the tender.

Basic information made available by the Developer Company covers: new project area, location, preferred material type, among other. With this basic information, companies that are going to run to the tender develop a project with pricing information, technical ability, and other information to assure the company's competence to successfully participate in the project.

After receiving all the projects of the companies interested in the tender, the Developer Company selects those projects with better possibilities of developing the necessary activities for the NSD. All these selected companies are called for meetings with the Developer Company with the objective of better explain and discuss the specificities of their projects, so that the Developer Company could select the company which will be part of the CN.

This selection process is often undertaken in a number of parallel and sequential sub-processes which are necessary to develop the different detail executive projects for the different areas. The coordination of working sessions with international and local consultants is planned to obtain integrated solutions that comply with the general new project guidelines.

Based on study results, the relationship between the partner companies at this stage of the process is based on a contract to provide services, i.g. after the final delivery of the conceptual design by the partner, the relationship is ended.

The type of relationship established between partner companies in the context of Collaborative Networks is classified according to the degree of involvement between the partners and the type of contract established (Lewis 1992). At this stage of NSD process in the Boulevard Londrina case, the relationship between partner companies is based on

temporary contracts or subcontracting. The company hires a partner to develop specialized services for specific activities, which is not the core of the Developer Company, but ought to be developed by specialist companies in the area. In that relationship characterized by temporary contracts, members of the partner companies work together from the structure of their respective organizations (Roses, Hoppen et al. 2005), booking regular meetings to monitor the work development of the partner companies.

The completion of all conceptual projects by partner companies is the basis for the next stage of the NSD process, which involves the Construction stage. However, still in this stage, review of initial constraints and update of the concept is made, if necessary.

Summarizing, the study results show that the activities involved in the conceptual development stage, and the formation process of the CN are well defined and structured. The Developer Company has a systematized process to develop its services, in great part due to the knowledge accumulated along more than 22 years of experience in developing and managing shopping malls.

The study results also show that the main activities involved in conceptual development stage are: definition of new service core concept, definition of supplementary services, and new service conceptual project development for each specific area. In this stage, the first CN is established with partner companies that will be responsible for developing the activities that the Developer Company considers secondary by and is unable to develop internally. These partner companies are expert in several activities that are necessary to develop the service concept in a complete way. On the other hand, the core service concept is internally created by the Developer Company, to preserve strategic knowledge and core competencies that are crucial for sustaining the company's competitive advantage.

Therefore, the Developer Company's aim in outsourcing some activities to partner companies in this stage of the process is to delegate activities. However, although very important, these activities are not considered key to the success of the new service. Partner companies are hired to somehow operationalize, through the development of conceptual projects, what the Developer Company has previously defined core service concept design, while keeping its core competency confidential.

This form of strategic management, which involves delegating part of the NSD and NPD process to partner companies, can be considered a form of strategic outsourcing. Strategic outsourcing is defined as a strategic decision that entails the external contracting of non-strategic activities or business processes necessary for the manufacture of goods or the provision of services (Espino Rodríguez and Padrón Robaina 2006).

In the case of this shopping mall developer, partner companies which compose the CN are frequently located around the world. In this context, the network relationship is created and sustained in great part due to the development of computer networks, which offer conditions for the establishment of a networked society where new forms of collaboration are explored. According to Camarinha-Matos and Afsarmanesh (2008) throughout the last years a large variety of collaborative networks have emerged due to the fast progress of the information and communication technologies. These technologies allow the different partner companies, which compose the CN, to communicate in real time in the same environment, even if it is virtual.

Construction Stage

After the conceptual development, the following stage involves the construction of the physical space where the service will be offered. This stage defines important physical attributes for the customer's perception regarding future service quality. The construction builds upon the information of the conceptual projects already pre-defined in early stages. To better understand which are the activities of the construction stage and to understand how and where the CNs are formed in this stage, project 2 - Guimarães Shopping, was studied.

Data analysis showed that, at this stage of NSD process, all previously mentioned conceptual projects become "executive projects". This transition involve the conceptual project consolidation, that is, the solutions are developed and put into practice to make the construction of the physical space where the service will be offered possible.

This is an extremely important stage of the NSD process, once it is responsible for making the service tangible, based on physical space attributes such as lighting, decoration and layout. To Corrêa and Giansesi (1994), besides these attributes the geographical location of the physical space plays an important role in the service renderer, as customer geographical proximity is key in retailing.

Servicescape is a term introduced by Bitner (1992) to describe the overall appearance of a service provider, such as a retail store. The servicescape, which includes dimensions such as temperature, noise, layout, furnishings, and decoration, affects the behavior of customers and employees throughout the service offer.

Bitner believes that the servicescape presents three elements that should be considered: layout, signals and artifacts. These elements represent the environmental conditions where the service will be offered and their definition and execution are

crucial in this process stage, once they are responsible for the tangibility of the new service core concept – which is intangible. Therefore, these elements have a large influence in the behavior and satisfaction of the customers along the consumption of the service at its launch in the market.

Therefore, the management of the physical evidences, such as, equipments, signalization, furnishing, environment smell and temperature and so on, positively influence the customer experience along the service meeting. The exploratory study results shows that the main activities which composed this NSD process stage are, (1) executive projects development, from architecture to air conditioning projects, among others (these projects varied according to the service type which the company is going to offer); (2) new service marketing activities, and (3) commercialization.

Executive projects development involves the activities that are necessary to develop all projects that will give rise to the physical space (internal e external) where the new service will be offered. These executive projects involve elements, such as: (1) Internal and external architecture construction, (2) colors, (3) landscaping, (4) lighting, (5) furniture distribution, (6) space decoration, among others, that as already mentioned can change according to type of service offered. These projects are developed by the partner companies that work in the CN established in this NSD stage and they should be concluded before the new service launching to the public.

In this process stage, the marketing activities are related mainly to new service promotion in the region where it will be offered. This promotion is made through the advertising in the press media, television, radio and internet. The new service promotion activities have as main objective to present it to the local community where the service will be offered and present it to the potential customers. This promotion is

internally developed by the marketing department of the Developer Company, that is, for these activities are not established partnerships in the CN context.

Based on this specific case, commercialization involves the sales and renting activities of several spaces into the mall for the companies (local or from other region) which want to offer their product in the local where the new service will be offered. These activities are internally carried out by the consultants of the commercialization department of the Developer Company. Therefore, the companies that buy or rent the space into the mall give rise to a new CN, which will last throughout all the service life cycle.

As already mentioned, although these activities are developed by Developer Company's departments such as marketing and commercialization, in this construction stage a new CN is formed with new companies specialized in the executive projects area. Therefore, new partnerships are established with construction companies, which are going to build everything that was defined in the concept development stage.

In the specific case Guimarães Shopping, new partnerships were established to perform the executive projects. For instance, for the conceptual project of the air conditioning a new company was contracted to prepare the executive project of this concept. The same process happened with all the other projects such as landscape architecture and floors. Once again, it is highlighted that these projects varied from company to company according to the type of service developed.

Still in this stage, new relationships are started with the retailers interested in offering their services inside the mall. These are long term relationships, once these companies are part of the service life cycle. In this specific case, these retailers compose the supplementary services, that is, those services that add value to the core service offering.

In this stage, a new Collaborative Network is formed; however, based on case results, the process of establishing relationships with business partners is different when compared to the previous stages. The Developer Company opens a single tender for a Contractor Company, or for those specialist companies, that have large civil construction as its core competence. In this stage, the Developer Company makes the architectural concept and all conceptual projects developed in the previous stage available to bidding companies. This information will form the basis for competing firms to develop their work plan as it contains information such as price and time of construction. Based on the interviews and meetings data analysis, the main criteria for choosing the Contractor Company are again price and technical ability.

With the selection of the Contractor Company, a new service supply is established. However, there are some characteristics that differ from the contract established with other partner companies. The contracted company is responsible for the technical quality of the new complex project across its lifespan, as the Developer Company does not interfere in the quality of construction once it is not its core business. Thus, Contractor Company and Developer Company is characterized develop a strong relationship that has the same duration of the service's life.

The Contractor Company is the responsible for hiring companies that will make the executive projects, based on the conceptual projects developed in the second stage, as already presented. Interestingly, a new Collaborative Network is formed, but without the direct interference of the Developer Company. This new CN is created and managed by the contractor company. The Developer Company hires a project management service that remains "*in loco*" in the work, setting off a new partnership, managing contracts with this company to transmit all information and events that occur during the construction of the physical space where the new service will be offered.

To sum up, the study results show that the main activities involved in the construction stage are: (1) Executive projects development which gives rise to physical installations construction where the service will be offered, (2) marketing activities, which in this stage focus on the promotion and advertising of the new service in the region where the service will be inserted and (3) commercialization of spaces into the mall for the companies which are willing to offer their product and service in the region where the new service will be available.

For a better development of some of these activities, some relationships are established with partner companies in the CN context. Therefore, in this stage two types of the CNs are established. On one hand, the first CN is composed by the companies responsible for the necessary activities to the execution of the physical space construction where the new service will be offered. After the conclusion and delivery of the physical installations, these companies do not have any further partner relationships in the CN context.

On the other hand, the physical space commercialization where the service will be offered begins and the companies, which will offer their products and services into this space (buying or renting), will compose a new CN. However, this CN will last throughout all the service life cycle.

Launch Stage

After the construction of the physical space where the service will be offered, the next stage involves the launch of the new service in the market. To better understand which are the activities and how the CNs are formed in the launch stage, the project of the NSD that served as case study was project 3 – Leiria Shopping, located in Portugal.

Based on data analysis, this stage of the NSD process has two moments. The first moment is related to the service launch for partner companies and the second moment is associated to the service launch to the public/customers. To better understand which are the activities as well as how the CN are formed in both moments, following these moments will be presented into two sub-sections.

Service launch for partner companies

In the NSD launch stage, the first moment is related to the service launch for the partner companies, which will offer the supplementary services, that is, those services that add value to the core service offering, such as store retailers.

The activities involved in this moment are related to the physical space construction, where the supplementary service will be offered. Based on the case study results, the construction in this stage involves the stores' works, made by each single partner company (the store owner), such as: works for supermarket, cinema, food stores and fashion constructions, among others. As mentioned before, it is highlighted that in this moment, the core service is launched only for the partner companies that will offer their services which are considered supplementary, by the Developer Company, but which add value to the core service.

Therefore, the purpose of this first moment is to make possible for the partner companies to work in the physical space where the new service will be offered. In this case study, this stage did not exceed five months, as this was the defined schedule by the Developer Company to launch the final project to the market.

In this moment new relationships are formed between partner companies in the CN context and are characterized by long-term contracts due to the high investments

made by these partners into the mall. Based on results, this contract - that lasts at least five years - will vary according to the type of product or service offered, as well as its brand image in the market. These partners are mostly store retailers responsible for offering the important supplementary services. Relationships with these partners are strong, as they play a key role in attracting customers and adding value to the core service.

These results are in tune with extant research (Normann 1993) that highlights that supplementary/supporting services can be as important as or more important than the core service, and should be taken into account to assure service differentiation; especially if other companies have already offered the same type of service in the same region.

Service launch for the customers

The second moment involves the launch of the new service to the market, that is, for the public/customers. In this moment, all the service components, such as workers, functional structures, supplementary services, physical spaces, technical systems and processes must be ready. These components need to form a harmonically set and work together to guarantee that the service launch to the public is a success and operationally effective. Therefore, it is important for the service system to guarantee the necessary resources to enable the new service delivery process.

At this stage, a new and extensive Collaborative Network is formed and new relationships are established with new partner companies. These companies are responsible for the new service management and maintenance, after being launched to the public. Based on data analysis, it is highlighted that many of these relationships

remain at the service operation stage. The management and maintenance of the new service involve activities such as: cleaning, technical equipments maintenance (air-conditioning, elevators, escalators, surveillance cameras), recycling among others.

For these activities performance, new relationships are established with other companies in the CN context. This new CN involves rendered service companies related to the before mentioned activities. These activities are crucial for the service quality and for the first good impression of the service by the customer.

In this stage, it is also necessary to recruit and select the workers that will be part of the service in operation and that will develop different functions, so that the new service objectives will be achieved and guarantee the customer satisfaction.

The relationship between the companies that belong to the CN at this service launch stage, are characterized by temporary contracts and are weaker, once there is no investment by these companies. These companies work on the backstage of service provision, and the consumers do not notice them as much as retailers do. Therefore, if they do not provide the service according to what was stated in the contract, the contracts' cancellation occurs easily and this company is excluded from the CN.

Based on what was mentioned so far, on the one hand at this stage the responsibility of management of relationship between all the partner companies involved in the CNs in both moments belongs to the Developer Company. Therefore, the launch stage is considered a delicate moment, which carries out many emotions, because it involves the preparation just before final service provision, when all the NSD effort will become an operational service.

On the other hand, still in this stage, partners and Developer Company are the responsible for coordinated daily actions which aim to materialize the core service concept to the final customer. These actions include activities such as (1) Cleaning, (2)

maintenance, (3) security, (4) marketing, (5) residual management which cause environmental impact, (6) rules and functioning norms management. These activities are crucial for that the new service objectives will be fulfilled and guarantee the customer satisfaction. These activities remain in the next stage of the NSD process: operational stage.

To sum up, the study results show that the main activities involved in the launch stage are divided in two important moments. In the first moment, these activities are related to the future retailers who will offer their services to complement the core service. These activities involve the works that should be made into the mall to make possible the viability of the new service offer. In the second moment, the activities are related to the service launch to the public/customer and include marketing, cleaning and maintenance actions, and so on. These activities are crucial for the service to be ready to be consumed by potential customers.

In this stage, some relationships are established with external partner in the CN context. As already mentioned, the major part of the relationships is established with retailers that will offer their products as supplementary to core service offer. These relationships have a long duration. However, other types of the partnerships are formed with partners responsible to daily management of the service, that as mentioned have a shorter duration.

Operation Stage

After the service launch in the market, the next stage involves the provision of service for the final customers that in this research is denominated Operation Stage.

To better understand which are the activities and how the CNs are formed in this stage, the project of the NSD that served as case study was project 4 – Parque Dom Pedro, located in Brazil.

Service operation is considered a stage of the NSD process, as the NSD is a constant cycle of activities, in a cyclical process (Johnson, Menor et al. 2000). Some researchers define this stage as “the moment of truth”(Edvardsson, Gustafsson et al. 2000; Gronroos 2000; Froehle and Roth 2007), that is, the moment when the customers will consume the service, and the work from previous stages comes to life. The results of the operation stage are influenced by the customer participation, and some characteristics such as: security, comfort, leisure or cleaning, become essential requirements for customer satisfaction.

According to data analysis, this process stage is influenced by several factors to the organization, which are not so relevant until then. Some these factors are those brought by the market where the service is being offered, such as: trends, culture, local customer characteristics and local competitors. These factors, as well as how they influence the performance of the service when operating, cannot be totally previewed in the previous stages of the development process. This happens because these factors are unknown and occur randomly at the moment of the service offer. Sometimes the urge to launch the new service in the market (Johne and Storey 1998) increases even more this lack of knowledge about some factors which influence service operation performance.

The management of these factors as well as all the service operation is the Developer Company's service responsibility. A management expert team remains constantly in a backstage area in the shopping mall location. This team consists of people who occupy positions from Operational and Marketing Manager, to the General Manager.

Based on the analyzed information, an interesting strategy used by the Developer Company is to hire people to assume positions of multidisciplinary areas, including for example: Environmental Engineer, Electrical Engineer, Administrator, Psychologist, among others, being the main objective to get a diverse vision about the service in operation and to be able to encompass different views of that service, capturing the best possible customer needs, which are very heterogeneous. This result once again meets what was highlighted by Edvardsson and Gustafsson (2002), who advocate that the involved people in NSD process should have competencies in multidisciplinary areas.

At this stage, the objective is to coordinate the demanded activities and processes to co-create value with the customer. Based on the case study, the main activities involved on the complex service management when operating involve delivery activities and new service consumption for the customers.

Therefore, the main activities involved in this process stage are, as follow: (1) management of the technical operations, which involves the maintenance of all the security equipments, escalators, elevators, lighting, cleaning, air-conditioning, that is, all the necessary equipments for the well functioning of the mall; (2) the partner companies' management, which involves those that develop the service when operating. All these areas should workout in perfect harmony and coordination, so that the customer feels comfortable inside the mall and notices the quality and value of the service being consumed.

The (3) partner retailer's management is also of an extremely important at this stage of the process, once all should follow the established rules for the well- functioning of the service. In this same stage, the (4) marketing activities are more intense involving fairs, shows among other events with the aim to promote the new service and attract customers.

The service operation management contributes for both the start of the service offer with the desirable quality and makes possible to reach the service objectives previously defined. Therefore, the daily operations should be managed in an effective way to obtain the desirable value based on previously designed and implemented processes in the formerly NSD stages.

At this stage, although some relationships remain from the previous stage, new partnerships are established with companies from different sectors to perform the service maintenance such as: elevators and escalators maintenance companies, air conditioning and electricity, recycling companies, cleaning among others and new partnerships is established with retailers. Depending on the type and characteristics of the service these partnerships can change.

The partnerships in this stage are characterized by temporary contracts characterizing the supply chain, such as: cleaning, security, maintenance among others, in which rights, rules and duties of both parts are described (the Developer Company and contracted one). There are also long time contracts with smaller store retailers that offer the supplementary services.

Once customer needs and market trends change fast, the service is constantly evaluated by the Developer Company and in a near future the service should be adapted to these new needs. As already mentioned, the case that served as the basis for the study of operation stage was project 4 - Parque Dom Pedro, which has been in operation for eight years and at the time of the data collection for this research, the Developer Company was already conducting a new market research in order to improve the services due to the changing needs of customers by expanding the mall. This shows that the process of NSD is a constant cycle and has does not end once it is launched in the market (Johnson, Menor et al. 2000).

4.3 Exploratory Multiple Case Study Conclusions

The exploratory multiple case study enabled an in-depth understanding of complex NSD processes along their different stages, identifying the activities and CNs involved. This study helped (1) characterizing the NSD stages and respective activities, (2) better understanding how CNs are formed along these NSD stages, and (3) characterizing the type of relationship network in each stage, and how they change over the different stages.

The exploratory multiple case study of the four shopping mall NSD projects reveals that the NSD process is a cycle of continuous improvement. Figure 4.5 synthesizes the NSD cycle with its different stages, as well as the internal departments and CN partners involved in the each stage.

Based on study results, each stage of the NSD process has the participation of the different external partners and departments of the Developer Company, due to its complexity. The constant changing of the team in all NSD stages happens given to the different characteristics, particularities and activities engaged in every single stage. It is interesting to note that none of the members, whether internal or external, was directly involved in the entire NSD process, that is, even the project managers and external suppliers change along the different stages.

The study results show that the initial stages of the NSD process – Idea Generation and Conceptual Development Stages (early stages) – have a strong effect on the success of the new service, as they influence all subsequent stages.

The Developer Company does not establish partnerships in the early stages once they involve the core competencies of the firm and key activities. Consistent with strategic outsourcing literature, the Developer Company establishes relationships with

partner companies in activities that are not its core competencies, and can be performed by its partners in more effective and efficient way.

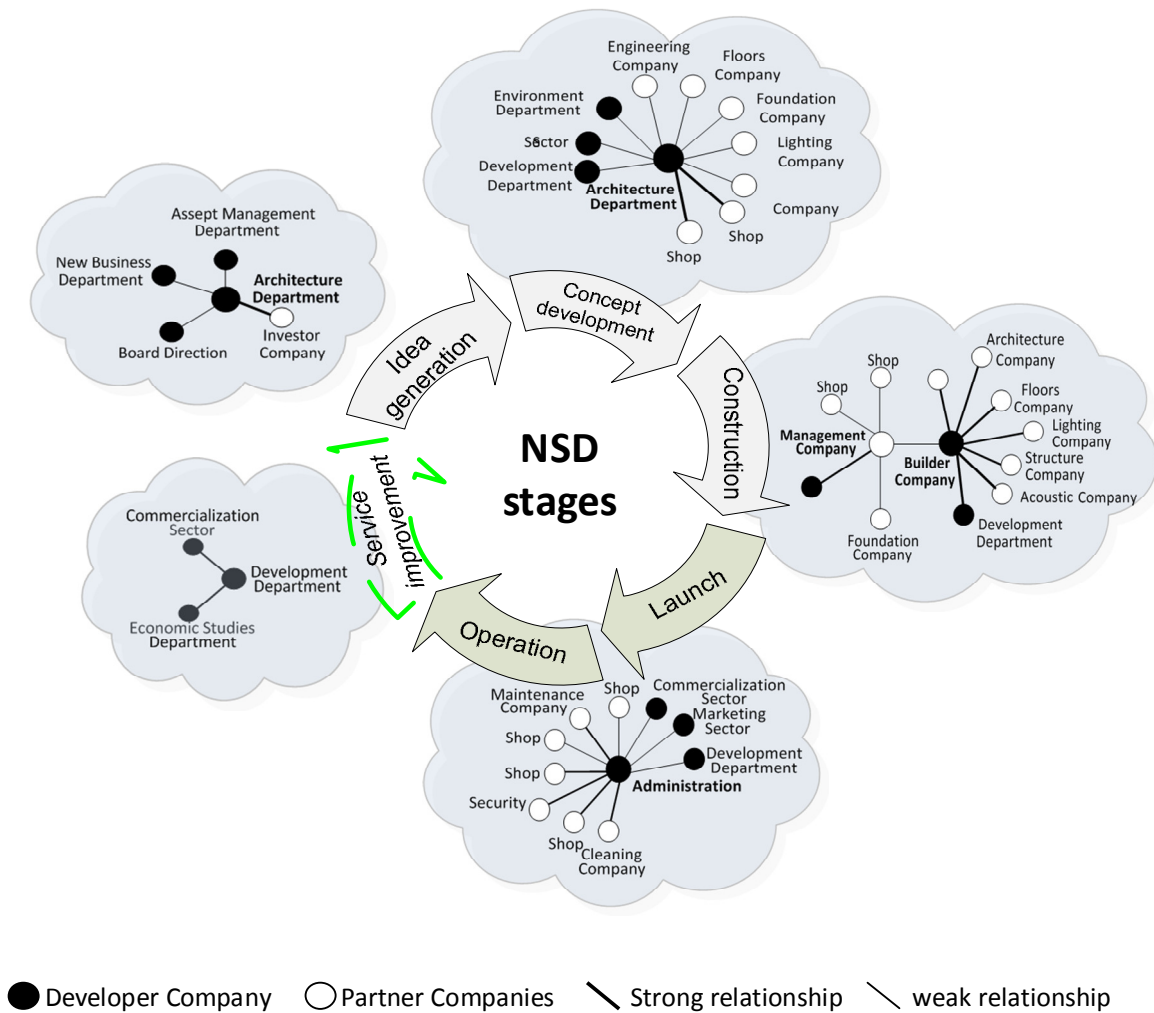


Figure 4.5: Collaborative Networks by NSD Process.

This study found two main forms of relationships between partner companies in the CNs context that are more relevant into the complex NSD projects, such as: Strategic Partnerships and Supply Chain partnerships (temporary contracts or subcontracting) that are characterized by specificities of the contract and the degree of the participation of these companies on the NSD process (Lewis 1992; Camarinha-Matos and

Afsarmanesh 2005). The emphasis on these two forms of partnerships appeared based on characteristics and activities surrounding the stages in which the partners work.

Most of extant research investigate NSD from a single company perspective, looking at the company's internal efforts in developing services (Love, Roper et al. 2011) or its collaboration with single external actors or actors group (Syson and Perks 2004; Halinen and Jaakkola 2011).

This exploratory study shows that due to the complexity surrounding the different stages of the NSD process, the large number of activities and tasks involved, it becomes increasingly necessary to establish business relationships by networking with partner companies specialized in key activities involved in the process. This collaboration is key to ensure the fit between the shopping mall service and customer needs, so the new service is successful when it is launched in the market.

Chapter V
QUALITATIVE STUDY

The Exploratory Multiple Case Study results provided insights that served as basis to start the Qualitative Study. The exploratory study showed that NSD is a complex process composed by five main stages from idea generation to operational stage. Due to this complexity, it becomes difficult for a single company to possess in house all competencies needed to develop NSD and they create CNs along the process. The exploratory study also allowed understanding the role that CNs performs across NSD stages. However, the exploratory study did not identify the NSD performance factors, as well as how CN Characteristics influence the NSD Performance.

The motivation of the qualitative study therefore involved two main aspects: (1) from the empirical research describing the NSD process, no study has identified the performance factors that influence the NSD process along its stages; (2) extant research addresses both NSD process and CNs on separated way, but no empirical study has studied how the NSD process happens in the CN context.

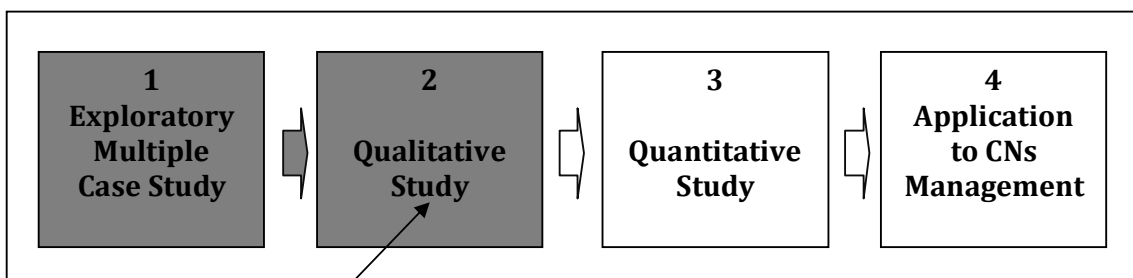


Figure 5.1: The Qualitative Stage of research.

The Qualitative Study aimed to identify the performance factors of the NSD process, and how they change along its different stages. The study also addressed CNs characteristics that become important for NSD Performance. The Qualitative Study represented an important stage of this research, once it allowed an in-depth

understanding of the phenomenon under study: New service development process in the collaborative networks context.

