



Master Degree in Research and Innovation in Information and Communication Technologies
(i²-ICT)

Master Thesis

A broad Analysis of Marketing Strategies for their Incorporation as Activities in a User-Centered Process

Student

Iunia-Cristina Borza

iunia-cristina.borza@estudiante.uam.es

Director

José Antonio Macías Iglesias

j.macias@uam.es

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Integración de Estrategias de Márquetin en Actividades Específicas para el Desarrollo de Software Centrado en el Usuario

Estudiante

Iunia-Cristina Borza

iunia-cristina.borza@estudiante.uam.es

Director

José Antonio Macías Iglesias

j.macias@uam.es

Madrid, Septiembre 2014

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Abstract

The present work represents an analysis between two different fields, which are: Economics, addressing the Marketing field and Human-Computer Interaction, by studying the Usability field. The motivation of this present work is based on the fact that there is no systematic adoption in the form of activities and techniques focused on the development, that allow conducting a formal integration of Marketing techniques in User-Centred development processes. The main goal of this project has been the analysis of existing Marketing strategies and their concrete integration in the form of activities in a User-Centred Process Model.

In order to accomplish the realization of this main objective, firstly an intensive research of the bibliographical literature has been made in order to see if there are some common points of interaction between the two fields and in what measure. Unfortunately, no studies were found containing these two different fields, focused on Marketing activities in the development of a User-Centred Process Model. After analysing the main usability models: Usability Engineering of Nielsen, the Usability Engineering Lifecycle of Mayhew, the standard ISO 9124-210 and the standard IEEE 1074:2006, it has been seen that these models do not present specific activities related with the identification of the Marketing strategies and processes that are being applied when developing a software product. Some references of these activities are presented in the IEEE 1074:2006 Standard, but there are only referred to as general Marketing Information.

For this reason, the above mentioned standards have only served as models in order to realize this paper's Marketing Activities Model. The classification of these Marketing activities that have been used in the present model, has been realized from the IEEE Standard 1074-2006. The Marketing Activities realized in this present work have been obtained after realizing a SWOT Analysis of the general Marketing Strategies that exist nowadays. The most important Marketing strategies were selected in order to be integrated in the User-Centred Process Model. These strategies were classified in the following categories: Pre-development, Development and Post-Development, and have been sorted in this way in function of the Marketing processes that take place, before starting the development of a product, during the development of that software product and after the development of the software product. Furthermore, it is very important to mention that these activities have been created in order to improve the usability of a software product.

Finally, the Marketing Activities Model that was obtained has been validated by envisioning an e-commerce application, and the products that were obtained have been explained by concrete examples of the products, that have been launched for the chosen e-commerce application. The products were developed taking into account the area of expertise of the application and the field in which operates internationally.

Keywords: Marketing, Marketing Strategies, Usability, Activities, Products, User Centred Process Model, ISO 9241-210.

Resumen

Este trabajo representa un análisis entre dos campos diferentes, que son: la Economía, abordando el campo del Marketing y el campo de la Interacción Persona-Ordenador, que ha sido realizado mediante un estudio del campo de la Usabilidad. La motivación de la presente tesis está basada en la cuestión de que no existe una adopción sistematizada, en forma de actividades y técnicas enfocadas al desarrollo, que permitan llevar a cabo una integración formal de las técnicas de marketing en los procesos de desarrollo centrados en el usuario. El objetivo principal de este proyecto ha sido el análisis de las estrategias de Marketing existentes y su integración concreta en forma de actividades en un modelo de proceso centrado en el usuario.

En primer lugar, para llevar a cabo la realización de este objetivo principal, una investigación intensiva de la literatura bibliográfica se ha realizado con el fin de ver si hay algunos puntos comunes de interacción entre las dos áreas y, no obstante, en qué medida. El estudio realizado determino que no existen artículos conteniendo los dos campos diferentes, centrándose en las actividades de Marketing en el modelo de proceso centrado en el usuario. Después de haber analizado los principales modelos de usabilidad: la Ingeniería de la Usabilidad de Nielsen, el Ciclo de Vida de la Ingeniería de la Usabilidad de Mayhew, el estándar ISO 9241-210 y el estándar IEEE 1074:2006, se ha constatado que estos modelos no presentan actividades específicas relacionadas con la identificación de las estrategias de Marketing y procesos, que se están aplicando en el desarrollo de un producto software. Algunas referencias de estas actividades están presentadas en el estándar IEEE 1074:2006, pero de cualquier modo se refieren de forma general a la Información de Marketing.

