Title:

New Service Development Process in Telecom Industry: The Telefonica Case Study


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Slough, June 15th 2013
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The purpose of this thesis is to help Telefonica, a Spanish integrated operator, reduce time-to-market of its new offer or product/service innovation by closely observing and evaluating the current development process of its new offer. The research includes the review of current literature on product and service characteristics and new product and service development model, and participant observation conducted in relevant units actively involved in development process.

The contributions of this thesis are threefold:

First, characteristics of Telefonica’s offer to its multinational customers were examined and the finding indicated that the offer is categorized as product/service with service dominance. That added value to the next exercise of the improvement of new offer or product/service development speed.

Second, investigation of the firm’s current new product/service development process with an attempt to perform evaluation and consequently recommendations were made based on the literature review stated above by closely looking at the interaction of the involved participants in development process and how the firm carried out its development process was conducted. The findings indicated that Telefonica selected the right development model for its new product/service innovation, yet there exist some weaknesses in its current development process. Therefore, implications were made so that Telefonica is able to get the best from its adopted model, Stage-gate.

Third, from the investigation a generic view of new product/service development process in telecommunication industry was formed. The beneficiaries of this last finding are the practitioners in the product/service development in telecommunication market because from that pattern they could clearly view core elements to be carefully considered during the development period.

The research recommends practitioners to encourage informal internal communication between project members of new product/service development process as it helps them to build up knowledge for problem solving as well as for finishing deliverables fast. Moreover, management involvement is strongly advised in order to ensure quality of the tasks done by the teams, accurately assess resources that will be needed throughout the project, and prevent procrastinations of the project members.
To

my parents

for their unconditional love

and everlasting encouragement
Phavy owes many individuals without whom this master’s thesis as well as this 2 year master’s program would not be possible.

First and foremost, I would like to express my sincere gratitude to my supervisor professor, Ramon Fisac Garcia, who has provided me invaluable and informative guidance, well-structured comments and ideas that are very helpful in dealing any barriers I was having during my thesis’ writing period.

Never will I forget to thank to my boss in Telefonica, Alejandro Maroto, for his understanding and always supporting throughout my 5 month time with the company. To all of my colleagues in Telefonica, especially, Ana Cid Ruiz, who contributes lots to the input of my research work.

My sincere thanks also go to all professors of IMIM program as well as all administrative staffs in each country who are very helpful in assisting me with my academic and private settlement.

I am thankful to all the respondents who are kind enough to accept my interview request and sparing their valued time in providing concrete information from which the result of this thesis is formed.

To all my family, relatives and friends, despite their physical absence with me in Europe, their kind encouraging words are always with me throughout my ups and downs and of course they are always the reasons for me to go on.

Mentioning at the last part but not with the least meaning are all of my beloved 17 IMIM brothers and sisters being on the same boat with me for this 2 year time and being very unique of their kind. In whatever conditions I was facing they were all near me physically, emotionally, mentally and, one may not even believe, financially. They have taught me priceless and unforgettable life experience which is very practical for my ongoing life.

Phavy OUK

Slough, June 15th 2013
## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CS</td>
<td>Core Service</td>
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<tr>
<td>CSS</td>
<td>Customer Support Service</td>
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<tr>
<td>DC</td>
<td>Data Centre</td>
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<tr>
<td>FA</td>
<td>Functional Areas</td>
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<tr>
<td>KPI</td>
<td>Key Performance Indicator</td>
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<tr>
<td>NP/SDP</td>
<td>New Product/Service Development Project</td>
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<tr>
<td>NPD</td>
<td>New Product Development</td>
</tr>
<tr>
<td>NSD</td>
<td>New Service Development</td>
</tr>
<tr>
<td>O/BSS</td>
<td>Operating/Business Support System</td>
</tr>
<tr>
<td>PDM</td>
<td>Product Development Manager</td>
</tr>
<tr>
<td>PM (DC)</td>
<td>Project Manager (Data Centre)</td>
</tr>
<tr>
<td>PM (TMS)</td>
<td>Product Manager (Telefonica Multinational Solutions)</td>
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<tr>
<td>PS</td>
<td>Professional Service</td>
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<tr>
<td>Q/IM</td>
<td>Quality/Integration Manager</td>
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<tr>
<td>SLA</td>
<td>Service Level Agreement</td>
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<tr>
<td>TGR</td>
<td>Telefonica Global Resources</td>
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<tr>
<td>TGS</td>
<td>Telefonica Global Solutions</td>
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<tr>
<td>TIW</td>
<td>Telefonica International Wholesales</td>
</tr>
<tr>
<td>TM</td>
<td>Technical Manager</td>
</tr>
<tr>
<td>TMS</td>
<td>Telefonica Multinational Solutions</td>
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1 Introduction to Research

Constantly introducing new offers or product/service to the market becomes imperative for the business growth and image of being innovation of the firms in this fierce competitive environment. Competitive advantages can be generated from the development process of the new offers in terms of lower cost, faster time to market and higher quality by adopting an appropriate development model that fits to firms’ objectives and the characteristics of their offers and making considerable efforts in well understanding its flow.

New offer development is one of the strategic plans in Telefonica, one of the world leader integrated operators in Telecommunication industry (Telefonica profile, online available on 1 May 2013). Playing in technology-intensive market, time to market is a big challenge as the firm needs to catch up with the fast technology changes and increasingly demanding customers in experiencing new technology-based toys as well as services. Therefore, the main tasks of this thesis is twofold, first is to scrutinize the compositions of the potential business opportunities or offers of Telefonica so as to be a bridge for the second task which is to evaluate development process of those offers aiming at helping the company introduce faster its offers to the market.

The term ‘offer’ used throughout this thesis as a common name for either product or service or product/service of the firm offered to its customers. The term is used whenever the author does not find any difference in differentiating between them. The word ‘product’ or ‘service’ or ‘product/service’ will be precisely mentioned if the author has an intention to categorize them.

It is also important to notify at the first part of this thesis about the difference between faster service rollout and faster service delivery that will be mostly discussed in this research. Faster service rollout stresses mostly on the innovation speed of the service so that the company can introduce it to the market and it is, therefore, more to do with service development process. Faster service delivery means the deployment speed when service purchased by customers. The two concepts differ in that service delivery comes after service rollout. Service rollout builds up every procedures and documentations needed for service delivery.
The term ‘company’ and ‘firm’ are interchangeably used with the same meaning throughout the thesis.

The term ‘telecom’ is the short from of ‘telecommunication’.

1.1. Context and Motivation

Background

Telefonica’s 248 multinational business customers are served by one of its business units called Telefonica Multinational Solutions (TMS) (Gartner Report, 2012). Providing broad portfolio in services and solutions is one of the strengths pointed out by this paper. Besides, the business unit has a very good understanding of enterprise requirements and proves to strive for better service delivery and processes such as service management and bid management. However, apart from these strong points, the unit is criticized for its unclear future service roadmap which can be one of the trusted sources from its potential customers and a key criterion for winning a bid. The same paper also mentioned problem of slow rollout of its new offers that may potentially lead to growth of both revenue and market shares as one of the unit’s weaknesses and it is the main motivation of this thesis.

For the unit to keep growing, fixing solely this weakness is obviously not enough, but improving the Time to Market (TTM) seems, to the author, one of the key success factors of this unit providing that the unit aims at offering creative and innovative solutions to its multinational cooperates/customers to meet their business objectives; for instance, becoming more competitive, more productive, leaner, faster and/or reducing the cost of communication. If the unit is not able to respond on time to the current needs of its customers, the deserved money and market share will obviously be given to its rivals who are able to answer faster.

Therefore, the research problem is “Multinational Solutions unit is slow in [new offer] rollout” and the efforts of this thesis are made to help the unit to be able to address this weakness.

1.2. Research Questions and Objectives
The unit currently is slow in adopting new offers into its portfolio, which is obviously related to speed. Looking closer at the problem, this may result from lengthy and/or slow new offer development process in the company. Therefore, the objective of this master’s thesis is to perform an investigation on development process of new offers for its multinational customers in Telefonica in order to identify improvement actions that will help the company improve its new offer development speed.

In order to achieve the above objective and to guide the flow of the research 3 questions were formed which constitute 3 specific goals (Table 1) as follows:

<table>
<thead>
<tr>
<th>RQ#</th>
<th>Research Questions</th>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1</td>
<td>What are characteristics of the offer (products/services) of the company?</td>
<td>To understand the characteristics of the company’s offer as it will add values in development process investigation in terms of where to put more focus.</td>
</tr>
<tr>
<td>RQ2</td>
<td>What is the method adopted by the company as its new product/service development process and how does it work?</td>
<td>To identify the type of development model currently used by the company and understand its flow, structure, management policy and internal communication of involved people within development process.</td>
</tr>
<tr>
<td>RQ4</td>
<td>What are the weaknesses of the current development process and how can they be improved?</td>
<td>To identify the weaknesses facing in the development process so that recommendations can be drawn in order to help the company improve its new offer development speed.</td>
</tr>
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</table>

Table 1: List of Research Questions

Therefore, research path starts from the investigation within company’s development process to answer the 3 research questions which at the same time means the main research objective is fulfilled by improving its development time and hence, the research problem will be solved (Figure 1).
1.3. Scope

This project has been developed as a Master Thesis in the context of the International Master in Industrial Management (IMIM). It was conducted during 5 month internship program of the author in Telefonica starting from January 14th 2013 to June 15th 2013. The investigation is done on development process of new offers so called potential business opportunities of Telefonica Multinational Solutions unit (TMS) and Data Center unit (DC). It is very crucial to be stressed that Telefonica owns many different units or companies and each of which has its own DC that is responsible for developing its new business opportunities to the market. This project is concentrating on development of new offers in only one business unit which is called Multinational Solution unit. The offers are for the multinational corporations/customers and are internally called retail services. It is therefore a limited study because of time limitation of the internship, yet it is the first research that has been conducted to evaluate the performance of the current development process in the unit.

1.4. Methodology

This part presents the selection of research methodology that this research will follow in accordance with the nature of research described above. Three aspects including research philosophy, approach and strategy will be discussed in the upcoming sections.
1.4.1 Research Philosophy

Adoption of any research philosophy shapes the assumption about the way a researcher views the world and that assumptions justify the research strategy that s/he is following for the research. It is important to identify the research philosophy as it will prevent a researcher going out of track when research is in progress as it is of assistance in pointing out what s/he should do and investigate (Saunders et al., 2009).

According to Saunders et al. (2009: 119) there exists four main research philosophies (Table 2) namely positivism, realism, interpretivism and pragmatism each of which has its own characteristics that suited to different nature of the research.

<table>
<thead>
<tr>
<th>Philosophies</th>
<th>Basis Belief</th>
<th>Methods Used</th>
</tr>
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<tbody>
<tr>
<td>Positivism</td>
<td>The world is external and objective and independent of social actors</td>
<td>Research is undertaken in a value-free way. Researcher is independent of the data. Research method is highly structured with large samples, quantitative, but can use qualitative</td>
</tr>
<tr>
<td>Realism</td>
<td>The world is objective. Exists independently of human thoughts and beliefs or knowledge of their existence (realist), but is interpreted through social conditioning (critical realist)</td>
<td>Research is value laden; the researcher is biased by world views, cultural experiences and upbringing. These will impact on the research Methods chosen must fit the subject matter, quantitative or qualitative</td>
</tr>
<tr>
<td>Interpretivism</td>
<td>Socially constructed, subjective, may change, multiple</td>
<td>The researcher is part of what is being researched. Research has small samples, in-depth investigations and qualitative.</td>
</tr>
<tr>
<td>Pragmatism</td>
<td>External, multiple, view chosen to best enable answering of research question</td>
<td>The researcher adopts both objective and subjective points of view. It uses Mixed or multiple method designs, quantitative and qualitative.</td>
</tr>
</tbody>
</table>
Table 2: List of Four Main Research Philosophies extracted from Saunders et al., 2009: 119

This research is to study and investigate new offer development process and its involved people of a company with a purpose to improve its efficiency. Given this reasoning, the best fit research philosophy for this study is interpretivism. Interpretivist perspective puts more emphasises on the subjects rather than the objects meaning the investigation will focus on the behaviours and practises of the humans rather than the tools/models used. Moreover, the research of this kind uses small samples, in-depth investigations and qualitative data.

1.4.2 Research Approach

Research can be conducted with either deduction or induction. Deductive approach works in a way that the researcher should deduce hypothesises, test them and finally examine the outcomes from the testing. The alternative approach is induction in which the researcher firstly performs the empirical study from that a framework or theory might be formulated. Identifying research approach provides a clear guide for a researcher in considering the further steps of the research. Saunders et al. (2009: 126) cited three reasons that the research approach is worthy being identified, (1) it helps researcher in research design; how and where data is collected, analysed and interpreted to get good answers to the research questions. (2) It helps researcher to select the research strategies that will work well with the nature of the research. (3) It helps the researcher effectively adopt the research design to fill the gaps.

Given research objectives and questions as well as the identified research philosophy above, this research follows inductive approach. Therefore, the literature review made for this thesis is to build up the competent knowledge for the researcher as well as to obtain the most relevant information to the research topic. Moreover, investigation of the activities and events are likely to be data collection means for this tradition; hence, data sample is likely small, qualitative and to be collected with variety of data collection methods in order to look at multiple angles of the studied events.
1.4.3 Research Strategy

Case study was chosen to be research strategy of this work for the reason that it is a suitable technique for understanding the dynamics of a process within single setting with many aims including providing description the process, theory testing and new theories generation (Eisenhardt, 1989). The same paper also illustrated possible data collection methods utilized in case study approach namely interviews, questionnaires, and observations.

Longitudinal is the selected time horizon for this research to enable deeper investigation on the change and development.

This longitudinal case study based research started on January 14\textsuperscript{th} 2013 and ended on June 15\textsuperscript{th} 2013 in Telefonica Multinational Solutions unit where the author was having internship.

Both primary and secondary data need to be collected to answer initial research questions. Primary data will be collected using observations and unstructured and semi-structured interviews while secondary data will be based on the existing literatures on product/service development topic, company website, and intranet repository of the company.

Primary Data

Primary data is collected by using two main approaches including participant observation, and unstructured and semi-structured interviews.

Observation: Participant observation is used as one of primary data collection methods in this research. The author worked as a co Product Manager in a new offer development project in the company. Participant as observer role is adopted aiming at the understanding the overall process, atmospheres, speed, attitude, attention of all members in new offer development process. Here, the author participated in the activities where the research is taking place and the investigation purpose is revealed to the teams as it’s easy to ask for deeper explanation and to make unstructured interview if the author find the current discussed topic can add value to the research. Figure 2 explains the four roles of researcher in participant observation approach, one of which is adopted by this research, participant as observer. Each role differs in degree of the participant of the researcher and of disclosure of identity as a researcher to the studied group.
The information that has been collected through observations comprises of development process flow, the interaction between the involved people in a development project of a particular service, culture practising in the company.

Figure 2: Participant Observation Researcher Role extracted from Saunders et al., 2009: 293

**Interviews:** One-to-one unstructured and semi-structured interviews are selected to allow respondents to freely express their experiences, point of views, insight and expertise. Unstructured interview is used to explore in-depth a general area in which the author is interested.