This chapter is organized as follows: (1) Methodology of Qualitative Study and (2) Qualitative results: *NSD performance factors, Evolution of performance factors along the NSD process stages; Collaborative Networks characteristics and their influence in the NSD.*

5.1 Methodology of Qualitative Study

This Qualitative Study was based on Grounded Theory. Grounded Theory is a qualitative method centered in the theories and conceptual systems creation through the construction of inductive data analysis (Charmaz 2006). This method is different from others, as data collection and data analysis are intentionally connected (Strauss and Corbin 1998).

Grounded Theory involves qualitative data collection techniques that do not aim to measure, but to understand the meaning and explore the construct conceptual domain. These techniques may involve non-structured observation, open interviews, documents review, or group discussions (Hernández Sampieri, Fernández et al. 2006). This method is therefore adequate when the research is about persons' lives, lived experiences, behaviors, emotions and feelings as well as about organizational functioning (Strauss and Corbin 1998).

In this stage, Grounded Theory strengths seemed particularly important, as this method enables: to deepen the knowledge about a specific phenomenon and develop theories; the investigation questions are not very specified since the beginning but they will improve through the research development, and the research could be developed in only one or several sceneries.

Therefore, Grounded Theory was considered the most adequate method to attain the research objectives at this stage: (1) to identify NSD performance factors and to understand how they evolve along the different stages of the NSD process; (2) to identify the CNs characteristics that influence NSD Performance success.

Sample Design

Based on Grounded Theory (Charmaz 2006), the sample is defined according to theoretical relevance of cases. The necessary sample is not quantitative but theoretical, since the number of individuals who participate is determined by “sample saturation”, this is, when the statements start being recurring and new data are no longer found.

The theoretical sample is made with the purpose of finding categories and its properties and suggesting inter-relations inside the theory. Following theoretical sampling, data were collected until each category was saturated, which means (a) no relevant data appeared, (b) the category was well developed in its properties and dimensions showing variation, and (c) relationships were found among categories (Strauss and Corbin 1998).

In this qualitative study, 39 interviews were conducted with managers of the Developer Company and partner companies directly involved in the NSD process (as can be observed in Table 5.1). The interviews were made across the different stages of the NSD process and covered both Developer Company and partners on each stage. This sample design aimed at maximizing relevant variability for a rich analysis of the phenomenon and saturation.

Table 5.1
Stages of the NSD Process vs Qualitative Sample Design.

STAGES	SAMPLE DESIGN		Total	Total of %
	Developer Company	Partner Companies		
Idea Generation and Conceptual project development	6	6	12	31%
Construction	2	6	8	20%
Launch	3	4	7	18%
Operation	3	9	12	31%
TOTAL	14	25	39	100%

Data collection procedures

Following Grounded Theory (Charmaz 2006), data collection involved several sources. The main source of information was interviews that totaled 29 hours during a period of 12 months. Following qualitative methods, interviews were recorded, literally transcribed and analyzed with the support of the *NVivo software*. However other sources for data collection were used: documents given by partner companies such as contracts; reports and manuals; analysis of information and knowledge management platform used by Developer Company managers.

Taking into account the research objectives, the interviews covered the following topics, as shown in Table 5.2: the NSD process, the NSD process performance factors, the selection process of partners that took part in CNs, the key characteristics of partner companies involved in the NSD process, and how they influenced the NSD Performance.

Table 5.2
Interview protocol.

INTERVIEW PROTOCOL

New service development process

What stage of the process your company starts and finish its activities?

NSD process performance factors

Can you point me what are the factors that you consider critical / essential in the development of the complex service?

For you, what are the characteristics of the relationship between Developer Company and your company, which translates into a good partnership?

Selection process of the partner companies

How was the process of establishing the partnership between your company and Developer Company?

From your point of view which were the most important factors for your company to be selected?

Collaborative Networks characteristics

What are the characteristics that your company has which helps to increase the process of developing new services and therefore the service final service success?

From your point of view, what are the characteristics that the Developer Company has which means the success of its services?

Data collection through interviews was complemented with observation of the selection process of the partner companies, to understand the desirable characteristics of partner companies to be part of the network. An analysis of documents was also conducted such as: partnerships contracts, technical standards, environmental standards, information systems manuals and service conceptual projects.

Data Analysis

Data analysis is an extremely important procedure for dividing, conceptualizing, characterizing and establishing relationship between data. All this analytical process aims to construct a theory, to give to the scientific process the necessary methodology accuracy, to help the researcher overcome bias, and to develop the fundament, deepness, sensitivity and necessary integration to generate theory (Strauss and Corbin 1990).

Based on Grounded Theory approach (Chamaz 2006) the answers to the interviews were analyzed through open coding, that is, the contents were evaluated according to categories or classes of indicators/factors (as shown Figure 5.2 and 5.3), based on research objectives.

The open codification involves the analysis, conceptualization and data characterization. In the early stages of the open codification, the researcher explores the data by analyzing accurately what seems relevant based on the extensive reading of the data (interviews) (Bandeira de Melo and Cunha, 2006).

In this process, according to this research stage objectives, two general categories were created in data analysis: “NSD performance factors” and “CNs characteristics”. Therefore, if the answers were related to the factors which influence the NSD process, codes inside this category were created, which in this case are the factors themselves, such as (communication, dedicated management and so on) and the answers were codified inside these factors, as illustrated in Figure 5.2. These generated codes (factors) are directly associated to the interviews quotations. In addition, if there isn’t any answer clearly related to any factor, this answer is only considered as a comment and is codified in the “Free” category.

At this stage, the qualitative analysis software NVivo was used to codify and categorized the data collected for subsequent data analysis. The advantages of the NVivo software are presented in Table 5.3. However, the data introduction, codification, and the success of the analysis depend directly upon the investigator.

Table 5.3
Advantages of the NVivo Software.

NVIVO SOFTWARE ADVANTAGES

- (1) Possibility of working with different types of data: images, audio, video, text, such as: reports, interviews, comments, emails and others;
 - (2) Possibility creating analysis categories;
 - (3) Possibility of codifying the data and filtering it, in order to answer to the research questions;
 - (4) Historical record of the investigation process;
 - (5) Guarantee material portability;
 - (6) Structured information organization;
 - (7) Possibility of multiple researches with the same material allows the investigator's flexibility.
-

The Figure 5.2 and 5.3, show how the data collected was coded and categorized based on research objectives for qualitative study (already presented in Chapter I). Following grounded theory (Charmaz 2006) "trees" were first defined. Each tree corresponds to a category of analysis. Data analysis produced two large trees (categories): **(1) NSD process performance factors** and **(2) CNs characteristics** - CNs Partner characteristics and CNs Relationship characteristics.

Performance factors refer to all the characteristics that have a positive or negative influence in the NSD process performance and by consequence in the final service success.

CNs characteristics are attributes that a collaborative network should satisfy for developing activities in the complex NSD projects. These characteristics involve quality factors that can influence the NSD Performance along their stages.

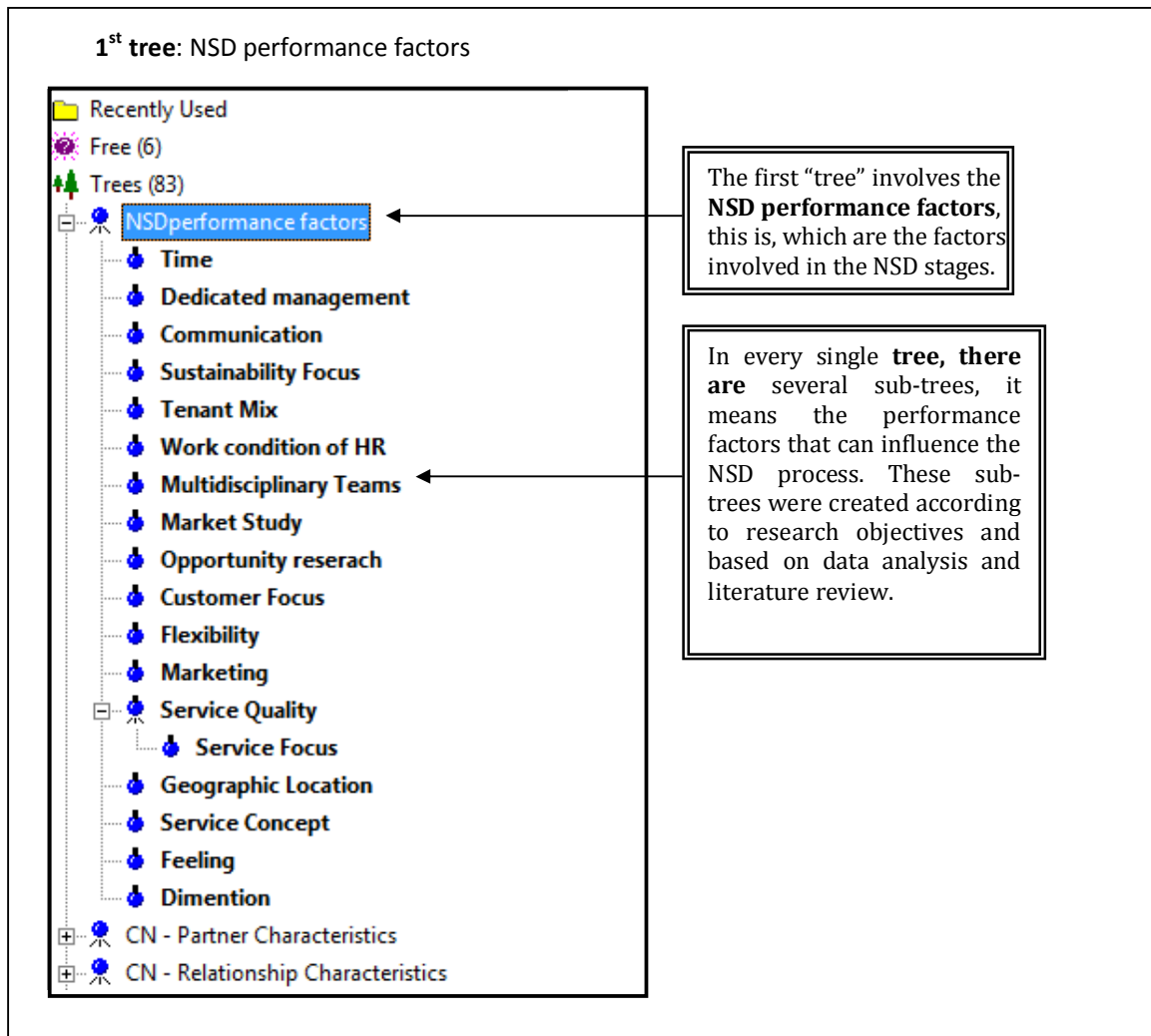


Figure 5.2: Categorization of the performance factors in the NSD process.

The method to define which category should be the main tree and which represents the central phenomena of the investigation, involved a theoretical codification process – *open coding* (Charmaz 2006), through which the researcher chose one set of possible theoretical structures that were used to organize the emergent theory. After selecting the main category the researcher verified if it included all the codes and categories (Miller and Brewer 2003).

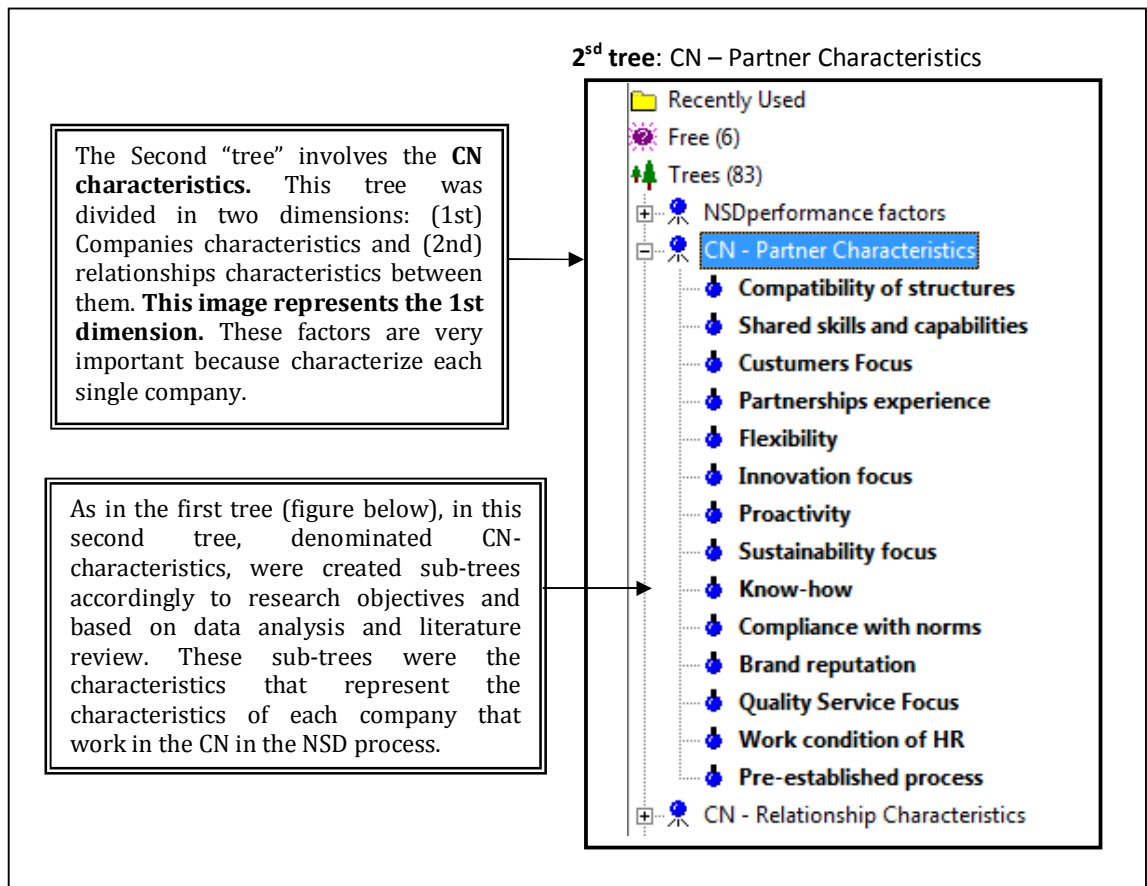


Figure 5.3: Categorization of the CNs Characteristics.

In this iterative process (Strauss and Corbin 1998), the categories were compared with earlier identified concepts, to develop a set of categories of NSD process performance factors and CNs characteristics in this process.

Data analysis allowed an in-depth understanding of NSD process performance factors and CNs characteristics, from both partners and developer perspectives. The study also enabled to identify how NSD process performance factors evolved across different stages.

5.2 Qualitative Study Results

New Service Development (NSD) is an increasingly important concern in service organizations (Jaw, Lo et al. 2010). It refers to new services that achieve superior performance and competitive advantage (Agarwal, Erramilli, and Dev 2003). Different factors along the NSD process, however influence how, and if, companies achieve this performance and by consequence final service success.

The qualitative study covered a rich set of interviewees from different stages of the NSD process and from both Developer and partner companies. Based on data analysis, this section organizes the presentation of results as follows. First, the results of the analysis of NSD performance factors are presented in general and by group of factors, followed by an analysis of NSD stages and a comparison between Developer and partner perspectives. Second, the results of the analysis of CNs characteristics are presented, and a comparison between Developer and partner companies perspectives is also carried out.

5.2.1 New Service Development: Performance Factors

Data analysis allowed the identification of several NSD performance factors, as shown in Table 5.4. The performance factors refer to the specific attributes which are directly involved in the NSD process and which influence positive or negatively its performance and consequently its final service success.

Based on data analysis, these factors were assigned in two groups: (1) process factors and (2) service factors. Process factors are those related to how the NSD process is undertaken, which influence the NSD process in a global way, such as: communication,

management, sustainability actions, teams involved in the process development, working conditions of these teams, and focus on the customer and flexibility. The second group is related to the service factors, which can influence the service offer, such as: the service concept, its location, the tenant mix (supplementary services), service quality and the market study made in the region where the service will be offered.

Some factors such as: communication, multidisciplinary teams, customers focus and flexibility are factors that reinforce extant research, once they have already been mentioned in the literature. New factors also arise, such as: sustainability, human resources (HR) work conditions, dedicated management and tenant mix.

Table 5.4
NSD Process Performance Factors.

NSD PERFORMANCE FACTORS	OVERALL (N=39)
<i>Process factors</i>	
Communication	77%
Dedicated Management	64%
Sustainability	62%
Multidisciplinary Teams	39%
Customer Focus	36%
Work conditions of HR	33%
Flexibility	33%
<i>Service factors</i>	
Service Concept	59%
Geographic Location	46%
Tenant Mix	44%
Service Quality	44%
Market Study	33%

Group (1) - Process Factors

Process factors were identified in the interviews as being crucial for the development process of complex NSD projects. **Communication** involves how people

communicate and relate to each other when developing a project together or even within a company, exchanging information, sharing ideas and experiences.

Communication is important in complex NSD projects, because they involve several activities developed by different partner companies at the same time. In this context, the interaction between all the professionals involved is essential, making the communication between them a crucial factor for NSD Performance. Interviewees stated that the information generated through the collaboration should be shared, conveyed and understood by all professionals involved in the process, once it is decisive to the execution and control of the process, affecting directly its development performance.

The interviewees highlighted the importance of communication in the NSD process, not only between the Developer company co-workers but also the exchange and information processing between all companies involved in the NSD process along its different stages. According to the partner company's manager:

“For the new service project to be a success, the partner companies should have a good relationship, and for the relationship to reach a good trust and “intimacy” degree, there should be an intense and clear communication.”

(Acoustic company manager, conceptual development stage)

In the complex NSD process, clear, standardized and organized communication is very important and essential to ensure the success of the project. Both developer and partners consider that the Developer Company, through its management team, should adopt practices to ensure that all communication reaches its goal so the project success becomes more tangible. These practices involve the processes required to ensure that the information surrounding a NSD project is generated, collected, distributed, stored, retrieved and organized in a timely and appropriate manner. The way to communicate within a complex project, such as NSD, is closely related to the management practices

adopted by those responsible for the NSD. Managing communication in large projects is so important that is considered the main problem of the project manager (Mulcahy 2008).

Dedicated Management is considered another crucial factor for the success of a complex NSD process and it is related to the existence of a specific team to manage each new project. Dedicated management is a relevant factor, due to the number of the activities, people and tasks that need to be managed intra and extra organization. This team of people should be full time dedicated to the project without shared management on several projects at the same time. Having an exclusive and dedicated management can improve the NSD process, minimizing risks and assuring that all project targets are met.

According to a partner company's manager:

"I believe that the development process success of a project of this dimension is totally related with the management of all the activities and people involved. And this way, the Developer Company is more rigorous, demanding and active and this dictates the success of the Shopping when it's in operation."

(Maintenance company manager, operation stage)

This factor assumes an essential role to enable a structured coordination of the NSD process and to achieve project deadlines, so the new service can be created in harmony and on schedule.

Data analysis revealed that **sustainability** has become increasingly important for NSD success. Sustainability is an increasingly important factor because it involves the environment and the planet's future welfare. This factor is related to the actions and processes to be developed by companies in the context of their activities and how these actions can help to preserve the environment.

These actions involve the use of natural resources and ecological development of products and services, how the use of these resources preserves the quality of the environment and consequently the quality of life surrounding it. From the partners' perspective, companies that develop their processes taking sustainability into account are more likely to form successful partnerships.

According to the partner company's manager:

“Undoubtedly, sustainability is very important (...). Nowadays the actions related to sustainability are more frequent than years ago and tend to increase. Before, there were less sustainability concerns, but in the future it will be a key factor to hire a company.”

(Civil Engineering company manager, construction stage)

According to data analysis, the companies involved in the NSD consider that actions related to the environment are very important. For these companies, environmental practices are already required for the companies' operation and will be a key factor for the customer choice of service providers.

Other relevant factor pointed out by interviewees was **Multidisciplinary Teams**. On the one hand, this factor refers to the need for integrating multiple competencies needed to undertake such a complex NSD project along its different stages. Due to this complexity, this process demands multiple competences from those that work directly in the development and management of the new service.

On the other hand, due to customer's heterogeneity, to obtain multidisciplinary teams for the management of the different areas when the service is operating, becomes also important once it helps covering different points of view to respond to different customer needs.

According to the developer company's manager:

“Considering teams, it is better to have a mixed group. You cannot have a trained staff with the same opinion and educational basis; the more mixed the better for a work team. Here we have business administrators, mechatronic engineers, biologists, so on. This diversification is very important to understand and satisfy customer needs.”
(Operational manager of the Developer company, operation stage)

Based on data analysis, **Customer Focus** involves understanding the real needs of customers by collecting information about them, putting their needs first with the aim of creating value by offering products and services designed to meet those needs.

According to partner’s and developers’ company managers:

“(…) The success of the company in the first place is tied to a perfect knowledge of the audience that you want to achieve.”
(Computer Engineering company manager, construction stage)

“The mall is constantly developing research with external and internal customers (tenants) and who does that is the marketing area. They undertake qualitative and quantitative research, whether with focus groups, phone surveys and so on (...) so you always understand who the customer is and how willing he is to behave toward our service.”
(Operational manager of the Developer company, operation stage)

In this context, knowing the customers and their real needs is essential, once without them the service does not exist. It is of extreme importance that the company respects them and fulfills their needs, in spite of their constant mutation, offering an excellent service to assure the competitive advantage in the market. The Developer Company must also know very well, both the market in which it operates and its competitors, in order to develop a service directed to potential customers.

According to Glagowski (2006) maintaining the focus on the customer, while developing other products and services, is considered the most important factor in a

business relationship by most companies, regardless of the industry in which they operate.

The **Employees' work conditions** were also pointed out as an important factor to NSD success. From the interviewees' perspective, when the company offers good working conditions, employees will become more motivated to offer a good service to the customers and will contribute to the business success.

According to the partner company's manager:

“At the beginning of a new service, we were used to focus a lot on how to operate the machines and so on, and with the advance of technology we focused on the workers abilities, that is, the human relationships and the working conditions of the employees (...). Nowadays in the company the employees are more and more valued and offering them good work conditions is very important.”

(Cleaning company manager, operation stage)

Some factors that include this feature are: hygiene in the workplace, security on the building, lighting, canteens, among others actions that seek employee welfare, ensuring their security and health at work, once they spend most of their days there.

Other interesting factors identified in both the Developer and partner companies, involve the provision of a comfortable and well-equipped workplace, and the promotion of social activities among its employees, in order to promote interaction between them, to create a more harmonious work, and to develop the trust and respect among them.

According to Mancini et al. (2004), the concern for quality of life, welfare and safety of employees, is increasingly adopted by companies in order to encourage employees to develop their functions in an excellent way. Companies that take these actions into account in their strategies generate higher productivity, once the quality of life of employees have a direct influence on the organization's fulfilment of goals and objectives (Mancini, Scalzaretto et al. 2004).

Other factor mentioned as crucial to NSD process is **flexibility**. Companies must be increasingly flexible, once customer needs and market trends are constantly changing and the company should be able to respond quickly to these changes in order to stay competitive.

According to data results, both developer and partner companies should have a flexible work process given the complexity involved in all NSD. Flexibility is particularly important as customer needs change due to the long time of its NSD projects. In the initial stages of the NSD process many adaptations happen, but during the Construction and Launch stages other adaptations arise, which were not previously identified in the project planning stages. These changes need to be implemented, in order to prevent future failures at Service Operation stage.

As mentioned by a partner company's manager:

"I think that both parts (partner and developer) should have the ability of adapting and integrating, because what happens in a service development project is different than another project. There should be a good capacity of adaptation and flexibility (...)"

(Architecture company manager, conceptual development stage)

The ability to adapt to market and customer needs is considered by experts as one of the surest ways for searching for survival in this increasingly competitive market (Mussak 2009). In this context, a flexible company that is able to adapt its processes to work with partner companies and develop innovative services, in order to consistently meet customer demands, is more prepared to develop a competitive advantage in the market.

Group (2) - Service Factors

Service Factors were identified in the interviews as being very important to the development process of complex NSD projects. These factors are related to the factors which can influence the service offer.

Service concept is a highly mentioned factor. Service Concept relates to a clear vision and description of customer needs and how these are to be satisfied through the service offering. A clear service concept is crucial at the initial NSD stages to guide the development efforts, so there is a good fit between customer needs and the service offering. According to a partner company's manager:

“The Developer Company is a pioneer in this sector. Every Shopping Mall project is different in the first stage, because the company adapts it to the local characteristics, with different design, lighting and color, that is, they create a service concept that attracts the customer.”

(Architecture Company manager, conceptual development stage)

The service concept involves the fit between the idea generation, market needs and customer needs, defining the set of benefits the service will offer to customers and how the service offering is positioned in relation to competitors. This selection of new ideas to develop the service concept are based on local market trends and customer needs and the service concept is defined before starting specific investments in the service project.

Geographic location is considered by interviewees as a very important factor from the customer point of view, being a key factor for them to choose a service. This factor covers characteristics such as access facilities (for instance: public transportation and street access). As stated by a partner company's manager:

“What the company is offering to the customer could be an excellent service, but if it is wrongly located and out of reach, the probability of a failure is higher.”

(Retail store manager, operation stage)

From the interviewees' point of view, customers of Shopping Malls are increasingly busy, and as such, they have less time for shopping and other activities. Customers are constantly looking for places where, they can gather all kinds of services and products in a fast and pleasant way. According to a developer company's manager:

“In my point of view and with my experience in this type of service, people visit a Shopping Mall, because it is near their house or work, or because his/her favorite store is there. No one goes around the city to go to a Shopping mall because it is nice. (...) Nowadays practical things count, especially in large cities like São Paulo.”

(Operational manager of the Developer Company, operation stage)

Thus, the location of a new service is extremely important, once it determines the visibility, accessibility and local traffic, factors directly related to the performance of the new service (Corrêa and Giansesi 1994).

Service quality is another factor mentioned as important to a new service. This factor involves the perception of each individual customer. Various factors such as culture, needs, expectations, among others, can influence the perception of quality of service in different ways. Based on the interviews, the quality of service is related to meeting the demands and needs of different customers, with the clear perception of benefit and value of the service in the customer's point of view.