Por esta razón los estándares anteriormente mencionados solo han servido como referencia para realizar el propio modelo de actividades de Marketing y su integración en un modelo de proceso centrado en el usuario. La clasificación de las actividades de Marketing: obtenidas utilizada en el modelo presentado, ha sido utilizada a partir del estándar IEEE 1074:2006. Las actividades de Marketing realizadas en el presente trabajo, se han obtenido después de realizar un análisis DAFO de las estrategias de Marketing generales que existen hoy en día. Se seleccionaron primero las actividades de marketing más relevantes, con el fin de integrarse en el Modelo de Proceso Centrado en el Usuario. Estas estrategias han sido clasificadas en las siguientes categorías: Pre-desarrollo, Desarrollo y Post-desarrollo y han sido ordenadas de esta manera en función de los procesos de Marketing que tienen lugar, antes de iniciar el desarrollo de un producto software, durante el desarrollo de dicho producto software y después del desarrollo del producto software. Por otra parte, es muy importante mencionar que estas actividades se han creado con el fin de mejorar la usabilidad de un producto software en general. Por último, el modelo de Actividades de Marketing que se ha obtenido, ha sido validado mediante la conceptualización de una aplicación de comercio electrónico y los productos que se han obtenido han sido explicados con ejemplos concretos dependiendo de la aplicación de comercio electrónico elegida. Los productos fueron desarrollados teniendo en cuenta el área de conocimiento de la aplicación y el ámbito en el que opera a nivel internacional.

Palabras claves: Marketing, Estrategias de Marketing, Usabilidad, Actividades, Productos, Modelo de Proceso Centrado en el Usuario, ISO 9241-210.

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Chapter I. Introduction

1.1 Problem Definition

In the last years, even the biggest companies have come using different strategies oriented to offering more attractive products, with a high market impact and with the final scope of making them much easier to be sold. By analysing these strategies, Marketing Management, Market and Sales strategies have an important role and aspect that needs to be covered. But, when referring to software products we need to keep in mind that these strategies need to be accompanied by quality criteria. More specifically, and for products that are oriented to the final user, usability, as an attribute of the software quality, is an essential criteria that these products need to possess, when being released on a specific market.

In general, there are a lot of technics used to improve the usability of a software product and in this way, ensuring that it is more usable for the final user, not only from the HCI (*Human Computer Interaction*) point of view, but also from the aspect of the Marketing strategies that are being used. Referring to the strategies that are mostly well-known and related to the Digital Marketing for software applications, there are *Search Engine Optimization*[1], *E-mail Marketing* [2] and *On-line advertising* [3]. Also, there needs to be mentioned some new technics in the specific field, like *Holistic Marketing* [4], a term that talks about all the aspects related to software products and personalized solutions, and the *Customer Relationship Management* [5], which is a strategy based on *Relational Marketing* [6], in which the main beneficiary is the final user, and not the product or the brand product.

However, when trying to obtain really usable and attractive products for the final user, the software product is as important as the development process. In this situation, one of the standards highly used in the construction of applications for the final user and usability is the International Standard ISO 9241:210 [7]. In general, in order to find a relationship between the field of Usability Engineering and Marketing, it is necessary to find some common points between the three development phases: the human centred design process, the specification of the context of use and the user and organization specification. In order to accomplish this goal, it is necessary to identify what Marketing technics can be integrated in specific activities of the ISO 9241:210 Standard, with the goal of obtaining more usable and more attractive final user products, including all the experience that the Marketing field offers us already from other fields already stated.

In the state of the art, there are already some specific examples of Marketing technics that were adopted from the Usability Engineering field, as in the case of Competitive Analysis [8], a technic that allows us to analyse the strengths and weaknesses from the competitors that exist on the market. However, the Marketing technics adapted from the usability field are a few and there is no systematic approach when discussing about adapting specific activities in the development software process. For this reason, the general objectives for this Master Thesis will be focused on establishing relationships between the Marketing field and the Software Development User-Centred Process. The two fields represent future domains, for which it is recommended to establish relationships by the study of Marketing Relationships that could be used in the field of the development of the usable software.

1.2 Motivation

The fact that there is no systematic approach of Marketing activities found in the User Centred Software Development Process represents the main motivation that led to the realization of this Master Thesis. Aspects of integration between software engineering and usability engineering, as stated in [9], usability engineering lifecycle [10] and Marketing aspects [11] have been treated always separately, but had never been included in a group and integrated in the User Centred Model Process.

1.3 Hypothesis

After considering the stated problem from Section 1.1, the development of the present work is based on the following starting hypotheses:

- **H1:** The principal hypothesis of this work is that there are no academic bibliographical references containing information about modern Marketing technics combined with usability or HCI articles.
- **H2:** Furthermore, there is not a systematic approach yet, in the form of marketing activities and technics focused on the development, which might allow a formal integration of the Marketing technics in the user centred processes.
- **H3:** It is possible to propose specific activities of software development and integrate them in a user centred process model with the final goal of creating more usable applications, that could beneficiate from the proposed activities and Marketing technics.

1.4 Work Methodology

The work methodology of this Master Thesis is structured in a logic order allowing the study plan to identify and further on to explain each and every hypothesis mentioned in the previous section above, Section 1.3.