Multiple methods are used due to the fact that the research topic related to many departments across the company as well as in two geographical locations, Spain and England, which needs more efforts in building the knowledge background of the topic in the company. Unstructured interviews have been carried out lots during the observation period before a semi-structured interview can take place. The author uses unstructured interview when having unexpected meeting with anyone who has experiences in new offer development context within the company as well as when willing to dig for more information during the meeting of the
project that the author has a role. Due to the dispersion of the geographical location of the company, unstructured and semi-structured interviews are carried out in two forms which are face-to-face and by telephone call, and all the case are conducted one-to-one.

For semi-structured interviews, the open-ended questions designed in advance to be asked the interviewees and to guide the interview process were used in order to easily dig for more detail information wherever the author thinks it would put more weight on the data collection. Though a question list was prepared in advance, the author didn’t strictly go through it in order but may freely omit, add questions; it is because the author wished to be flexible with the responses from the interviewees. Before going to the main subject, the respondents were explained the objectives and expected results of the research and asked general questions to shift away tensions that they might have and to let them feel as if it was not an interview but rather a discussion about their experiences and challenges that they might have in their daily work.

The efforts were made to include active participants in developing new offers including representative from TMS, the idea generator or the owner of service; from DC, developers of new offers and from FA, whose input is of very importance in reflecting the company practice and customers’ preference. In this context, Functional Areas is regarded as one unit as well that may include many departments such as Legal, Process, Customer Care, Finance, IT, Network…etc. Interview requests were either sent out by mails or verbally with the explanation of interview objectives to seek for their availability for the interview to 15 people from 3 equally spread different units as mentioned above. However, not all were accepted for the interviews which resulted in 5 from TMS, 3 from DC, and 2 from FA (Legal and Process). One third of the interviews were done face-to-face and the rest by telephone due to the geographical constraint. None of the interviews was recorded because the author would like to get the true feeling from the respondents. The author does believe that when asking permission to record the conversation before the interview taking place, the respondents may feel more or less under pressure and be cautious on their responses; consequently, they may tend to talk about the positive points rather than the truth.

Despite the low response rate of the interview, there causes no significant negative impacts because the project mostly depends on the observation as its data collection approach. Semi-structured interview was chosen in addition to observation and unstructured interview in
order to do the comparison of the data that have been perceived during the course of observation.

The interviews aim at understanding internal communication, roles and responsibilities, and process flow awareness of the involved people in development process.

Through observation organisational formation of a new product/service development was uncovered. However, more information is in need including who is the real owner of the project as there is no clear indication in the document. The information was obtained by asking respondents from different units to identify the project owner of a particular development project and who is the decision maker for project to progress from one stage to another.

To determine internal communication within the new product/service development project team, respondents from TMS were asked about their awareness of representatives from FA from whom they will seek for the input and the way they approached them, directly or via an interface. Moreover, they were asked to rate the level of responsiveness of Functional Areas from very responsive to not responsive at all. In order to understand the commitment of Functional Areas towards development project, respondents from the Functional Areas were asked the weight shared in their KPI dedicated to helping out development project as well the time they spend on development project in addition to their daily tasks. Be noted that FA such as finance, legal are having their own works besides involvement with new offer development project which is different from TMS representatives and DC representatives whose main duties are devoted to development project, but they might be responsible many projects at the same time.

Clearly understanding their own roles and responsibilities within development project of the project members is vital so that they can be well prepared in terms of know-how and the system under their control to cope with upcoming tasks they are supposed to complete. Assigning clear roles to each relevant individual in the project team avoids conflict and ensures that to-do tasks will not be missed. To identify if they have clear ideas about their roles and responsibilities within development project, respondents were asked to clarify their roles within the project. Moreover, they were suggested to rate their clear understanding on the deliverables and tasks at each step after the officially starting the project.
Process flow awareness of all involved people both mandatory (TMS and DC) and incidental (FA) as project progress was investigated because development project is done as a separate project with representatives from almost all departments across the company. By default, the project progress is clear to TMS representatives and DC representatives because their responsibilities are to ensure the smooth progress of the projects and to meet the objectives. However, it is not the case for representatives from FA whose involvement mostly spreads across the project as well as varies according to product/service to be developed. Getting updated about project progress to FA is crucial as it will alert them to well prepare for the next deliverables that they are supposed to do and keep the system under their responsibility ready when the project gets to the point that is in need of their system or support. To measure to what extent that all of project teams are alerted as project progress, respondents from FA were asked if they are updated about the project progress regularly and how they are updated. Their ideas on the importance of project update to them were also collected. Respondents from TMS and DC representatives were also required to indicate frequency of their updating to the FA representatives and to express their idea on the degree of importance for FA to keep track of the project progress.

**Secondary Data**

**Internal documents** were collected from company website and the repository applications such as box application where the author was given an account to log in and access all of the available data. Some are generated and sent from individual colleagues if not available in system. For example, the detail of organizational structure of DC unit is not available to the public; hence, the colleagues from that department are kind enough to draw and give a complete explanation to the author. Moreover, the report related to the company generated by independent consulting agencies such as Gartner and Ovum are also studied.

Roughly approximately 40 documentations have been consulted in order to get the overview of the company and its product/service development process.

**Literature review**: existing research publications are also collected to form a good understanding regarding characteristics of product and service and history of new product and service development model used in other industries as it paves a way for the author to form research objectives and questions. In this research, literature review functions as a very
informative source as through reading quite lots number of existing research papers the researcher was able to find the model that can be used to identify the compositions of the offers of studied company.

**Challenges facing during data collection**

The challenges facing during the course of data collection are lacking of collaboration willingness from the units that the author does not belong to, geographical location, and language. Be noted that the new offer development process combines skills from almost every department across the company while the author is an intern in just one unit which is TMS. Therefore, it is not easy to obtain information from other units as there is no obligation from top management for them to participate in this study. Moreover, some information cannot be collected because of the confidential concern; for instance, detail service development guidelines, organisational structure of DC unit…etc. Regarding location constraint, the author is based in Slough, United Kingdom where there only few Product Manager (TMS) are working while 95% of people involved in the development process are located in Madrid, Spain. That makes even more difficult to ask for information from them, as only electronic mails and telephone calls are the only possible means for communication, which also the lowest communication way in getting responses in the company when there is no friendship and obligation involved. Language is the least impacted barrier, yet still does it lower chances of getting more information. English is used as main language for this study. Some documents are in Spanish; hence, online translation tool (translate.google.com) was used, but of course it might not convey 100% of the meaning. Similarly with the human communication, even though all of them speak English including the author yet it is not our native language, more or less the communication is not going smooth especially via telephone calls and it might be one of the reasons why they are not accepting the interview requests.

In conclusion, the research methodology used in this research is summarized as shown in Figure 3, which responds to the nature, objectives of the research.
1.5. Structure of the Document

This study consists of 7 chapters that are closely interrelated:

**Chapter 1**: Introduces research background, motivations, objective and scope of the thesis, the research methodology and the organisation of the whole thesis.

**Chapter 2**: Provides the comprehensive understanding about the telecommunication industry, background of the company where the case study took place and its offers.

**Chapter 3**: Enriches readers with background of the topic staring from the literature reviews on examination of the compositions built up an offer. Later, it includes literature review on product and service development model as well as its similarities and differences. The chapter deals in detail of two existing methods. First, Molecular Modelling Approach that will be useful in chapter 4 where the method is adopted to investigate the compositions incorporated to build an offer of the studied company. Second, it describes Stage-gate model that is adopted as new offer development model by the studied company and will be mostly referred to in chapter 5.
Chapter 4: Answers the 1st of the 3 research questions mentioned in chapter 1. The compositions of the offer of the studied company are examined based on Molecular Modelling Approach described in detailed in chapter 3 and conclusion is drawn.

Chapter 5: Answers the 2nd research question. The investigation on the development of new offer in the studied company is carried out. Detail of the process, organisational structures, internal communication and the roles and responsibilities of the involved people will be carefully studied and analysed.

Chapter 6: Answers the 3rd research question. It starts with discussion about the conformities and disconformities of Stage-gate model in Telefonica’s context followed by an analytic evaluation on the weaknesses of current practice of development process which is the result from the observation. Finally, recommendations are made to help improve Telefonica’s product/service development speed. In addition to that, a generic view of new product/service development process in telecommunication industry is patterned.

Chapter 7: Concludes all the efforts have been put to make this thesis possible and its results. This thesis ends with the discussion about cautions and limitations of this research.
2 Company Overview

It is necessary to include this chapter for its direct connection to the offer development process in Telefonica. It is very important to firstly understand the company background, its business unit, and its offers before going deeper into the development process of the new offers of the company.

2.1 Company Overview

Telefonica is one of the world leader integrated operators in telecommunication industry. Gartner, world's leading information technology research and advisory company, defines the integrated operators/carriers as “An entity that owns/operates both fixed-line and mobile network infrastructure and provides aforementioned services (fixed and mobile).” (Gartner, 2013).

Established in 1924 in Madrid, Telefonica is now ranked 7th of the top 10 telecommunication operators worldwide in total accesses and 4th in revenue (Telefonica Global Solutions, 2012). Through 85 years of transformation with many milestones of evolutions in services, joint ventures, partnerships, collaborations and acquisitions, Telefonica became the first European operator by revenue in 2012. Table 3 illustrates Telefonica growth from its first internationalisation in 1989 to 2012.

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>2000</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers (millions)</td>
<td>12</td>
<td>68</td>
<td>316</td>
</tr>
<tr>
<td>Countries operate</td>
<td>1</td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td>Employees</td>
<td>71,000</td>
<td>149,000</td>
<td>131,000</td>
</tr>
</tbody>
</table>

Table 3: Telefonica’s Growth (Telefonica Global Solutions, 2012)

At the end of 2012, Telefonica has four main sub-companies operating in different geographical locations with different services and customer focuses namely (Figure 4):
- **Telefonica Latam**: Includes operations in Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, Panama, Peru, Uruguay and Venezuela.

- **Telefonica Europe**: Includes operations in Germany, Slovakia, Spain, Ireland, the UK and the Czech Republic.

- **Telefónica Digital**: is a global business division of Telefónica. Its mission is to seize the opportunities within the digital world and deliver new growth for Telefónica through research & development, venture capital, global partnerships and digital services.

- **Telefonica Global Resources**: is a Telefónica operating unit and its mission is to provide the best service to Telefónica businesses and to contribute to increase its profitability by extracting all the benefits of its global scale in a very challenging environment.

![Organisational Chart of Telefonica](image)

**Figure 4**: Organisational Chart of Telefonica (Department of Internal Marketing Communication, 2012)

Playing in technology based business in tighter competitive market, Telefónica has to keep itself alerted of the new technology as well as demanding customers both individuals and corporates by constantly releasing new services and products to the market. By doing so, Telefónica has been transforming itself from a pure telecommunication operator to digital
Telco (Figure 5) to capture all the business opportunities that brings the digitalization of the economy.

- **Pure Telco**: the provider of communication and connectivity services namely fixed telephone line.
- **Traditional Online Service**: the provider of social communication & infotainment services.
- **Digital Telco**: enabler of digitalisation of new sectors in the economy.

![Figure 5: Business Transition of Telefonica (Corporate Strategy, 2012)](image)

The key assets that facilitate Telefonica to this transition success are customers, going to market capabilities, network infrastructure, R&D resources, scale and financial resources and innovation capacity.

According the report from Gartner (Gartner Report, 2013), the telecommunication operators currently have to focus on three areas in order to stand in this very competitive market as well as economic downturn:

- Protecting revenue
- Growing revenue
- Building an innovative engine for the future

These are the motivation forces that encourage Telefonica to include development process of new offers in one of its development strategies aiming to be recognized by the customers as an innovative, diversify its product portfolio and enlarge revenue sources. Telefonica is doing good thing in making development of new offers strategic because of its lasting impact on the firm’s profitable & growth (Bitran and Pedrosa 1998).

### 2.2 Global Resources Business Unit

Deepening down into Telefonica Global Resources (TGR) is because this thesis is focusing on development process that is mainly used in this business unit. Telefonica Global Solutions...
(TGS), one of sub-units within TGR aims at providing best services with high profitability contributing to the Telefónica revenue’s growth by extracting the global benefits, consists of many departments of which 2 departments namely Telefónica Multinational Solutions (TMS) and Delivery Centre (DC) will be presented as the development process of new offer are closely related to them:

- **Telefónica Multinational Solutions (TMS):** The multinationals unit provides service for its multinational business corporates customers by utilizing the existing benefits that the company is having including its very large network coverage.

- **Data Center (DC):** The Data centre unit is different from two above units in that it provides technical supports to the above units in order that they are able to commercialize their proposed ideas. In other words, the functions of this unit are to translate the ideas generated by TMS unit into a sellable product.

### 2.3 Telefónica Multinational Solutions (TMS)

Telefónica serves both individual and business customers. Individual customers refer to customers that used services for personal uses while business customers are those who use services for their business purposes.

**Services for individual customers:** designed for individuals who need the communications means for personal uses. The service may include voice (wireless, wired), data, value added services such as short message service, multimedia messaging services. Those services are provided under the different brand-name in different locations. Evidently, O2 brand is operating in Uk, Ireland, Germany, the Czech Republic and Slovakia; Movistar brand in Spain and Latin America, and Vivo brand in Brazil.

**Service for business customers:** designed for customers who might resell or use the services to operate their business. This type of services is provided by three units as follows:

- **International wholesales:** Its portfolio includes international Voice, IP, Capacity, Satellite, Mobility, Platform and International Services for Corporations. Customers of this unit are
- **Telefonica Digital**: Telefónica Digital is a global business division of Telefónica headquartered in London with regional hubs in Silicon Valley, Sao Paulo, Spain and Israel. Its mission is to seize the opportunities within the digital world and deliver new growth for Telefónica.

- **Telefonica Multinational Solutions**: provides global telecommunication service for multinational customers. Its portfolio includes unified communication, central services, security, M2M, CDN.

This thesis will focus the development process of the offer in Telefonica Multinational Solutions unit.

### 2.4 Product/Service of TMS

TMS provides complex end-to-end package to its multinational customers. Complexity means the offer is the combination of product and services and the idea of end-to-end means that Telefónica provides a complete service to customers from the beginning and the end. In telecommunication context, provider will do all the works for customers including product delivery, installation, after sale support and even the determination of the product. Customers will only partake in order to provide some necessary information.

Therefore, TMS offer is the product/service combination which altogether builds up a solution addressing current challenges of its customers.
3 Theoretical Framework

This chapter provides the conceptual background on development models of product and service to form richer understanding about the topic. It starts with reviewing the existing papers devoting to different characteristics of product and service that leads to the needs of discrete considerations on new product innovation and new service innovation. A Molecular Modelling approach is presented as it will be used in chapter 4 (Shostack, 1982). Later, it describes the history of product and service development models and one of which named Stage-gate model is detailed for the fact that it is the model adopted by Telefonica and mostly discussed in this thesis.