In specific case of the complex projects such as Shopping Mall, service quality is perceived by various components such as opening hours, location, mall's cleanliness, service mix and environment.

According to the developer's company manager:

“From my point of view the quality of a Mall depends on three factors: security, maintenance and cleaning of the Mall.”

(Architecture department of the Developer Company,
conceptual development stage)

“I think in operational parts, they are utterly critical to the perception of the quality of our service from the customer point of view”.

(Operational manager of the Developer Company,
operation stage)

In this context, for the Developer Company to provide a high quality service, its focus should always remain on the customer satisfaction, because, once displeased, he/she most likely stops using it and all that the company made to achieve quality and service excellence will no longer be important.

Tenant mix involves the selection process of the services that will be offered in the Mall. Tenant mix involves: stores, restaurants, cinema, supermarket, and other services. The results of the qualitative study with the four complex Shopping Mall projects revealed that service diversity inside the Mall becomes a decisive factor for the customer preference, once this mix positively impacts customer satisfaction and by consequence service success. According to the partner company’s manager:

“The tenant mix is one of the Developer Company advantages, the store mix is very good and it’s difficult to find a shopping that invests in brands and service type diversification as this one.”

(Retail store manager, operation stage)

Other factor pointed out by interviewees that can also influence NSD Performance was **Market Study**. Market Study is a big study that collects and analyzes information such as: local population, per capita income, prospect of the city and local population growth, market trends, competitiveness and culture. All these data can help the Developer Company minimize the risks of developing an inadequate service for the

region. In the subsequent stages of the NSD process, this factor becomes less relevant, after the service concept becomes defined.

According to a partner company's manager:

“The success of the entrepreneurship in the first place is linked with a perfect acknowledgment of the target public (...) 60% of new entrepreneurships fail because the market research is not well conducted and is not concerned with the final product.”

(Retail store manager, construction stage)

A detailed market research is extremely important to identify the real market needs regarding a particular product or service (Scheuing and Johnson 1989). Thus, the better the information about the market in which the service will operate, the better the performance of the new business. Only through this market study it will be possible to meet potential customers, recognize their needs, know where these potential customers are and to know the competitors, suppliers and the main threats to the future business environment.

In summary, the qualitative study provided an in-depth understanding of the factors that influence the NSD process performance, such as communication, market study, service quality, HR work conditions and service concept. These factors have been previously identified as important for NSD Performance (Jaw, Lo et al. 2010). The qualitative study corroborates these findings, and shows that these factors also apply to more complex NSD projects, such as the development of Shopping Malls. However, the qualitative study also revealed that new factors arise like sustainability, dedicated management, geographic location, and tenant mix. These findings indicate that these factors should be well defined and managed along the different stages of the NSD process, since they have a strong impact on NSD Performance.

Sustainability appeared to be a quality factor with an increasing importance in the complex NSD projects context due to the big environmental impact that the complex

service could generate throughout all its life cycle in the place where they are being offered. Therefore, the partner companies involved in complex service projects should adopt rules, processes and attitudes that guarantee the environment preservation, becoming more competitive in the sector they work in. This happens regularly, as the consumers are more attentive and worried in consuming service and products developed by companies whose aim is to adopt better practices to preserve not only the environment's health, but also the companies' workers health.

Dedicated Management and Tenant Mix are directed to complex service projects such as shopping malls, due to the involved activities complexity in all the process. The dedicated management becomes necessary given the large number of partner companies that work together into different CNs along all NSD process. This management is as well necessary, due to the services and products mix that are offered inside the same space that is the mall.

Tenant mix, which represents the service and products diversity offered, is each time larger given the constant changes in the customer needs as well as trend market. Based on results, customers often consume shopping mall type services due to the daily rush hour and the ability of solving the majority of the daily needs in the same environment.

In this context, the service geographical location becomes more and more a service quality factor, once it should be located in a place of easy access for the customers. Big traffic jams and damaged accesses could contribute to change the customers' choice in consuming one or other service.

Based on data analysis, it was found that the importance of these factors change along different stages of the NSD process, i.e., some factors are considered more important in the early stages, while others are considered to be more critical in the

Construction, Launch and Operation stages. The following section presents the evolution of these factors in the NSD process stages.

5.2.2 NSD Performance Factors by Stages

The qualitative study showed that most performance factors are important through all stages of the NSD project, although, their importance changes along this process. On the other hand, some factors are considered important only in specific stages. This section presents a stage by stage analysis of NSD performance factors, for a better understanding about how these factors vary across NSD stages and which ones crosscut the overall process.

As previously mentioned, the most mentioned performance factors across the different stages of the NSD process are: Communication, Dedicated Management, Sustainability and Service Concept. However, if we compare factors by NSD stages separately (as shown in Figure 5.4) the importance of these factors changes along different stages of the NSD process.

Communication, dedicated management and sustainability crosscut all stages of the NSD process. **Communication** is the most mentioned factor and is considered crucial for the NSD success, particularly in the early and operation stages. The idea generation and concept development involves a smaller team geographically dispersed but working tightly together to create the new service concept, which requires a strong communication between all members of the team. Thus, as the team who develops the necessary activities of this stage is not physically together, a strong and structured information management and communication among those involved, becomes more critical than if they were together in person, as in the other stages.

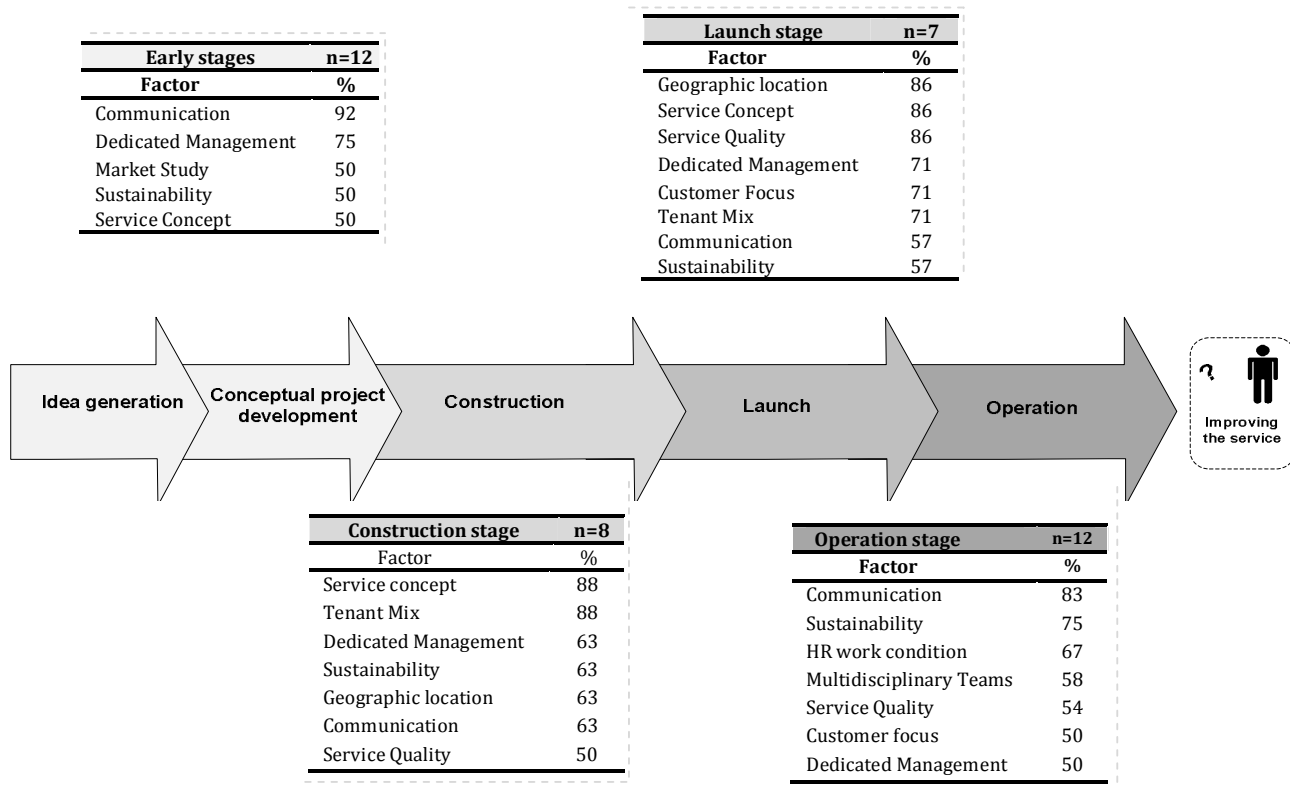


Figure 5.4: NSD Performance Factors by stage.

The operational stage involves the collaboration among a large set of partners (retailers, maintenance, suppliers and so on) that need to constantly communicate to provide an integrated service and a smooth experience to the customer.

According to the developer company's manager:

"The development of a Shopping Mall is a complex and interactive process, as there are several subjects that could interact (...) all the workers need to speak, share opinions in order to be able to show their needs, possibilities and in this way a new product and service "is born" with harmony."

(Architecture department of the Developer Company, conceptual development stage)

In this stage, all the parts involved in the network should be in constant contact to render the service in the best way, since all stakeholders (e.g. tenants, customers, suppliers, and so on) interact directly in the same physical environment. Thus,

communication is essential for a good coordination of all development activities by partner companies.

Sustainability is a new performance factor that is emerging in NSD. This factor has not been pointed out in previous NSD literature, but interviewees considered it as crucial along all stages of NSD. Sustainability was more frequently mentioned in the construction stage, due to the environmental impact of construction work, and is considered a key factor in the operational stage. The operational stage has a large environmental impact due to water and energy consumption, as well as the waste produced. Interviewees consider that sustainability is increasingly viewed as a factor for customer choice and usage of the service.

“The Developer Company works a lot with sustainability issues and it’s where its work is far developed. The company is more focused on these actions than its competitors when the Mall is in operation. I say that because I also work for other companies in the same industry.”

(Maintenance company manager, operational stage)

The Developer Company considers the actions related to the environment very important. Sustainability has to be taken into account since the early stages of NSD, as decisions at these stages will influence the environmental impact of the service in the operational stage.

Dedicated Management is critical in conceptual development and construction stages of NSD. In these stages partner companies in different industries must start working together to develop the service, and so there must be a strong management across all the companies involved. The manager or management team, with exclusive dedication to a project, should be able to keep people motivated, even at a distance and make key decisions involved in this stage.

However, dedicated management also becomes important in the launch and operation stages. At the moment of the market launch as well as in the operation stage several new companies start their work at the same physical environment, such as the maintenance company, the cleaning company, the security company and retailers, and a coordinated management becomes crucial.

The **Service Concept** starts being an important factor in the early stages, as these stages are responsible for the idea generation and concept development. In the construction and launch stages, this factor becomes especially important, because a clear service concept is crucial to guide these stages and will have a strong impact on the development of all subsequent stages. In the Construction stage, the architectural service concept is the basis for the development of this entire stage. The partner companies who work at this stage construct, and therefore operationalize, what was set in the service concept by the Developer Company in the early stages of the process.

Whereas the service concept is important in the previous stages of the NSD process, Service Quality becomes a key factor at the launch stage. When the new service is introduced in the market, customers start experiencing it. If creating a good service concept was crucial in the previous stage, after the launch stage it is crucial to implement the service concept and provide good service quality to customers.

Tenant mix and **geographic location** are crucial on the construction and launch stage. In the construction stage these factors become important, once it is the moment to establish a relationship with partner companies which will offer the complementary services. When the construction begins, the shopping mall moves from conceptual project to having a physical location. This geographical location becomes particularly important for partners in the construction stage, and also for customers at the launch stage, as they need to physically go to the site to work or use the service.

In the launch stage, the Tenant mix remains important, once it is time to introduce the service to the market and the selection and location of retailers becomes crucial for customers to choose and become loyal to the new service.

Geographic Location was pointed out as important in the Launch stage because it is the moment when customers will get in touch with the new service. However, after this first contact, this factor is not so frequently mentioned. According to interviewees, after trying the service, if the customer is pleased by it, the geographic location becomes a secondary factor.

Market Study is a specific factor of the early stages, as it involves the study of market and customer needs to support the idea generation and concept development. The market study must be made before starting the concept development of the new service, since the results of both studies provide a basis for the company to decide whether to move forward or not with a new idea and develop the concept.

This study is crucial at this stage of the process, and it is crucial to the success of the subsequent stages. However, it is not applicable in the later stages, since they will develop what has already been defined in the service concept stage. Nevertheless, after the Operation stage, this study is again critical, as trends, customer needs and preferences change, and the developer company needs to keep up with these changes. As such, new market studies are undertaken after the operational stage to start a new NSD cycle, aimed at improving and adapting the service to new requirements.

HR work conditions become increasingly critical in the operational stage. From the interviewees' perspective, when the company offers good working conditions, employees will become more motivated to offer a good service for the customers and will contribute for business success.

In the context of the complex NSD projects, this factor has more emphasis in operational stage than in early stages. The results show that the workers of both the Developer Company and partner companies involved in the operation stage are constantly in the place where the service is offered. Therefore, to make the working environment pleasant and available, with the necessary conditions for the workers' good performance in the development and offer of the service, makes the companies believe these workers are partners as well as.

Multidisciplinary teams were most frequently highlighted in the service operation stage. In a complex project such as shopping mall, the operation stage involves multiple service and products offer inside the same physical environment, which will be consumed in different way by different people. This happens due to the consumer heterogeneity. Therefore, being the same service offered to several customers, there is the need for the management team to possess different perspectives of this service, with the aim to satisfy and fulfill the needs of the customers. Being this team a multidisciplinary one it will look at the same service in more different ways than if the team was composed by professionals of the same area.

To sum up, the study results showed that some performance factors are important across all stages of the NSD process such as: communication, sustainability and Dedication Management. Some factors evolve across stages, such as: HR Work Condition and Multidisciplinary Teams in the Operational stage, Service concept in early and launch Stages, Tenant Mix in construction and launch stages. Other factors are specific to each single stage, such as: Market Study in the early stage.

Based on data analysis, the evolution of these factors can be justified because each stage of the NSD process involves different objectives and activities, and different performance factors. These results therefore contribute an in-depth understanding of

the factors that drive NSD Performance as well as how these factors evolve across NSD stages.

5.2.3 NSD Performance Factors: Developer and Partner Perspectives

As shown in Table 5.5, Developer and partner companies refer to the same NSD performance factors.

Table 5.5
NSD Performance Factors of the different point of view: Developers' and partner's perspective.

NSD PERFORMANCE FACTORS	DEVELOPER PERSPECTIVE (N=14)	NSD PERFORMANCE FACTORS	PARTNER PERSPECTIVE (N=25)
Communication	79%	Communication	75%
Dedicated Management	71%	Dedicated Management	63%
Sustainability	71%	Sustainability	54%
Service Concept	71%	Geographic Location	54%

The Developer and partner companies share a similar vision about some factors that influence the NSD process. For both companies the performance factors that can influence the NSD process performances are: Communication, Dedicated Management and Sustainability. This vision shared among companies is very important to the success of the network relationship and by consequence to the NSD Performance (Camarinha-Matos and Afsarmanesh 2008).

However to the Developer Company's perspective the service concept is more important than to the partner company. Data analysis revealed that this is due to the fact that the service concept is internally developed by different departments of the Developer Company and is considered the core competence of the company, given its experience in this sector.

On the other hand, geographic location is a factor considered to be more important by CN partners, as many are retailers, and the accessibility and visibility of the new service becomes key.

In summary, the qualitative study provided an in-depth understanding of the most important NSD performance factors, based on interviews with managers from the four shopping mall projects. Data analysis also allowed an understanding of the evolution of these factors across the NSD stages and a comparison between developer' and partners' perspectives. Study results show there is a consensus on the importance of some factors from both perspectives - Developer and partner companies - but the importance of these factors changes.

5.3 Collaborative Networks in the NSD process

CNs are becoming more popular for complex NSD projects, once these projects involve several activities along the different stages of the process.

In this context, CNs play an important role, once it is very difficult for a single company to possess in house all competences needed to develop these activities in the best way. The exploratory results showed that the Developer Company develops the activities of its core business, while establishing partnerships for the activities considered secondary.

Based on data analysis, assigning secondary activities to CN partner companies is increasingly adopted by companies that work with large scale and complex projects. The collaborative relationship through the strategic outsourcing since the early stages of NSD provides a reduction in its time and cost, potentiates the process once these activities are developed by specialists companies. Therefore, the results show that CNs

play an important role in complex NSD projects, once they are responsible for the execution of several important activities along the different NSD stages. However, simply creating a CN is not enough. The quality of the CN determines the positive or negative impact it will have on NSD Performance.

The second component of the qualitative study focused on understanding CN Characteristics that influence NSD Performance. These characteristics are CN Quality Factors that drive NSD Performance. Based on these results, CNs Characteristics were categorized into two dimensions: (1st) Partner characteristics and (2nd) Relationship characteristics.

The partner characteristics correspond to attributes, which companies that work in CNs context, should satisfy, to effectively develop the activities involved in the complex NSD projects. These attributes represent the quality factors of the companies that work in a CN. Relationship characteristics refer to quality factors that characterize a good relationship established among the CN partners. Data analysis showed that some of these factors are shared by Developer and partner companies whereas other characteristics differ.

In this context, the presentation of the study results related to CNs is organized in the following sub-sections: CNs Characteristics divided into Partner and Relationship Characteristics. Finally, CNs Characteristics are analyzed according Developer's and Partners' perspectives.

5.3.1 CNs Characteristics

Based on data analysis, CNs Quality is determinant for complex NSD project success. Partner and relationship characteristics indicate if the companies possess the

right attributes to develop as a group and effectively perform the activities involved in NSD process.

Based on the study results and previous literature review, these characteristics can be categorized into two dimensions: Partner Characteristics and Relationship Characteristics. Both dimensions are discussed on the next two sections.

Partner Characteristics

CN partner characteristics become crucial for an effective contribution to complex NSD projects. From the interviewees' perspective, these characteristics might influence the good development of the activities and tasks involved in the NSD process, and therefore influence NSD Performance and final service success.

The dimensions of CNs Partner characteristics identified in the qualitative study are shown in Table 5.6.

Table 5.6
CNs Partner Characteristics.

CN'S PARTNER CHARACTERISTICS	OVERALL (n=39)
Partnership Experience	74%
Know-how	64%
Compliance with contract and norms	64%
Brand reputation	59%
Flexibility	51%
Sustainability Focus	49%
Innovation focus	49%
Service quality	46%
Proactiveness	44%
Compatibility of process	39%
Customer Focus	38%

Partnership Experience is related to the partners' previous experience working together through CNs or other type of collaboration between companies to develop products and services.

The experience in previous projects strengthens the network relationship and enables the resolution of possible conflicts when executing any activities of the NSD process, due to past experience on previous projects that may serve as "examples" for new project development.

According to a partner company's manager:

"We have already been working in the market for 20 years and have experience in creating partnerships (...) our company works with developer companies for a long time".
(Maintenance company manager, operational stage)

This result corroborates the findings by Anand and Khanna (2004) who emphasize that the companies which have previous partnership experience have a stronger capability of managing both internal and human resources, making it easier to solve possible conflicts that may occur along the networks relationship.

Know-How was pointed out by interviewees as an important characteristic that partner companies should satisfy to potentiate NSD process success. According to Teece (2003) it involves the knowledge of a specific process that the company possesses and because of it becomes know in the market.

From the interviewees' point of view, know-how involves the knowledge that the company where they work has in a specify area, and they believe that their company is better than the competitors. For them, this knowledge is the reason why their company is selected to work in a CN in the NSD process. Therefore, the companies which possess know-how are seen as valuable partners in the NSD projects, once the know-how constructs a strong competitive advantage that potentiates these projects.

According to a partner company's manager:

"(...) The first Mall was a success, but nowadays in Portugal there are too many Shopping Malls. What happens is that the Developer Company has success for its experience and know how in developing Shopping Malls. Where they operate there's always success".

(Retail store manager, launch stage)

In this context, based on data analysis, is inferred that Know-how has a strong impact on NSD Performance, once partner companies have specific knowledge about determined activities, and help to optimize the process development and NSD final success. Know-how is as well an important competitive advantage source and many times it helps differentiating the new service from the other competitor's service.

Compliance with contract and norms was mentioned by interviewees as an important characteristic to NSD Performance success. Such characteristic is extremely important to work in the network context, once there are many companies working at the same time in the same project; as such, respecting the rules established by contracts is more critical than if the company worked alone.

Therefore, the companies who already possess the culture of following the established rules as well as a control policy of these rules are more likely to reach good results and are considered more appropriate to work in a CN.

According to Camarinha-Matos and Afsarmanesh (2008) compliance with contract and norms is related to the company culture and contributes to a better relationship with other companies that share the same vision, improving the development of NSD activities in the network context.

Based on data analysis, this factor assumes an essential role to develop a structured coordination of the NSD process and to achieve some NSD goals, such as

project deadlines, so that the new service is created in harmony and in the planned time.

According to a partner company's manager:

“(...) the strong and active management of the Mall's space is what makes the Developer Company obtain success in its Shopping Malls. It is to me what dictates the success of everything. The managers do not stay still, they do not let the space get damaged, that is, they follow all the strictness, rules and contracts and are examples for the partners”.

(Retail store manager, launch stage)

In this context, it is very important that companies comply with standards and rules that are pre-established in the partnership contract, because in this way, is possible to ensure: (1) respect between all partners involved in network, (2) that all activities of the NSD process are developed within standards and legal requirements, (3) quality and efficiency in the development of the activities involved on process, (4) transparency in management of the CN, and (5) solution of possible problems surrounding the NSD process.

Brand Reputation is a very important characteristic for NSD Performance, especially when the service is released to the final customer. This characteristic is related to the company reputation in the market where it is inserted.

Companies with good market reputation have more possibility to establish partnerships, once their work is already known by both customers and competitors.

The qualitative study with the four NSD projects showed that partner companies with well known brands such as MC Donald's or Zara, also attract customers to the Mall. Therefore, offering well known brands in the mall increases the Mall's attractiveness to customers, which is crucial to the NSD success.

For the less known brands, this factor is also important, as they benefit from sharing the same space with well-known brands. From the partner company's and developer company managers' points of view:

“For retailers, the Developer Company is a reference service provider, at least in Portugal; their Shopping Malls are the best (...) and that ends up adding value to our retail store. When we are inside such well known mall, it means our products and services are of high quality as well”.

(Retail store manager, operational stage)

“When we establish partnerships with big companies and these are already successful in the market, this fact turns to be a perfect business card for us inside a mall”.

(Operational manager of the Developer company, operation stage)

Other characteristic pointed out as important for NSD Performance was **Flexibility**. This characteristic is related to the capability of partners to adapt their process to respond to both market and customer trends and NSD process modifications. According to interviewees’ perspective, NSD requires many changes throughout the process and for this reason partner companies should be able to adapt their activities and processes quickly to cope with those changes. From the partner company manager’s point of view:

“Our processes are very flexible, i.e., we are able to work with new rules at any time (...) we make changes according to customer needs (...) and we adapt to partner companies.”

(Structure Engineering company manager, construction stage)

The importance of this characteristic is highlighted by Mussak (2009), who emphasizes that flexibility is an essential attribute for companies to work in complex NSD projects, because customer needs are constantly changing and technological development is hastily.

An important factor mentioned by both of the Developer Company and CNs partners interviews is **sustainability**, which is related to self-sustainable processes and environmentally friendliness. Sustainability was pointed out by interviewees both as NSD performance factor and CNs partner characteristic. In the four complex NSD

projects, sustainability was an important concern for the Developer Company, and that concern resonated to all partners in the CNs.

This factor crosscuts the different stages of the NSD process, and all companies working in Collaborative Networks need to undertake their processes taking into account environmental preservation, so the new service becomes sustainable from the start. According to the partner company's manager:

"I believe that regarding environmental issues there was a great evolution in the world. Nowadays we try to make certain actions so the Shopping can get some certifications. Therefore, we have to make adaptations to suit the rules of the Developer Company, as this is its primary concern in an operation Mall".

(Cleaning company manager, construction stage)

"In our case, the activities of our company have a very large environmental impact, once we work with energy generation. Therefore, our company is up with these rules, and we are very strict about this, it is not new to us, it is a company's well established practice.

Thus, to fulfill the Developer Company's rules it was not necessary to adapt any specific activity to meet the Shopping needs, but if it was the case we were prepared to that".

(Lighting company manager, operational stage)

Innovativeness was also considered a key characteristic for a partner that work in the CNs for NSD., once the customer needs, market trends and technology are constantly changing, and this requires constant investment in innovation from the companies. Innovative companies are those able to constantly develop new ideas the NSD project, or to improve the NSD process. Some partner companies' managers emphasize its focus on innovation as a central feature of the company.

"The Shopping is a success because, first we are the market leader in our retail area; second, we have the most innovative food area in the country. This is our focus, continuous innovation!"

(Retail store manager, operational stage)

“Our company is associated with innovation, and for the mall it is good to have our company as a partner. Every new partnership we have established presents something different, we are innovators.”

(Security company manager, operational stage)

In this context and based on data analysis, the focus on innovation has the ability to add value to the NSD process, distinguishing it in the competitive landscape in which the new service is introduced. Companies that innovate in services and products, process or business models, either in an incremental or radical way, are at an advantage over other competitors.

Based on information, these companies have stronger probabilities to be successful partners in NSD projects, as these projects are inherently innovative.

Following the data analysis, other two important characteristics of partner companies were pointed out by interviewees, which can also be associated with innovativeness: **quality of the renderer service** and the **customer focus**. In reality both characteristics complete each other once the service quality depends on the ability of the company to focus on customers and offer services that suit their needs. In this way, the quality of the service renderer and the focus on customer needs by every partner strongly impacts NSD final success. According to the partner company's manager:

“(...) we have the conditions to offer a complete mall service, because we know the market, and we execute and supply all our services focusing on the customer. We have the know-how and knowledge to serve in an excellent way in any place in Brazil and this is translated in a complete service of high”.