First of all, the hypothesis **H1** in Section 2.2 (Mapping Study) is explained and detailed by the mapping study that has been realized. The main purpose of this study is to discover scientific studies in the current literature explaining the two fields of interest Marketing and Human-Computer Interaction. Also, these scientific documents should contain explicit solutions regarding methodologies, activities, technics, etc. that are specific for the development of software products combined with the Marketing field.

Secondly, in the following Section 2.5, the problem of not existing a systematic approach in the form of marketing activities and technics has been explained, continuing with a short description of the main user centred process models found in the current literature followed by a short conclusion of each, which can be associated with **H2**.

Furthermore starting with Chapter 3, the proposed solution has been presented, by offering specific details of the Marketing activities that can be integrated in the user centred process model.

Finally, in Chapter 4, the proposed Marketing activities, detailed and explained in the previous chapter, were validated by using a concrete e-commerce software application, which also represents **H3**.

1.5 Proposed Solution

The proposed solution describes the definition of a series of activities that need to be present in a user centred process model, with the final goal of explaining the identified problem in section 1.1 and that the proposed model can be used in order to design solutions based on a Marketing environment.

First of all, the present work begins by analysing the most important Marketing strategies that exist in the actual economics literature and which of these can actually be integrated in the software development product environment. In order to accomplish the realization of this goal, a SWOT (Strengths, Weaknesses, Objectives and Threats) analysis has been made for each component of the Marketing Mix: Product, Place, Promotion and Price. Furthermore, after analysing these strategies, only the ones centred on Product, Promotion and Price were considered adequate to be included in the user centred process model based on Marketing Activities. The reason, for which the Place category has not taken into account, is that this category describes more the part of distribution, delivery and packaging, which in my opinion is not an important matter to be discussed in the part of developing a software product.

Furthermore, an analysis of the different categories of Marketing experts that need to be included in the development team of a software product has been made, along with other experts, like: project manager, software engineers, developers, requirements analysts, etc. Because there are a lot of categories of Marketing experts, a classification of the most important categories, alongside their main tasks and a description of their role needs to be accomplished.

In order to correctly define the proposed solution a systematic study has been realized of the current literature, in order to look for previous investigation projects that talk about the identified problem and mainly, the existent user centred process models have been analysed, in order to strictly see if they can be integrated in a Marketing environment. These tasks are made according to the above mentioned hypotheses that allow revising applications, techniques, documents, that were integrated in the proposed solution.

Actually, there were three categories of activities that were proposed based on the classification that was realized according to [12]: pre-development, development, post-development activities. Furthermore, the standard that can easily be used for adapting the Marketing Model that has been proposed in this paper is the ISO 9241-210 [7]. The reason for which this type of Standard is adequate for being implemented in this category is because of the fact that it allows the integration of the marketing activities in the part of analysis. In particular, the activities that were strictly referred to the part of market analysis and marketing research, were integrated in the planning of the human centred design process and by the time reaching the planification of the context of use the competitive analysis activity can be used.

The proposed solution is composed of eight activities that are integrated in the three categories mentioned above: “pre-development”, “development” and “post-development”. For every activity, a list of important tasks necessary to do in order to achieve the realization of each activity, those responsible for doing the tasks, the entry information necessary for its realization and also the final resulted products. The present work deals with the proposal and

with detailing of the specific activities which can be integrated in the ISO 9241:210 Standard, in which it is pointed out that this standard is not in charge of the execution of the other activities from the standard, in order to keep the main focus centred on the user.

In order to detail the exact categorization of the activities, for the “Pre-Development” category, there are three main activities: Activity IntA.1. “Team Building”, Activity IntA.2. “Marketing Research” and Activity IntA.3. Market Analysis. Also, taking part from the activity grouping “Defining the Marketing Strategy and the Marketing Mix”, there was also created the activity IntA.4. “Product Strategy”. Especially in the case of this last activity, there are some tasks that belong to the Pre-Development Activity Grouping and some tasks belonging to the Development techniques. This separation has been made, because of the fact that some of the techniques included in the Pre-Development category belong to the “Planning the human centred design process” and the other category of the product strategy belongs more to the part of specifying the context of use and specifying the user requirements. In this category the following products have been obtained: “Report on different categories of Marketing Experts that can be used in the Software Development Product”, which represents a document stating the main tasks and roles that the Marketing Experts must accomplish when taking part in a team of software product development. Also, the product referred as “Report of the main interests, goals and necessities of the Marketing experts”, refers to the description of the features that a Marketing expert must have.

Furthermore, continuing with the details of explaining the Development Activity Grouping, there are three main activities used in the Development Activity phase, which are: “Competitive Analysis”, “Identifying the most appropriate target market” and “Analysis of the Marketing Stakeholders”.

Defining the Marketing Activity Grouping is an entire activity that integrates all the activities and has an important part in all three activity groupings category.