3.1 Product and Service

Shostack, (1982) stated that “… products are tangible objects that exist in both time and space; services consist solely of acts or processes.” A product can be the combination of thousands of physical components, while services are the combinations of processes, people skills, and materials (Goldstein et al., 2002). The most noticeable different characteristics of product and service are as follows:

1. **Intangibility**: in simple word service is intangible as it is not in a physical form and that it can’t be touched and possessed (Pride and Ferrell, 2003). In addition, Bateson (1979) went deeper by noticing that it’s a two aspect concept in physical and mental forms. Physical Intangibility means that the service is not material. Mental Intangibility means that service can’t be visualised, understood which is difficult to do the pre-purchase evaluation. This brings about pre-purchase uncertainty for the customer, which is different from tangible product that can be seen, felt, touched by the customers who then will perform evaluation and comparison among the potential candidates.

2. **Inseparable**: means the inseparability of production and consumption of the service (Czepiel and Surprenant, 1985). This links with an idea that service innovation does not mean to produce the service itself, but the prerequisites of the service (Edvardsson and Olsson, 1996). Service will be produced only when the customers purchase it, which makes service production and service consumption become simultaneous.
activities. In tangible product context, its production and consumption do not happen at the same time. Product is manufactured, and then purchased by customers to be able to consume it. That makes feedbacks from product consumers come later than ones from the service consumers as they can evaluate immediately at the time that a service is produced and consumed.

3. **Heterogynous**: leads to difficulty in controlling the service quality or the standard output at delivery. Sasser, Olsen, and Wyckoff (1978) noticed that the output of the service varied not only among service workers but even between the same employee’s interactions from one customer to another and from one day to another. Products however, can be produced with the less variance especially in machine-intensive product.

4. **Perishable**: is a multidimensional concept concerning with the productive capacity, the output of producer, the performance experienced by the customers and the output they get from the service (Lovelock and Gummesson, 2004). Productive capacity means it not used at a specific time means the capacity is wasted. For instance, in a barber shop, if there is no customer for a day, mean that the capacity of that barber shop is wasted for an entire day. For product, it still can be sold at a later date if it is not purchased now. Output of producer means service cannot be produced now and sold later. Performance experiences mean service can be either transient (instruction service) or durable result (surgery service). For Output got from the service cannot be stored and reused. Some exception occurs, for example, music live performance can be recorded on a DVD and resolved in later date.

5. **Customer Involvement**: For Ennew and Binks (1996), it is the involvement of customers in services that differentiate them from tangible products. Service delivery tends to involve customers (Alam and Perry, 2002).

These are also the doubtless points that make the development of product differs from the development of service (Johne and Storey, 1998).

There are very few pure products and pure service (Shostack, 1977). The offers of firms in the market are mostly the combination of both product and service, which is named product service system. According to Mont (2002), product service system is “a system of products, services, supporting network, infrastructure that is designed to be competitive, satisfy
customers’ needs and have a lower environment impact than traditional business model”. Tukker (2004) defined product service system as consisting of tangible product and intangible services designed and compiled so that they jointly are capable of fulfilling specific customers’ needs and classified the product service system into 8 classes as summarized in Table 4. Even though many researchers formed different definition of product service system, it somehow has a common sense which is the combination of product and service.

<table>
<thead>
<tr>
<th>Classes</th>
<th>Sub classes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Oriented</td>
<td>Product Related</td>
<td>Provision of product attached with services that are needed during the use stage of the product. For example: maintenance, financing</td>
</tr>
<tr>
<td></td>
<td>Advice and Consultancy</td>
<td>Provision of advice on how to use the product efficiently. For example, organizational structures, optimizing the logistics</td>
</tr>
<tr>
<td>Use Oriented</td>
<td>Product lease</td>
<td>Product is leased to the lessee who then have unlimited and individual access to the leased product</td>
</tr>
<tr>
<td></td>
<td>Product renting/sharing</td>
<td>Product is leased to the lessee who has no unlimited and individual access. The product has to be shared with other lessees sequentially</td>
</tr>
<tr>
<td></td>
<td>Product pooling</td>
<td>Similar to product renting/sharing only that there is a simultaneous use of the product</td>
</tr>
<tr>
<td>Result Oriented</td>
<td>Activity management</td>
<td>A part of activities in the company is outsourced. For example, office cleaning</td>
</tr>
<tr>
<td></td>
<td>Pay per service unit</td>
<td>User of the product pay according to the level usage of the output of the product. In this case, the product is not purchased by the user. For example, printing service</td>
</tr>
<tr>
<td></td>
<td>Functional result</td>
<td>User expect the result promised by the providers who agreed with the clients the delivery of the result at the beginning.</td>
</tr>
</tbody>
</table>

Table 4: Classification of Product Service System

Offering product service system brings about new source of value adding and competitive advantages to the firms (Tukker, 2004) and encourages sustainable production and consumption (Aurich, Fuchs and Wagenknecht, 2006). The authors of the latter paper
identified sustainability of services embedded with the product in terms of (i) Economical—training for example can help the firms to cut down the operating hours; hence, reducing cost. (ii) Ecological—linking from the previous one, the clearer does the user know how to operate the machine, the lesser oil consumption (iii) Social—it encourages the knowledge intensive jobs.

Goldstein et al. (2002) worked on the service concept as they believed that it played vital role in service design and development. Service concept was defined by different authors Clark et al. (2000) and Johnson and Clark (2001) with the agreement from Goldstein et al. (2002) as “(1) Service operation: the way in which the service is delivered; (2) Service experience: the customer’s direct experience of the service; (3) Service outcome: the benefits and results of the service for the customer and (4) Value of the service: the benefits the customer perceives as inherent in the service weighted against the cost of the service.” The authors used service concept as a means for the firms to design the service that will meet customers’ expectations.

Shostack (1982), for marketing purpose, went deep down into analysing of an offer to identify its tangible and intangible dominant proportion because she noticed that it is a means of helping with a good understanding of market perception of the offer and consequently leading to an appropriate marketing strategy selection.

Though this thesis is not focusing on marketing perspective of an offer, this model will be using to examine the proportion of product/service dominant made up an offer of the studied company, which is believed to give a hint during its innovation process. It is because the discrete characteristics of product and service as described above demand special considerations.

Molecular Modelling Approach

Shostack (1982) examined elements involved creating an offer that may consist of Product Elements, Service Elements and Service Evidences by using Molecular Modelling Approach.

Molecular model considered an offer or an entity as a possible combination of (1) Product Elements, the physical part of the offer (2) Service Elements, non-physical part (3) Service Evidences, physical objects that facilitate the Service Elements of the offer to complete the supposed functions. Table 5 describes in detail the possible elements of an offer/ an entity.
<table>
<thead>
<tr>
<th>Elements</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Product</td>
<td>Physical part of the entity which will be purchased and/or used by the</td>
</tr>
<tr>
<td>Elements</td>
<td>customers.</td>
</tr>
<tr>
<td>2. Service</td>
<td>Non-physical part of the entity which will be purchased and/or used by the</td>
</tr>
<tr>
<td>Elements</td>
<td>customers</td>
</tr>
<tr>
<td>3. Service</td>
<td>Physical objects that accompanied a service to identify its existence or its</td>
</tr>
<tr>
<td>Evidences</td>
<td>completion. There two types of Service Evidence including peripheral</td>
</tr>
<tr>
<td></td>
<td>evidences and Essential Evidences.</td>
</tr>
<tr>
<td>3.1 Peripheral</td>
<td>Physical objects that will be purchased along with the whole entity by the</td>
</tr>
<tr>
<td>Evidences</td>
<td>customers, yet it has little or no independent value.</td>
</tr>
<tr>
<td>3.2 Essential</td>
<td>Physical objects that won’t be possessed by the customers, but adding lots</td>
</tr>
<tr>
<td>Evidences</td>
<td>of value to the entity, without which the entity might not be able to</td>
</tr>
<tr>
<td></td>
<td>provide benefits to customers.</td>
</tr>
</tbody>
</table>

Table 5: List of Elements composed an offer/entity in Molecular Modelling

To be able to understand the concept, an example of an amusement park will be presented.

At the first glance when hearing the word amusement park, one may quickly categorize it as a service as it is all about providing the customers with entertainment experiences such as gaming, gardens, and shows. However, if looking deeper into it, there also exist physical elements that might be one of the key decision making criteria of customers according to the customers’ segment that the park owner is deciding to put focus. Each element category is as follows:

- **Product Elements**: The physical elements of amusement park are snacks, prizes and souvenir. Yet, in this case it’s not contributing much on the purchase decision.
- **Service Elements**: The Service Elements are shows, games, first-aid …etc. and the level of importance of each element depends on the focused customers’ segment. If the owner gives priority to the youth customers, providing very up-to-date games should be given
more weight, while focusing on the first-aid service and good hygiene catering service should be given weight when the customers with kids are focused.

- **Service Evidences**: are the physical objects that accompanied a service to identify its existence or its completion and can have two forms including:
  
  - **Peripheral Evidences**: Remember that it is physical object that will be purchased along with the whole entity by the customers, yet it has little or no independent value. So in this case, the admission ticket given along when customers purchasing the right to access the park is regarded as peripheral evidence. It’s not important on its own. It only gives evidence of the access to service of the customers.
  
  - **Essential Evidences**: In this case, the gambling machines, the building of the park, customer service providers are the essential evidences. They add values to the whole service and most often they are part of purchase decision. Considering that if the entertainment environment; building design specifically, is not designed with very attractive way with colourful, animal painting, for example, the attention of the customers would not be cached to try out their experiences in the park. In short, it will provide the trusted feeling to customers that their actual experiences in the park may meet their expectations that were formed before real experiences.

An offer can be somewhere between product dominance to service dominance. If the element or its order is changed, the whole offer is changed. In automobile, for example, product element are the physical items (the car itself) while the service is the transportation. If the two elements are includes, it represents the car that are purchased by the users as a means of transportation. If the service element is excluded, the entity will represent the antique car displaying in the museum in which the service as transportation is not used. In contrast, if the product element is in turn excluded, the entity will be the pure transportation service such as parcel service. Figure 6 depicts three different scenarios of automobile where the first scenario is the car purchased as a means of transportation and here the product element (the car itself) is higher than the service element (transportation). The second scenario is antique car displayed in the museum as there is no service element involved. The third scenario is pure transportation service as there is no physical element involved.
In simple term development of a new offer means to develop a new offer either product or service which is new to the firm (Johne and Storey, 1998). In order to develop a new offer, a development process defined by Johnson et al. (2000) as “overall process of developing new service offering/offer” (the word offer is newly added) needs to be carried out. Adopting any development process model is a strategic decision because the firm can earn competitive advantages from it in terms of lower cost, ability to manufacture or develop a new offer at lower cost compared to its rivals; short time to market, ability to introduce the new offer to the market before its rivals; and higher quality, ability provide good quality of the product. Therefore, development of a new offer has become one of the main management focuses in many firms due to the fact that the highly competitive environment forces them to differentiate themselves from rivals by continuously introducing new offers to the market.

3.2 New Offer Development Model

3.2.1 New Product Development Model

Bitran and Pedrosa (1998) mentioned that the development of new product is strategic because of its long lasting impact on the firms’ profitability and growth. Development
process hinges many secrets that can direct the firms to their wished target as they can utilize their innovative and creative capabilities in the development process to make a difference. Stevens and Dimitriadis (2005) stressed that the firms that understand well the development process are likely to improve the efficiency of the development process which will lead to reduction in development time and enhancing the chances of success.

Although there was argument that selecting new product development (NPD) model demands high consideration on the best possible fit between NPD strategy and their corporate goal and capabilities (Barczak, 1995) because there is no single NPD strategy is better than any other, many approaches have been developed (Table 6) aiming to become the general framework helping firms to manage their new product development (Paul, 2005).

<table>
<thead>
<tr>
<th>New Product Development</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental stage model</td>
<td>This method involves many departments in a sequent order meaning a functional department will only pass the tasks to the next department only when they finish their duty. The control of the product keep changing as the product is passed through the department.</td>
</tr>
<tr>
<td>Activity stage model</td>
<td>It is similar to departmental stage model just that all departments will take part in whole life cycle process not just a segment of period, but the level of involvement of each department fluctuates across the development cycle process according the relevant level.</td>
</tr>
<tr>
<td>Cross functional model</td>
<td>Project-based concept is starting from this model. The model works in a way that a project team is specifically formed with representatives from relevant department. This prevents prolonging the development process as the work will pass within the project team only, not across departments.</td>
</tr>
<tr>
<td>Decision stage model</td>
<td>This model regards product development process as a series of decisions to be taken to progress the project.</td>
</tr>
<tr>
<td>Conversion process model</td>
<td>Interestingly, this model works in a way of input and output meaning a series of input should be put in to a black-box in order to produce results, which is product.</td>
</tr>
<tr>
<td>Response model</td>
<td>The key message of this model is its focus on the behaviour of the organisation or individuals to a new project proposal.</td>
</tr>
<tr>
<td>Network model</td>
<td>The model views development process as process of knowledge accumulation at the very beginning to the last stage. The sources of knowledge are both internal and external of the organization. It is believed that the knowledge</td>
</tr>
</tbody>
</table>
3.2.2 New Service Development Model

Similarly, market competitiveness and ever demanding customers drive service-based firms to focus on service innovation as it is one of the competitive advantages to keep their position in the market. There is doubt whether to use development models of product for service innovation though many researches have clearly mentioned the significantly different nature between product and service. Stevens and Dimitriadis (2005) have cited the invalidity of NPD models applied to services that “First, due to inseparability, there is simultaneous innovation in the product and in the procedure. Second, there is no separation between product innovation and organisational innovation. Third, there is no distinction between the creation of the offer and the activity of production and/or commercialisation”. Cowell (1988) also supported the idea that the characteristics of service such as intangibility, inseparability, heterogeneity, perishability, and ownership distinguish it from product and lead to the consideration of new service development.

Though the product and service are not similar, the development models of products are adopted by some companies to develop the service. This is because there is no many researches have been done with the service development process.

Stevens and Dimitriadis (2005) have made a difference in introducing a new concept of interactors including individuals, groups, organisation, infrastructure and external environment constantly interacting with each other during the development process to create knowledge. The paper conducted two longitudinal case studies in two service companies, a bank and a retailer, to form deeper view on the service development environment and interaction, communication and decision making of the involved actors. The interaction process happened by not only the internal groups or individuals but with the supports from the technical devices and the external entities such as consulting agency, clients, competitors and legal environment. This approach reveals the nature of entire organism of the new service development process. The author believed that at each step of the development the actors interact with one another, which encourages new innovative ideas that can contribute...
to the further step of the process. The paper concluded with suggestions for management level that (1) consider facilitating learning process within the development team if they want to encourage innovation during the development process by making interacting between the people easier, for instance. (2) Multi-functional teams greatly benefit new service development project; hence, the management should select people whose knowledge and experiences related to the potential problems of the project.