(Retail store manager, launch stage)

In this study, the **Pro-activity** is other important factor that influences the choice between one and other partner company. Pro-activity involves the capacity of the companies to propose solutions and take initiatives to solve problems. Proactive

companies are agile and have a quick capacity to propose solutions to solve unexpected problems. Companies with these initiatives are more indicated to be company partners in complex NSD projects once, as already mentioned, the NSD process involves several changes along all the process and these changes should be solved in a creative, innovative and fast way.

As stated by two interviewers who consider their company a proactive one:

“(…) The environmental rules are an increasing concern for all companies nowadays. Our company was contracted to develop certain services and in the meanwhile we found solutions and alternative proposals to provide a better service (…)”.

(Construction company manager, construction stage)

“We not only meet what is in the contract, we develop other activities that are necessary to improve the operation. We are very proactive and we hope to be recognized for this through the establishment of new contracts”.

(Maintenance company manager, operational stage)

Another important characteristic for the NSD Performance success is **Process Compatibility** between companies of the network. This characteristic indicates that partner companies should have systems, structures and processes minimally compatible to work in the same NSD project. According to the interviewees, this is an important requirement and it is advantageous to all the parts involved in the network, once the lack of compatibility brings high costs and risks associated with the process development and coordination (Moffat and Archer 2004).

According to partner company's manager:

“As part of my work, there is a rule that is common to all of those in the market, and it is an environmental certification (...). The certification processes, for example, that we must have in order to work in the market and with other companies. That means that we need to have capability to adapt our process in different situations”.

(Construction company manager, construction stage)

In this line, compatibility in the process between partners is crucial for partners to work together in a productive way with a clear orientation to results, which in this case is NSD success. Thus, companies with consistent processes and documentation are conducive to business partnerships.

Some of the partner characteristics mentioned previously such as: partnership experience, compliance with contract and norms, flexibility and compatibility of process are considered very important before establishing a relationship in the network, once they can cause disagreement between the participant companies, and thus influence the NSD process.

Partner characteristics that compose the CNs are very important once CNs partners are responsible for developing the activities related to complex NSD projects, and their performance has a direct influence in the NSD Performance. Based on data analysis, partnership experience, flexibility, sustainability focus and proactiveness were pointed out as desirable factors that partner companies should specifically have to positively contribute to NSD Performance.

The results of the qualitative study highlight the importance, for the Developer Company, to spend a large time selecting and analyzing its future partners in detail, in order to prevent future conflicts of all kinds, such as culture, processes and interests, which can negatively influence the NSD.

In this context, when the Developer Company selects a partner to compose the CNs for complex NSD projects, it becomes necessary to analyze if that partner has at least some of these characteristics. These partner quality factors are therefore a set of pre-conditions for a successful CN and a successful NSD project to happen.

Partner Characteristics - Developer and Partner Perspectives

The qualitative study also allowed an examination of partner characteristics from the perspective of the contracting company (Developer Company as service owner) and the partner companies. Table 5.7 presents CN partner characteristics from these different perspectives.

Table 5.7
CNs Partner Characteristics –Developer and partner Perspectives.

PARTNER CHARACTERISTICS	DEVELOPER n=14	PARTNER CHARACTERISTICS	PARTNERS n=25
Know-how	71%	Partnership Experience	79%
Partnership Experience	71%	Compliance with contract and norms	62%
Compliance with contract and norms	64%	Brand reputation	62%
Sustainability Focus	64%	Proactiveness	58%
Compatibility of processes	64%	Innovation focus	58%
Brand reputation	57%	Know-how	58%
		Service Quality	58%
		Flexibility	58%

The Developer and partner companies shared a similar vision about some partner characteristics. For both, the characteristics that partners should satisfy are: partnership experience, know-how, compliance with contract and norms and brand reputation.

Based on results, these characteristics, mentioned above, are important for both the companies (Developer and partners) as they are basic and essential for any companies and represent its quality. Therefore, the vision share of these factors happens as they are minimum quality factors and could represent the capacity that a company has to participate in a CN in complex NSD projects such as a shopping mall.

These results reinforce the idea that analyzing only the technical ability and price of the company rendered services are less trustable requisites in the NSD process context, once these characteristics as mentioned above, represent the quality of the rendered service and have direct influence in the NSD Performance.

However, the relevance of other partner characteristics is different from the developer's and partner's perspectives. From the Developer Company's point of view, Sustainability Focus and Compatibility of processes are very important partner characteristics.

Sustainability is an emerging concern and is considered a key aspect for the Developer Company, as the shopping mall service and the overall NSD process have a strong environmental impact. However, partner companies, especially small ones, may be less aware of environmental concerns. As such, sustainability is considered a more important aspect for the developer company and is used as a criteria for partner selection.

Process compatibility also becomes crucial for a good relationship between the partners, however, from the Developer perspective this characteristic is more highlighted than by partner companies. The results show that, due to the NSD process complexity, the different areas that compose it possess activities and process with several patterns, rules and characteristics. Therefore, the companies responsible for developing such activities and processes should have the minimum conditions to adapt their process in order to be possible to work together with other partners and potentiate the NSD. If this doesn't happen conflicts and problems may happen due to incompatibility of the process among the companies that work in the CN for the same project and as a consequence prejudice the NSD Performance.

Whereas sustainability and process compatibility are relatively more important for the Developer Company, proactiveness, innovation focus, service quality and flexibility are relatively more important for partner companies.

Partner companies believe that if they are proactive and help to solve NSD process problems in a faster way, they will be recognized by the Developer Company, and can be selected to work on other NSD projects.

Innovation and service quality are important features that partner companies' consider they bring to the CN and contribute to NSD success. Partner companies consider that innovation and quality of supply of its products and services significantly contribute to NSD success and become a basis for achieving competitive advantage.

From the partner companies' point of view flexibility is also considered a key characteristic, given the constant changes in market trends, as well as changes in customer needs. Based on results, flexibility is more important for the partners than Developer. It can be justified, because they should be flexible and able to adapt to possible surrounding changes in NSD process, once they are contracted by the Developer Company which is responsible for the changes and adaptations throughout the process development, based on new market trends and new costumers' needs.

The comparison between developer and partner perspectives reveals that they both consider that a know-how, experience, brand reputation and compliance with norms as key characteristics for successfully partnering in the NSD project. However, the differences in the other attributes reveal that developer and partner companies may view their roles in different ways. Whereas the developer seeks partners that comply with its sustainability practices and processes, in a more reactive role, following the developer's lead, partners consider that innovativeness, proactiveness and flexibility are key competencies they bring to the CN and to the NSD project, showing they want to play a more active role.

The qualitative study allowed an understanding of the most important partner characteristics that influence NSD Performance. The partner characteristics pointed out

by the interviewees were presented, detailing the characteristics indentified in partner companies that work directly in four complex NSD projects.

Following the data analysis, the second dimension of CN Quality Factors involves the characteristics of the relationships between the partner companies that are working in the CNs in the complex NSD projects.

CN Relationship Characteristics

This section presents CN relationship quality factors, which are CN relationship characteristics that were considered important for both network success and NSD Performance. The Relationship characteristics involve the attributes that classify a good network relationship between partner companies that work in the CN of the complex NSD projects. Based on data analysis, Table 5.8 shows the CN relationship characteristics, comprising mutual learning, trust. Company's image improvement, communication and shared vision.

Table 5.8
CNs Relationship Characteristics.

RELATIONSHIPS CHARACTERISTICS	OVERALL n=39
Mutual Learning	69%
Trust	62%
Company's image improvement	56%
Communication	54%
Shared vision	49%

Mutual Learning involves the capacity of CN partners that work in complex NSD projects to acquire new knowledge by contacting and learning from other partners and being to apply such knowledge in their daily routine.

Mutual Learning ends up to be a natural process in the cooperation between companies in a network, once the information and knowledge exchange between the partners that work in the same project is frequent.

“When a relationship is established between large business companies, they already have a defined structured process in their daily activities. As a new partner we need to adapt our processes to them. This experience exchange is great for the idealization of further activities which can also be reproduced in a practical way.”

(Architecture company manager, conceptual development stage)

Mutual learning can influence NSD Performance. Facing problems and trying to solve them together is a source of learning, which benefits, not only the partners, but also the NSD process. Knowing how to deal with problems and taking the most benefit of the learning opportunities through the creation of fast and safe solutions make the NSD process much more productive.

Trust has been identified in the literature review and was pointed out by interviewees as a crucial CN relationship characteristic and a driver of NSD Performance. A complex NSD project such as the development of a shopping mall involves several organizations with different goals and processes across different process stages. Therefore, trust between all the partners involved becomes a relevant factor for the success of a relationship in network. However, to establish and maintain trust in the CN is a challenging aspect due to the number of companies involved and the fact that each single company has different perspectives and visions about the same problem. This result is consistent to what has been highlighted by Whipple and Frankel (2000), who stated that in NSD projects trust is crucial for the relationship once each partner depends on the other to achieve its own activities and goals in the best way (Whipple and Frankel 2000).

According to the partner company’s managers:

“(…) confidence grows from problems. Each problem solved brings to the partnership context more confidence and partnership spirit”.

(Security company manager, operational stage)

Study results indicate that “trust” is more relevant in the relationships with external companies than between the departments of the same company, once managers from the partner companies are more independent and the Developer Company does not have a direct control on the activities they developed.

The other characteristic pointed out by interviewees was **company’s image improvement**. This feature involves the influence that a company’s brand has on their partners when they are networked. For example, if a small company establishes a partnership with a big company that is already very famous in the market and has a strong credibility, it is very likely that the smaller company becomes better known, and customers end up associating its image to the one of the big company.

However, the opposite can also happen. If a company with a bad image in the market establishes partnerships, the partner companies end up being associated with the negative image of the company.

This characteristic becomes relevant in complex NSD projects such as shopping malls, because they involves a higher number of partnerships, and the probability of establishing partnership with well-known companies, improving the image of a new service is higher than in a smaller dimension project.

According to the partner company’s manager:

“The brand of the developer's company ends up adding value due to the shopping size, because if we have the know-how to serve such a big shopping, that means we are capable of serving any other company.”

(Maintenance company manager, operation stage)

As the company's image improvement was outlined more frequently in the Operational stage, this result reflects the fact that in this stage, a larger number of partnerships are established when compared to the other stages. In this sense, for the partner companies it is better to ally their image to the Developer Company that is already well-known and have a good reputation.

A strong and structured **communication** was emphasized by interviewees as essential to a successful CN relationship. A structured communication between all the companies involved in the CNs allows all the companies to work in the same direction, focusing efforts to achieve the same goals. Communication is also the base to create trust.

According to the partner company's manager:

"To get successful relationships with other partner companies on a project of this size, a clean and intense communication between all partners is essential. This communication helps to create respect and trust on both sides – Developer and partner company".

(Retail store manager, launch stage)

Structured and clear communication between all people involved in the network is very important. The network manager should therefore be apt to use the information, in order to generate value promote NSD success (Yoshino 1996).

Shared vision means that all partners engaged in the process of developing the new service should share a common vision of the service being developed. A shared vision enables the CN and the NSD project to develop in harmony, by defining a common set of achievable goals.

According to the partner company's manager:

"The thoughts and interests of the partners need not always to be identical, but must always share the same vision about the final product".

(Retail store manager, operation stage)

In this context, for the NSD process to occur in the best shape and the final service to be a success, its partners must share the same vision about the concept of service/product they are developing. If there is no total similarity in sharing this view, there should be efforts to ensure that there are at least complementary.

Relationship Characteristics: Developer and Partner perspectives

This study also allowed an examination of the relationship characteristics from the perspective of both contracting company (Developer Company) and partner companies. Table 5.9 presents the desirable relationship characteristics between partner companies in the CN context from these different perspectives.

Table 5.9
CNs Relationship Characteristics by Developer and partners perspectives

RELATIONSHIP CHARACTERISTICS	DEVELOPER N=14	RELATIONSHIP CHARACTERISTICS	PARTNER N= 25
Trust	57%	Mutual Learning	84%
Communication	57%	Company's image improvement	72%
Mutual Learning	43%	Trust	64%
		Shared vision	58%
		Communication	52%

The Developer and partner companies share a similar vision about most relationship characteristics. For both, the desirable characteristics that CN relationship should satisfy are: trust, communication and mutual learning. These factors are very important for the development of complex NSD projects, once they minimize the conflicts and enable a smooth evolution of the NSD process.

From the partner companies' point of view, company's image improvement and Shared vision are very important characteristics. To establish a relationship with a well-known company, such as a Developer Company in the context of the NSD project can

improve their market image, once its image will be associated to a Developer Company, which will contribute to the partner companies to become known due to the dimension and credibility of the Developer in the market.

Shared vision becomes crucial for a good relationship between all the partners hired in the CN context. On the one hand, from the partner perspective this characteristic is important because the NSD success depends on the good relationship between them, once these partners develop several projects together at the same time and many times in the same environment. Therefore, shared vision helps and enhances the harmony in the complex NSD projects.

On the other hand, partner companies also need to have a similar vision with the Developer Company about the new service concept being developed, so that it is developed in a consistent manner. Thus, partners must make an effort and share the same vision with both other partners in the CN and Developer Company.

Based on qualitative study results, data analysis allowed an understanding of the most critical CNs relationship characteristics that influence the NSD Performance. The relationship characteristics pointed out by interviewees were presented, detailing the characteristics identified on relationship between partner companies that work directly in the CNs in four complex NSD projects. The data analysis, also allowed a comparison between Developer and partner companies' perspectives on the most important CN relationship quality factors.

To sum up, the CN Characteristics represent some quality factors that the CN should have in the complex NSD projects context. The study results show, that these characteristics are divided in two dimensions: CN partners characteristics and CN relationship characteristics. The partner characteristics that more influence the NSD Performance are Partnership Experience, Know-how, Compliance with contract and

norms, Brand reputation, Flexibility, Sustainability Focus, Innovation focus, Service quality, Proactiveness, Compatibility of process and Customer Focus. From the interviewees' point-of-views, these characteristics might influence the good development of the activities and tasks involved in the complex NSD projects and consequently influence NSD Performance.

The CN relationship characteristics that were more mentioned are: Mutual Learning, Trust, Company's image improvement, Communication and Shared vision. These characteristics involve the quality factors that influence a good network relationship between partner companies that work in the CN of the complex NSD projects.

5.4 Qualitative Study Conclusion

The qualitative study results allowed (1) to understand NSD process performance factors, (2) to analyze how these factors evolve across the process stages; (3) to understand the CNs characteristics that are important for CN success and NSD Performance and (4) to compare the relevance give to CN Characteristics by both perspectives: Developer and partner companies.

Regarding NSD performance factors, the study showed that some factors cross-cut all stages of NSD, such as communication, dedicated management, service concept and sustainability. However, the relevance of these factors evolves along these different stages. Other factors are specific of each single stage, such as market study in the early stages; geographic location in the construction stage; service quality and customer focus in the launch stage and work conditions of human resources and multidisciplinary teams in the operational stage of the NSD process.

The qualitative results corroborate previous findings, but new factors also arise, such as the sustainability, geography location and multidisciplinary teams, which are often emphasized throughout the interviews and were not previously identified in the literature.

The Collaborative Networks are more and more used in the development of complex new services, as these services need multiple competences which a stand-alone company cannot possess in house. In this context, CN Quality Factors that contribute to NSD Performance were divided into two dimensions: (1) Partner Characteristics and (2) Relationship Characteristics.

Partner characteristics are related to the attributes that the partner companies should have to successfully participate in the CN in a complex NSD project. Partnership experience, Know-how, flexibility and sustainability focus were pointed out as desirable characteristics that partner companies should specifically have to contribute to the NSD success. Relationship characteristics are related to the quality of the relationship established among the companies in the CN. The study results indicate that mutual learning, common vision and trust are crucial characteristics for the success of the CN in the complex NSD context.

Based on this qualitative study, an emphasis can be placed on the importance, for the Developer Company, to carefully select and analyze its future partners in detail, in order to prevent future conflicts such as: culture, processes and interests. Assessing the partner's characteristics identified in the study can provide useful help on selecting CN partners. However, making a good selection is not enough. All the companies that work in the CNs should nurture the relationship so that the NSD process can be successful.

In this context, this qualitative study contributes to understand the factors that guide NSD process performance in complex NSD projects, presenting new insights about

the evolution of these factors along all NSD stages and how CNs can influence NSD Performance.

As the literature contains both phenomena separately, these results contribute for integrating CNs and NSD research to cope with the new challenges of complex NSD projects. This study also brings new insights on how the management of CNs should evolve through the different stages of the NSD process in order to enable its success.

Chapter VI
QUANTITATIVE STUDY

6.1 Conceptual Model and Research Design for Quantitative Analysis

The literature review offered a diversified view about the role of the CNs in the NSD process, providing a first framework for the development of the conceptual model of this dissertation, as it can be seen in figure 6.2.

However, as no previously developed measures existed to address CN Quality, the qualitative study results provided a deeper understanding of the phenomena and indentified a large sample of the CN Quality indicators that could influence the NSD Performance and be relevant to measure the intended constructs. The previous research stages provided a sound basis for the quantitative study that followed, as show in Figure 6.1.

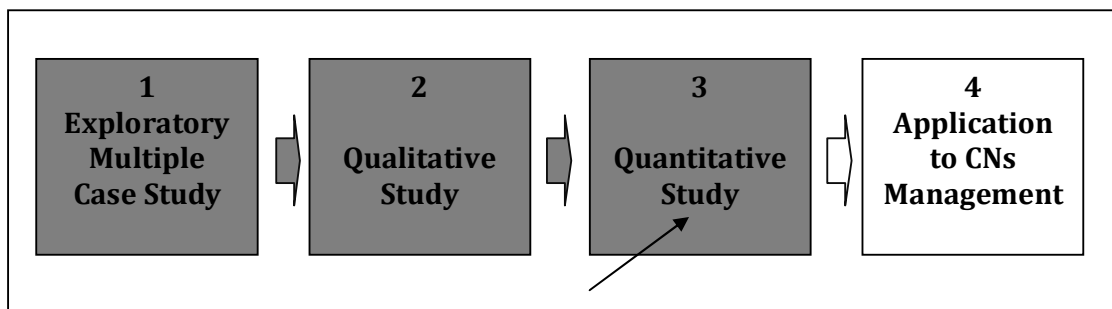


Figure 6.1: The Quantitative Stage of research.

The research aimed to understand the role CNs played in the NSD process across its different stages. The qualitative study identified two broad dimensions of the CNs Quality Factors that can influence NSD Performance: (1) CN Partner Quality and (2) CN Relationship Quality, leading to the development of the conceptual model presented in Figure 6.2. The qualitative study revealed that these CN Quality Factors are important for the success of both the CN and the NSD project.

(1st) Scale: CNs Partner Quality: Concerns the quality of the partner companies that work in the CN in complex NSD projects. This quality refers to attributes of the companies that can potentiate the NSD Performance.

(2nd) Scale: CNs Relationship Quality: Concerns the quality of relationship between all partner companies involved in the CN.

(3rd) Scale: NSD Performance: Concerns some indicators that represent the success of the complex NSD projects.

Therefore, this quantitative study aimed to measure the impact of the CN Partner Quality and CN the Relationship Quality on NSD Performance. To achieve this goal, the quantitative study followed a scale development approach, as already explained in Chapter III.

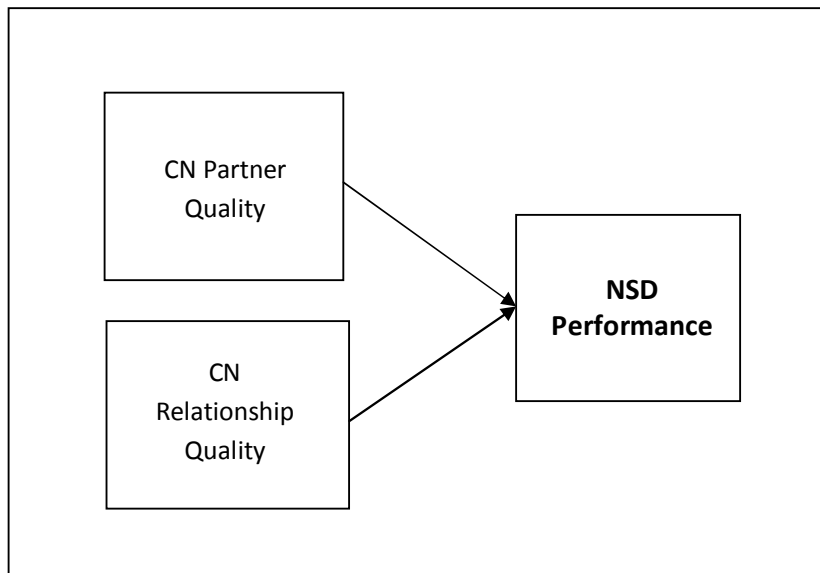


Figure 6.2: Conceptual Model for quantitative study.

This model originated a survey questionnaire that addressed the two dimensions of CN Quality. All respondents answered a set of questions about the company's quality (the place where they work) and about the quality of the relationship between his/her

company with the other partners in the CN. The questionnaire was administered face to face and in some cases the questionnaire was send and returned by post mail.

As the aim of the research was to understand the impact of CN Quality on the NSD Performance, the quantitative study focused on the identification of the CN Quality Factors and how they influenced NSD Performance. Therefore, the survey questionnaire included statements regarding CN Quality, divided into partner quality factors and relationship quality factors, as well as NSD Performance.

6.2 Methodology for Quantitative Study

Literature review revealed there were studies about CNs and NSD process, but in a separated way, and studies about both phenomena together were practically inexistent. Thus, the constructs addressed in the quantitative study were based both on the previous research from CNs and NSD fields, and the qualitative study results. The qualitative results provided in-depth and rich information about CNs in the NSD process and served as basis for the development of the survey instrument used in the quantitative study that followed.

As mentioned above, the survey questionnaire aimed to identify CN Quality and NSD Performance indicators to understand the impact of CN Quality on NSD Performance. Therefore, the questionnaire involved a battery of statements regarding CN Partner Quality, CN relationship quality and NSD Performance. The study involved the development of measurement scales for CNs Quality and NSD Performance, following several steps, as shown in Figure 6.3.

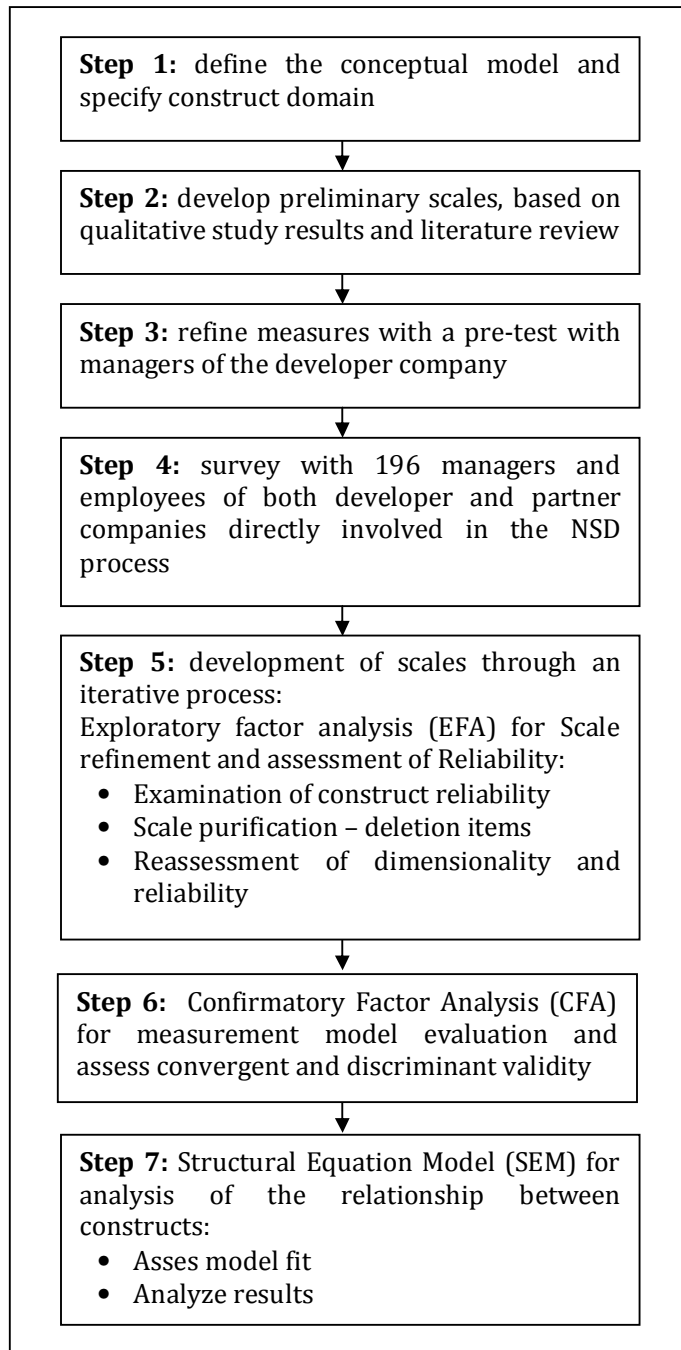


Figure 6.3: Steps of Quantitative Study.

As shown in Figure 6.3, after the conceptual model and construct domain were defined, the preliminary scales were developed, based on literature review and the qualitative study results. These scales measured CN Partner Quality, CN Relationship Quality and NSD Performance. These three scales were first refined based on pre-testing

the questionnaire with some managers of the Developer Company, who participated in the qualitative study, but not in the quantitative study.

Further pre-tests of the instrument with larger sample were not viable, due to the limited number of respondents, once in this research the sample involved companies that work in different collaborative networks along all NSD process. A pre-test with CN partner companies would considerably diminish the final sample.

The final survey questionnaire allowed further development of the measurement scales through an iterative process, involving Exploratory Factor Analysis (EFA) using SPSS 17. After EFA the process continued through Confirmatory Factor Analysis (CFA), in order to test reliability and validity of the measures. After specifying the model, model fit as well as convergent and discriminant validity were assessed (Hair, Anderson et al. 2006). The CFA was carried out by using AMOS 19.