1.5.1 Main Goals

Based on the arguments given above, the main goal proposed in this work is related to the accomplishment of an in-depth study and analysis of existing modern Marketing strategies, and in what way these can be integrated in a development process of usable software, defining for this situation activities, tasks, techniques and support tools, as well as products and also, roles in the development team. According to the problem stated explained in Section 1.1 and to the hypothesis *HI* stated in Section 1.3, it might be estimated that a user centred process model could also contain Marketing activities used in the development of a software product, besides those that already exist.

Having considered the main goal of this paper, the following specific goals of the work must be presented:

- Making a thorough bibliographical research, in order to find out if in the current literature, there are examples of studies focused on the integration of modern marketing techniques in user-centred process models.
- Analysing the most important user centred process models and determines in what measure the Marketing model can be integrated in these models.
- Studying the general marketing techniques that exist in the current literature and analysing them by implementing a SWOT analysis.

- Realizing an extensive study in order to see which of the strategies mentioned above can be applied in the Usability Engineering field.
- Grouping these activities in stages set in the process model, defining sub-activities or tasks are transformed for each activity, define the technical, support tools, and responsible (roles) to achieve these activities, as well as those generated intermediates (inputs and outputs).
- Validate the proposed Marketing activities with a software application.

1.5.2 Advantages

The proposed solution represents a concrete example of a user centred process model combined with Marketing Activities that can improve the development of further software applications or other software products. In order to prove the previous statement, the following advantages will be presented:

1. *The proposed model allows the application of a user-centred approach combined with Marketing activities for different software applications.*

By applying a user-centered approach combined with Marketing activities, the new applications could be oriented to the user necessities, improving in this manner the usability of the new software applications.

2. *The proposed model also, by including different Marketing features, helps improving the usability of the development of the software product.*

By taking account different features of the Marketing domain and by applying the strategies from the domain of Marketing Mix, it could help the development team to improve the software product.

3. *The proposed Model involves the participation of different Marketing experts in the design of the user-centred process model.*

When including in the development team, not only, project managers, engineers, requirements analysts, but also marketing experts, this could represent a big plus, in solving aspects of market analysis, research or competitive analysis, that has to be solved in the beginning of any important project development. By including these Marketing experts, the analysis of the software product could save up, precious time, that could actually be dedicated to other steps from the lifecycle of the product development.

4. *The proposed Model allows correctly directing the model to an adequate target niche.*

By correctly addressing the target niche for the new software product that was developed, the experts can correctly estimate the future profit that the product can bring to the company that designed it. This argument implies that a correct estimation of the target market

in which the product will be further launched represents an advantage of bringing the expected profits.

5. *Informing about the competition in the analysis stage of the product represents an advantage.*

Researching and knowing everything about the competition that awaits when entering a target market represents a plus. Having market experts that can be in charge of this aspect, making tables and analysis reports of every important competitor that exists, can simplify the development process. In this way, also developing a product that already exists can be avoided in this way.

6. *Applying different marketing mix could improve the aspects of the development of the software product.*

It represents a great advantage of combining marketing mix solutions to the development of the software product. In the aspect of applying the correct promotion strategies, this could lead to a more improved and correct publicity, that could be made to the software product in the end. We have to take into account that applying correct prices strategies to the software product could increase the profit of the company.

7. *Improving the productivity in the development of the application*

In this way, by applying a systematic incorporation of the prescribed activities, the productivity of the development team of the application, decreases the errors of the design for usability solutions that do not meet the requirements of different team members and also the optimization of the fact of designing more usability products.

8. *Improving the level of satisfaction of the final user and facility of usage, in this way improving the usability of the software application.*

Realizing the design of the software applications combined with Marketing activities by applying a user-centered approach, the developed applications allows the final users can facilitate the reaching of complex processes, that can be unknown at the beginning, increasing their satisfaction.

1.5.3 Uncovered Aspects

The present work represents a concrete contribution to the design of software products, combined with Marketing Activities; the proposal is centred in the design of specific analysis activities, considering that these are the activities that mostly conditioned in the solution design.

According to this, considering the proposed activities are integrated in a user process model, based on the ISO 9241-210 standard, which is completely descriptive, the effort of the

accomplished work was centred in defining and detailing the own activities of analysis of the studied problematic.

In conclusion, the main aspect that was not covered for the description of the remaining activities, is that these activities were not centred in the remaining steps and phases of the ISO 9241-210 Model, which are those related to the design solution, by which the user requirements were met, evaluation and implementation methods.

Furthermore, the fact that the validation of this model has been made with a web application and not an existing software company and applying the resulted products to concrete examples directly extracted from a company. In this way, all the studies and the analysis aspects of the competition, market competition, etc. could be applied directly to real facts and examples, which can be applied to the future work of the project.