Alam and Perry (2002) proposed a 10 stage service development model called *customer oriented new service development process* with two different aspects, sequence and concurrence (Table 7), which can be flexibly adopted according to the time to market situation of the firms. The sequence 10 stage model was recommended to the large sized firms while the concurrent model is good for small-medium sized firms or even the large sized to whom speeding of process is crucial. Another finding of the paper was the checklist of customer involvement at various stages. The authors put more emphases on the customer input to the development process as they believed that customer input into the development process bring superior quality and customer value-matched products and also can reduce the development time. Observing customers, interviewing at various stages of the development and meeting between customers and development teams are means to incorporate input from customers to the development process. The papers concluded with some suggestions to the firms that sequential and structured process should be carried out unless the speeding is concerned to switch to parallel process, that the firms should develop a well-planned and formal customers input collection process, put more attention to the idea generation stage and treat the customers as partners.

<table>
<thead>
<tr>
<th>Stages of the development process</th>
<th>Sequential</th>
<th>Concurrent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Strategic planning</td>
<td>Sequential</td>
<td>Parallel</td>
</tr>
<tr>
<td>2. Idea Generation</td>
<td>Sequential</td>
<td></td>
</tr>
<tr>
<td>3. Idea Screening</td>
<td>Sequential</td>
<td>Parallel</td>
</tr>
<tr>
<td>4. Business analysis</td>
<td>Sequential</td>
<td></td>
</tr>
<tr>
<td>5. Formation of cross-functional team</td>
<td>Sequential</td>
<td>Sequential</td>
</tr>
<tr>
<td>6. Service design and process/system design</td>
<td>Sequential</td>
<td>Sequential</td>
</tr>
<tr>
<td>7. Personnel Training</td>
<td>Sequential</td>
<td>Parallel</td>
</tr>
<tr>
<td>8. Service testing and pilot run</td>
<td>Sequential</td>
<td></td>
</tr>
<tr>
<td>9. Test marketing</td>
<td>Sequential</td>
<td>Sequential</td>
</tr>
<tr>
<td>10. Commercialization</td>
<td>Sequential</td>
<td>Sequential</td>
</tr>
</tbody>
</table>
Table 7: Sequential and parallel 10-stage new service development process (Alam and Perry, 2002)

It is a good idea to include customers in service development process as customers actively involve with the service provisioning even at early stage of service delivery. Yet, it is a very time consuming approach for the firm that concerns lots about time to market. It is a rather an expensive way as well considering the fact that in order to involve customers at each stage of the development, it demands the company to inform them in advance so that they can allocate their busy time, and at some points for incentive purposes the company needs to prepare gifts or invite them to luxury places to seek for their opinion and feedbacks.

Believing that service is process(es) and figuring out that it is almost impossible to dimension service at the outset, consequently making it difficult in comparison among services, effective control and change of services, Shostack (1982) introduced service blueprinting concept, a system allows the structure of a service to be mapped in an objective and explicit manner. It helps service firms to be able to compare, evaluate the actual state of service delivery with the potential state. The system made uses of 3 supporting tools including time/emotion engineering, PERT charting and system and software design. The method works firstly showing time dimensions in diagrammatic form; secondly, identifying all main functions of the service and constructing a work chart; finally, precisely defining the tolerance of the model (degree of variation of actual service delivery compared to the standard’s rule that won’t affect the consumers’ perception of overall quality and timeliness).

### 3.2.3 Different and Similar Focuses of NPD and NSD

Nijssen et al. (2006) worked on differences and similarities of NPD and NSD. Based on the literature review, the paper mentioned that successful NPD and NSD firms:

- Show active involvement from top management
- Put lots of efforts and supports to the innovation process by aligning firms’ cultures with the innovation activities
- Have formalized, well structured, proactive development process
- Allocate high quality resources as well as development staff to support the innovation process

Along with the similarities, the paper showed also different focuses of NPD and NSD as follows:
- NSD has stronger relation with the service delivery due to the fact that service will be experienced at the same time of developing service, than the relationship between R&D and production in NPD.
- Strong relation of new service and existing systems in NSD compared to one in NPD. The demands that the front office and back office work hand in hand to satisfy the needs of customers. “While a front-office is typically designed to satisfied customer needs, a back-office’s emphasis is on maximizing operational efficiency and output”. That is why, the organisational structure, internal communication is very important for a successful NSD.
- NPD firms invest more on R&D department than in NSD firms. “Service innovation involves the development of new procedures and concepts rather than core technology”

3.2.4 Stage-gate Model

Stage-gate is a popular model for new product innovation. Cooper (1990) described Stage-gate model as an approach to manage the new product development process aiming to help the firms to improve the efficiency and effectiveness of their NPD. The approach works as a guide of product development flow from idea to sellable goods. The model’s process is divided into a number of stages depending on the company -- from four to seven stages (Figure 7 depicts a typical Stage-gate process steps extracted from Cooper (1990)).

A typical Stage-gate system consists of 5 stages:

- Preliminary assessment: gathering market and technical information
- Definition: determining customers’ needs, wants and preferences
- Development: developing the actual product
- Validation: testing the entire viability of the product, production process
- Commercialisation: implementing marketing and operations launch plan
From each step to another the uncertainty and risks are sequentially decreased with its powerful quality checking concept to prevent the firms from investing more resources if the project is not worthy going on. Between each stage there is a control quality check point called gate whose main activity is to check quality of deliverable before the project can proceed to further stage. Pre-defined activities and/or deliverables which are performed in previous corresponding stages will be submitted to the gate for feedbacks that normally fall within go forward/stop/recycle. Stage and gate are differed in that stage is where the actual work is taking place while the gate aims at controlling the quality in that particular stage. At each stage predetermined actions are listed in order to produce the deliverables or output. The deliverables of one stage is the input of the next gate.

**Involved personnel:**

Active involvement from top management requires for stage-gate model. The gates are mannered by senior managers acting as gatekeeper who can decide and approve if the process shall go forward/stop/recycle and who have enough authority to approve the resources needed by the project. Senior management’s involvement and commitment is one of the key success factors to the product innovation project. Roles of senior manager are:

- Review the input or deliverables against to the pre-defined criteria
- Judge if the project can go forward/stop/recycle by doing assessment on economic and business standpoint of the project
- Approve the action plan for the next stages if the project gets green light
- Allocate the required resources

Project leader play very important role in product innovation process as s/he has to manage the team to ensure that the input/deliverable required at each gate are met the criteria to pass to the next step; hence, s/he must be well aware of the standard quality of the input/deliverables demanded for each gate. The project leader has to lead the project from very beginning to the end of the project.
3.3 Conclusions

In short, existing sources regarding product/service system and its development process has been reviewed. Two main concepts have been studied in detail, for they are the basis of this research. The first concept was about Molecular Modelling Approach that was chosen as a model to examine the compositions of the offers of Telefonica because understanding well its components helps the firm to put right focuses on the important elements during innovation process. The second concept was Stage-gate model that was adopted by Telefonica as its development model of its offers.
4 Description of Telefonica Product/Service

This chapter is answering the first of 3 initial research questions raised in chapter 1 by studying the compositions of product/service of TMS unit based on Molecular Modelling Approach described in section 3.1. That is because well understanding elements of the offers adds value to the development process of the offers.

4.1 Mapping Telefonica’s Offer against Molecular Modelling Approach

Clearly stated at the end of chapter 2, this thesis will study only the offers in TMS for its multinational customers, which is the combination of product and service.

The benefit of breaking down the compositions is to visualize all components built up an offer and theoretically identify the important components that are to put considerable weight during development process.

Remember that Molecular Modelling shows structure and relationship of all components of an entity or offer that is usually complex. It consists of two primary elements which are Product Elements and Service Elements, and a set of physical objects called Service Evidences that show the existence and completion of Service Elements.

Telefonica’s offer will be mapped against this model as follows:

4.1.1 Benefits of the Offer of Telefonica

Before looking in details on compositions that jointly built up an offer of Telefonica to its multinational customers, it is vital to understand meaning of benefit of the offer which was defined by Shostack (1982) as “total real or perceived result of an entity upon the purchaser/consumer”. Applying this definition to Telefonica’s context, benefits of an offer are its value propositions or the results of its features, functions. They are an aggregation of values promised Telefonica to its customers and can be regarded as the expectations that are pre-built by customers before purchasing an offer with a hope to fully experience upon
purchase. Value propositions can be either qualitative (for example, price, speed) or quantitative (for example, design, customer experience, improve brand name). For better understanding the term, an example of an offer called Digital Signage, an advertising method used a form of electronic display that shows television programming, menus, information, advertising and other messages, purchased by a retail chain is discussed. The benefits of Digital Signage can be:

- Increase time spent of the shoppers on the property
- Generate greater willingness of the shoppers to purchase
- Help convey brand image of the shops
- Introduce flexible advertisement schemes in the shops
- Alert shoppers with new discount items in the shops
- Enhance end-user loyalty
- Increase sales

### 4.1.2 Product Elements

To be considered as Product Elements, the physical objects should be owned and possessed by the customers upon purchasing the offer. Benefits or value propositions of an offer in telecommunication industry can be realized with or without supports from tangible objects which upon purchase must be belonged to customers such as personal computer, servers, networking equipment such as routers, switching and operating system. Managed Service, where the customers outsource day-to-day management operations within their company, is a good example of an offer without tangible objects owned by customers, while for Digital Signage, screens and personal computers will be the physical objects possessed by customers. It is vital to clarify this because the offer of traditional operator such as mobile or fixed communication service can be realized mostly depending on network backbones of operators which are obviously physical but they are owned and operated by operators and will not be owned by the customers; thus, are not categorized as Product Elements.

In addition to tangible characteristic and customer-possession, Product Elements should have value on their own; this conveys the meaning that the equipment can be used or reused as needed.
4.1.3 Service Elements

Service Elements, one of the two primary elements of an offer, are the non-physical elements that will be experienced by the customers. Service Elements of an offer in Telefonica’s context have 3 sub-elements namely (1) Core Service, (2) Professional Service and (3) Customer Support Service.

Core Service (CS)

The above mentioned value propositions/benefits will be directly responded by the Core Service empowered by the set of promising features. Hence, Core Service is defined as the main service that will meet the business expectations of customers by solving their current problems and/or responding to their needs/wishes. For better understanding, the same example of Digital Signage is raised. Digital Signage itself is the Core Service that consists of hardware such as screens, personal computers (they are Product Elements described in section 4.1.2) and the software platform comprising of a bundle of features that are capable to deliver value propositions to customers.

Professional Service (PS)

Greenwood et al. (2006) cited the characteristics of Professional Service as:

- *It is highly knowledge intensive, delivered by people with higher education, and frequently closely linked to scientific knowledge development within the relevant area of expertise.*
- *It involves a high degree of customization.*
- *It involves a high degree of discretionary effort and personal judgment by the expert(s) delivering the service.*
- *It typically requires substantial interaction with the client firm representatives involved.*
- *It is delivered within the constraints of professional norms of conduct, including setting client needs higher than profits and respecting the limits of professional expertise (Lowendahl, 2000, p. 20).*
Telefonica is not a Professional Service firm, but Professional Service may be incorporated in the offer with which the company provides to its customers. Evidently, the consultancy that experts perform in order to evaluate each specific business scenario, current situation of the customers and consequently resulting in designing an offer answering particularly to the actual needs of the customers. This can say that the offer most of the time is bespoke. It is called Professional Service because to be able to understand and evaluate the real needs and requirements it demands highly professional people in that particular field. Again look at the same example of Digital Signage; before the suggesting quantity, models and capacities of the screens to be installed in each department store, the experts in Digital Signage solution have to perform a study in each store to understand the business objectives, and current challenges facing that particular store. This definitely requires people with a good understanding in the retail market as well as the Digital Signage technologies. Professional Service might be explicit or implicit to the customers. ‘Explicit’ means potential customer is clearly aware that the provider (Telefonica) performed professional study in order to customize an offer for them, while ‘implicit’ means the customer has no idea about that but the company does perform the task internally. This explicit and implicit concept mostly relates to charging scheme as well as the additional added value catered from providers to their customers.

**Customer Support Service (CSS)**

The third type of Service Elements is named as Customer Support Service that are the value added services to the whole offer aiming at providing customers a complete package and cost effective and correct use of the offer. This type of service was introduced by Aurich et al. (2006) who named it as technical services which may include organizational, qualifying, logical and manipulative. Customer Support Service provided by Telefonica to its multinational customers will be then categorized as follows:

**Organizational Service:** may include, but not limited to:

- Contracting: the process of signing the contract with customers
- Billing: the process in which the periodically bills are generated by the system.
It doesn’t look complicated but the high project-intensive firm like Telefonica where there are active hundreds of projects per year, billing and contracting becomes a critical part of business since they have to follow the accounting procedure with accurate amounts and be on time to customers.

**Qualifying Service:** may include, but not limited to:

- Off-site training: refers to the training conducted inside either at customers’ or providers’ premise. This training mostly is about the overview of the system.
- On-site training: refers to the training conducted with the personnel who will responsible for operation of the offer. This mostly is about technical guide to ease the operational manual.

**Logistic Service:** may include, but not limited to:

- Hardware delivery: the terms itself conveys the meaning; it’s the process of delivering all of the components that will make up the whole offer to the customer’s premise.
- Spare-part delivery: refers to process of the replacement service of the faulty components.

**Manipulative Service:** may include, but not limited to:

- Installation: refers to the process of building up the component; for example, the involved activities can include placing the computer server in the designed location and then installed the operating system, corresponding application software and testing.
- Integration: refers to the process of connecting the new system with the existing one to bring a new benefit for the customers. Normally, these demand very good planning and technical skills as it has huge impacts on the current system of the customers.
- Warranty and Maintenance: refers to period in which the offer is promised by the supplier to provide assurance within an agreed period and SLAs (Service Level Agreement).
- Customer care: refers to the process in which customer seeks helps from suppliers to solve problems happening during the operation of the offer. The process generally starts from customer generating a assistance request to customer care representative of the supplier describing the problems and the customer care then discards the problem
to higher level supports to get the quick response to customer according to agreed SLA.

- Upgrading: refers to the process of replacing or updating the current version of the offer to the new ones usually with extra newly added performances with an aim at keeping up with the current market.

4.1.4 Service Evidences

Service Evidences are in physical forms that might or might not be part of the purchase. They have very little value or no value at all on their own. There are two types of Service Evidences, peripheral and essential evidences:

- **Peripheral Evidences**: Physical objects that will be purchased along with the whole offer by the customers, yet it has little or no independent value. This includes invoices, product manual, operational guides, a set of contracts…

- **Essential Evidences**: Physical objects that won’t be possessed by the customers, but adding lots of value to the offer, without which the offer might not be able to provide benefits to customers. This includes network infrastructure, applications, customer service management centre, back-end business and operating support system that enable operator to provide services to customer. They are not owned by customer upon purchasing the offer, but are very essential in successful provisioning. For instance, Essential Evidences of Digital Signage’s Core Service are the set of service platform comprising of servers, licenses, set of software programming without which the value proposition of offer will not be possible. Another example of Service Evidences of Organisational Service in Customer Support Service is billing system. It is a part of business support system used to generate the billings for customers every month.