After the CFA, which identified the constructs related to the three model scales: CN Partner Quality, CN Relationship Quality and NSD Performance the process continued with a Structural Equation Model (SEM) approach to analyze the relationship between the constructs (Marôco 2010). Specifically, the SEM analyzed four models:

(1st): Full model: The impact of CN Partner Quality and CN Relationship Quality on NSD Performance;

(2nd): CNs Partner Quality model: The impact of CNs Partner Quality on NSD Performance;

(3rd): CNs Relationship Quality model: The impact of CNs Relationship Quality on NSD Performance;

(4th): Second-order factor model: CN Partner Quality & CN Relationship Quality on NSD Performance based on two second-order factors.

In the SEMs analysis, after assuring that the SEMs had an acceptable fit, the results are discussed, and the implications for CN Quality and NSD Performance are analyzed.

6.3 Sample Design

The primary data were obtained through auto-administered and structured questionnaire, consisting in closed questions and statements, applied to the sample interviewees that were part of the population under study (McDaniel and Gates 2005). The questionnaire allows a bigger flexibility of data collection, in spite of the diversity of questions, providing the achievement of a large set of data at a lower cost than personal interviews (Godoy 1995).

As already mentioned, the main goal of this research stage was to measure the impact of the CNs Quality on NSD Performance. Therefore, the study population involved the collaborators of the Developer Company and partner companies that work directly in the four NSD process along different stages. For the sample selection, a probabilistic sampling process was used (Kalton 1983) once the sample representativeness helps to generate more precise and trustable results.

Among all the sampling probabilistic techniques, its highlights in this research the sample stratification, once the population was divided into subpopulations (denominated strata) homogeneous (Kalton 1983). Therefore, based on the population of this study, companies that work complex NSD process, the sample was stratified into the four complex NSD projects (Boulevard Londrina Shopping, Guimarães Shopping, Leiria Shopping and Parque Dom Pedro Shopping) in different NSD stages.

The survey questionnaire was administrated to partner companies that work directly inside each single NSD project, following two criteria: (1) Employees of the departments of the Developer Company who worked directly in different stages of the NSD process and (2) Employees of partner companies who worked directly in one of the four NSD projects.

These two types of companies, Developer and partners, differ in terms of product variety and services offered, as well as dimension and area of activity. These factors enrich the sample and provide a more robust context for testing the scales than a single type company would have.

Another consideration in choosing the sample was the time of the actuation of the Partner companies in the four NSD projects mentioned above. This consideration was important because only employees that work enough time in the NSD process have a specific knowledge about which are the characteristics that can influence NSD.

Based on these criteria, the final sample involved 238 collaborators from 31 partner companies that worked in the four complex NSD projects. From the initial sample, 208 inquiries were returned from 28 companies which gave a total of 87% response rate. Table 6.1 presents the sample characterization.

Table 6.1
Sample Characterization - Survey Questionnaire.

SAMPLE CHARACTERIZATION – SURVEY QUESTIONNAIRE			
Sample (<i>N</i> =208)	DEVELOPER	PARTNERS	Total
Global	70 (34%)	138 (66%)	208 (100%)
Country			
Brazil	36 (51%)	78 (57%)	114 (56%)
Portugal	34 (49%)	60 (43%)	94 (44%)
NDS Stages			
Early Stages	32 (45%)	27 (19%)	59 (28%)
Construct Stage	18 (26%)	29 (21%)	47 (23%)
Launch Stage	9 (13%)	19 (14%)	28 (13%)
Operational Stage	11 (16%)	63 (46%)	74 (36%)

The Table 6.2 presents the sample characterization by type of activities that the partner companies develop.

Table 6.2
Sample Characterization by type of activity.

SAMPLE CHARACTERIZATION BY AREA OF ACTIVITY		
SEGMENT	TYPE OF ACTIVITIES	Nº CASES
A	Acoustic Company	2
B	Architecture Company	7
B	Architecture Department	13
C	Asset Management Department	2
D	Building Automation	6
E	Commercialization Department	13
F	Construction Company	5
G	Development Department	6
H	Civil Engineering Company	17
I	Computer Engineering	2
J	Soil Mechanical Engineering	4
K	Environment Department	5
L	Economic Studies Department	2
M	Floors Company	4
N	Construction Management Company	12
O	Operational Management of the Mall	9
P	Lighting Company	1
Q	Cleaning Company	7
R	Retail store*	34
S	Maintenance Company	22
T	Marketing Department	6
U	New Business Department	2
V	Security Company	10
X	Structure Engineering	7
W	Technical Operational of the Mall	10
	TOTAL	208

*Retail store involve several types of stores such as: supermarket, cinema, shoes, accessories, clothes, and so on.

Brazil had more respondents than Portugal, when analyzed the global sample characterization of the questionnaire survey by country. This can be justified because the project studied in the Operational stage (Parque Dom Pedro Project) had a large number of partner companies given to their complex dimension, and this project is

located in Brazil. The dimension and characterization of the four projects under study were already presented in more detail in Table 3.1 (Characteristics of the NSD projects) in Chapter III.

6.4 Survey Questionnaire Development and Administration

The qualitative study results allowed the identification of potential CN Quality Factors (Partner Quality and Relationship Quality) that can influence NSD Performance. Therefore, the quantitative study involved the development of a survey questionnaire built upon the results of the qualitative study, according to scale development guidelines (Churchill and Iacobucci 2009).

The survey questionnaire followed the conceptual model present in Figure 6.2. The questionnaire involved four parts:

- (1st):** Characterization of the Interviewed - 6 statements;
- (2nd):** CNs Partner Quality- 43 statements;
- (3rd):** CNs Relationship Quality- 43 statements;
- (4th):** NSD Performance - 11 statements.

As previously mentioned, due to the reduced size of the population in the four NSD projects, the pre-test of the questionnaires was made only with managers of the Developer Company who didn't take part in the quantitative study sample, only in the qualitative.

In this context, the questionnaire was administered to 238 managers and employees of the Developer and partner companies of the four complex shopping mall

projects and as already mentioned, 208 was returned. The survey data was then analyzed following scale development procedures, with Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) to assess the scale and assess reliability and validity. Finally the Structural Model Analysis (SEM) allowed the analysis of the impact of CNs Quality on NSD Performance.

Survey Questionnaire Instrument

After pre-test, the final questionnaire was administered to managers and employees of the Developer and partner companies involved directly in the four complex NSD projects. The questionnaire was performed from March to April 2011.

To categorize the company where the employees worked, the first part of the questionnaire covered general questions related to company's type, specialty, and number of employees. In the case of partner companies, the number of years they had collaborated with the Developer Company was also considered.

The bulk of the questionnaire covered CN Quality and NSD Performance. Table 6.3 shows the questionnaire's structure related with CNs Partner Quality, CNs Relationship Quality and NSD Performance. For all statements, an option "I don't know/I don't respond" was available. The complete questionnaire can be seen in the Appendix I.

Table 6.3
Survey Questionnaire

SURVEY QUESTIONNAIRE

CNs PARTNER QUALITY
(The company where I work...)*

- Is flexible.
- Promptly answers to project's changes.
- Offers different competences that follows the projects' evolution.
- Understands the need to change a project.
- Is able to respond to changes in projects' deadlines.
- Strives to perform all requested changes in a project.
- Adapts quickly to market changes.
- Has well-defined processes.
- Complies with all documentation needed to develop projects.
- Meets all the requirements of specific legislation.
- Adapts its activities to receive the different certifications.
- Has active policies to promote sustainability.
- Have environmental certificates processes.
- Is aware of the changes related to operational standards.
- Defines the processes taking into account sustainability.
- Is customer focused.
- Makes customer satisfaction surveys on a regular basis.
- Is alert to the new customer needs.
- Strives to meet customer requests.
- Has an active policy on improving customer satisfaction.
- Attaches great importance to customer suggestions to improve its products and services.
- Is innovative.
- Makes use of technologies that are pioneers in the market.
- Invests in improving their processes.
- Invests in new products and services.
- Is open to new technologies in the market.
- Has the ability to generate innovative ideas.
- Offers its customers innovative products and services.
- Takes active measures to promote innovation.
- Has experience in partnerships.
- Participates actively in the development of products and services offered by other companies.
- Is able to solve problems that appear related to the partnership.
- Adapts its activities to work together with other companies.
- Regularly establishes partnerships to perform at the market.
- Has an extensive network of partner companies.
- Has expertise know-how in developing their products and services.
- Has experience in the market.
- Is competitive in the sector in which it operates.
- Has a strong image in the market.
- Has a good reputation among its partners.
- Offers a complete service.
- Offers a quality service.
- Has teams prepared to perform their services effectively.

* To all statements were given (1) totally disagree and (5) totally agree

Table 6.3
Survey Questionnaire (Cont.)

CNs RELATIONSHIP QUALITY

(In the relationship between my company and its partners in the development process of the Shopping Mall...)*

The communication is effective.
 I can easily put any questions or concerns to the other partner companies.
 There is a constant interaction.
 The exchange of information is easy.
 The communication is structured.
 There is a constant exchange of ideas.
 Communication is open.
 There is a possibility at any time to discuss a project particularities.
 There are technologies that facilitate communication between the partners.
 Information management is effective.
 There is trust.
 There are activities that are developed beyond what is defined in the contract.
 There is mutual respect.
 There is confidentiality in handling shared information.
 There is mutual commitment.
 The interests of partners are respected.
 There is transparency between the parts.
 There is an effort to adapt to the partner companies projects' common needs.
 There is a trust relationship between people.
 There is a sharing of results.
 The good project result is a common goal.
 Companies grow together.
 There are incentives for companies to share the results.
 The end result of a project is responsibility of all companies.
 We strengthened our market image.
 We know new companies.
 There is mutual learning.
 There is an exchange of experiences.
 Knowledge is exchanged.
 We learn to solve problems that happen in the partnerships.
 We learn new skills.
 The procedures used by partner companies help improve our processes.
 There is an ability to adapt between the companies.
 The adaptation process is constant.
 Companies respond quickly to changes in projects.
 There is an effort to perform all requested changes in a project.
 There is capacity to meet changing market needs.
 There is a vision alignment between partner companies.
 There are clear goals for the different partners of the project.
 The objectives are well aligned between the partners.
 The alignment of vision and goals is easily performed.
 There is harmony between the culture of partner companies.
 The objectives are defined altogether.

* To all statements were given (1) totally disagree and (5) totally agree

Table 6.3
Survey Questionnaire (Cont.)

NSD PERFORMANCE
(In the stage of the development process of the Shopping Mall in which my company is or was partner...)*
Profitability was positive.
The expected profit margin was achieved.
The return on investment was positive.
The customer was satisfied.
The results met the client needs.
The results were groundbreaking for the customer.
The results contributed to the success of the development project of the Shopping Mall.
The deadlines were met.
The project deadlines were achieved.
The performance targets were met.
The project coordination was effective.

* To all statements were given (1) totally disagree and (5) totally agree

Questionnaire Section and Scale types

As the focus of this quantitative study was to identify CN Quality Factors that influence the NSD Performance, the statements about the Partner Quality and the Relationship Quality were the longest.

Regarding NSD Performance, both the literature review on success factors in the NSD process and qualitative study results provided inputs to measure NSD Performance. Griffin and Page (1996) developed the scale with 3 dimensions to measure the NPD Success. These dimensions (Customer-Based Success, Financial Success and Technical Performance Success) include 10 statements. As there was a previously developed scale to measure NSD Performance, an adapted version of this scale was adopted in this study.

The questionnaire used the *Likert* scales type, ranging from “1” totally disagree and “5” totally agree. The 1 – 5 scale was chosen due to its easy application and its quick understanding by the interviewees on this matter (Hayes 1998).

Administration of final survey

The survey questionnaire was administered in two phases: the first phase was in Brazil and the second phase was in Portugal.

In Brazil, administration of the inquiry was performed with the companies which participated in the collaborative network in the following NSD projects: Boulevard Londrina project (early stages) and Parque Dom Pedro project (operational stage) as well as the collaborators of the Developer Company that work in these projects, as presented at the beginning of this chapter. It occurred in March 2011 for a period of three weeks.

The second phase of survey administration occurred in Portugal, in Porto and Lisbon for the following NSD projects: Guimarães Shopping project (construction stage) and Leiria Shopping project (launch stage). The survey administration happened in April 2011 during four weeks (the whole month).

All potential participants were previously contacted by phone and by e-mail before questionnaire deliver. To obtain a better response rate, the survey questionnaire was handed in and collected in person to the respondents. However, this practice was not always possible due to geographical dispersion of the companies.

To those companies located in the same place the inquiries were handed in personally. To those companies that were located in different places, questionnaires were sent and collect over post mail, due to geographic dimension of both Brazil and Portugal.

6.5 Preliminary Data Analysis

The data was subject to a preliminary analysis to identify the nature of the distribution of variables. This analysis showed that all variables had a negative skewness and a positive kurtosis.

On the next step, the analysis of the missing values was made. The Missing Value Analysis (MVA) involved two stages: (1st) MVA by response with the purpose of identifying questionnaires with high missing values and (2nd) MVA by variable, with the purpose of identifying variables with high non-response rates. In both analyses missing values were found, however, none of the analysis revealed significant issues.

In the MVA by inquiry, 12 respondents were identified with missing values higher than 20% which gives 6% of the total. Consequently, they were eliminated from the sample of 208 respondents totalizing a final sample of 196 inquiries. Analyzing, MVA by variable, two variables related to NSD Performance had missing value higher than 25%. These two variables are related to project profitability; as such the high non-response rate could be due to the fact that many respondents did not have access to the financial data of the company where they work. These two variables were taken out from the analysis.

The analysis carried on by using the Estimation Method (EM) of SPSS 17 to 196 cases replacing the missing values. This method encloses the missing values in the sample through a process of missing value estimation. It is an iterative process which involves two stages, E and M in which E does the best possible estimation and calculation of the missing values and M estimates the parameters (average, standard deviation or correlations) assuming that missing values were substituted (Hair, Anderson et al. 2006). After the MVA and EM estimation the number of statements

ended up to 95 that were divided in three parts (1st) CNs Partner Quality with 43 statements, (2nd) CNs Relationship Quality with 43 statements and (3rd) NSD Performance with 9 statements.

Based on the presented data, the next analysis involved the factorial analysis that was carried out in two phases (1st) exploratory factor analysis and (2nd) confirmatory factorial analysis. Both analyses focus on how and which extensions of the observed variable are connected with their implicit latent factors (Hair, Anderson et al. 2006).

These analyses were used in this study with the aim of defining the subjacent structure of a matrix data, by defining a set of common latent dimensions, named factors.

6.6 Exploratory Factor Analysis (EFA) for Scale refinement and assessment of Reliability

The aim of the Exploratory Factor Analysis (EFA) was to identify the operational dimensions of CN Quality. These constructs are related to the conceptual model of the quantitative study - CN Quality on NSD Performance.

Therefore, the study involved an EFA to indentify the constructs of the CNs Partner Quality and CNs Relationship Quality. This process was followed by a Confirmatory Factor Analysis (CFA) to assess the adequacy of the model and assess validity. In the last step a Structural Model Analysis (SEM) was conducted to examine the relationship between the constructs.

The EFA provided a useful first step for CFA and was conducted based on principal component analysis as the extraction method and Varimax (with Kaiser normalization)

and as the rotation method. The breaks-in-eigenvalues criterion was used to determine the initial number of factors to retain.

EFA was performed separately for the items related to CN Partner Quality (43 items), CN Relationship Quality (43 items) and NSD Performance (9 items). Items were maintained if (1) they loaded 0,50 or more on a factor and (2) did not load more than 0,50 on two factors (Hair, Anderson et al. 2006).

This process was followed by a series of iterations. Each one of them involved elimination of items with low loadings on all factors or high cross-loadings on two or more factors, followed by factors analysis of the remaining items. The EFA was performed for 3 scales: **(1st) Scale:** CN Partner Quality; **(2nd) Scale:** CN Relationship Quality and **(3rd) Scale:** NSD Performance.

6.6.1 Results of Exploratory Factors Analysis (EFA)

After the series of iterations the EFA resulted in the final 3 scales for CN Partner Quality, CN Relationship Quality and NSD Performance. The EFA results for these 3 scales consisted in 49 items divided in 10 constructs:

(1st) Scale: CN Partner Quality with 5 constructs composed of 24 items

(2nd) Scale: CNs Relationship Quality with 4 constructs composed of 20 items

(3rd) Scale: NSD Performance with 1 construct composed of 5 items.

EFA – (1st) Scale Results - CNs Partner Quality

The first EFA was performed to identify the dimensions of CNs Partner Quality based on 43 initial items. Five constructs emerged from EFA for CNs Partner Quality, as shown in Table 6.4: *Innovation Focus*, *Know-How*, *Flexibility*, *Sustainability* and *Partnership Experience* composed by 24 final items.

Table 6.4
Exploratory Factor Analysis (EFA) for CNs Partner Quality (loadings after Varimax rotation).

PARTNER QUALITY (ITEMS)	FACTORS					
	VARIANCE EXPLAINED (<i>Cumulative</i>) – 70.2%	Innovation Focus	Know-How	Flexibility	Sustainability	Partnership Experience
Is open to new technologies in the market		,803				
Invests in improving their processes		,788				
Has the ability to generate innovative ideas		,740				
Makes use of the technologies that are pioneers in the market		,708				
Offers its customers innovative products and services		,684				
Is innovative		,661				
Has a good reputation among its partners			,813			
Is competitive in the sector in which it operates			,799			
Has a strong image in the market			,797			
Has experience in the Market			,790			
Offers a quality service			,643			
Understands the need of changing a project				,804		
Promptly answers to project's change				,776		
Offers different competences that follows the projects' evolution				,753		
Adapts quickly to market changes				,689		
Strives to perform all requested changes in a project				,636		
Have environmental certified processes					,885	
Has active policies to promote sustainability					,821	
Defines the processes taking into account sustainability					,786	
Adapts its activities to receive different certifications					,728	
Regularly establishes partnerships to perform at the market						,875
Has an extant network of partner companies						,811
Has experience in partnerships						,692
Adapts its activities to work together with other companies						,670
Reliability (Cronbach's Alpha)		0,92	0,89	0,85	0,73	0,82

Note: Loadings < 0.3 are not shown.

Based on data analysis, *Innovation Focus* involves the capability of the partner companies to develop constantly new ideas as well as to use new technology and

process to act in the market. *Know-How* is the knowledge of a specific process that the company has and because of it becomes known in the market. *Flexibility* is related to the capability of companies to adapt quickly their process to act in the market as well as to satisfy the customer needs. *Sustainability* involves the capability of the companies to use self-sustainable processes with the aim to preserve the environment. The last construct involved in the CN Partner Quality is *Partnership Experience* that involves the partners' previous experience working together with others companies to act in the market.

The coefficient alpha values ranges from 0,73 to 0,92. For CN Partner Quality the EFA results showed the alpha values exceeded the conventional minimum of 0,70 (Hair, Anderson et al. 2006) and demonstrated high internal consistency and hence reliability of each dimension. For these five dimensions a *cumulative variance explained* of 70.2% was obtained.

EFA – (2nd) Scale Results - CNs Relationship Quality

This EFA was performed to identify the dimensions of the CNs Relationship Quality based on 43 initial items. From the EFA four CNs Relationship Quality constructs emerged: Shared Vision, Mutual Learning, Communication and Trust.

Based on EFA results, *Shared Vision* involves the capability of the partner companies to share a common vision of the service or product that is being developed together. *Mutual Learning* is the skill of companies that work together in the market to acquire new knowledge due to the high contact with their partners. Other construct emerged from CN Relationship Quality was *Communication* that involves a strong exchange information as well as a constantly interaction between all partner companies.

The last construct involved on CN Relationship Quality is *Trust*, which involves the capability of partner companies to have a confidence and respect for their partners.

Table 6.5
Exploratory Factor Analysis (EFA) for CNs Relationship Quality (loadings after Varimax rotation).

RELATIONSHIP QUALITY (ITEMS) VARIANCE EXPLAINED (<i>cumulative</i> - 72,1%)	FACTORS			
	Shared vision	Mutual Learning	Commun- cation	Trust
The alignment of vision and goals is easily performed	,791			
The objectives are defined altogether	,782			
There is harmony between the culture of partner companies	,743			
There is a vision alignment between partner companies	,688			
There are clear goals for the different partners of the project	,669			
There are incentives for companies to share the results	,583			
There is a mutual learning		,763		
We Know new companies		,756		
Knowledge is exchanged		,752		
We learn new skills		,725		
We learn to solve problems that happen in the partnership		,713		
The exchange information is easy			,794	
The communication is effective			,777	
There is a constant interaction			,763	
I can easily put any questions or concerns to the other partner companies			,753	
Information management is efficient			,623	
There is trust				,746
There is a trust relationship between people				,720
There is an effort to adapt to the partner companies projects' common needs				,720
There is mutual respect				,716
Reliability (Cronbach's alpha)	0,89	0,92	0,90	0,86

Note: Loadings < 0.3 are not shown

The coefficient alpha values ranges from 0,86 to 0,92. For CN Relationship Quality the EFA results showed the alpha values exceeded the conventional minimum of 0,70 (Hair, Anderson et al. 2006) and demonstrated high internal consistency and hence reliability of each dimension. For these four constructs a *cumulative variance explained* of 71.2% was obtained, and 20 final items composed these dimensions. The Table 6.5 presents these items and constructs.

EFA – (3rd) Scale Results - NSD Performance

The third EFA was performed to identify the dimensions for NSD performance. However, as already mentioned, for NSD Performance a pre-developed scale was used based on Griffin and Page (1996), adapted this for this study.

To test the underlying structure of the adapted scale, an EFA was performed based on 9 initial items. The result of EFA for NSD Performance produced only one dimension composed by 5 final items. As shown in Table 6.6, for this dimension was obtained a *cumulative variance explained* of 64,3 %.

Table 6.6
Exploratory Factor Analysis (EFA) for NSD Performance (loadings after Varimax rotation)

NSD PERFORMANCE (ITEMS)	FACTOR
VARIANCE EXPLAINED (<i>cumulative</i> – 64,3%)	NSD Performance
The performance targets were met	,900
The project deadlines were achieved	,818
The project coordination was effective	,793
The results were groundbreaking for the customer	,746
The deadlines were met	,742
Reliability (Cronbach's alpha)	0,86

Note: Loadings < 0.3 are not shown

The coefficient alpha value was of 0,86. For NSD Performance the EFA results showed the alpha value exceeded the conventional minimum of 0,70 (Hair, Anderson et al. 2006) and demonstrated high internal consistency and hence reliability of dimension. For this construct a *cumulative variance explained* of 64,3 % was obtained, and 5 final items composed this dimension. The Table 6.6 presents these items and construct.

To sum up, based on the three EFA results, the coefficient alpha values ranges from 0,73 to 0,92. For CNs Partner Quality alpha values ranges from 0,73 to 0,92; to CNs

Relationship Quality alpha values ranges from 0,86 to 0,92 and alpha value of 0,86 to NSD Performance. For all EFA the alpha values exceeded the conventional minimum of 0,70 (Hair, Anderson et al. 2006) and demonstrated high internal consistency and hence reliability of each dimension.

The EFA results, served as basis to develop the next step of the quantitative study: confirmatory factor analysis for the constructs identified into the three Scales: (1st) CNs Partner Quality, (2nd) CNs Relationship Quality and (3rd) NSD Performance.

6.7 Confirmatory Factor Analysis (CFA) for measurement model evaluation

The Confirmatory Factor Analysis (CFA) is used when the researcher has already a previous knowledge of the implicit “latent variable” structure (Gerbing and Hamilton 1996; Wolfenbarger and Gilly 2003). In this context, CFA used as basis the EFA results as first step to initiate the analysis.

As already presented, the EFA identified the latent constructs through an iterative process and assessment of reliability. Following scale development methods, the next step involved CFA to assess model fit as well as convergent and discriminant validity.

According to the objectives of this study, each scale was analyzed separately, that is, (1st) CNs Partner Quality composed by 24 initial items, (2nd) CNs Relationship Quality composed by 20 initial items and (3rd) NSD Performance composed by 5 initial items, in order to evaluate in more detail the items that comprise the latent variables.

The CFA results for these three scales, provided 10 constructs composed by 44 final items, being: **(1st) Scale:** CNs Partner Quality - 5 constructs (*Innovation Focus, Know-How, Flexibility, Sustainability and Partnership Experience*) composed of 21 items; **(2nd) Scale:** CNs Relationship Quality – 4 constructs (*Shared Vision, Mutual Learning,*

Communication and Trust) composed of 18 items and **(3rd) Scale:** NSD Performance - 1 construct (*NSD performance*) - composed of 5 items. These three scales were submitted to CFA in AMOS 19, using Maximum Likelihood (ML) estimation (Marôco 2010).

As there is no single fit index that could provide the best evaluation of the overall model, the analysis of the model fit considered different fit indices, which provide different perspective of model adjustments.

In this context, the most common measures are: (1) the value of χ^2 (chi-square) model estimated in relation to the degrees of freedom and significance level, (2) Goodness of Fit Index (GFI) that ranges from 0 to 1 and when exceeding 0,90 indicates acceptable fit, although complex models tend to have lower values, (3) Standardized Root Mean Squared Residual (SRMR) that should have values between 0,05 and 0,08 and, being the Root Mean Squared Error of Approximation (RMSEA) more reliable than SRMR (Hair, Anderson et al. 2006).

The measures of the incremental adjustments are the second type to be analyzed and compared to the model proposed with the null model, covering Normed Fit Index (NFI) and Non- Normed Fit Index (NNFI), that is, all ranging from 0 to 1 and the values of good fit are above 0,90 (Kline 2010) and (Comparative Fit Index) CFI >0,90.

The last type of the measure that is necessary to analyze is: Parsimony NFI with the values of good fit above 0,90. Table 6.7 presents a summary of the reference values for the indices mentioned above.