1.6 Work Structure

The present work is structured as follows:

- **Chapter 1:** The introduction chapter presents basically the stated problem and the basic steps of the investigation that was led in this project, which are the motivation, hypothesis and the main goals. Also, the advantages of the present work have been briefly described, followed by the uncovered aspects of the work and the final structure of the proposed work.
- **Chapter 2:** The chapter presents the state of the art of the work that has been presented, containing first of all an introduction of the Marketing aspects being covered, Marketing strategies that were found and the strategies that will be used in the following work. Also, this chapter provides a short description of the most important usability models that were found in the current literature. Finally, in the end of the chapter a Mapping Study has been realized, in order to search if there are already found concrete studies about the research topic handled in this thesis project.
- **Chapter 3:** This chapter presents the concrete proposal of activities, with the details of the proposed solution, defining and prescribing activities that can be integrated in the user centred process model based on the ISO 9241-210 standard. In this chapter, for every proposed activities, are defined tasks, techniques, roles and products that were generated in the end.
- **Chapter 4:** This chapter presents the validation of the proposed activities with a concrete e-commerce application, in which every product that has been generated in chapter 3 of this application will be explained thoroughly in this chapter.
- **Chapter 5:** This chapter presents the conclusions of the present work and also the future work used for optimizing the present work and improving all the aspect related to it.

Chapter II. State of the Art

2.1 Introduction

The realization of the state of the art of the present work represented realizing a previous search of the current literature, with large and general keywords, looking for in scientific documents, like: papers, international standards, journals, books, etc.

At a first look of the bibliographical search, (Google search, Bing search, etc.) there were no relevant results to be found and for this reason, a more focused research method needed to be applied, in this case a mapping study. The main goal of this mapping study was to discover previous studies that can combine the main fields of research, which are Marketing and Human-Computer Interaction (HCI).

After finishing the Mapping Study, there were no relevant studies found that can combine mainly the two fields of research. However some relevant studies were found between the two areas of Software Engineering and Human Computer Interaction (HCI), but unfortunately with little interaction with the Marketing Field.

For this reason, the fact that no relevant study has been obtained and no existence of studies and previous contributions, that were derived from the previous study and from the Mapping study of the literature, it also allows to combine with the *HI* hypotheses stated previously in Section 1.3 and in this way it can also justify the realization of the present work.

Also, it is important to point out, that not only the inexistence of some previous studies is not enough for the concrete proposal of Marketing Activities in a User-Centred process model. For this reason, some explicit details of the Marketing field has been provided, about the general Marketing strategies that exist nowadays, details referring to the User Centred Design Process and the relationship that exist between the two fields.

Also, it was important to provide an analysis of the most important user centred process models and which of these models can be used as a model for the Marketing Activities Model that will be proposed in Chapter 3.

2.2 Mapping Study

2.2.1 Definition

A mapping study provides a systematic and objective procedure for identifying the nature and the extent of the empirical study data that is available to answer a particular research question [13]. It can also be defined as a method to build a classification scheme and structure a particular field of interest, in which the analysis of results focuses on frequencies of publications for categories within the scheme [14]. The main goal of applying this mapping study to this project is to identify the stage of the current literature in relation with the identification and analysis of the Marketing Activities that can be applied in a user centred process model. The activities identified must improve, in general, the usability of a software product. Also, it is very important to determine the different approaches of the realized investigations and the existence or not of those investigations.

2.2.2 Research Questions

Usually, every mapping study must start by formulating an investigation question or multiple ones. In the case of this work, the questions that were formulated are the following:

1.	What relationship exists between the field of Marketing and HCI?
2.	What are the marketing strategies related to the HCI field?
3.	What is the relationship between the field of Marketing and UCD (User Centred Design) Process?

Table 1. Investigation Questions

The research method that was proposed in this project was realized using online data bases. Some of the search engines also contain some advanced search settings, in order to help the user, while looking for papers, books, journals, etc. Normally, for more complex searches, the user must define a keyword search, using the specific query language of each search engine.

The systematic mapping study process that has been used in this project has been adapted from the research process that has been used in [14], explained in Figure 1.

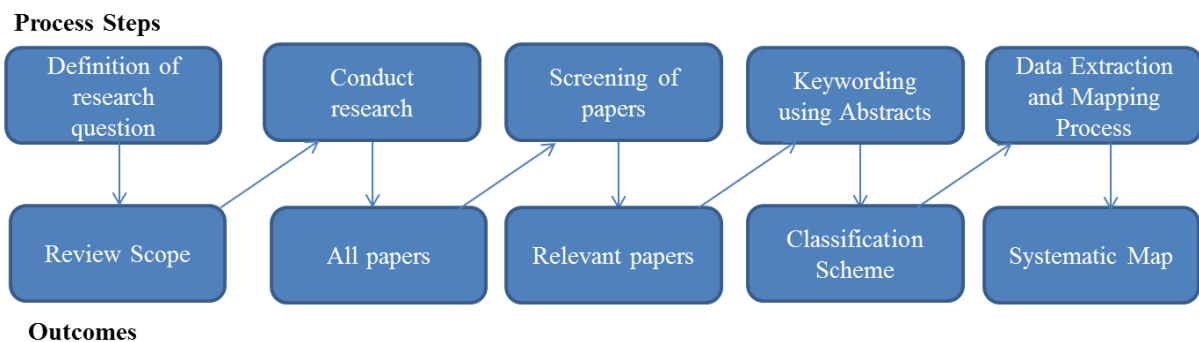


Figure 1. The Systematic Mapping Study Process [14]