Table 8 summaries the compositions of an offer provided by Telefonica:

<table>
<thead>
<tr>
<th>Elements of An Offer</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Products Elements    | - Hardware: Servers, PC, router, switch, cable  
|                      | - Software: operating system and application  |
| Service              | Core Service  
|                      | - Digital Signage (features)  |
Table 8: Compositions of Telefonica’s Offer

4.1.5 Balancing Service and Product Elements

All compositions including Product, Service Elements and Service Evidences were explained in above sections. Next task is to identify the proportion of Product Elements and Services Elements. It is vital to roughly the weight of the compositions of the offer so that the company can put focus on the right part of an offer. In order to roughly understand proportions of the Product and Service Elements, two reports will be examined. The first one is an internal report on customer satisfaction of Telefonica’s multinational customers to understand the influential aspects that its customers concern the most (Global Customer and Service Business, 2013). The second one is Gartner report on the evaluation criteria that the customer will take into account before purchasing product/service from any vendors (Gartner, 2011). One specific and one general sources are purposely selected in order to generate better trusted results.

According to Telefonica’s internal report conducting with its 209 multinational customers in 2012 in order to understand its customer satisfaction currently served by Telefonica. The report shows 8 aspects that influent customer satisfactions including corporate image, operation/service quality, commercial engagement, installation delivery and project management, account team, pricing/values, billing, and troubleshooting. Table 9 lists the 8
aspects in order of level of importance. Corporate image is the most influential aspect meaning customers was choosing Telefónica to be their partner because of the company’s good footprint globally and/or locally where the customer is located. Besides, all of the influential aspects related to Service Elements except pricing/value and account team which is the 5th and 6th influential factor, respectively. 4 out of Service Elements are CSS, please refer to column ‘Analysis’ in Table 9 for the analysis of each aspect.

<table>
<thead>
<tr>
<th>Level of importance</th>
<th>Influential aspects</th>
<th>Dimension Items</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.1%</td>
<td>Corporate Image</td>
<td>- Honest and Transparent</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- An innovative firm in the Telecoms sector</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- A company accessible to its customers</td>
<td></td>
</tr>
<tr>
<td>16.9%</td>
<td>Operation/service quality</td>
<td>- Overall functionality</td>
<td>Core</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Performance and availability of the services</td>
<td>Service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Committed to maintain and improving the quality</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Maintenance</td>
<td></td>
</tr>
<tr>
<td>15.5%</td>
<td>Commercial engagement</td>
<td>- Clarity of the commercial proposal</td>
<td>CSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Commercial proposal includes an indicative schedule</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Innovative and competitive solutions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Abilities to manage regional and global projects</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Response time to prepare bids</td>
<td></td>
</tr>
<tr>
<td>12.9%</td>
<td>Installation, delivery and project management</td>
<td>- Effectively communicated the project status</td>
<td>CSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Flexible managing any changes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Carrying out installation and service provisioning as agreed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Effectively managed risks</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Asked to approve milestones to ensure quality</td>
<td></td>
</tr>
<tr>
<td>12.9%</td>
<td>Account team</td>
<td>- The global service manager ensures the quality of service</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Account team understand my expectations and make</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- The account manager understands my industry and proposes solutions</td>
<td></td>
</tr>
</tbody>
</table>
- Members of the account team care and follow through all the issues
- Global project manager has contributed to the optimization
- The global service manager proactively identifies opportunities
- The design manager proposes innovative solution

| 10.8%  | Pricing/values | -Products and services provide good overall value and cost/benefit  
| N/A    |               | -Prices are competitive       |
| 3.6%   | Billing       | -Invoices arrives with sufficient time to remit payment  
| CSS    |               | -Invoice contains clear and easy to understand information  
|        |               | -Invoice does not contain errors       |
| 0.3%   | Troubleshooting | -Regularly reporting progress of the incidents  
| CSS    |               | -Providing relevant status reports  
|        |               | -Resolving most technical problems efficiently       |

Table 9: Influential aspects on Customer Satisfaction of Telefonica (Global Customer and Service Business, 2013)

This is showing that to Telefonica’s multinational customers, Service Elements are more of their concern than physical product. Therefore, Service Elements have more weight than Product Elements.

Gartner report described research methodology used to evaluate a product or service supplied by different vendors in the market. This way Gartner can be of assistance to IT leaders and potential purchasers in updating them about the current performance of the providers of that particular offer and as a result the report serves as a good reference for them to make a wise comparison among key players before deciding to collaborate with any providers. Before engaging with any providers, huge amount of homework has to be done by the buyers as success of an end-to-end product/service demands good collaboration from providers and customers. In other word, this is a long term relationship between the buyers and sellers and
once they are connected it is not easy to break up even if there find any problems after contract signing due to the costly and lengthy characteristics of telecommunication project.

Gartner is rating providers of a particular offer based on ability to execute and completeness of vision.

Totally, 15 criteria are used to evaluate players of an offer. 6 of 15 criteria are about the offer itself, while other 10 are about the company well-being and strategic approach of the company in sale, marketing and delivery aspect. Among the 6 criteria Product Elements of the offer are mentioned in just one point which is in product/service, while Service Elements are mentioned in all of the 6 points. Interestingly, 5 of those 6 Service Elements are Customer Support Service, and only 1 is about Professional Service. Table 10 illustrates rating criteria by Gartner where Italic texts are directly quoted from the report and in analysis column indicating the aspect that each point refers to; it can be Product Element (PE) and/or Service Element (SE).

Detailed explanation of each evaluation criteria is detailed below:

- **Product/Service**: Evaluation on the ability of the goods as well as professional service in delivering promised benefit to customers. This criterion is clearly talking about product and service element of the offer.

- **Overall viability**: Evaluation on the overall wellbeing of the company and clear roadmap of offer. This is vital for customers because if the company stops investing in the product, customers will face lots of problems such as supports, faulty replacement…etc. This evaluation is about the company footprint as well as commitment, rather than the offer itself.

- **Sale Execution/pricing**: Evaluation on the pre-sale supports which clearly about the service element. It falls in the Customer Support Service category.

- **Market responsiveness and track record**: That depends mostly on professional service ability of the company. Good experts in any technologies must keep track of market demands and customer evolution. Hence, it is about service element.

- **Marketing Execution**: This is about the marketing ability of the company to promote the offer. It is not relevant to the offer.

- **Customer Experience**: Evaluation on the ability of the provider to guide customers to be able to effectively master the offer. Hence, it is about Customer Support Service in service element.
- **Operations**: Evaluation on project management skill of the provider to successfully deliver on time with promising quality and time for customer. Hence, it is about Customer Support Service in service element.

- **Market understanding**: Evaluation on ability of provider in solving current business problems of customers by designing a right offer solution for them. It is talking about the professional service ability of an offer.

- **Marketing strategy**: Evaluation on the marketing ability of the provider. It is not in any elements of an offer.

- **Sale strategy**: Evaluation on the sale channels of the provider. Hence, it is not in any elements of an offer.

- **Offering (producing) strategy**: Evaluation on product development and delivery approach of the provider. It is more relevant to the top management decision rather than about the offer itself.

- **Business Model**: Evolution on the provider’s business model. Hence, it is not about the offer.

- **Vertical/Industry Strategy**: Evaluation on the ability of provider in adapting their offer to respond to a specific industry; for example, Finance industry. Hence, it is not about the offer itself.

- **Innovation**: Evaluation on the efforts put in innovation of the studied offer of the provider. Hence, it is not about the offer itself.

- **Geographic Strategy**: Evaluation on the global implementation ability of the vendor. Hence it is not about the offer itself.

<table>
<thead>
<tr>
<th>#</th>
<th>Evaluation Criteria</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Ability to Execute</strong></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td><strong>Product/Service</strong>: Core goods and services offered by the vendor that compete in/serve the defined market. This includes current product/service capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.</td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td><strong>Overall Viability (Business Unit, Financial, Strategy, Organization)</strong>: Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the</td>
<td>N/A</td>
</tr>
<tr>
<td>1.3</td>
<td>Sales Execution/Pricing: The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.</td>
<td>Service Element (CSS)</td>
</tr>
<tr>
<td>1.4</td>
<td>Market Responsiveness and Track Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.</td>
<td>Service Element (CSS)</td>
</tr>
<tr>
<td>1.5</td>
<td>Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This &quot;mind share&quot; can be driven by a combination of publicity, promotional initiatives, thought leadership, word-of-mouth and sales activities.</td>
<td>N/A</td>
</tr>
<tr>
<td>1.6</td>
<td>Customer Experience: Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.</td>
<td>Service Element (CSS)</td>
</tr>
<tr>
<td>1.7</td>
<td>Operations: The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.</td>
<td>Service Element (CSS)</td>
</tr>
<tr>
<td>2</td>
<td>Completeness of Vision</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Market Understanding: Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen and understand buyers' wants and needs, and can shape or enhance those with their added vision.</td>
<td>Service Element (CSS)</td>
</tr>
<tr>
<td>2.2</td>
<td>Marketing Strategy: A clear, differentiated set of messages consistently</td>
<td>N/A</td>
</tr>
</tbody>
</table>
communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

| 2.3 | Sales Strategy: The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base. | N/A |
| 2.4 | Offering (Product) Strategy: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements. | N/A |
| 2.5 | Business Model: The soundness and logic of the vendor's underlying business proposition. | N/A |
| 2.6 | Vertical/Industry Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets. | N/A |
| 2.7 | Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes. | N/A |
| 2.8 | Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market. | N/A |

Table 10: Evaluation Criteria extract from Gartner report

From the report, it can be seen that potential customers are likely to:

- Take into account Service Element rather than Product Element of an offer before purchasing. More specifically, the Customer Support Service is very important for customer when doing the evaluation before purchasing.
- Evaluate an offer as a whole not piece by piece: can be clearly seen in the evaluation list that in order to select an offer, customers consider not only the Core Service, but also all of services that come along.
- Seek for a one-stop-shop provider with a complete offer that consists of product/service.
Combining the two reports, it is clearly seen that Service Elements are considered firstly by the customers than Product Elements; therefore, product/service provided by Telefonica to its customers is service dominant as illustrated in Figure 8.

![Service dominance and Product dominance diagram](image)

Figure 8: Elements dominance of Telecom Service

It is not possible to indicate exact ratio of the proportion between Service and Product Elements for the fact that there is no existing research has been done on the evaluation criteria among customers in telecommunication industry. This topic can be a further research opportunity. Moreover, the intention in roughly analysing components of the service provided by Telefonica is solely to pave a way for considering where to put focuses during development process of its new product/service. The motivation of digging deeper the weight of components of the offer is to give a confident start in evaluating development process adopted by Telefonica. Therefore, the exact figure of the proportion between service and Product Elements is purposely excluded from this research.

### 4.2 Conclusions

The offer of Telefonica has been scrutinized to identify its compositions and the proportion between them. The theoretical analysis shows Service Elements have more weight than Product Elements; therefore, the offer is categorised as product/service with service dominance. Some conclusion can be drawn as follows:
**Importance of Service Evidences**

Service Evidences supporting Service Elements are so important that the company should look closely during the development process for they drive the quality of Service Elements. Customer Support Centre is a good example of Service Evidences. Customers will report to Customer Care Centre for any incidents or faulty happening during their daily operations when using the purchased product/service. The operational flow, Essential Evidences in this case, of the Customer Care Centre was defined during the service development period. Imagine that the operational flow is not clearly set in order to handle incident process, the customer care representatives will not be able to solve the problem on time and consequently it would cause customers lots and even thousands of euros of revenue’s lost in a minute of frozen period, which would become the penalty to the provider in turn, and even worse the company’s footprint would become very bad within the industry or country they are operating. Another example is the billing process that the provider will have to generate for its customers to pay periodically. Late or inaccurate invoices generated by the billing system of the provider will provoke inconveniences in the customers accounting system and impossible to do their demand forecast for budget allocation. This looks as if it was a very small part of the service, but it does give really bad impact to the customers. The invoices are generated by the billing system of the provider and have to go through many processes and departments. Hence, Service Evidences, especially Essential Evidence, are the important parts that are recommended to be critically considered in the service development process.

**Characteristics of Service Elements**

**Intangibility**

The offers provided by Telefonica to its multinational customers are service dominant; therefore, it sounds that they inherit the intangible characteristic of the service. However, there is possibility to make it more tangible and as a result it can be tested and measured. In telecommunication field, a testing scenario or so called pilot project can be set up in order to prove the capability of Core Service and Professional Service to the potential customers before they decide to set off a venture with any providers. However, with Customer Support
Service, it is still a challenge to have it tested before purchase yet their quality to a certain extent can be managed. Remember about Service Evidences whose function is to direct the quality of Service Elements, are tangible. Therefore, in order to ensure that the Customer Support Service is delivered within the standard quality, the company can have close look at Service Evidences during the development process; for example, billing procedures of the new offer.

Individuality

Every customer facing distinct challenges that demands different service resolution to meet their specific requirements. The changes are often to do with Core Service and Customer Support Service. In case of Core Service, extended features, special customization can be made to meet its individual specific challenges while Customer Support Services including customer care, installation, billing…etc can be varied according to the geographical locations and culture in which the customers are. Professional Service by nature is very flexible and it is not difficult to change ask it is mostly about knowledge and skills which depends deeply on the experiences of the professionals. For providers, standardizing the offers may lead to future profitability and gaining high customer satisfaction regarding reducing lead time to delivery and more predictable delivery to customers (Ovum report, 2011). In Telefonica, a special project will be set up to cope with customers’ demand that can be hardly responded with the standard product/service. Hence, during the product/service innovation less efforts have been made for the flexibility of the product/service. The contradiction between the provider’s interest in standardizing the offers and customers’ demand of customization posts challenges during the development of the offer as it requires the providers keep the room for high flexibility so that the service can be adjusted without compromising the overall quality of the product/service.

Inseparability

Inseparability refers to the simultaneous service production and consumption. However in Telefonica’s product/service context, there seems no clear cut. Carefully visualized, delivery and consumption of Customer Support Service can be both simultaneous and separable. For example, training involves customers’ participation while installation does not. For Core Service and Professional Service, during the delivery period, customers will not involve and they will get the idea of the service performance after official launch. That is why, in most
telecommunication service, there is the testing period varying from 3 to 6 months for customers to assess the performance of the purchased product/service before acceptance test certificate is signed by the customer, to clarify that the purchased product/service is working well as promised.

**Perishability**

The output of the service in Telefonica context, can be saved on papers, electronic format can viewed as history at later date. With regards the productive capacity, it is the fact that it will be wasted if not used. Yet, the prerequisite of the service that have been built can be used for other service. Regarding the performance of the product/service, this can be clearly seen with the promise of value proposition of the service promised at the beginning.

From the above analysis, a conclusion can be drawn that even though the offer of Telefonica is service dominant, it seems not to possess every characteristic of the service. This finding is coincide with research’s result of Lovelock and Gummesson (2004, p. 31-32), claiming that not every type of service possesses the four characteristic of the service.

As stated at the beginning, this chapter mainly to respond the first out of 3 research question “What are the characteristics of the offer or product/service of Telefonica?”, and from the mapping the answers are:

1. The offer or Product/service of Telefonica is service dominant.
2. The offer does not possess every characteristic of service.
3. Service Evidences are very important as they drive the quality of Service Elements, the dominant parts of all compositions of product/service in Telefonica, hence demanding considerable efforts to ensure its quality during development process.
4. Service Evidences are tangible
5. The challenge in developing new product/service is to keep it flexible enough to cope with the market demand of bespoke offer.