Table 6.7
Reference Values of the indexes.

INDEX	DESCRIPTION	EXPECTED VALUES
χ^2	Test Ho. In the case of the SEM not want to reject Ho.	Values ($p < 0,05$)
RMESA	F_0 incorporates no penalty for model complexity and will tend to favor models with many parameters. In comparing two nested models, F_0 will never favor the simpler model.	[~0,05 - 0,10] (good fit)
GFI	The CFI compares the model fit (X^2) with degree of freedom gl with fit of the basal model.	>0,90 (good fit)
PGFI	Level of the model complexity.	>0,50 (good fit)
NFI*	Evaluates the percentage of increase in the fitness quality.	>0,90 (good fit)
CFI	Average incremental adjustment, from the review NFI.	>0,90 (good fit)
SRMR	The mean values of residues.	<0,06 (good fit)

Source: Byrne (1998), Hair, Anderson et al. (2006), Marôco (2010). *Results sensitive to sample size

Based on the recommendations of Byrne (1998), Hair, Anderson et al (2006) and Marôco (2010) the fit of measurement scale is supported, if (a) the measurement model fit to the data, within the indices of adjustment, is considered satisfactory; (b) the factor loadings (λ_x and λ_y) in their respective indicators are significant with standardized values above 0,50; (c) indicators of the same construct produce reliability indices above 0,70 and the extracted variance above 0,50; (d) the correlations between indicators of the same construct produce evidence of convergent validity and (e) the analysis of correlations between constructs indicate discriminant validity.

Hair, Anderson et al. (2006) recommends, in order to analyze construct reliability, the use of indicators such as variance extracted and measures to adapt the model. Reliability is a measure of "consistency of the indicators of the construct, describing the degree in which they indicate this construct" (Hair, Anderson et al. 2006). The extracted

variance estimates the amount of variance that is explained by an underlying factor in relation to the amount of variance due to measurement error.

6.7.1 Results for CFA of the three scales for CNs Quality on NSD Performance

As already mentioned, CFA follows the same structure of the EFA, that is, based on three scales: (1st) CNs Partner Quality (2nd) CNs Relationship Quality and (3rd) NSD Performance.

In order to validate the final 3 scales, an analysis with a sample of N=196 was made, involving employees of the Developer and partner companies, using AMOS 19 software.

CFA –1st Scale Results – CN Partner Quality

The first CFA involved the CNs Partner Quality Scale composed by five constructs, as shown in Figure 6.4: *Innovation focus, Know-How, Flexibility, Sustainability and Partnership experience.*

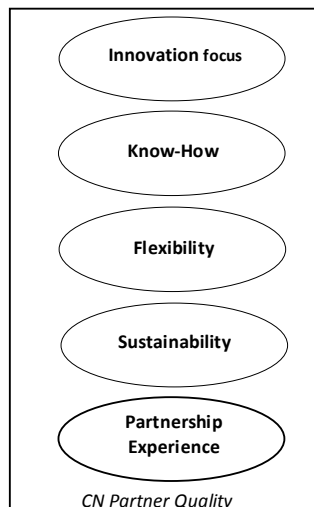


Figure 6.4: (1st) Scale – CNs Partner Quality.

These constructs are related with quality of the partner companies that work in the CN in complex NSD projects. These five constructs were validated based on 21 items, as it can be seen in Table 6.8.

Table 6.8
CFA Results for CNs Partner Quality.

CONFIRMATORY FACTOR ANALYSIS		CN PARTNER QUALITY		
<i>Sample (N=196)</i>		Item	load	AVE
INNOVATION FOCUS	Is open to new technologies in the market		,81	0,64
	Makes use of technologies that are pioneer in the market		,82	
KNOW-HOW	Is innovative		,80	0,66
	Offers its customers innovative products and services		,77	
	Has a strong image in the market		,86	
	Has a good reputation among its partners		,85	
FLEXIBILITY	Is competitive in the sector in which it operates		,79	0,54
	Has experience in the market		,67	
	Adapts quickly to market changes		,79	
	Is able to respond to change in projects' deadlines		,78	
	Have environmental certificates processes		,76	
	Promptly answers project's changing		,75	
SUSTAINABILITY	Offers different competences that follows the projects' evolution		,69	0,60
	Strives to perform all requested changes in a project		,66	
	Has active policies to promote sustainability		,88	
PARTENERSHIP EXPERIENCE	Defines the processes taking into account sustainability		,80	0,54
	Adapts its activities to receive different certifications		,66	
	Regularly establishes partnerships to perform at the market		,83	
	Has an extant network of partner companies		,77	
ADAPTABILITY	Has experience in partnerships		,73	0,54
	Adapts its activities to work together with other partner companies		,61	
	Adapts its activities to work together with other partner companies		,61	
χ²			354	
p			,000	
df			179	
GFI			,86	
NFI			,85	
CFI			,92	
RMSEA			,07	
SRMR			,05	

Construct means scales in a 1-5 scale; *Construct Reliability* > 0,5 (Hair, Anderson et al. 2006)
Average Variance Extracted – AVE > 0,5 (Maroco, 2010). *df*– degree of freedom; GFI – Goodness of Fit Index; NFI – Normed Fit Index; CFI-Comparative Fit Index; RMSEA – Root Square Error of Approximation; SRMR – Standardized Root Mean Squared Residual.

In this CFA the items “Invests in improving their processes” and “Has the ability to generate innovative ideas” of the Innovation focus construct; the item “Offers a quality

service” of the Know-How construct, contained in the initial scale were removed from the analysis due to the fact that their loadings did not obtain significant values.

According to the CFA results, CN Partner Quality comprises the following factors:

1. *Innovation focus* is the ability to constantly develop new ideas for a product or a process, or to improve an existing one. The innovation focus involves the capability of the partner companies to make use of technologies that are pioneer in the market aiming to offer their customers innovative products and services. This construct is represented by four items, as it can be seen in table 6.8.

2. *Know-How* construct involves the procedural knowledge about a specific activity that a company possesses. The companies that possess Know-How about a specific activity have a good reputation among its partners in the CN. This construct is also represented by four items, as it can be seen in table 6.8.

3. *Flexibility* is another construct that is part of CN Partner Quality. Based on CFA results, the flexibility involves six items that represent the capability of the companies to adapt their processes in order to respond to both market trends and customer needs.

4. *Sustainability* is related to the actions and processes that are developed by the companies and how these actions can help to preserve the environment. As it can be seen in table 6.8, this construct is represented by three items.

5. Another construct involved in CN Partner Quality is *Partnership Experience*, which comprises four items. Partnership Experience is related to the partners’ previous experience in working together with other companies through the establishment of partnerships or other type of collaboration in order to develop new products and services. Companies with this experience frequently establish relationship with other companies to work in the market.

In Table 6.8, it can be observed that the scale presents a good model fit, according to recommended cut-off values (Hair, Anderson et al. 2006; Marôco 2010). The scale also have a acceptable fit, with GFI of 0,86 and NFI of 0,85; RMSEA of 0,07; SRMR of 0,05 and CFI ranging of 0,92. The variance extracted (AVE), exceeded recommended standards in the literature, which indicates, that there is consistence of the measure (Marôco 2010).

All items presented significant and high loadings, which provide evidence of construct convergent validity. In the final solution, the variance extracted were above 0,50 ranging from 0,54 to 0,66 (Hair, Anderson et al. 2006).

CFA -2nd Scale Results - CNs Relationship Quality

The next CFA refers to the second scale: CNs Relationship Quality. This scale is related with quality of the relationship between all partner companies involved in the CN in complex NSD projects.

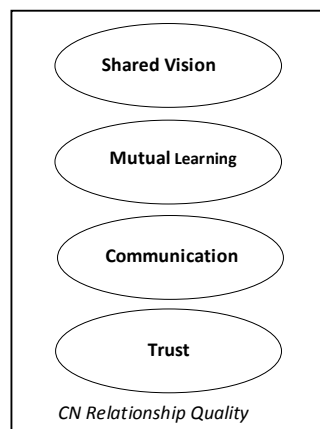


Figure 6.5: (2nd) Scale – CNs Relationship Quality.

As presented in the Figure 6.5, the constructs composing this scale are: *Shared vision, Mutual learning, Communication and Trust*. These four constructs were included and validated based on 18 items, as it can be seen in Table 6.9.

1. *Shared vision* means that all companies involved in complex NSD process in the CN context should share a common vision or have an alignment vision of the service that is being developed aiming that the new service to be “born” in harmony. The CFA results indicated five items which represents this construct (check in Table 6.9).

2. *Mutual Learning* (composed by five items) is the capacity of companies that work together in complex projects of the NSD to obtain knowledge from other partner companies. In order for this to happen there should be an experience exchange between them, so all companies can be able to learn new skills and capabilities.

3. *Communication* involves a constant interaction between all partner companies involved in the CN in complex NSD projects. The communication is efficient when the information exchange is easy and constant between all companies involved in CN.

4. The last construct that comprises CN Relationship Quality is Trust. This construct is composed by four items, as it can be seen in table 6.9. *Trust* involves a relationship with mutual respect between people that work together in complex NSD projects as well as these people’s effort to adapt their common needs to the partner companies’ projects.

In Table 6.9, the scale for CNs Relationship Quality have a acceptable fit, with GFI of 0,86 and NFI of 0,85; RMSEA of 0,06; SRMR of 0,03 and CFI of 0,95. The variance extracted (AVE) ranging from 0,59 to 0,72, exceeded recommended standards in the literature (> 0,5 Maroco, 2010), which indicates, that there is consistence of the measure (Marôco 2010).

Table 6.9
CFA Results for CNs Relationship Quality.

CONFIRMATORY FACTOR ANALYSIS Sample (N=196)		CN RELATIONSHIP QUALITY	load	AVE
	Item			
SHARED VISION	The objectives are defined altogether		,82	0,65
	There are clear goals for different partners of the project		,82	
	There is harmony between the culture of partner companies		,81	
	The alignment of vision and goals is easily performed		,81	
	There is a vision alignment between partner companies		,80	
MUTUAL LEARNING	There is an exchange of experience		,90	0,72
	There is a mutual learning		,89	
	We learning to solve problems that happen in the partnership		,84	
	We Know new companies		,81	
	We learning new skills		,80	
COMMUNICATION	The exchange information is easy		,83	0,64
	There is a constant interaction		,83	
	I can easily put any questions or concerns to the other partner companies.		,79	
	Information management is efficient		,74	
TRUST	There is a trust relationship between people		,83	0,59
	There is an effort to adapt to the partner companies projects' common needs		,79	
	There is trust		,75	
	There is mutual respect		,74	
χ^2			234	
p			,000	
df			129	
GFI			,86	
NFI			,85	
CFI			,95	
RMSEA			,06	
SRMR			,03	

Construct means scales in a 1-5 scale; *Construct Reliability* > 0,5 (Hair, Anderson et al. 2006)
Average Variance Extracted - AVE > 0,5 (Maroco, 2010). *df*- degree of freedom; GFI – Goodness of Fit Index; NFI – Normed Fit Index; CFI-Comparative Fit Index; RMSEA – Root Square Error of Approximation; SRMR – Standardized Root Mean Squared Residual.

All items presented significant and high loadings, which provide evidence of construct convergent validity.

CFA -3rd Scale Results – NSD Performance

The third scale, NSD Performance, as already mentioned is based on a study developed by Griffin and Page (1996) and was initially composed by three dimensions. However, based on CFA results this scale is composed by one dimension named NSD success, with 5 items.

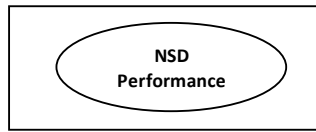


Figure 6.6: (3rd) Scale – NSD Performance.

NSD Performance involves specific attributes which are directly involved in the NSD process and which have a great influence on its performance and consequently on final service success. As it can be seen in Table 6.10, these attributes range from the complex NSD project coordination to the NSD projects deadline achievement.

Table 6.10
CFA Results for NSD Performance

CONFIRMATORY FACTOR ANALYSIS		NSD PERFORMANCE	
<i>Sample (N=196)</i>		Item	load
			AVE
NSD PERFORMANCE	The performance targets were met		,92
	The project deadlines were achieved		,75
	The project coordination was effective		,74
	The results were groundbreaking for the customer		,66
	The deadlines were met		,65
χ²			8
p			,252
df			5
GFI			,98
NFI			,97
CFI			,99
RMSEA			,04
SRMR			,01

Construct means scales in a 1-5 scale; *Construct Reliability* > 0,5 (Hair, Anderson et al. 2006)
Average Variance Extracted – AVE > 0,5 (Maroco, 2010). *df*- degree of freedom; GFI – Goodness of Fit Index;
 NFI – Normed Fit Index; CFI-Comparative Fit Index; RMSEA – Root Square Error of Approximation; SRMR –
 Standardized Root Mean Squared Residual.

As it can be seen in Table 6.10, the scale have a acceptable fit, with GFI of 0,98; NFI 0,97; RMSEA of 0,4; SRMR of 0,01 and CFI of 0,99. The variance extracted (AVE), exceeded recommended standards in the literature, which indicates, that there is consistence of the measure (Marôco 2010).

To sum up, based on what was presented around the scales for measurement the CNs Quality on NSD Performance, CFA results three scales: CNs Partner Quality, CNs

Relationship Quality and NSD Performance. The CFA results for all scales shows that new estimated parameters tested are all-significant. The models have a acceptable fit, with GFI and NFI ranging from 0,85 to 0,98, RMSEA below 0,07 and SRMR below 0,05, and CFI ranging from 0,92 to 0,99. The variance extracted were above 0,50 ranging from 0,50 to 0,72 (Hair, Anderson et al. 2006).

Correlations between constructs were also analyzed for two scales: CN Partner Quality and CN Relationship Quality, as shown in Table 6.11 and 6.12 below. As it can be observed in these tables the correlations between constructs are significant, but lower than 1, which could mean that they would not have discriminant validity. Therefore, were carried out two tests to evaluate and confirm its validity. The first one involved the confidence interval, and to all the results, for each pairwise correlation estimate (± 2 standard errors) it was not included the value of 1 (Gerbing and Anderson 1988). The second test, compared the χ^2 value for a measurement model that constrains their correlation to equal 1 to a measurement model without this constraint (Kaplan 2008). This test was carried out for every pair of the factors in the overall sample.

Table 6.11
Construct correlations and composite reliabilities – CNs Partner Quality.

SURVEY QUESTIONNARY (N=196)	CNs PARTNER QUALITY				
	Innovation focus	Know-how	Flexibility	Sustainability	P.Experience
Innovation focus	0,94				
Know-how	0,56	0,88			
Flexibility	0,62	0,53	0,85		
Sustainability	0,53	0,17	0,31	0,75	
P.Experience	0,45	0,48	0,36	,028	0,82

Construct composite reliabilities are shown in diagonal. Construct correlations are shown below the diagonal

Table 6.12
Construct correlations and composite reliabilities – CNs Relationship Quality.

CNs RELATIONSHIP QUALITY				
SURVEY QUESTIONNARY (N=196)	Shared Vision	Mutual Learning	Communication	Trust
Shared Vision	0,93			
Mutual Learning	0,77	0,93		
Communication	0,63	0,71	0,90	
Trust	0,63	0,71	0,72	0,85

Construct composite reliabilities are shown in diagonal. Construct correlations are shown below the diagonal.

Based on CFA results to all scales, construct reliabilities and average variance extracted exceeded the recommended reference values. Construct reliabilities values range from 0,75 to 0,94 for Partner Quality and of 0,85 to 0,93 to Relationship Quality. Average variance extracted values ranging from 0,54 to 0,66 for Partner Quality; 0,59 to 0,72 Relationship Quality and 0,50 for NSD Performance. These values together with the high loadings (> 0,70) for the items on their corresponding factors (in both EFA and CFA) support the convergent validity of each scales' construct.

For scales CN Partner Quality and CN Relationship Quality, the interfactor correlations between pairs of constructs in the CFA have acceptable values ranged from 0,66 to 0,88 for the Partner Quality, 0,74 to 0,90 for the Relationship Quality.

To sum up, based on CFA results, three scales were validated for measuring CNs Quality and NSD Performance. The first scale CNs Partner Quality was validated based on five constructs (Innovation focus, Know-How, Flexibility, Sustainability and Partnership experience) composed by 21 items. CNs Relationship Quality was validated based on 4 constructs (Shared vision, Mutual learning, Communication and Trust) composed by 18 items. The scale to evaluate the NSD Performance success was validated based on a construct (NSD Performance) composed by 5 items.

The CFA results validate the measurement scales for CNs Quality and NSD Performance.

6.8 Structural Equation Model (SEM) for Analysis of the relationship between constructs

After validating the scales for each concept analyzed, which involved assessing constructs' reliability, convergent and discriminant validity, the relationship between constructs can be analyzed based on Structural Equation Modeling (SEM) approach (Marôco 2010).

The data analysis was based on SEM, using the software AMOS 19. SEM is a statistical technique that assumes a confirmatory approach to multivariate analysis of a theoretical structure (Byrne 1998). Therefore, SEM is a technique of multivariate data analysis, that combines aspects of multiple regression (examining dependent relationships) and factorial analysis (representing measured concepts with multiple variables) (Hair, Anderson et al. 2006).

After validating the measures of scales for CNs Quality and NSD Performance, the structural relationships between constructs were analyzed. At this stage, the SEM approach with AMOS 19 allowed a better explanation of the construct's influence of the CNs Quality (Exogenous variables) on NSD Performance (Endogenous variable).

In this context, based on CFAs results, on this stage were developed and analyzed four SEMs: (1st) Full Model – CNs Quality impact on NSD Performance, (2nd) CNs Partner Quality Model (3rd) CNs Relationship Quality Model and (4th) CNs Quality with two second-order factor Model.

In this analysis, the model fit for all SEMs were assessed according to the different fit measures and recommended cutoff values presented previously. The R^2 (Coefficient of Determination) was also analyzed to identify the model explanatory power. The analysis of the modification indices provided some insights into the model re-specifications that could be accepted if theoretically justified. After this, as the models had acceptable fit, the results were interpreted.

The results of the SEMs for analysis of the CNs Quality impact on NSD Performance are presented in the next sections. The four models were performed with survey data in the sample (N=196). According to Hair, Anderson et al. (2006) to ensure that the models are correctly specified and that the result is valid, it was used a process that ranges from the development of a theoretical model to analysis and interpretation of the model according to modification indices, residual analysis and if necessary a modification in the theoretically justified model.

For a better visualization of results, the four SEMs are also presented in graphics followed by a table that shows the standardized coefficients and fit indices for CNs Quality on NDS performance. The order of the presentation of the models follows: (1st) Full Model: CNs Quality on NSD Performance, (2nd) CNs Partner Quality Model (3rd) CN Relationship Quality Model and (4th) CNs Quality with two second-order variables Model.

6.8.1 Full Model: CN Quality impact on NSD Performance

The first SEM model involved the three scales: CNs Partner Quality, CNs Relationship Quality and NSD Performance. The objective of this model was to measure the impact of CNs Quality – represented through the CNs Characteristics identified in

the Qualitative Study - on NSD Performance. Therefore, this model aimed to measure CNs Quality on NSD Performance and show which are the main characteristics that have a greater impact on NSD success.

According to the SEM result for full model the fit indices are within acceptable values of GFI of 0,85; CFI of 0,95; PCFI of 0,80; RMESA of 0,05; SRMR of 0,04 and NFI of 0,85. This model obtained a R^2 of 0,59, which means a good value. The SEM result is based on the final set of 31 items into the 10 constructs named: Innovation focus, Know-How, Flexibility, Sustainability, Partnership Experience, Mutual Learning, Shared Vision, Communication, Trust and NSD Performance. All these values, can be better observed in Table 6.13.

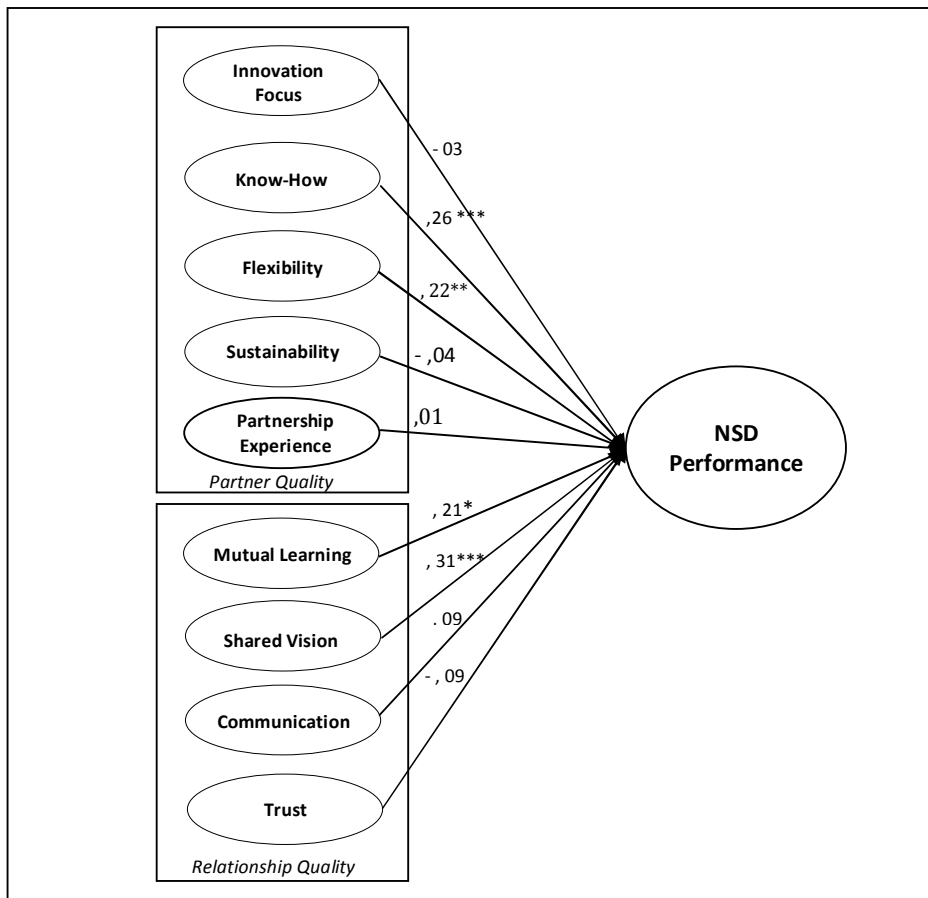


Figure 6.7: SEM full model – CNs Quality on NSD Performance.

* Statistically significant at $p < 0.1$ ** statistically significant at $p < 0.05$ *** statistically significant at $p < 0.01$

The result of the full model SEM showed that Know-how has $p= 0,003$ and $\beta=0,26$, Shared Vision has $p= 0,003$ and $\beta=0,31$, have a great impact on NSD performance. Flexibility and Mutual Learning has a significant positive impact of NSD Performance, but the impact of the Flexibility has $p= 0,049$ and $\beta=0,22$ and Mutual Learning has $p= 0,09$ and $\beta=0,21$ are less significant.

Based on these data, in the complex NSD project it is crucial that the partner companies possess Know-how about their activities; are competitive in its working sector; has a strong image and experience in the market, once these attributes have a great impact on NSD Performance. It is also very important that companies have a shared vision during the NSD process. This is due to the fact that NSD suffers several adjustments during the different stages of the process. The partner companies must not only understand such adjustments but also must share the same vision about the need of these adjustments and be able to quickly respond to them in order not to harm the process performance and by consequence its final result.

Although Flexibility do not have such a significant impact on NSD Performance when compared to Know-How, Shared Vision and Mutual Learning, its influence NSD Performance, once flexibility make the partner companies able to solve problems and conflicts that might appear along the processes different stages, influencing the NSD success.

The full model results also show that, Innovation, Sustainability, Partnership Experience, Communication and Trust don't have a significant influence on NSD Performance, however, if the evaluation of the impact of the CN Quality on NSD Performance was made separately, this result evolves and these characteristics become more significant.

6.8.2 CNs Partner Quality Model: Partner Quality impact on NSD Performance

The SEM for CNs Partner Quality was created to measure the direct impact of partner company quality on NSD Performance. Thus, it is possible to assess which are the qualities that most influence the NSD Performance.

In this SEM it was tested if the different constructs related to the Partner Quality had impact on NSD Performance. Based on SEM results, *Innovation Focus*, *Know-How* and *Flexibility* are the characteristics that have a significant positive influence in the NSD Performance. The Innovation Focus has a positive impact, however, less than Know-How and Flexibility (see Figure 6.8). Sustainability and Partnership Experience don't have a significant influence on success of the NSD Performance. The SEM result for CNs Partner Quality is based on 19 final items.

The SEM results for CNs Partner Quality on NSD Performance had a good value to R^2 of 0,52 and the fit indices are within acceptable with GFI of 0,90; CFI above 0,90 with 0,95; PCFI of 0,76; RMSEA equal 0,06; SRMR of 0,04 and NFI of 0,89. These indices can be better visualized in Table 6.13 presented after all SEMs graphics.

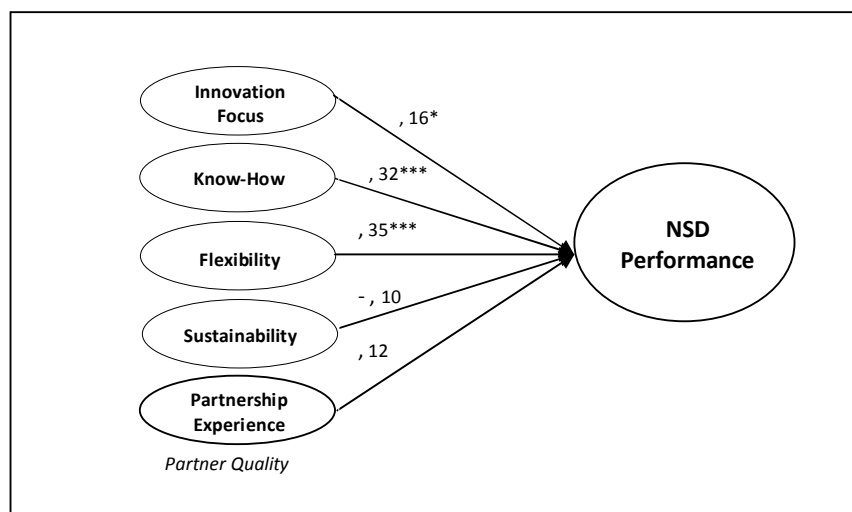


Figure 6.8: SEM – CNs Partner Quality on NSD Performance.