2.2.3 Investigation Theme

The investigation theme of this project is: “Analysis of the Marketing Activities and their integration in a User Centred Model Process”.

2.2.3.1 Goal

The goal of this study is to discover how many publications are related with the investigation theme and what is the relevancy assigned to each article.

2.2.3.2 Current Bibliography

The current revised literature consisted in publications indexed in the following digital libraries:

- HCI Bibliography;
- ACM Digital Library;
- Springer Link;
- IEEE Xplore Digital Library;

2.2.3.3 Criteria Analysis

The criteria used in order to accomplish the following researches were centred in the following fields:

- **Marketing Strategies:** Identify the most relevant marketing strategies that are used nowadays in the industry, not only for developing software products, but also for developing products in general.
- **Marketing and Usability:** Before trying to identify the marketing strategies that can be relevant in the software development field, there had to be discovered a relationship that may or may not exist between the two different fields of Marketing and Usability.

2.2.3.4 Keywords

According to the above specified of analysis, the following keywords have been formed:

<p>"marketing strategies" and "marketing" and "usability"</p> <p><usability> = "human computer interaction" "computer human interaction" "human machine interaction" "man machine interaction" accessibility "human factors" "user experience" "user centred" "affective interaction" "affective computing" "affective design"</p>

Table 2. Keywords

2.2.3.5 Evaluation criteria

For the evaluation of the research results, every article has been analysed, by evaluating each content of every article, in every criteria analysis, and it was assigned concrete values:

- 1 for the articles that were considered relevant;
- 0 for the articles that were considered irrelevant for this work.

Also, this evaluation has to be explained for the above mentioned keywords:

- **Marketing Strategies and Usability**
 - **0 (no relevance):** The studied article does not mention any of the marketing strategies used in the development of a software product, but only talks about the marketing and software fields from a general point of view.
 - **1 (relevant article):** The studied article explains the utilization of marketing strategies and offers some relations between marketing and usability, but only from a general point of view.
- **Marketing and Usability**
 - **0 (no relevance):** The studied article offers explicit details about the two domains of interest, but doesn't provide any explicit relation between the two.

- **1 (relevant article):** The studied article provides a description of the two fields and tries to give an explanation of the relationship that may exist between the two areas, even if the details of the existence of this kind of relationship are not so relevant.

It is very important to mention that in the present literature, there was no article, paper found in which the existence of Marketing Activities was described. Because of the fact that the two fields of Economy and Software Engineering are so different, (and highly unrelated) to experts, there was no explicit relationship to be found. The articles will be taken into account for the final study, only if they obtain they obtain the qualification of two, in both domains: marketing strategies, and marketing and usability.

2.2.3.6 Application of the Evaluation Criteria

Following, a real example of the application of the evaluation criteria can be observed on two of the articles found after applying the research process:

Example 1:

Article: *“When Marketing meets Usability: The consumer behavior in heuristic evaluation for web”*

Evaluation: 0

Explanation: Even though the title of the article seems relevant to the present investigation theme, after analyzing in more detail the abstract and content of the paper it is considered that this paper does describes the fields of Human Computer Interaction and how well had this domain of study been received on the market, but unfortunately does not give any detail of marketing, marketing strategies or the relationship that exists between the two fields of study. The studied article has received an evaluation of 0 for the first keyword **Marketing Strategies and Usability** and also, an evaluation of 0 for the second keyword **Marketing and Usability**. The final evaluation is the sum of the two, which in this situation is 0.

Example 2:

Article: *“A holistic model for integrating Usability Engineering and Software Engineering enriched with Marketing Activities”*

Evaluation: 2

Explanation: This article, offers a complete explanation of the relationship that exists between software engineering and usability and it also gives a minor explanation of the approach that might exist with the Marketing field.

The studied article has received an evaluation of 1 for the first keyword **Marketing Strategies and Usability** and also, an evaluation of 1 for the second keyword **Marketing and Usability**. The final evaluation is the sum of the two, which in this situation is 2.

2.2.4 Selection Process

Having considered the previous sections above mentioned, the general process used for the relevant document selection, of the study, has been divided into the following phases:

General Search in which using the relevant keywords mentioned in the section above, the search will be realized, using all the relevant bibliographical sources.