Telefonica’s offer comprises of Products and Services with service dominant. Please be noted that even though Telefonica is providing Products to its multinational customers, it is not the manufacturers of those Products but rather collaborates with third party suppliers to cater to customers. Similar to Service Elements, especially for Core Service, even though the company owns its in-house software engineering it is possible that to realize Core Service,
the software engineering is outsourced to the specialized third parties to build up the Core Service.
5 Description of the Product/Service Development Process of Telefonica

This chapter is answering the second research question which is to identify the type of development model adopted by Telefonica and understand its flow, structure, management policy and internal communication of involved people within development process. This descriptive report is based on the internal documentations, observations, unstructured and semi-structured interviews done during the internship period of the author last from 14 of January, 2013 to 15 June, 2013.

5.1 Overview of New Product/Service Development Process

Product/service development in Telefonica starts from business idea generation to ready sellable service. “Stage-gate” is adopted as Telefonica’s product/service development model (the model is described in detail in section 3.2.4). The process consists of four main stages with four gates including concept and feasibility, design, development and deployment, and commercialisation (Figure 9). In order that a development process to proceed to the next stage a number of documents and activities have to be delivered to the gate. Recall that three units are actively participate in development process of product/service including TMS, DC and FA.

Stage 1: Concept and Feasibility

Concept: defining high level scope of service to be developed marks the beginning of the service development process. The scope may include the potential features or specifications, market overview, target customers, relationship models, customer service model such as service level agreement, trouble ticketing, reporting, billing concepts & procedure need to be defined. At the first step, financial exercises proving return on investment needs to be done in order to get the approval from the investment committee. In fact, the service to be developed is already listed in the service roadmap of the fiscal
year, but once the real development starts, finance department has to approve to cope with the current financial situation and current market demand (not all service will be approved if the estimated revenue is not good enough.) This stage is responsible by PM (TMS).

**Feasibility:** The technical teams from DC unit perform feasibility analysis on the service description that is defined above regarding technical and economic issue. The outcome of this stage is timeline and cost budget needed for the service development within the scope defined.

**Stage 2: Design**

This stage is to allocate all resources to ensure timely deployment and won’t get stuck in the middle of service development. This stage is mostly responsible by DC.

**Stage 3: Development and Deployment**

This stage has two sub-stages meant as its names, development and deployment.

Development: some deliverables and activities are completed in this stage. At this stage the service can go to the market if there is demand from customers. In that case, some of the processes that have not yet been completed will be done manually.

Deployment: ensures the service is ready to serve customers.

**Stage 4: Commercialization**

Once the service is ready to be served, sale teams have to be well trained to ensure that they equip with enough knowledge, motivations to deliver value propositions of the newly developed service to customers. This is called ensure go to market stage. Documentations, sales plan, incentives have to be ready and inform to sale teams.
Table 11 depicts documents and activities that have to be developed and evaluated to pass each gate. Be noticed documents and activities varies according to offer.

<table>
<thead>
<tr>
<th>Gate</th>
<th>Documents</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>- Concept Document&lt;br&gt;- Scope&lt;br&gt;- Planning&lt;br&gt;- Process &amp; RACI Matrix (HL)</td>
<td>- Kick off Meeting&lt;br&gt;- Feasibility&lt;br&gt;- Feasibly Presentation&lt;br&gt;- Scope/planning Presentation</td>
</tr>
<tr>
<td>3.1</td>
<td>- Contract Document&lt;br&gt;- Bid text&lt;br&gt;- High level Service Manual&lt;br&gt;- Service Quality Plan&lt;br&gt;- Customer operation manual&lt;br&gt;- Customer presentation</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>- External training and communications&lt;br&gt;- Commercial Launch</td>
</tr>
</tbody>
</table>
Table 11: List of deliverable documents and activities to be done at each gate (Process P&S development, 2012)

**Requirement Identification**

Requirement identification done by TMS is to opt for business opportunities and include them in their roadmap for the following year. But because this is to be done separately from other stages, because there is no development project team to be formed at this stage and because there is no clear timing indication between date of requirement identification to the date of starting development project, it is not included in research observation. It is worth mentioning because it relates to the resource assessment of to be-developed service.

As the newly developed offer affects many departments of the company, proposed service has to be raised in approximately half a year before hand so that corresponding departments are able to start allocate resources needed in terms of the finance, human resources and technical skills in order that the offer can be started in the following year. For example, finance department will allocate budgets while DC will reserve resources in terms of workforces and technical skills. This is considered as a roughly initial resource assessment of the to-be developed service; hence, uncertainty of the resources needed is still high, but at least this will roughly ensure financially and technically supports when it comes to real development.

### 5.2 Organisational Structure

Telefonica follows cross functional project-based structure for the development of its new business opportunities. That means a dedicated project team whose members are representatives from relevant departments is formed to develop a new service. The team will discard after the service is commercially launched. All of the project members have to partake from the beginning to the end of the project. New offer or product/service development is mainly initiated by TMS unit who spots the business opportunities in the market and makes a proposal to investment committee with convincible evidences that the offer is worth introducing to company’s product/service portfolio and will generate considerable turnover. Upon getting green light, a project team is formed with close
collaboration from DC unit. Be noted that TMS is idea generator. Transforming those idea into sellable service needs technical supports from DC who are responsible for developing and integrating to-be developed offer into the company’s system with involvements from many Functional Areas including finance, legal, marketing, customer care...etc. The input from Functional Areas during development process is extremely of importance to ensure the newly developed offer align with the company’s business and operating system and well responds to current market needs. Table 12 illustrates the roles of TMS and DC in service development process and the contributions from Functional Areas.

The permanent project members include:

- **Product Manager** from TMS: is the project owner theoretically as s/he is the one who generates the business idea; define the specifications, functionalities in order to render into a sellable service.

- **Product Development Manager** from DC: is the contact point between Product Manager and Functional Areas.

- **Project Manager** from DC: ensures that the project will be delivered according to timeline. S/he oversights the project tasks and activities, and coordinates different areas within the company during the project development period.

- **Integration Manager** DC: integrates processes for the offers for example, billing, ordering...etc. into business support systems (BSS) of the company.

- **Quality Manager** from DC: ensures the newly developed service complies with technical standard that is widely accepted by the company and within the industry regulations.

Functional Areas are considered as incidental members of the project because they will be involved at some parts of the project. Generally, the input from Functional Areas is very critical for the service development process because:

1. Functional Areas are the final operators of the offer after launching; it is the reason why designing process flow and system interface of new service needs to be consulted and gotten their consent before being implemented.

2. They may be front-end supporters who have direct contact with customers hence their understanding about users’ perception and expectation is a very practical input to avoid newly developed service from being away from friendly.
3. New service needs to be developed in accordance with the common standard practising within the company.

Figure 10 depicts a common organizational chart of cross functional project team. Hierarchical chart style does not refer to hierarchic in position or power, but in department aspect only. It means representatives from TMS have a contact point with DC department via Product Development Manager (DC) and other Functional Areas theoretically have no direct contact with representative from TMS, but ones from DC.

As stated before representatives from FA are considered as incidental project members and level of their responsibilities for the project is not as high as ones from TMS and DC. Their contributions are spread along the course of the project. FA may involve departments of Customer Service, Sales, Pre-Sales, Operating business, Legal, Financial Control, Network, Processes, TI-Systems, Agreements, and Billing.
<table>
<thead>
<tr>
<th>Stage</th>
<th>TMS</th>
<th>DC</th>
<th>Input from other Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept and Feasibility</td>
<td>Identify the market needs and define service concept and prepare the preliminary business case</td>
<td>Carry out the feasibility analysis on the business case produced by TMS and come up with time and cost to develop the service</td>
<td>- Concept Document: Contributions from Customer Service, Pre-sales, Sales, Legal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Feasibility: support form TI, Processes, Network</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Customer service sales &amp; presales</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Planning &amp; Costs: All Areas</td>
</tr>
<tr>
<td>Design</td>
<td>Write marketing manual including market positioning, service description and service scope and evolution Define pricing policy, margin management, SLAs Elaborate final business case</td>
<td>- Produce all relevant documents to the service development such as service technical description that consists of service element description features, internal impact for service commercialisation including process, systems, billing and SLA measurement model and proposal. -Coordinate with involved areas and follow-up activities to ensure time to market.</td>
<td>- Processes &amp; RASCI: All Areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Operational Procedures: All Areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Systems Specifications: All Areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Cost for final BC: All areas</td>
</tr>
<tr>
<td>Development and Deployment</td>
<td>Validate developed service</td>
<td>Develop service</td>
<td>- Contract documents: Legal, Agreements</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Network Implementation: Network</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Systems Implementation: TI - Systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Known Errors Guide: Processes, NMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- E2E Tests : All areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- UATs: Processes + All areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Quality Issues Solution Plan: All areas</td>
</tr>
<tr>
<td>Commercialization</td>
<td>Execute training to sale forces to ensure that they have enough knowledge about the service and define commercial planning including promotions, campaigns, segmentation</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Table 12: Responsibilities of all relevant departments in Product/Service Development Process of Telefonica (Process P&S development, 2012)
5.3 Internal Communication

Efforts have been made to investigate project teams’ internal communication because of its huge impact on development process. As stated by Rochford and Rudelius (1992) that information obtained from relevant departments within the firm often plays very critical role in effective development decisions and that is why facilitating an effective communication among them become a vital part of successful development.

All of Product Manager (TMS) revealed that they somehow know who actually they should contact in Functional Areas when they need supports. They all indicated that even though they know personally who they should approach, as a rule, they couldn’t go straight to them but via Product Development Manager (DC). When asked about the level responsiveness of Functional Areas, most of them said their responses were quick enough responding to the level of urgency of the raised requests. One of the Product Manager (TMS) said usually the feedback was within the same day of the request sent out. More interestingly, a Product Manager (TMS) who also agreed that Functional Areas is responsive said going directly to their working desk is the quickest way of getting feedback in a very urgent situation. Overall level of satisfaction is high from Product Manager (TMS) toward the communication with Functional Areas. Few of them expressed that because there existed a middle man between the communications, Product Development Manager (DC), the speed of feedback seems a bit delay, yet so far there was no big problem due to this minor delay. They continued that if we consider the real situation of the company where hundreds of on-going new product development projects throughout the year that the Functional Areas is dealing, having a middle man between them is the best way because then the Functional Areas can get the flow connection by just connected to one specific person for a project. A Product Manager (TMS) manager mentioned to take some times for better communication it is a good idea to spare some time in order to inform Functional Areas about their critical roles in the success of development process.

Product Development Manager from DC said he is clear of who he should approach when he is in need their input. When asked the way getting feedback he mentioned that he first collected all tasks from Product Manager (TMS) as well as from DC unit and sent at one time to relevant Functional Areas. Similar to Product Manager (TMS), he indicated that Functional Areas’ response is most likely fast but varied according to the department as well as the service to be developed. For example, technical department such as IT, Network is not
very fast, but the procedure such as process is very fast. The same Product Development Manager (DC) raised a problem happening with Functional Areas that sometimes he felt that Functional Areas were willing to complete the requests as fast as possible, but the know-how was the big barrier. Level of newness of developed service costs problem for them as they need time to learn and figure out how to deal with it. Talking about the relationship between Product Manager (TMS) and Product Development Manager (DC), the respondents are happy meaning the level of responsiveness is good.

Functional Areas are information sources used to facilitate development process carried out by DC unit with close collaboration from Product Manager (TMS) department who is source in marketing aspect of the newly developed product. Hence, it is important to understand their commitments to provide feedback from the best of their knowledge and efforts. Their commitment is mostly depend on the Key Performance Indicator (KPI) assigned to them yearly. Hence, the questionnaires are designed to seek for the weight of their part-taking in development project. Asking about the weight of their KPI of part-taking in development project compared to their daily tasks, different department gave different answers. In process department, where the responsibility including designing, product developing and marketing plan executing are devoting completely to development project, the KPI deeply depends on the development project. While in Finance, only 20% of the KPI is for development project.

5.4 Roles and Responsibilities

Submitting on time the deliverables, avoiding conflict between the teams and ensuring no missed-out tasks are the consequences from clearly understanding own roles and responsibilities of each individual project member. It is very important for the team from different departments know what to do next so that they are well prepared and it is easy to adjust the project if necessary. In overall, all of the respondents answered that they have clear idea on the steps of the projects as well as what they are supposed to deliver in each step. They also were asked to briefly describe their roles and responsibilities in development process, which consistent to the overall guideline of the company. That means they are clear on their roles and responsibilities in development process.
5.5 Process Flow Awareness

All of respondents from all units expressed the very importance that all relevant people in the project to get regularly updated about the current status of the development process. However, when asked about how and how often the update session happens, nearly all of the respondents mentioned about the formal meeting held to update about the current status and difficulties facing the project. Regarding the frequency, it varies from bi-weekly to monthly due to the fact that it is really depends on the complexity of the project and availability of the teams. Some even mention that the update meeting will be carried out when there is change request against the initial objective of the project. It is because all of the relevant departments have to analyse the potential positive and negative impacts to their jobs and systems.

5.6 Impacted System

The most impacted system due to the development process of new service is the business and operating system of the company. The two systems are very important for the company to support various end-to-end services and customers. By definition, operating support system (OSS) facilitates the operations of a communication carrier’s transport network. Business support system (BSS) is the components that a telecommunication operator uses to run its business operations towards customers. Investigation efforts made to respond the question of what aspect of the system is changed after a new service development takes place. The objective of developing a new service is to enable the front-end customer supports to perform ordering, provisioning, delivering, operating and billing where a purchase occurs. To enable those actions, newly developed product/service need to be registered in the O/BSS system of the company. Therefore, O/BSS system of the company is added more functionalities.

5.7 Output

Support the idea of Shostack (1982) that service development process is not producing service, but prerequisites of the service. This conveys the meaning that skeleton of the service is constructed during the development process and hence the service itself is ready to be sold to any interested customers. The prerequisites consist of documentations for internal
customers, external customers, methodology, and process guidelines. Internal customers refer to the field teams who will use the documents to deploy service for customers for example sale guides and product catalogues. They are functioning as a guideline directing field teams during the whole product/service purchase including sale, presale, delivery, billing, assuring and terminating. External customers are the multinational customers of Telefonica who will use customer manuals and product list. The prerequisites or output of product/service development process are the set of documents stated above and they are very important because they affect lots to the customer experiences as it directly relates to the speed of service delivery once there is a purchase.

5.8 Conclusions

Responding to the second research question “What is the method adopted by the company as its new service development process and how does it work?,”

1. Telefonica adopts Stage-gate model with four-stages as its development model without presence of gatekeeper which is the main feature of Stage-gate.
2. It works in the form of multifunctional project-based joint by representatives from three main units with close collaboration from Functional Areas.
3. Internal communication within the project teams is formal, and they all know clearly about their roles and responsibilities at each stage and throughout the project.
4. Regarding the system got impacted after the service development, it is business and operating support system of the company that get impacted the most as the newly developed product/service will be integrated with the system.
5. The prerequisites generated as an output from the development are the documentations that will serve both external customers which is the product/service purchaser (customer manual, product list…etc) and internal customers which is the functional team, field workers, sale teams, customer support team (documentation of processes, training documents, technical support…etc)
6 Analysis and Recommendations

This chapter is answering the last research question posting for the weaknesses of current development process and how they can be improved. Before going straight to identification of the weaknesses of product/service development, the discussion about conformities and disconformities of Stage-gate model in Telefonica will be first presented. Then, it is about analytic evaluation on the weaknesses of current development process practice in Telefonica which is the result from the observation followed by recommendations made to help improve its new product/service time to market. In addition to that, a generic view of new product/service development process in telecommunication industry is patterned.