* Statistically significant at $p < 0.1$ ** statistically significant at $p < 0.05$ *** statistically significant at $p < 0.01$

The results of this SEM, provides more evidence that Know-how has $p= 0,001$ and $\beta=32$ and Flexibility has $p= 0,001$ and $\beta=35$ and have a significant impact on NSD Performance. The impact of the innovation focus on NSD Performance is less significant has $p= 0,10$ and $\beta=16$.

This SEM, also showed that Sustainability and Partnership experience do not have a significant impact on NSD Performance. This result was not expected, and is different when compared to qualitative study results – in which many times both characteristics were shown significant to complex NSD Performance final success.

6.8.3 CNs Relationship Quality Model: Relationship Quality impact on NSD Performance

The SEM for CNs Relationship Quality, presented in Figure 6.9, was created to represent the constructs of Relationship Quality and to check the direct impact of the relationship on NSD. Thus, it is possible to measure how CNs Relationship Quality can influence the NSD Performance success.

This model's results, that involved five constructs (Mutual Learning, Shared Vision, Communication, Trust and NSD Performance) and 21 final items, obtained a good value to R^2 of 0,55 and fit indices are within acceptable and present GFI of 0,88; CFI above 0,90 with 0,96; PCFI of 0,83; RMESA equal 0,06; SRMR of 0,02 and NFI of 0,90. These indices are shown in Table 6.13.

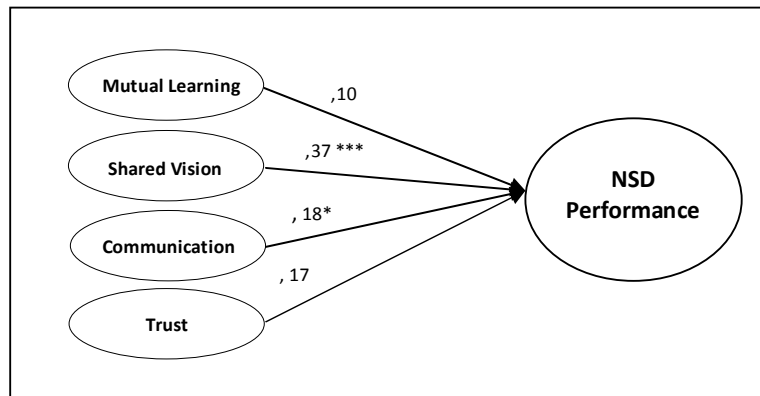


Figure 6.9: SEM - CNs Relationship Quality on NSD Performance.

* Statistically significant at $p < 0.1$ ** statistically significant at $p < 0.05$ *** statistically significant at $p < 0.01$

The SEM model results for CNs Relationship Quality shows that Shared Vision has a significant and large positive impact on NSD Performance with $p = 0,001$ and $\beta = 0,37$. Communication has lower significance and has less influence with $p = 0,10$ and $\beta = 0,17$. Mutual Learning and Trust do not have a significant impact on the NSD Performance success.

As already highlighted and based on CFA results to share the same vision and goals means: which the objectives are defined altogether, there are clear goals for different partners of the project, there is harmony between the culture of partner companies, the alignment of vision and goals is easily performed and there is vision alignment between partner companies. The SEM result confirms the impact that shared vision among all partners in the network has influence on NSD Performance success.

Comparing this result to the qualitative study, it can be inferred that partner companies in the network must share the same vision about the NSD project that are developed together. If the partners do not share the same vision, there should be efforts to ensure that at least their individual visions are complementary, once this characteristic has a great influence on NSD Performance.

Communication is an emphasized characteristic as essential to a relationships' success and has a great impact on NSD Performance. Based on quantitative results Communication means that: the exchange information is easy, there is a constant interaction, is easily put any questions or concerns to the order partner companies and the information management is efficient. Therefore, based on SEM results the communication has impact on NSD Performance since the communication is structured and clear between all the companies involved in the CNs.

6.8.4 Second-order variables Model: CNs Partner Quality & CNs Relationship Quality on NSD Performance based two second-order variables

This new model was re-defined adding two second-order variables. The SEM result is based on 26 final items. Thus, it is possible to assess how the dimension of CNs Partner Quality and CNs Relationship Quality influences the NSD Performance in a global way.

This SEM, that involved two second-order variables also had a good value to R^2 of 0,58 and the fit indices are within acceptable with GFI of 0,87; CFI of 0,95; PCFI of 0,83; RMESA of 0,04; SRMR of 0,04 and NFI of 0,85. The Figure 6.10 presents this SEM and the Table 6.13 shows the indices presented.

This SEM objective was to test this model using two second-order variables. The aim of using two second-order variables is to assess the model as a whole, e.g., how the CNs Partner Quality and CNs Relationship Quality influence the NSD Performance in a general way. Based on fit indices the SEM results revealed that CNs Quality affects the global performance of the process of NSD, however, as show in Figure 6.10, CNs

Relationship Quality has a significant positive impact with $p= 0,001$ and $\beta= 0,64$ and makes all difference in the NSD Performance success.

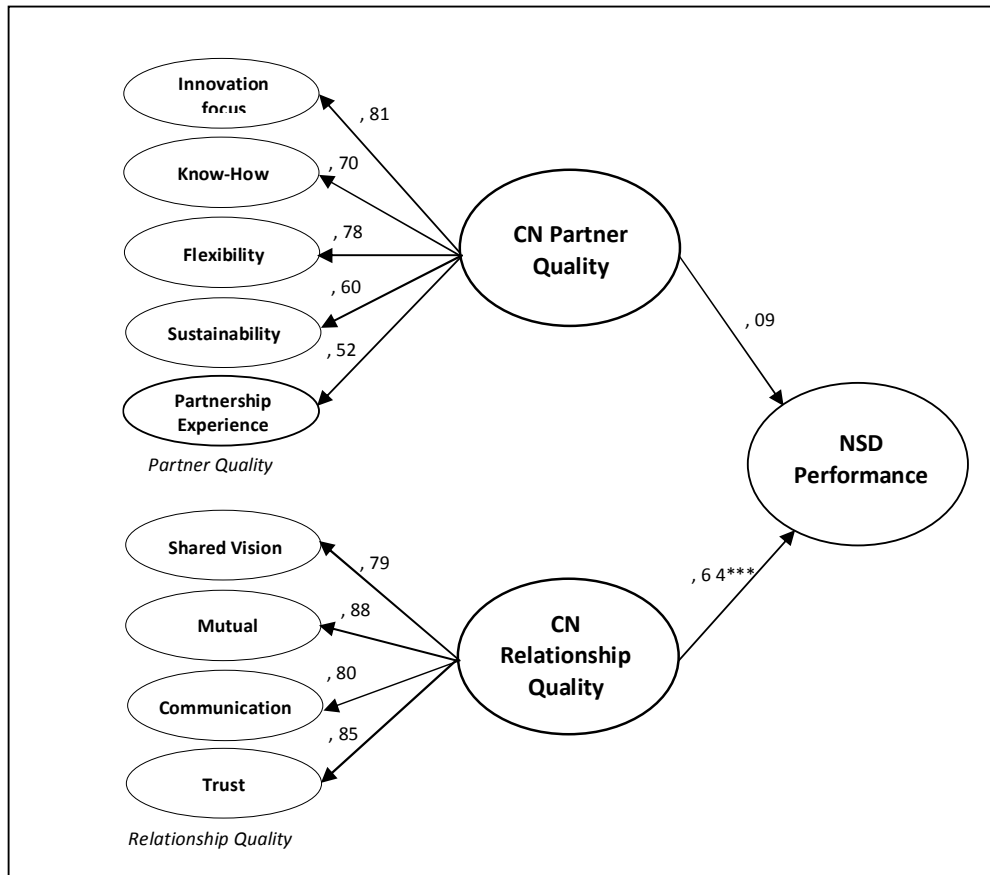


Figure 6.10: SEM two second-order variables model.

* Statistically significant at $p<0.1$ ** statistically significant at $p<0.05$ *** statistically significant at $p<0.01$

As presented so far, it can be inferred that even though the quality of the companies that are part of a CNs have a influence on the complex NSD project final results, this SEM results states that the relation between these companies makes a great difference and has a large impact on the performance's success in complex NSD projects. Thus from the respondents point-of-view, this good relationship becomes essential in order to achieve the process success and so the service is "born" in harmony.

Therefore, if the partners are able to achieve a great level of excellence in network relationship, the partner companies' quality will end up by being secondary once compared to the impact that the good relationship has on the NSD Performance.

To sum up, the Table 6.13 presents the fit indices for all SEM results: (1st) Full model to measure the impact of the CN Quality on NSD Performance, (2nd) CNs Partner Quality Model, (3rd) CNs Relationship Quality Model and (4th) Two second-order variables model. As already mentioned all models were performed with survey data from a sample of N=196 and were already been tested and validated through EFA and CFA.

Table 6.13
Standardized coefficients and fit indices for CNs Quality on NSD Performance.

SEMs FOR CNs QUALITY ON NSD PERFORMANCE				
CNs Quality on NSD Performance	Full Model 10 constructs	CN Partner Quality 6 constructs	CN Relationship Quality 5 constructs	Two second-order variables model
	<i>Coefficient β</i>	<i>Coefficient β</i>	<i>Coefficient β</i>	<i>Coefficient β</i>
CN Partner				
Innovation Focus	-,03	,16*		
Know How	,26***	,32***		
Flexibility	,22**	,35***		
Sustainability	-,04	-,10		
Partnership Experience	,01	,12		
CN Relationship				
Mutual Learning	,21*		,10	
Shared Vision	,31***		,37***	
Communication	,09		,18*	
Trust	-,09		,17	
CN Partner Quality				,09
CN Relationship Quality				,64***
R²	0,59	0,52	0,55	0,58
χ²	389	137	179	287
p	,000	,000	,000	,000
df	389	137	179	240
GFI	,85	,90	,88	,87
CFI	,95	,95	,96	,95
PCFI	,80	,76	,83	,83
NFI	,85	,89	,90	,85
RMSEA	,05	,06	,06	,04
SRMR	,04	,04	,02	,04

* Statistically significant at p<0.1 ** statistically significant at p<0.05 *** statistically significant at p<0.01

The results reveal that the constructs used to measure the CNs Quality on NSD Performance have nomological validity because they are simultaneously related. The four SEMs had a good values to R^2 ranging from 0,52 to 0,58. All the fit indices are within acceptable ranges, with GFI ranging from 0,85 to 0,90; CFI ranging from 0,95 to 0,96; RMESA equal or below 0,06 and SRMR ranging from 0,02 to 0,04; NFI ranging from 0,85 to 0,90 and PCFI ranging from 0,76 to 0,83 These results show that the CNs Quality have a great impact on NSD Performance and influence the NSD success.

6.9 Quantitative Study Conclusions

In this quantitative study, an exploratory factor analysis was performed in order to analyze the dimensional structure of the three scales (1st) CNs Partner Quality, (2nd) CNs Relationship Quality and (3rd) NSD Performance of the initial model. This initial model was developed based on qualitative study results. After the EFA was concluded, the next step was to conduct the CFA in order to confirm that latent variables (constructs) explain the correlational structure observed among a set of manifest variables (items) generated in the EFA.

Following the same sequence from EFA the CFA also was carried out based on three scales (1st) CNs Partner Quality, (2nd) CNs Relationship Quality and (3rd) NSD Performance. The CFAs results for these three scales generated a set of the 44 final items distributed into 10 constructs, in which 5 of the constructs are from the first scale CNs Partner Quality with 21 items, 4 constructs from the second scale CNs Relationship Quality with 18 items and 1 construct from the last scale NSD Performance with 5 items.

After the conclusion of the two stages – EFA and CFA, the last stage involved the analysis of the Structural Equation Model (SEM), which aimed to examine the relationship between the 10 constructs identified in both preview analysis.

The structural equation was made based on four models: (1st) Full Model – CNs Quality on NSD Performance, (2nd) CNs Partner Quality Model (3rd) CNs Relationship Quality Model and (4th) CNs Quality with two second-order variables Model. After a few iterations, all models were obtained with indexes considered within the accepted pattern and allowed further validation of the scales to measure CNs Partner Quality and CNs Relationship Quality. In this context, this research provides important implications to measure the impact of the Collaborative Networks Quality in the NSD Performance success.

Based on data analysis, the full model with direct effects showed that CN Quality Factors have a significant impact on NSD Performance. The results showed that both Partner Quality and Relationship Quality Factors have a significant impact, especially know-how and flexibility regarding partner characteristics, and shared vision and mutual learning regarding relationship characteristics.

To sum up, Know-How is the knowledge of a specific process that the company has and because of it becomes known in the market. Flexibility is related to the capability of companies to adapt quickly their process to act in the market and to satisfy the customer needs. Shared Vision involves the capability of the partner companies to share a common vision of the service or product that is being developed together. Mutual Learning is the skill of companies that work together in the market to acquire new knowledge due to the high contact with their partners.

In the CN Partner Quality Model, that aimed to measure the impact of the CN Partner Quality on NSD Performance, showed that besides flexibility and know-how, innovation focus also impacts on NSD Performance.

Due to the importance of CN Partner Quality Factors, the Developer Company should therefore reserve some time for a careful quality evaluation of partner companies that will take part in the CN before starting a complex NSD project. The evaluation of a potential company should involve its innovation capacity, its know-How in front of specific activities developed during the process as well as its flexibility and capability to adapt when facing the NSD adjustments.

The CNs Relationship Quality Model result emphasizes that the relationship quality among these companies also have a direct impact on NSD Performance. However, whereas the most significant CN Relationship Quality Factors in the full model were shared vision and mutual learning, in the partial model shared vision and communication become the only factors with statistically significant impact.

These results show that a good relationship between the partners in a CN context requires these companies to develop a shared vision about the same project's concept, as well as to exchange and learn new experiences together. It also evolves the clear, precise and effective communication along all complex NSD projects.

The analysis of the second order factor model aimed to assess the influence of CN Partner and Relationship Quality on NSD Performance in a general way. This model showed that relationship quality has a strong influence on NSD Performance and Partner Quality becomes non significant. The previous models show that both Partner Quality and Relationship Quality have a significant impact on NSD process. The results of the second order factor model may therefore indicate that the selection of high quality partners is a pre-requisite for a successful NSD project, but once the CN is formed,

developing and maintaining a good relationship among partner becomes crucial for NSD Performance success.

To sum up, the quantitative study and the qualitative study results provide an in-depth understanding of the impact the CNs Quality on NSD Performance. The structural models analysis provided enabled a better understanding of which CNs Quality Factors influence the most the NSD Performance.

In this context, both qualitative and quantitative studies provided the basis for understanding the improvements needed in the creation and management of the collaborative networks in complex projects of the NSD. Such studies led to the subsequent research stage that involves the proposal of using an application for the management of the partner companies in the CNs context.

Chapter VII
IMPLICATIONS FOR CNS MANAGEMENT

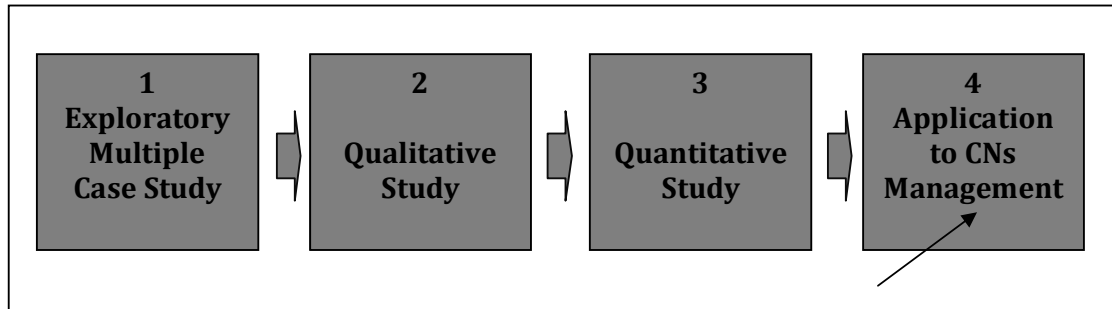


Figure 7.1: Implications for CNs Management Stage of research.

7.1 Introduction

Based on the information and conclusions resulting from this study it was revealed that four NSD projects were supported by several Collaborative Networks (CNs) that are formed throughout the different development stages. These CNs are increasingly used in complex NSD process as they require multiple competences that a stand-alone company cannot possess in house.

The multiple case study, the qualitative study, and the quantitative study showed that CN Quality has a strong influence on NSD performance. Due to the importance of the partner companies in complex NSD projects, CN management requires a close relationship with value, ideas and trust exchange, which can build a strong commitment among all partners involved in the CN, to improve support the complex NSD process and therefore assure final service success.

The study results highlighted the importance of a careful selection for partners, and revealed the crucial role of developing and maintaining a good relationship among CN partners, through shared vision, communication and mutual learning. These results showed the importance of fostering communication and learning among partners and working to establish a common vision.

In the specific case under study, the Developer Company used a communication platform for project management among several company departments in the early stages of NSD. This platform aimed at improving the information management and nurtures the relationship between employees and companies operating in these early stages of the NSD process. However, the Developer Company did not use any communication platform to enable CN partners interact with each other for the subsequent stages of NSD (Construction, Launch and Operation).

As already mentioned, the research results showed that shared vision, mutual learning and communication are important for a good relationship between partner companies and have a significant impact on NSD performance. Based on these results, a communication platform was considered helpful to foster the relationship between CN Partner Companies and NSD success.

This chapter reports the presentation of a proposal for the use of a communication platform and management of ideas between participating companies in the Collaborative Network of the four NSD projects under study, specifically for those stages that did not yet use an application for managing communication and information between partner companies. The central idea of this platform is to offer CNs Partner Companies the possibility to interact and exchange ideas about their activities in a direct way.

To the Developer Company, as the owner service, this platform can be used to enable a closer management and monitoring of the relationship between all CN Partner Companies across the different NSD stages.

The study revealed that the performance of the companies from Brazil and Portugal involved in the four NSD projects were similar. However, companies from the different countries had to adapt their services and procedures to the specific context of

each country. Sharing knowledge about service provision and processes among companies from the two countries could therefore be a good opportunity to share ideas and improve their service.

Therefore, a communication and idea management platform was proposed to provide CNs Partner Companies the opportunity to meet and exchange ideas and best practices about their service within the CN. With this platform, they would know the reality of their partners and would therefore be able to evolve their processes and services based on activities in other realities.

7.2 Objectives

This research aimed at understanding how CNs can influence NSD performance and final service success. The research results revealed that CN Partner Companies as well as the relationship management between them has a strong influence on complex NSD projects success.

Therefore, based on what has been described, the aim of providing a platform for communication/ideas management for the employees of CN Partner Companies that work in different stages of four NSD projects are:

- (a) To be able to interact directly;
- (b) To offer the employees of these companies an opportunity to exchange ideas, experiences and best practices to improve the process of service delivery;
- (c) To involve employees in the process of continuous improvement and create conditions for the existence of recognition by peers and superiors, giving them the opportunity to propose ideas directly related to their work at the NSD process, express opinions about ideas presented by others, thereby

constituting a source of learning and employee accountability, and driving service improvement.

7.3 Potentials Users

The people intended to have involvement in this project are employees of partner companies who work on the four projects studied, namely: Boulevard Londrina Shopping, Guimarães Shopping, Leiria Shopping and Parque Dom Pedro Shopping. These employees include employees of partner companies, from those who maintain the mall during the operations to the managers. Therefore, this plan - of using a platform to management and communication of ideas - aims to involve all employees of the CNs' partner companies who work directly in the four referred NSD projects.

The main criteria to selection of potential users of the, already mentioned, platform was the degree of involvement of each one in the NSD process along the different stages such as:

- Employees of companies that provides services (CNs Partner Companies) in the four NSD projects;
- Operations Managers of the Developer Company;
- Other internal or external actors whose participation is deemed appropriate by the management of Developer Company and suppliers involved.

7.4 Advantages of using the Platform

Overall, this platform enabled the collaborators of the CNs Partner Companies to interact directly with other companies through the to exchange ideas, experiences and

good practices in order to improve the company processes; as well as to involve the users (companies collaborators) in continuous improvement and create conditions for the recognition from its peers and superiors. This platform can also help the managers:

- (1) Promote an intense and good relationship between all partners companies that work in the same NSD stages;
- (2) Defined a hierarchy structure in the relationship between partners during all NSD process and,
- (3) Develop a monitoring system to assess if the activities developed by CN partners are being fulfilled, assuring that project goals are achieved according to the established the deadlines.

Advantages for CN Partner Companies

- (1) Systematization and ease of monitoring the process that goes from idea generation to evaluation of the impact of the implementation;
- (2) Creation of channels of communication between professionals in the same area to share ideas and identify best practices;
- (3) Strengthening of partnership between providers;
- (4) Involvement of employees in the process of constantly improving;
- (5) Motivation of employees and creating mechanism of recognition by peers and superiors.

Advantages for Developer Company

- (1) Perception of quality of service suppliers, as well as the degree of innovation, flexibility and resourcefulness in response to a specific event;

- (2) Strengthening of partnership between Developer Company and partner Company;
- (3) Strengthening of the comparative advantages compared to competing suppliers, for their involvement in an innovative process with possible replication to other areas;
- (4) Monitor the actions that occurred between these companies and measure the impact that the ideas generated and implemented directly affect the provision of better service, and thus able to measure the value that the company has to Developer Company in the complex NSD projects context.

7.5 Brief Overview of Communication Platform

The platform³ it's a management system that enables idea generation, communication and involves all employees of companies that use it. It is a 100% web application, designed to motivate employees of companies that use this platform as well as to make possible a contact between not only employees of the same company, but also with those of partner companies, making possible closer relationships between them.

The ideas generated by the users - which are inserted into the platform - can be discussed by other users, can be rated and/or commented. Thus, users are always aware of the discussion around the ideas, aware of the different status of evolution on the exchange of information between them as well as the ideas generated.

³ It will not be released the name of the platform for reasons of confidentiality.

Characteristics and Versatility of the Platform

The platform is developed considering the safety, integrity and confidentiality of the data inserted on it, thus, the user access to the data will depend on the level of permission that is granted. Therefore, all the actions that occur in the platform are registered and the received data are validated and audited⁴.

The platform is available in Portuguese and English, however, the use of 8-bit Unicode Transformation Format (UTF-8) characters allows the use of the platform in any idiom including Japanese and Chinese. The Spanish version is nowadays being tested.

The ideas inserted in the platform are discussed by the users that take part in different groups. These groups can involve for example: (1) A group of work mates from the same company, (2) A group of co-workers from the same projects, or (3) Groups that share common interests. Each single group has a specific manager that is responsible for:

- Managing the group members;
- Managing and motivating the discussions presented in that group;
- Creating challenges in order to potentiate the idea generation by the members;
- Evaluating the ideas, deciding about its implementation, suspensions, transfer or rejection;
- Deciding by implementation of the new idea, as well as defining the follow-up procedures.

⁴ Information taken from the platform website.

In this context, the idea generated in each group is managed and evaluated by its respective manager that considers the idea advantages and disadvantages, as well as its implementation cost, expected profit, viability, priorities and quality. When defining all the implementation process of the new idea, the platform is able to automatically recognize and evaluated the user responsible by have the idea.

If the idea gets to be implemented in the company, the manager responsible by the idea evaluation can define a follow-up process. Therefore, the platform allows that the implemented ideas are regularly followed, checking this way the advantages and benefits added up to the company's process. In this manner, as time goes by, it is possible to have a concrete view of the real benefit that these new implemented ideas bring to the organization.

To sum up, the platform support an unlimited number of users and group that can be created and/or suspended at any time. Each user should be part of at list one pretence one group. This way, each user can: (1) present new ideas, (2) vote and comment the ideas of the other users and (3) follow ideas that are believe to be viable to be implemented.

Each user only have access to the contents of the group that he/she is part of and to those groups that have a public content access. The decision of allowing the inserted contents to be public or not, which means visible to all the other users – is determined by the group manager.

It is also important to highlight that the platform usage has a cost to each user. This value is generally charged after a months of its use. However, under this research project context, it was established a protocol that guarantees the platform use for 6 months without fee payment.

Platform Advantages

Due to the current economical context, the competition between the companies is increasing more and more. The managers capable to get through this scenario are the ones able to team work, recognizing the value of each collaborator and giving them opportunity to talk about the daily activities related to the company's processes.

In successful companies, the directors and managers of the different departments increasingly take in consideration the collaborators opinion around the several issues. Many times, the ideas generated by its collaborators result in the waste reduction of the different resources types, such as (time, material and financial) generating sometimes improvement on the activities.

In successful companies, the directors and managers from different departments are increasingly taking into consideration the collaborators' opinion about several activities related to the company. Many times, the ideas generated by this collaborators result in the waste reduction from of resources from different types, such as time, material and financial, improving the company activities.

In this context, the platform reinforces the team work as it makes all the companies collaborators part of the problems solutions and new solutions generation. This is due to the fact that who deals with the companies' processes on daily basis are the collaborators and not the companies themselves, therefore the collaborators are better qualified to evaluate the performance not only from the company they work in but also from the partner.

Based on what was mentioned so far, this platform can potentiate the idea generation from all the company collaborators, they can also be part of solving the problem as well as in discovering new solutions. This way, the companies encourage

“team work spirit” when they recognize the individual value of each collaborator that exposes his/her ideas in the platform.

7.6 Final Considerations

The research in four NSD process, showed that the complex NSD projects are better developed in the Collaborative Networks (CNs) context due to the complexity involved in these projects. The study also showed that CNs are increasingly adopted to potentiate these projects as they require multiple expertise from different sectors.