The first selection of documents has been realized after analysing only the title, abstract and keywords of every article. The articles were given a score of 1 or 0, for each area. In function of the final mark, that they have received, they will be taken into account for the second analysis or not.

The second analysis has been realized based on the analysis of the entire content of the article. After receiving a qualification of 1 in the first selection phase, the articles selected in for the second phase, were analysed in their full content. Not only the abstract, title and keywords were important, but also, an important idea of each document was made by analysing the article entirely. The main difference between the two types of selection is that, the first one analyses only the abstract and keywords of the document, whereas the second phase has an impact on the entire content of the article.

Finally, after each and every selection, two tables were made, selecting the articles by category, by each digital library where they have been found and in function of the score that they have received.

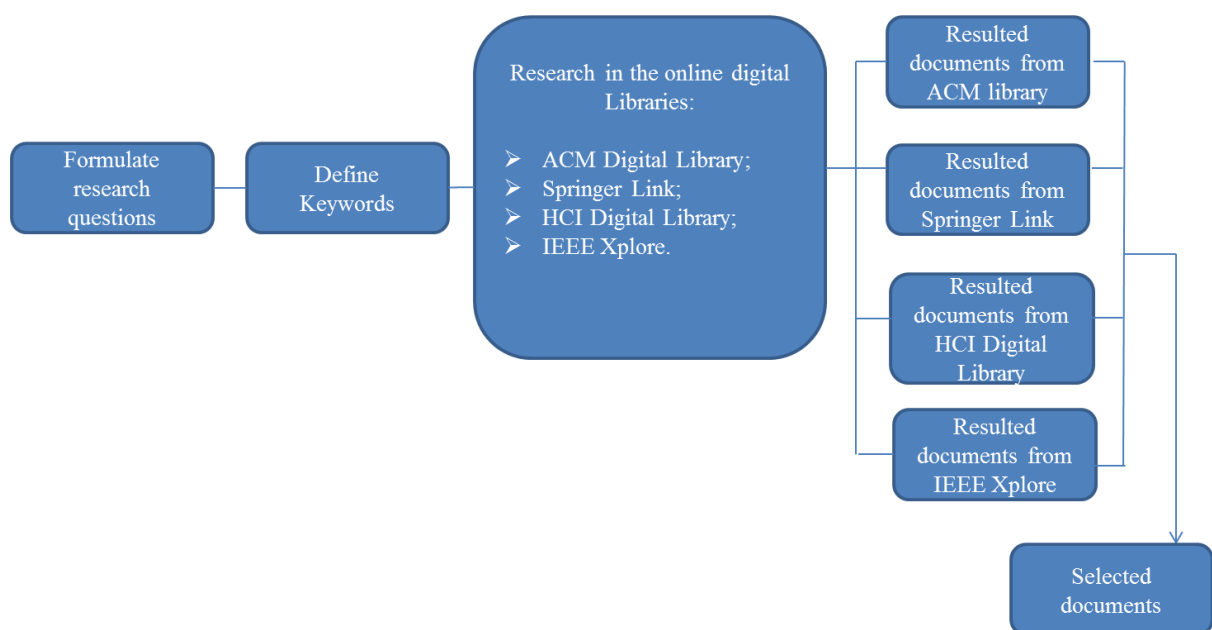


Figure 2. General Research

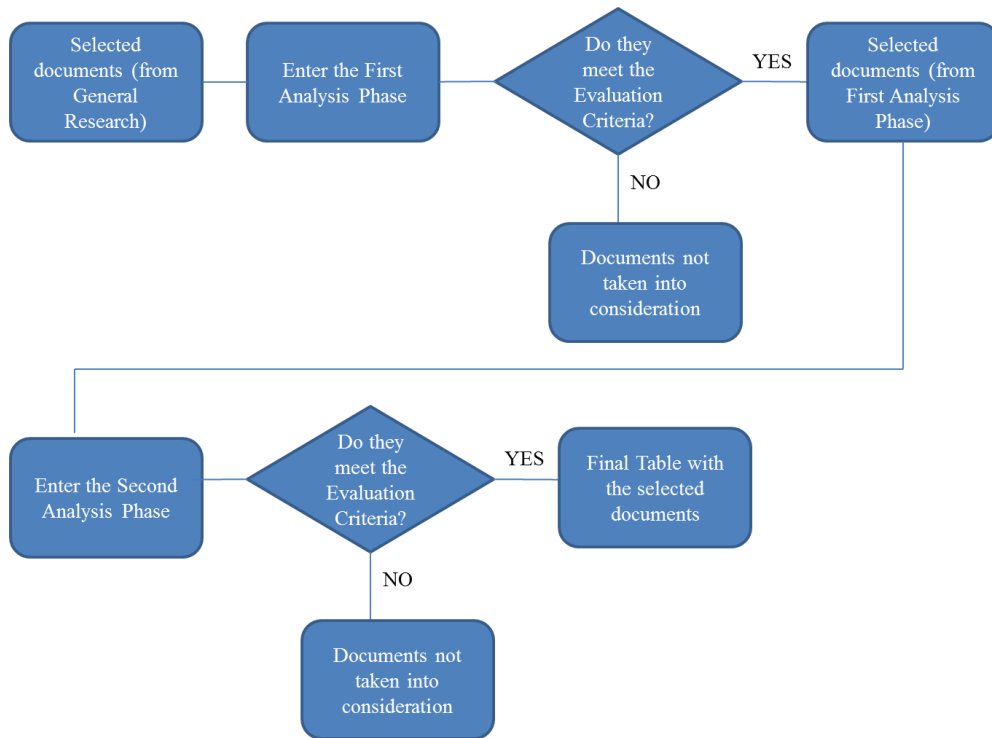


Figure 3. Applying the General Research

2.2.5 Results General Research

After the General Research, as shown in Table 3, the following results have been obtained:

Keywords	HCI Results	ACM Results	Springer Link Results	IEEE Xplore Results	Total Results
Marketing Strategies and Usability	11	51	636	33	731
Marketing and Usability	123	425	17151	383	18082

Table 3. Articles divided by Digital Library

It is important to mention that the results have been selected only based on the advanced research functions offered by online digital libraries. The results have been shown based on the Relevance Criteria.

2.2.6 Results Second Analysis

After the Second Analysis, the following results have been obtained for the keyword “Marketing Strategies and Usability”:

Evaluation/Field	HCI Results	ACM Results	Springer Link Results	IEEE Xplore Results	Total Results
Low relevance (0)	8	31	628	30	697
Relevant Article (1)	2	20	4	3	29

Table 4. Results Second Analysis – Marketing Strategies

After the Second Analysis the following results have been obtained for **Marketing and Usability**:

Evaluation/Field	HCI Results	ACM Results	Springer Link Results	IEEE Xplore Results	Total Results
Low relevance (0)	118	413	17146	381	18058
Relevant Article (1)	5	12	5	2	24

Table 5. Results Second Analysis – Marketing and Usability

2.2.7 Final Results

The final tables reflect the categories of Digital Libraries, for which the selection of the relevant articles has been made, divided in function of HCI Bibliography, ACM Digital Library, Springer Link Digital Library and IEEE Xplore Library.