6.1 Stage-gate model for Telefonica’s Context

Development model helps to push up the service development speed as well as transparency of the intricate nature of developing a service (Robert G. Cooper, 1990). Another reason that makes selection of development model become a very thoughtful task for management is its huge impacts to not only the developing process, but also to the company’s image. This section discusses the conformities and disconformities of Stage-gate adopted by Telefonica as its development mode of offers to its multinational customers by taking into account the nature of its product/service as well as the strategy of the company.

6.1.1 Prerequisites are tangible and measurable

As stated in section 3.2.4, Stage-gate system is mainly popular among product innovation oriented company and it is even generalized as a product development model, and not commonly used in service sector. The reasons being services have characteristics that distinguished them from products including individuality, intangibility, perishability, and heterogeneity (mentioned in detailed in section 3.1). Conclusion drawn in chapter 4 showed that product/service of Telefonica does not possess every characteristic of service, and Service Evidences are important and tangible. Recall that Service Elements are supported by Service Evidences which are the physical objects that may consist of documentations
regarding internal processes, customer manual guides, scopes of the service that are theoretically functioned as guidelines for the field teams to follow in performing internal and/or external tasks for customers (section 4.1.4). Therefore, their quality is to a certain extent can be controllable and measurable by the gatekeepers who act as evaluators of all deliverable at each gate of Stage-gate model (please refer to 3.2.4 for detail functions of gatekeeper). In that sense Stage-gate is preliminarily assessed as a suitable model for product/service development process for Telefonica because of the tangibility of Service Evidences and the gatekeeping concept of Stage-gate that make it possible for their quality assurance.

6.1.2 New Product/Service Innovation as Development Strategy

The company is committing to be innovative by continuously provide product/service that will be able to serve and solve current challenges facing by its multinational customers. Therefore, having a clear structured development process is very important to stick with its strong commitment. A well-designed process is a foundation of all that will come after as it provides effective decision making framework, and gives clear directions to all members of the project. Moreover, clear structured development process can provide complete views to the top management about status of the on-going projects, especially for the project intensive firm like Telefonica. Stage-gate system has all of these required assets. It provides transparent process steps and a list of pre-defined deliverable and tasks to the project members so that they understand what to perform and submit to be evaluated by the gate for going to further stage. Stage-gate makes it easy for the subordinates to report to their top management owing to the fixed number of stages defined at the beginning by the company will give the top management ideas how much budget has been spent to the project and how much workload has to be completed before it can be introduced to the market without having to go deeper very detailed in each development process providing that there are about 300 service development projects are active yearly in Telefonica, including the standard service and bespoke service projects.
6.1.3 The need of Compressing Time-To-Market

Speed of the product/service rollout is the concern of the company mentioned at the very beginning of this thesis. Parallel processing, an important feature of Stage-gate system, helps the company compress the development time in a way that many activities are taken place concurrently with the contributions of all Functional Areas rather than in series. Combined with gatekeeping concept, this does not only speed up the development process, but also allows the company to keep up its standard quality. Concrete evaluation ability is embedded in the system with in gate concept meaning the project cannot move forward without submitting pre-set criteria at each gate. Those criteria can be, but not limited to, the list of deliverable documents, activities. It is where the quality of the development process, of service itself and of delivery will not compromise despite the need of speed. However, there is no free lunch in this case; to get the best of this feature considerable efforts of the company are needed because it demands more careful and thoughtful project plan and management.

Among the conformabilities above there finds also the different focuses of Telefonica and Stage-gate model.

Stage-gate model puts focuses on the predevelopment processes as they qualify and define the project and contribute lots to the success of development project (Cooper, 1900). This practice also prevents changes in the later stage which is more expensive.

In Telefonica, as mentioned in 5.1 that idea generation and screening are done separately before the actual development process takes place. Remember service roadmap for multinational customers for the following years was pre-designed in the current year and in the job description of the product manager that one of responsibilities is to define roadmap but it is not positioned in development process. Moreover, the company has another division name Telefonica Digital (TD) whose mission is to seize the opportunities in digital world. This division is doing lots of research and development work to come up with new business opportunities. TMS unit works closely with TD in order to translate the new discovered technologies into a sellable product/service. In other words, TD is digging for new technologies while TMS is implementing it. The values added by TMS unit is that TMS is working closely with the customers and the market; that is why, it understands more on customers’ insight, pain points, needs and expectations and even rivals’ performance and those information then are collected, studies and converted into the practical features of the
new product/service. This activity is carried out at the first stage of the service development process. Therefore, being innovative seems to be the task of DC while the development process is to focus on development and deployment activities which are about consistency and integration of the new service into the business and operating system of the company and selections of supports from third parties to make the newly developed product/service a completed sellable one. This shows the different focuses between Stage-gate and Telefonica. However, to adapt with the requirement of the company, the predevelopment process of the current process was reduced from 2, preliminary assessment and definition (section 3.2.4), to just one which is the first stage called concept and feasibility.

Despite different focuses, Stage-gate model responds well to the characteristics of the offers and the company’s need, showing that the company was doing a great job in adopting a suitable development model. However, this is not mean that the company currently gets the best from its adopted model and it is the reason why, the following section will discussed in detail on the shortcomings of current practice of new product/service development process of the company.

6.2 Shortcomings of Current Practice of Product/Service Development Process of Telefonica

Previous section concluded that Telefonica is doing a good job in selecting Stage-gate as a model for its product/service innovation to its multinational customers. However, Telefonica is not currently entitled those benefits from Stage-gate as from the investigation there reveal some missing points that prevents Telefonica from obtaining the fullest advantages that can be extracted from Stage-gate model if the company is following the right tract. This section discusses about the shortcomings of the current practice of development process in Telefonica.

6.2.1 Limitation on Resource Assessment

Mentioned in section 5.1, the first rough resource assessment is done approximately half a year before the actual development project taking place in order that the relevant departments
can start budgeting process by roughly assessing the economic and technical needs in order that the development project can be started in the following year. The second more rough analysis to identify the required resources will be carried out in the second stage of the service development process called ‘Design stage’. Though the resource assessment is carried out two times before the development of product/service taking place, this is not enough. One of the respondent mentioned that the Functional Areas are willing to provide fast the input but they do not know to make it. The reasons being, the developing a new product/service is very complex as it involves almost all of the departments in the company and their input is not just a one-shot contribution but spreading along the course of the project life cycle. That is the reasons why, they need to understand which resources are needed at each stage, so that they can priority their tasks and efforts. The current practice has very tendency of lengthy project in a sense that resources needed to generate next deliverables and tasks are not well-prepared. Hence, time is wasting on waiting for the resources to be ready. It is also possible that the quality of delivery is compromised due to lack of the resources and hence the project will go back and forth to correct the compromised quality. New product/service required updated skilled, knowledge; hence, the resources assessment is very vital when comes to speed concern.

6.2.2 Limitation on Quality Assessment

In Telefonica, the only possible time that a project is killed is at the very beginning of the project which is the first stage where the product marketing has to prove market demands, and good financial aspect of the newly proposed product/service. When asked about how they get to know when to progress from one stage to another, all respondents had the same answers that all project members know when to move on that is most likely when the expected deliverables and tasks are all completed. Regarding the deliverables and tasks to be complete at each step, because every project is very different, the deliverables and tasks are not the same yet there is no rules clearly states why some particular tasks or deliverables to be included or left out. The disadvantage of this practice is concern with the quality of execution and of deliverables and tasks as there is no responsible person that control and judge about those qualities at each stage. Execution quality concerns with the possibility of missing out any tasks or deliverables that should be completed before proceeding to the next step which won’t be smoothly go with the absence of a certain tasks that should be done in
the previous stage. Another aspect of quality concern is to do with the quality of deliverables and tasks. It is worth mentioning because those deliverables function as blueprints that affect seriously when it comes to the service delivery. Therefore, its low quality can prolong last stage of development, commercial launch.

6.2.3 Procrastination

From the observation, procrastination happened often during development process. The tasks to be submitted or completed are freely prolonged without clear reasons. As mentioned above that at each gate there is no one stands as a controller to manage the deliverables and tasks to be completed. That is the reason why, even though an agreed submission date of the deliverables is set, the delay is happening quite often in the current practice. Evidently, in a development project, the PM (TMS) was complaining that the DC unit took actions very slowly even though the commercial launch date was clearly known by all project members. Of course, one may have their reasoning for not being able to start and/or handing on the deliverables, for example, lack of skills, unavailability of resources, not clearly understanding the business concept generated by TMS unit, yet those were excuses due to no pressure, which can be made better if there the deadline set and controlled by senior managers. This action hence can cause lengthy of the project as well as quality compromising when the product/service urgently requested by the market. Be noted that, the sale forces can start communicate with potential customers about new product/service even when it was at the very early stage of development. That is the reason why, the commercial launch date of a new product/service can be earlier than it was previously set if any customers needed.

6.2.4 Inefficient Internal Communication among Project Members

It is not possible to stress enough the importance of internal communication role towards development process. It is because development process demands the collaboration from the project members. The development project team in Telefonica is following formal way of communication between departments that affect the speed of getting required information as well as project status awareness of the project members. Formal communication approach means that one party should follow the guidance in order to approach another party. As
mentioned in section 5.3, PM (TMS) has to go to PDM (DC) whenever they are in need of input from Functional Areas and the PDM (DC) will list all the requests from different angle of the project at one time and discard to the a corresponding person. FA then will get the list and gather information responding to the questions. How does it affect the speed of the project and awareness of project status among the project members? In the way that the time of getting all of the questions or requests from all parties of the projects and the time of waiting assemble requests to send in batch. Even though, answers that can be ready first can be sent out firstly, still there is a minor delay on that. As mentioned in section 5.5, all of the project teams are updated about the status of the project bi-weekly or monthly in a formal meeting. This formal infrequent communication limits their contribution to the project. The deliverables and tasks that they should submit are not the only input from them to help the smooth project, but also all the knowledge obtained through freely communication style will help in solving fast the problem facing the project. Development process starts with big load of uncertainty and rich learning process resulting from interactions among the project members along development process from one stage to another help reducing bit by bit the uncertainty.

Moreover, establishing a wall between the Functional Areas and the practitioners (DC and PM) can prevent their learning ability which might result in discourage the ability of synergy that the teams can form. The work of Nonaka and Takeuchi (1995) demonstrated close links between the learning process and development process. The project teams are creating the new knowledge along the development process and the ability to produce a new offer come from that knowledge formed from their active interaction.

### 6.2.5 Roles and Responsibilities of Project Members

Section 5.4 showed that all respondents understand their roles and responsibilities during the course of product/service development process. They also can identify owner of project, which is PM (TMS) responsible for the whole life cycle of developing a product/service, from idea generation to launching, improvement, and death of the service. This therefore indicated that the project teams have clear visions of their responsibilities in the project. However, when it comes to mixing those roles into a unified work stream which will lead to a smooth and peaceful work environment, it is still a problem and demands extra efforts.
From the observation it can be seen that during the task assignment at the beginning of each stage among the permanent members. Due to the complexity nature of the development project, some tasks have to be completed by different representatives of different units and they are unclear of what kind of contribution or aspect that they should help in order to complete a task. The problem here regards with how different roles interface with each other.

### 6.3 Recommendations

The initial aim of this work is to assist the company in improving the speed of rolling out new product/service to the market. To reach that goal an assessment on the current product/service development was carried out in order to identify vulnerable spots that have been described in above sections. From those weaknesses, some recommendations have been made for considerations.

#### 6.3.1 Introducing Gatekeepers

That is not a very uncommon practice to push up enthusiasm from practitioners with management’s interest and commitment. In this regards, the support from senior managers in gatekeeping position is needed. The advantages of having gatekeepers in each project is to control the project execution and quality of deliverables, more accurately assess resources, and encourage the working spirit of the teams; hence, preventing unreasonable procrastination. In short, the problems raised in section 6.2.1 to 6.2.3 regarding limitation on resource and quality assessment and procrastination can be reduced with the introduction of gatekeepers (refer to section 3.2.4 for roles and responsibilities of gatekeepers). Presence of gatekeepers will improve the quality of execution and deliverable in the way that gatekeepers who are seniors and have enough authority to decide to be included tasks and deliverables of the project. Be noted that the deliverables and tasks varies among the project. This prevents lengthy discussion among the project members upon the decision of to be produced deliverables at each stage. Once the deliverables are completed, the gatekeepers will review their quality and decide the status of the project, whether to go, kill or redo. Regarding the contribution of gatekeepers in resource assessment, the gatekeepers after figuring out the deliverables to be done will allocate the necessary resources and inform the relevant
departments to be well prepared for the upcoming stage and can even decide the methods in obtaining resources if it is currently unavailable in the company. This will prevent lengthy project due to time wasting on resource lacking. Because the gatekeepers are senior managers, more or less it will get more attentions from the project members in order to complete the task on time without compromising the quality.

6.3.2 Encourage Informal Internal Communication between Project Members

The problem mentioned in section 6.2.4 that current formal communication style practising in Telefonica limits the speed of development process and the project status awareness of the project members. Therefore, it is recommended that along with formal communication, the project teams should be encouraged interacting more informally so that they get to understand one another’s roles and difficulties. As a result, they will build up whole view of the project and hence contribute more according to their skills. Not only that, once it comes to the points of getting input from each other, the feedback speed will be faster because they understand exactly what the problems are and their friendship knot by informal communication; hence, this encourages reducing time wasting on waiting for the input. Milton D. Rosenau, Jr. (1988) found out that to speed up the product to the market, one of the therapies is to avoiding wasted time between the stages.

This doesn’t mean to eliminate the formal communication currently carried out in the company, but in addition to that the project members should be facilitated by the company to interact each other freely. This will lead to good quality of knowledge built up by the project members. Informal communication encourages the speeding up the information needed by the project teams and knowledge obtained from that communication will render good quality output to the project as well. However, The big size of Telefonica posts challenge for informal communication in terms of the geographical distance either different office buildings or even different countries as this type of communication demands physical proximity. However, the instant message software, accessible conference call currently available in Telefonica is one of the encouraging motivation to that, the only little more effort is to raise their awareness that it won’t against the rules if they are to communicate directly with the teams, yet they are still obliged to attend formal meeting. As informal communication is based mainly on friendship and acquaintance; the company can involve
them to work on small extra project to build up their relationship; to the author experience, besides the responsible product/service development, the author was assigned to work on an extra small project with one of Product Development Manager (DC) who is currently also responsible for the product/service developing by the author. At the beginning, due to geographical distance and a bit of language barrier (the author is based in UK while Product Development Manager in Spain), it is not easy to even to manage the formal meeting. Yet after the extra project that demands close collaboration to come up with the urgent output (within a week or two), the relationship is improving lots. Informal conversation at the start of emails exchanges and at even few minutes before the formal meeting via audio conference allows close relationship. It then becomes lots easier to set up the meeting once the author is having doubts or in need of his ideas to complete the deliverables even at out of office hours. The positive output from this friendship is that PDM has shared his experiences of almost 20 years with product/service development project as a very good input to design business model of the new product/service for which the author is co-responsible. Clearly, informal communication does encourage effective communication among the project members and contribute to the high quality of the development project as a whole.