Based on these results, the research conclusions revealed that CNs play an important role along the different NSD stages. Communication, as well as management of the partner companies involved in these CNs also influence the NSD performance.

The project to implant the use of the referred platform was presented to the Developer Company and to some partner companies and a practical demonstration of its usage were made. This presentation occurred along some meetings with two managers from the Developer Company and six partner companies’ managers in the NSD operational stage process (three from Brazil and three from Portugal) in three different areas like: cleaning, maintenance and security.

As already mentioned along this chapter, the main users of this platform will be the partner companies’ collaborators and the Developer Company’s managers that work directly in the four NSD projects operational stage that were under study.

In the last meeting, it was proposed to put into use the platform for a period of six months, and based on these experience results, extend its use to other partner companies involved in the four NSD projects. However, due to the time limitation it did was not possible to try this experience during this research development. Therefore, it’s

intended to put this project into practice after the doctorate's conclusion through the development of a new research project that will continue this research.

Chapter VIII
CONCLUSIONS AND FUTURE RESEARCH

8.1 Conclusions

New forms of collaboration between partner companies happen more often to potentiate the NSD process, specially, in complex NSD projects. Due to the specificity and complexity of the activities necessary to manage these different stages of the NSD process, the collaboration between companies in the Collaborative Networks context is increasingly adopted.

In complex NSD projects, network management requires a relationship with values, ideas and trust exchange, which can build a strong commitment among all partners involved in the CNs, enhancing NSD performance and final service. However, this the management of CN in complex NSD projects still needs further research.

These challenges provided the main motivation for the research. This project aimed to understand how CNs contributes to complex NSD projects along their different stages. Based upon the study of the NSD process in the CN context in four complex projects of the shopping mall type, the study main objective was to enhance the understanding of complex NSD projects in the CN context, focusing on four research vectors that deserved special attention:

- (1) To understand and analyze complex NSD processes and its respective stages and activities;
- (2) To analyze how this process happens in the CN context, and to identify desirable CN Characteristics, which we termed CN Quality Factors;
- (3) To analyze how these CN Quality Factors influence NSD performance across the different stages; and
- (4) To generate recommendations for the management of collaborative Networks in complex NSD projects.

To achieve these objectives, the research involved four stages, as shown in Figure 8.1: an Exploratory Multiple Case Study, a Qualitative Study, a Quantitative Study and the Application to CNs Management. The next sections present the main contributions and limitations of each these research stages.

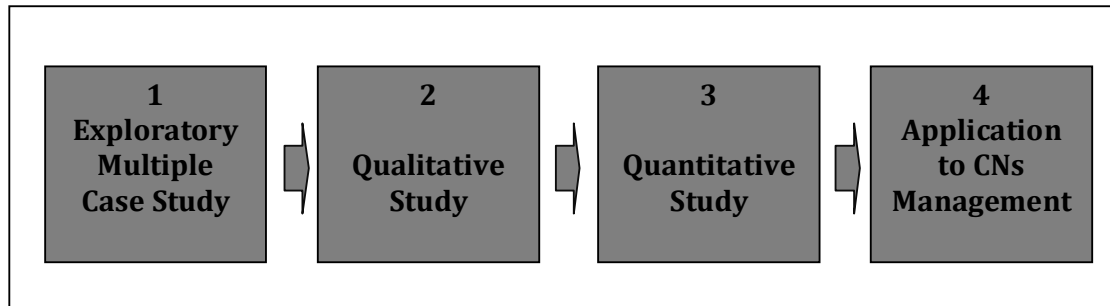


Figure 8.1: The four Stages of Research Design (completed).

8.2 Contribution of Exploratory Multiple Case Study

The literature review provided an overview of previous empirical studies regarding the role of CNs in NSD from different fields, such as New Product Development (NPD) and New Service Development (NSD). This review focused on stages, activities and tasks involved in NPD and NSD processes as well as the establishment of partnerships with other companies in these processes.

The Exploratory Multiple Case Study had as a starting point these studies on NPD and NSD processes. These studies provided a rich and complementary view of the different issues and perspectives related to NSD. Literature review about strategic partnership, alliances strategic and collaborative networks were also consulted. However, the literature review also revealed that literature on the role of CNs in NSD was still scarce, and further research was needed in this area.

The Exploratory Multiple Case Study presented in Chapter IV focused on understanding the NSD process, identifying the main stages, activities, and actors involved in the process. The exploratory multiple case study also analyzed when and how the CNs were formed and how the partner selection process was undertaken in the four complex NSD projects.

This research stage involved unstructured interviews with managers of the different departments of the Developer Company, and the analysis of documents and reports about the NSD process. The interviews were carried out in an unstructured way, which allowed a better understanding of the complex NSD projects specificities. Still in this stage, it was carried out participant observation in meetings with Developer Company managers as well as with managers of the partner companies to understand the partner company selection process for NSD projects.

Based on what has been described, the Exploratory Multiple Case Study contributed to understand the NSD process, which is characterized by different stages, activities, tasks and actors as well as by companies that work in several collaborative networks across different NSD Stages. This study showed that the initial NSD stages (Idea Generation and Conceptual Development Stages) are developed “*in house*” through different departments, once these stages have a great effect on the NSD performance success due to the fact that it involves the core competence of the Developer Company. In these stages, few relationships are established with partner companies for activities that are not the key for the NSD performance success.

The Exploratory Multiple Case Study results also contributed to comprehend which are the main forms of relationship established between partners along the complex NSD projects. As already presented on Exploratory Multiple Case Study conclusions, the main forms of the collaborative relationships are Strategic Partnerships

and Supply Chain. These two types of relationship are classified by characteristics of the contract as well as by the degree of participation of these partners along the NSD process. The highlight on these two forms of the collaborative relationships is based on characteristics and activities surrounding the stages in which the partners work.

The main difference between these two types of the partnership involves, in one hand, the Developer Company when establishes a relationship with a partner an initial business, that is, since the initial NSD stage; this relationship is classified as strategic partnership, once the partner has a participation in the costs and profitability at all its life cycle and together they will share capabilities to explore new markets combining resources and competencies.

On the other hand, in other NSD stages, the relationships established between companies are characterized by temporary contracts in which rights, rules and duties of both parts are described (the Developer Company and the contracted one). This type of the relationship is classified in the supply chain context, due to their short-term relationship or until the conclusion and delivery of the service by which they were contracted; these companies do not have any further partner relationships during the service offer.

This study contributes (1) to characterize the complex NSD projects in the CNs context (2) to understand how the relationships are characterized along different stages of the NSD process, (3) to identify the type of relationship network established across NSD Stages, and (4) to understand why Collaborative Networks evolve during all process.

To sum up, based on what was presented, the main contribution of this Exploratory Multiple Case Study was the understanding of how the complex NSD projects happen in the collaborative context between several external companies.

Therefore, these results can cooperate with new challenges which involve the NSD process, once previous research in this area to present study results analyze the NSD in the perspective of a single company and not in the collaborative perspective, which is increasingly more adopted in complex NSD process.

8.3 Contribution of Qualitative Study

The objectives of the Qualitative Study were twofold. On one hand, it aimed to identify the NSD process performance factors, and to understand how these factors evolve along its different stages. On the other hand, it aimed to spot desirable CN Characteristics that determine for CN Quality and influence NSD performance.

This research stage involved in-depth interviews with 39 managers from the Developer and partner companies in four complex NSD projects of the Portuguese Company. The sample was defined according to the participation degree of the managers in the NSD process. The qualitative data analysis, involved the data categorization, according to NSD stages, performance factors of the NSD process and CNs Characteristics.

The Qualitative Study Results contributes to identify and classify the main performance factors along the NSD process and to analyze how these factors evolve across the NSD stages. This study showed that some performance factors cross-cut all NSD stages, such as communication, dedicated management, service concept and sustainability.

However, the results also showed that the relevance of these factors change along these different stages and other factors are specific of each single stage, such as: (1) market study in the early stages; (2) geographic location in the construction stage; (3)

service quality and customer focus in the launch stage and (4) work conditions of human resources and multidisciplinary teams in the operational stage.

As mentioned in Literature Review, previous studies already presented some factors that have influence in the NSD performance, however, if these studies were corroborated with the results of this qualitative study, new factors arise, such as the (1) sustainability, (2) geography location and (3) multidisciplinary teams, which were often emphasized throughout the interviews and were not identified in other previous studies.

This qualitative study also allowed to identify the CNs Quality factors and to understand these factors importance for the NSD performance success. The results showed that CNs Quality Factors are classified through two dimensions: CN Partner Characteristics and CN Relationship Characteristics. CN Partner Characteristics are related to the attributes that the partner companies should have to successfully participate in the CN in a complex NSD project. CN Relationship Characteristics are related to the quality of the relationship established among the companies in the CN.

The desirable characteristics that CNs Partner should specifically have are: (1) Partnership experience, (2) Know-how, (3) Flexibility and (4) Sustainability focus. These characteristics were pointed out as crucial and have a great influence to the NSD performance. The main characteristics that indicate the quality of the CN Relationship between partner companies are: (1) mutual learning, (2) common vision and (3) trust. These characteristics were pointed out as essential to good relationship between all partners and also influence the NSD performance.

This study also allowed an examination of the CN Quality from the perspective of both Developer Company and partner companies that work in the NSD projects under study. The Developer and partner companies share a similar vision about CN Quality. On

one hand, the characteristics that partners should satisfy are: partnership experience, know-how, compliance with contract and norms and brand reputation. On the other hand, for both, the desirable characteristics that CN relationship should satisfy are: trust, communication and mutual learning. These results are very important for the good development of complex NSD projects, once they minimize the conflicts and enable an evolution of a successful NSD process.

This result combined with the Exploratory Multiple Case Study results, provides a complete view about which are the main stages, activities and actors involved in the NSD process, the factors that more influence the NSD Performance, as well as the CNs Quality (Partner Characteristics and Relationship Characteristics) which are essential for a good NSD performance.

Based on what was mentioned, the main contribution of this qualitative study was to understand both phenomena (NSD performance factors and CNs Quality) in the same context, once that the previously literature contains these phenomena, however they are presented separately and these two areas are not still well connected. Therefore, these results contribute for integrating NSD and CNs research and for bringing new insights on how the CNs management should evolve through the different NSD stages and to cope with the new challenges of complex NSD projects.

8.4 Contribution of Quantitative Study

The Quantitative Study aimed to develop a measurement scale for CN Quality, and to analyze the impact of the CN Quality Factors on NSD performance. These quality factors were identified in the qualitative study and provided the basis for the development of a survey questionnaire.

The hypothesized model involved CN Partner Quality and CN Relationship Quality influence on the NSD performance. To test this model, a survey questionnaire was undertaken with 196 developer and partner companies' employees that worked directly in different stages of the four NSD projects.

The quantitative analysis of the survey data allowed the development of CN Partner and Relationship Quality measurement scales, through exploratory factor analysis, confirmatory factor analysis, and Structural Equation Modeling. The measurement scale for NSD performance was adapted from previously developed scales.

The exploratory factor analysis results, presented 3 scales for CN Partner Quality, CN Relationship Quality and NSD Performance that consisted in 49 items divided in 10 constructs: (1st) Scale: CN Partner Quality with 5 constructs composed of 24 items, (2nd) Scale: CNs Relationship Quality with 4 constructs composed of 20 items and (3rd) Scale: NSD Performance with 1 construct composed of 5 items. These results, served as basis to develop the confirmatory factor analysis for the constructs identified into these three Scales.

The confirmatory factor analysis results for these three scales, provided 10 constructs composed by 44 final items, being: (1st) Scale: CNs Partner Quality - 5 constructs (*Innovation Focus, Know-How, Flexibility, Sustainability and Partnership Experience*) composed of 21 items; (2nd) Scale: CNs Relationship Quality - 4 constructs (*Shared Vision, Mutual Learning, Communication and Trust*) composed of 18 items and (3rd) Scale: NSD Performance - 1 construct (*NSD performance*) - composed of 5 items.

Therefore, quantitative study results showed that 10 main constructs emerge these analyses: (1) Flexibility, (2) Sustainability, (3) Innovation Focus, (4) Partnership Experience, (5) Know-how, (6) Mutual Learning, (7) Communication, (8) Trust, (9)

Shared Vision and (10) NSD performance, distributed into three scales (as already mentioned) for measuring CNs Quality and NSD Performance.

After assessing the reliability and validity of the scales, the quantitative analysis continued with the examination of the relationships between the constructs based on four models: (1st) Full Model: CNs Quality on the NSD Performance, (2nd) CNs Partner Quality Model (3rd) CNs Relationship Quality Model and (4th) CNs Quality with two second-order variables Model, using a structural equation modeling approach.

After some iteration, the four models were obtained with indexes considered within the accepted pattern and allowed further validation of the scales. Therefore, this research provides important contributions to measure the impact of the CNs Quality on NSD Performance.

To sum up, the results show that CN Quality has a significant impact on NSD performance. Overall, the results indicate that in spite of the CN Partners Quality influence on NSD Performance; the good relationship between all the partner companies becomes crucial to the complex NSD projects success and has more impact than CN Partner Quality.

Based on what was presented around the quantitative study results, this study allows an in-depth knowledge about specific CN Quality Factors that influence on NSD performance success. Therefore, these results contribute with previous studies that aim to measure performance success of the NSD process. The previous studies surrounding of the NSD process are still scarce and the major part of these studies have focus on New Product Development (NPD) Process. It can be justified, due to the challenges which involve the success evaluation, that is intangible and its perception change from person to person.

In this context, the quality factors to measure the NSD performance found in this study can be used in new researches that aim to measure the success of both the NSD and NPD processes, when these processes happen in the CN context.

8.5 Overall Contribution of Research and Managerial Implications

Based on all the exposed, the exploratory, qualitative and quantitative studies made important contributions to a better understanding of the influence of the CNs Quality on NSD performance. All studies supported the idea that networks are more frequently used in complex NSD projects and the CNs Quality becomes essential to complex NSD projects performance success and by consequence the final service success.

These contributions help in order to integrate CNs and NSD research streams to cope with the new challenges of complex NSD projects. This study also brings new insights about how the management of CNs should evolve through the different stages of the NSD process to enable its success.

This research showed that Collaborative Networks evolve along the different stages influencing the NSD process performance. However, in the early stages of the process (idea generation and conceptual development stages) the main activities are developed using internal resources of the Developer Company, once these stages have a great influence on the final service success due to the fact that they involve the core competence of the Developer Company.

CNs Quality influences NSD Performance and can be divided into two dimensions: (1) Partner Quality and (2) Relationship Quality. Partner Quality is related to the characteristics that partner companies should have to successfully participate in the CN

in a complex NSD project. Relationship Quality is related to the characteristics for the good relationship established among the partner in the CN context.

To add up, the results indicate that the network management is very important due to the intense interactions that happen between the partner companies along all NSD process. The Developer Company, as the owner service, is responsible for the CN management and should face this task with extreme care.

Establishing processes that guarantee an effective relationship management, as well as a good communication between all parts involved in different CNs along NSD Stages, can assure a better operational effectiveness and by consequence improve NSD performance and the success in the service launch.

The results show that CN Quality as well as the actions and activities developed by the CN partner companies have a great impact on the performance of complex NSD projects. Therefore, the CNs management is an important aspect to achieve the excellence in performance in complex NSD projects.

To sum up, the research identified NSD performance factors and contributed to understand the role of the CN in the NSD process. Future research might investigate how specific characteristics of the various services types may influence NSD performance and how a platform of the CNs management can foster NSD performance.

It is important to reinforce, that the partner selection is a crucial moment to the relational process, in which the dynamic development is determinant in the way its competences, resources and activities will be accessed, explored and shared by its future partners influencing the NSD performance success as well as the competitiveness of the service in the marketing after launching.

8.6 Limitations and Suggestions for Future Research

Studying four complex NSD projects which were in different NSD stages was a very rich and complete empirical research ground. All four projects under study have similar characteristics and dimensions and they were developed by a prestigious Portuguese Company which acts in both national and international markets and therefore, were developed in different realities. These mentioned characteristics make the study results relevant compared with others from this area, where several study a single project in the same context.

However, this study approached just one NSD project type, which was the Shopping Mall. For further researches, this could be expanded not only for other sectors but also for other types of projects. This because, new researches, about NSD performance factors and CN Quality, if studied in new scenarios, besides being analyzed in new contexts, could be confirmed, applied and adapted to new realities, which could involve not only service projects, but also product projects.

It should be highlighted as well that the qualitative study involved a small sample with initially 238 inquiries; however, it has a high delivered rate with 196 valid answers. This could be justified as the majority of these surveys were given and delivered face to face. This number of the sample was small due to be related to companies, making it more difficult to obtain a sample of bigger dimensions.

Therefore, for further researches, it is suggested to involve not only companies which are part in NSD process, but also the final customers, as these are also part of the NSD process and the service final success depends as well on the interaction and experience of these customers throughout the offer and consumption of the service.

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APPENDICES

APPENDIX I

Survey Questionnaire

Caro(a) senhor(a)

Meu nome é Thais Zaninelli, sou aluna do Programa Doutoral em Engenharia Industrial e Gestão – PRODEIG, pela Faculdade de Engenharia da Universidade do Porto –FEUP, e estou a desenvolver uma tese sobre o Desenvolvimento de novos serviços com base em parcerias. Este estudo está a ser desenvolvido em colaboração com a Sonae Sierra.

Nesse contexto, venho pedir a sua cooperação na resposta a este questionário sobre a rede de parcerias em que a sua empresa está envolvida para o desenvolvimento dos centros comerciais da Sonae Sierra.

A sua opinião é muito importante para compreender os factores críticos quando as empresas estabelecem relações através de redes de colaboração para o desenvolvimento de novos serviços.

Por tudo isto, a sua participação neste estudo é fundamental. Todas as respostas serão tratadas de forma confidencial, e é muito importante para a qualidade dos resultados obtidos que responda a todas as questões. Desta forma, agradeço desde já a sua disponibilidade de 10 minutos para o preenchimento do questionário em anexo. Após a sua conclusão, por favor entregue-o na recepção da empresa em envelope fechado, dirigido a Thais Zaninelli.

Grata pela sua colaboração,

Atenciosamente

Thais Batista Zaninelli

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Parte 1: Caracterização da empresa em que trabalha

Por favor assinale a resposta mais adequada com um círculo no número correspondente.

Em que país trabalha?

Brasil	Portugal
1	2

É um colaborador de que empresa?

Sonae Sierra	Empresa parceira da Sonae Sierra
1	2

Qual é a fase do processo de Desenvolvimento do Centro Comercial em que a sua empresa é parceira (indique apenas uma das fases, a fase em que **a sua empresa iniciou a participação** no desenvolvimento de novos centros comerciais):

Na fase Geração da ideia e Desenvolvimento do conceito do centro comercial	Na fase da Construção do centro comercial	Na fase do Lançamento do centro comercial	Na fase do Centro comercial em operação
1	2	3	4

Qual é a área de actividade da sua empresa?

Qual é o número de colaboradores da sua empresa?

0-10	10-50	50-100	100-500	>500
1	2	3	4	5

Há quanto anos a sua empresa colabora com Sonae Sierra no desenvolvimento de centros comerciais?

A seguir, para cada questão, por favor, responda de acordo as seguintes instruções:

Em cada questão, coloque um círculo à volta do número (**entre 1-Discordo totalmente e 5 - Concordo totalmente**) que melhor reflecte o seu grau de concordância ou discordância com as afirmações que lhe são colocadas, de acordo com o exemplo seguinte:

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Caso se engane, p.f. coloque uma cruz sobre o valor errado e um círculo sobre a nova opção:

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Alternativamente coloque um círculo na opção Não sei/Não respondo

Parte 2: Características das empresas que participam na Rede de Colaboração envolvida no desenvolvimento do centro comercial.

Indique o seu grau de concordância ou discordância com as seguintes afirmações relativas às **características da sua empresa** enquanto parceira no desenvolvimento do Centro Comercial.

A empresa em que eu trabalho:

É flexível.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Responde rapidamente a alterações dos projectos.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Oferece diferentes competências para acompanhar a evolução dos projectos.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Compreende as necessidades de alterações de um projecto.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Tem capacidade de resposta face às alterações de prazos dos projectos.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Esforça-se por executar todas as alterações solicitadas num projecto

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Adapta-se rapidamente às mudanças do mercado.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Tem processos bem definidos.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Cumpe todos os requisitos de documentação necessários para desenvolver os projectos.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Cumpe todos os requisitos específicos da legislação.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Adapta as suas actividades para receber as diferentes certificações.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Tem políticas activas de promoção da sustentabilidade.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Tem processos ambientais certificados.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Está atenta às alterações relacionadas com as normas operacionais.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

A empresa em que eu trabalho:			
Define os seus processos tendo em atenção a sustentabilidade.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
É focada no cliente.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
Faz pesquisa de satisfação dos clientes com regularidade.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
Está atenta às novas necessidades dos clientes.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
Esforça-se para atender às solicitações dos clientes.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
Tem uma política activa de melhoria da satisfação do cliente.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
Dá grande importância às sugestões dos clientes para melhorar os seus produtos e serviços.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
É inovadora.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
Faz uso de tecnologias que são pioneiras no mercado.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
Investe na melhoria dos seus processos.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
Investe em novos produtos e serviços.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
Está atenta às novas tecnologias do mercado.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
Tem capacidade de gerar ideias inovadoras.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
Oferece aos seus clientes produtos e serviços inovadores.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo
Toma medidas activas de promoção da inovação.			
Discordo totalmente	1-----2-----3-----4-----5	Concordo totalmente	• Não sei/Não respondo

A empresa em que eu trabalho:

Tem experiência em parcerias.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Participa activamente no processo de desenvolvimento de produtos e serviços oferecidos por outras empresas.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

É capaz de resolver os problemas que vão surgindo na relação da parceria.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Adapta as suas actividades para trabalhar em conjunto com outras empresas.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Estabelece regularmente parcerias para actuar no seu mercado.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Tem uma rede extensa de empresas parceiras.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Tem know-how no desenvolvimento dos seus produtos e serviços.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Tem experiência no mercado.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

É competitiva no sector em que actua.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Tem uma imagem forte no mercado.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Tem boa reputação junto dos seus parceiros.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Oferece um serviço completo.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Oferece um serviço de qualidade.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Tem equipas preparadas para executar os seus serviços de forma eficaz.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Parte 3: Características do relacionamento entre as empresas que participam numa Rede de Colaboração.

Indique o seu grau de concordância ou discordância das seguintes afirmações relativas as **características do relacionamento da minha empresa com as suas parceiras** no desenvolvimento do Centro Comercial.

No relacionamento entre a minha empresa e as suas parceiras no processo de desenvolvimento do Centro Comercial:

A comunicação é eficaz.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Posso facilmente colocar questões ou dúvidas às restantes empresas parceiras.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Existe uma interação constante.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

A troca de informação é fácil.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

A comunicação é estruturada.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Há uma constante troca de ideias.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

A comunicação é aberta.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Há possibilidade de a qualquer momento debater particularidades de um projecto.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Existem tecnologias que facilitam a comunicação entre as parceiras.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

A gestão da informação é eficaz.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Há confiança.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Há actividades que são desenvolvidas para além do que está definido no contrato.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Há respeito mútuo.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

Há confidencialidade no tratamento da informação partilhada.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente · Não sei/Não respondo

No relacionamento entre a minha empresa e as suas parceiras no processo de desenvolvimento do Centro Comercial:
Há comprometimento mútuo.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Os interesses das parceiras são respeitados.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há transparência entre as partes.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há um esforço de adequação das empresas parceiras às necessidades comuns do projecto.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há uma relação de confiança entre as pessoas.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há uma partilha de resultados.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Os bons resultados do projecto são uma meta conjunta.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

As empresas crescem em conjunto.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há incentivos para as empresas partilharem os resultados.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

O resultado final de um projecto é da responsabilidade de todas as empresas.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Fortalecemos a nossa imagem no mercado.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Conhecemos novas empresas.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há aprendizagem mútua.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há uma troca de experiências.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há troca conhecimento.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Aprendemos a resolver os problemas que vão surgindo na parceira.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Aprendemos novas competências.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

No relacionamento entre a minha empresa e as suas parceiras no processo de desenvolvimento do Centro Comercial:

Os processos utilizados pelas empresas parceiras ajudam a melhorar nossos processos.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há uma capacidade de adaptação entre as empresas.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

O processo de adaptação é constante.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

As empresas respondem rapidamente as alterações dos projectos.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há um esforço para executar todas as alterações solicitadas num projecto.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há capacidade de atender às mudanças das necessidades do mercado.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há um alinhamento da visão entre as empresas parceiras.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há metas bem definidas para as diferentes parceiras do projecto.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Os objectivos são bem alinhados entre as parceiras.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

O alinhamento da visão e metas ocorre de forma fácil.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Há sintonia entre a cultura das empresas parceiras.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Os objectivos são definidos em conjunto.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Parte 4: Indicadores de sucesso do processo de desenvolvimento do Centro Comercial.

Indique o seu grau de concordância ou discordância das seguintes afirmações relativas aos **indicadores de sucesso** da fase do processo de desenvolvimento do Centro Comercial que sua empresa é ou foi parceira.

Na fase do processo de desenvolvimento do centro comercial em que minha empresa é ou foi parceira:

A rentabilidade foi positiva.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

A margem de lucro esperada foi atingida.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

O retorno do investimento foi positivo.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

O cliente ficou satisfeito.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Os resultados foram ao encontro do pretendido pelo cliente.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Os resultados foram inovadores para o cliente.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Os resultados contribuíram para o sucesso do projecto de desenvolvimento do centro comercial.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Os prazos foram cumpridos.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Os objectivos do projecto foram atingidos.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

As metas de desempenho foram atingidas.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

A coordenação do projecto foi eficaz.

Discordo totalmente 1-----2-----3-----4-----5 Concordo totalmente • Não sei/Não respondo

Muito obrigada pela sua colaboração.

Após responder esse questionário, por favor deixe-o, em envelope fechado, na recepção da sua empresa, dirigido a Thais Zaninelli.