**6.3.3 Mixing Roles and Responsibilities of Project Members**

One of the problems faced by Telefonica is role mixing between project members (section 6.2.5). In order to improve this constraint, in the roles and responsibilities description of each project representative it is advised to also specify how they should interface with other roles, the contributions they can provide to their work partner and how to be successful. Providing clear explanation of their roles and responsibilities make it easy for them to know in advance of what they should do. Furthermore, for the Functional Areas whose roles are incidental which is easy to get demotivated, it is recommended to also communicate with them about the importance of their contributions towards product/service innovation and the advantages that they will achieve for their daily tasks. Emotional motivation can start from that little initiative as they generally know that they are to help with new product/service development project, but might not about the importance of their contribution to the success of the project and how that success will pay back to their daily tasks.
6.3.4 Introducing Document Controllers

There seem to have 3 main tasks to do during the product/service development process (1) Creating Core Service to be offered to customers. (2) Integrating the product/service into B/OSS system of the company that demand technical skills to do. (3) Producing documentations for internal and external customers. The latter two tasks contribute lots to ensuring the good quality of Customer Support Service when purchased by customers. Section 4.2 has been clearly stated that Customer Support Service such as installation speed and quality, customer care support, service assurance... etc. provides significant impacts for a provider to win the bid. The Core Service of course still stands as a kernel but in a sense of the basic need. Meaning to be able to stay in the market, the Core Service of the vendor needs to be in a standard quality accepted by the industry. Therefore, during the development process it is encouraged to put cautions and focuses on the creation of procedure guidelines, documentations because it not only serves as blueprint for Customer Support Service, but also is as one of the dimensions of company image. Therefore, the company should have a dedicated project member whose main responsibilities are to file, update and quality check to make sure that after service development process, those documentations are ready and compliant with company regulation as well as with the industry standard. S/he will be an interface between technical internal project members and third parties if there are any consulting companies involved who are responsible for compiling the information in order to produce the standard layout of documentations. Be noted that this is to ensure the updated availability and quality of the documentation of Service Evidences; it is nothing to do with the quality of technical content of Service Evidences which are made up by the all involved project teams with collaboration from Functional Areas.

Responding to the last research question “What are the weaknesses of current development process and how can they be improved?”, the weaknesses of product/service innovation of Telefonica that mostly affect current innovation’s speed are limitation on resource and quality assessment, procrastination, inefficient internal communication and mixing of roles and responsibilities of project members. Recommendations in response to the identified weaknesses have been made so that Telefonica can improve speed of its product/service innovation. Involvement from top management as gatekeepers, encouraging close internal communication between the project members, clearly defining the mixing of roles and responsibilities of project members and introducing document controller are the
recommended actions to be taken when considering of improving speed of product/service innovation.

6.4 Generic View of New Product/Service Development in Telecom Industry

In addition to identification of shortcomings and recommendations to Telefonica’s product/service development process, this research provides generic view of new product/service development process in telecommunication industry. It supports the idea that developing an offer means to build its prerequisites to use during service delivery when customers purchase product/service (Shostack, 1982). Development process help telecommunication operator to enrich experiences of their customers through high quality of Customer Support Service.

Shown in Figure 11, operating and business support system is the kernel of the development process where newly developed Core Service needs to be registered before being commercialized by sale-forces, and with which the Functional Areas are working closely in their daily basis. In the picture, the small circle printed with letter CS represents Core Service to be registered to O/BSS system. They are override means that the company can have a chance of getting benefit of synergy of the newly developed Core Service with its existing Core Service. Be noted that FA stands for Functional Areas, CS for Core Service, NP/SDP for New Product/Service Development Project, O/BSS for Operating/Business Support System. The success of a development process is relevant very much to active contributions of Functional Areas. Developing new product/service means to draw clear process flows of the service delivery, produce standardized documentations to be provided to customers once service is purchased, determine service scope; for example, service level agreement, all of which adds scores to customer satisfaction in term of product/service delivery and supports. The field teams including sales, pre-sales, ordering, provisioning, assuring and billing teams are the font-end supporters whose works will be lots easier if the service development process is in high quality. This demands the abilities of development project team in reflecting real complex customer requirements during the development period.
O/BSS: Developing a new product/service is to make business idea sellable to the market. That means the operational process has to be easy, user-friendly, accessible so that customers can experience the best customer services in addition to the Core Service. In other words, to integrate newly developed service into the operating and business support system of the company so as to perform ordering, provisioning, delivering, operating and billing. To activate those actions, it requires technical works carried out within operating and business support system, which is the core network communication and business operation of the company with customers. An ordinary example that exists in every new product/service is the ordering operation. New service needs to register in the business support system so that when sale-forces place order in ordering system, the system knows there exist the ordered service in the company and execute further tasks including quotation generation and escalate the related activities to related departments. All Functional Areas are the masters of the system, they are the real users and dealing directly with the system and front-end supporters and indirectly with customers on daily basis; hence, they have clear idea of what is going to work well with customers and what is not going to be liked by customers.

**Important roles of Functional Areas in new product/service development:** Functional Areas are the back-end supporters during the product/service delivery, and their main task is to maximize operational efficiency and output. Company aims at building synergy of all products/services they are having, which can be obtained by injecting knowledge and experiences formed many years of the Functional Areas who are the real doers of when product/service is purchased; they are generating orders, billing process so they know all clichés around the system under their responsibilities. Be noted the real doers in product/service development is DC but the contributions from FA is undeniably needed. Furthermore, their clear understanding of real needs of customers adds lots of values to the development of the new product/service. Caution to the Functional Areas selection should be carefully considered. Employees cannot handle their daily tasks plus the extra work from the new product/service development project. It is why, reconsideration of lower down their daily workload is recommended. Their KPI should be also revised to give weight towards the success of new product/service development or their focus and commitment towards the development project will not reach to the deserved point. Therefore, to get control over their focus, time dedication as well as involvement, their KPI should be reconsidered when they are selected to join the project. It is not recommended to take completely the person out of their daily duty temporary during the project life, at least in this service development for
telecommunication industry, because their daily work has indispensable impact to the service development project. Absence from their work may distract their visualization ability of the ongoing project compared to on-site practice.

**Prerequisites**: Service prerequisites in this sense means all of documentations, process flow, methodology, and scope of the product/service serving as guidance at the product/service delivery and supports and all of these are the outcome from the development process. Documentations may consist of, but not limited to, customer manual, detail service description, contract…etc. During product/service delivery, support or determination, internal staffs follow those prerequisites to perform tasks as requested. They help lots to the customer support activities as those flow are directing the front-end customer care representatives in order to timely respond to customers’ requests.

**Field Teams**: are the front-end support teams whose main responsibility is to respond to the needs/requests from customers in order to gain customers’ satisfaction. This team needs skills corresponding to their work areas and specific product/service purchased by the customers and they are performing tasks mostly based on the output of service development process including documentations, methodology and the contract signed with the customers.
Suggestions drawn from the pattern is to make use of handy, available, less expensive resources for high performance of new product/service development process, which is Functional Areas, rather than using expensive one, which is the input of customers in every stage of the development process that was proposed by Alam and Perry (2002). Working daily directly with the O/BSS system and field teams and indirectly with customers, Functional Areas build concrete knowledge on what customer wants and feels comfortable with and it is those knowledge that are used to design user-friendly product/service and helps the company with the synergy’s purpose.
7 Conclusions

The chapter concludes all the efforts have been made to answer the research questions. Ultimately identification of its limitations and cautions that may become opportunities for future research for those who are interested in understanding more about the product/service and its development process provided in telecommunication industry marks as an end of this thesis.

7.1 Conclusions

The initial main focus of this exploratory research was to help Telefonica in speeding up its product/service rollout into the market. To arrive at the above defined objective, 3 research questions have been raised and the answers to those questions were revealed in three distinct but interrelated chapters.

The first question “What are the characteristics of the offer or product/service of Telefonica?” was solved in chapter 4 where the compositions of product/service of Telefonica was scrutinized by using Molecular Modelling approach. In order to understand the proportions of its compositions, two sources were used. One is internal report of Telefonica related to its multinational customer satisfaction and another one is report of a consulting company generally talking about evaluation criteria that customers use before purchasing telecommunication product/service. The main conclusions from this analysis are:

- Telefonica’s offer comprises of Product and Service Elements with service dominance, yet it does not possess every characteristic of service.
- During development process of new product/service, Service Elements especially Customer Support Service demands special attentions as it is the main part that distinguish Telefonica from its rivals.
- The challenge in developing new product/service is to keep it flexible enough to cope with the market demand of bespoke offer.

The second question “What is the method adopted by the company as its new product/service development process and how does it work?” was answered in chapter 5 where a close
investigation on new product/service development process adopted by the company was conducted. The findings reveal that:

- Telefonica adopts Stage-gate model with cross functional project-based approach joint by representatives from 3 units TMS, DC and FA where TMS and DC are permanent project members and FA is incidental project members.
- Internal communication within the project members is formal.
- Business and operating support system of the company gets impacted the most as with which the newly developed product/service will be integrated. The prerequisites generated as the output from the development are the documentations that will serve both external and internal customers.

It is the most difficult and time consuming part of the whole project as the information to be collected was dispersed all over the company. People were very busy and not available upon request and some documents are confidential which kept this 5 month research project in a very challenging condition. This fact made me realize that cross-department projects and projects conserving change are generally difficult in big corporation. This is not to mention the geographical location and language barrier.

The third question “What are the weaknesses of the current development process and how can they be improved?” was responded in chapter 6 where an analysis on the characteristics of product/service and the needs of Telefonica with its current development process was done and the finding is that Telefonica is doing a good job in selecting Stage-gate as its product/service development model. Despite the right selection, Telefonica is currently not getting the best from its adopted model, as from the investigation, there found several weaknesses laid in the current practice including limitation on resource and quality assessment, procrastinations among project members, and inefficient internal communication and the unclear contributions of different roles when interface with each other. The initial main objective of this thesis, which is to strive for ways in helping Telefonica to speed up its product/service innovation, is realized when recommendations have been made taking into accounts all of the factors related to the company including the characteristics of its product/service, company strategic goals, needs, culture, current practice of its development process, as well as the interaction of the most relevant people. The recommendations are to:
- Encourage the company to include senior managers as gatekeepers in development process.
- Facilitate close internal communication among project members.
- Specify more clearly the contributions and interactions between different roles to form a smooth work stream.
- Encourage the company to include document controller in product/service development process.

More interestingly, from the observation a generic overview of development process has been patterned with a purpose to illustrate intertwined connection between development process and core system of the company and suggest the company make the best uses of their cheap and accessible resources for better performance of developing process, which are its ready-used Functional Areas versus expensive customer input approach. Moreover, the research finds out that innovation process hides secrets in satisfying multinational customers who are the potential users of the product/service.

The result of the research also offers implication for academics and practitioners regarding service development in Telecom industry. In academic point of views, this study will add value to the service development background in Telecom industry as it studied in detail the compositions of Telecom product/service and drew generic view of service development concept which may be served as a baseline for future investigation for deeper understanding. Practitioners can also benefit from this research as it provides hints for customer satisfaction to be considered when developing a service to Telecom market.

Despite the above declared benefits, this very time constraint research with its narrow scope set at the beginning to assist Telefonica in speeding up its offer rollout there exist considerable cautions and limitations within its findings, which can be opportunities for further research. The next section will detail all of those limitations and cautions.

### 7.2 Limitations and Further Research

This research has several limitations which indicate the opportunities for further research.

First, examining elements of product/service offered multinational customers in telecommunication industry is done within only one firm; hence, caution is required when
applying it in other service type and different industries. Regarding weight of the Product and Service Elements of product/service offered by Telefonica, the finding comes to a conclusion that Service Element has more weight than Product Elements but there is no concrete figure has been generated. The clue of getting deeper into this suggested by Shostack (1982) that the weight of the service and product can be identified with a market research; hence, this can be realized by carefully studying selection criteria among the service purchasers as the impacts of the Service Elements and Product Elements are mostly related to the marketing campaign and service development pregame that in the end aiming at satisfying customers.

Second, the service development process studied in this research is limited to service provided to multinational customers in telecommunication industry only; broader range of service, for example, to consumer customers in the same industry should be empirically studied to draw more concrete conclusion. Moreover, observation approach was used for data collection combined with semi-structure interviews; hence, there might be bias among the participants because interviews were done with representatives from Functional Areas and Data Center with whom the author doesn’t have relation before interviewing. However, the answers from the respondents were compared with what have been observed and the information from other sources such internal documents to check the consistency and accuracy. The result of research is descriptive rather than instructional. It is still not clear if the implications made based on investigation with the company can lead to the success of the development process for it has not been put into practice in the company. Yet, it was drawn based on existing researches on best practices of Stage-gate and way to speed up an offer to the market. The success of a practice is not only based on the approach and methodology used alone, but the culture, commitment, vision of the whole company.

Third, concerning the proposal of generic patterns of service development process, due to time constraint and its narrow scope in doing the evaluation of the service development process in a firm to improve its product/service development speed, this study was done in a telecommunication industry only; the finding, as a result, should be considered tentative. Caution is required in generalizing the finding beyond the sample and industry concern. It is suggested to have close investigations into product/service development process in many telecommunication operators in the market in order to verify or make changes if necessary to the proposed pattern. However, it is advised to deeply study the characteristics of the product/service before drawing any conclusion in invalidation of this pattern as it is
according to the telecommunication technical knowledge of the author, working experiences in the field, consulting with many reports within the industry and existing researches on the topic and thorough observation in the field that the author draw out this pattern. There might be some parts incomplete as it’s about only one big telecommunication company, but to the author product/service development process of different telecommunication operator may be slightly different in process flow, deliverables, yet the overall view is not much different.


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**Glossary**

**Gartner**: is the world’s leading information technology research and advisory company.

**Integrated carrier/operator**: An entity that owns/operates both fixed-line and mobile network infrastructure and provides aforementioned services (fixed and mobile).

**Service Level Agreement**: is a part of a service contract where a service is formally defined. In practice, the term SLA is sometimes used to refer to the contracted delivery time (of the service or performance).

**Key Performance Indicator**: is a type of performance measurement. An organization may use KPIs to evaluate its success, or to evaluate the success of a particular activity in which it is engaged.

**Operating support system (OSS)**: Facilitates the operations of a communication carrier’s transport network. An OSS can be thought of as a network-facing system.

**Business support systems (BSS)** are the components that a telephone operator or telco uses to run its business operations towards customer. BSS and OSS platforms are linked in the need to support various end to end services. Each area has its own data and service responsibilities.

**Telco**: Telecommunication Company or Telecommunication operator