The selected documents are relevant only in one of the study fields, but without presenting concrete contributions for the final work, as it has been stated in the previous chapter, with the explanation of the first hypothesis H1.

As it can be observed in the below tables, after realising the two selection processes, the first and second one, in the end 53 results were obtained. The obtained articles were not entirely relevant, but do present information regarding the two areas of interest in the following tables that are presented below.

By analysing in much more detail the obtained articles we can see that, for the first category there were 29 results obtained that explained the “Marketing Strategies and Usability” concept and the other 24 were relevant only for the second area of interest, which is “Marketing and Usability”. By analysing the great number of articles that were considered not relevant for the present work, this can only come and sustains the idea stated previously in the *H1* hypotheses, that no articles were considered relevant for the present study.

HCI Bibliography

No.	Title	Author
1	Incorporating Human Factors in the System Development Life Cycle: Marketing and Management Approaches	Kenneth R. Ohnemus
2	Integrating Usability Techniques into Software Development	Jena Anderson, Francie Fleek, Kathi Garrity, Fred

		Drake
3	The Latest Web Trend: Usability?	Elizabeth Weise Moeller
4	Rethinking the Path to Usability How to Design What Users Really Want	Carla Merrill, Diane Feldman
5	User-centered Design: Marketing Implications from Initial Experience in Technology Supported Products	Sunanda Sangwan
6	Customer Feedback Before Market Release: A Case Study	Valia T. Petkova, Peter C. Sander, Yuan Lu
7	A Method for Early Requirements Triage and Selection Utilizing Product Strategies	Mahvish Khurum, Khurum Aslam and Tony Gorschek

Table 6. HCI Bibliography Final Results

ACM Digital Library

No.	Title	Author
1	The Conceptual Model of Experience Engineering (XE)	Masaaki Kurosu
2	A Holistic Model for Integrating Usability Engineering and Software Engineering Enriched with Marketing Activities	Holger Fischer, Karsten Nebe, and Florian Klompmaker
3	The Effect of Brand on the Evaluation of Websites	Antonella De Angeli, Jan Hartmann, and Alistair Sutcliffe
4	Alignment of Product Portfolio Definition and User Centered Design Activities	Ron Hofer ¹ , Dirk Zimmermann ² , and Melanie Jekal ³
5	When Design is Not the Problem – Better Usability Through Non-Design Means	Luke Kowalski, Jeremy Ashley, Misha W. Vaughan
6	When Marketing meets Usability: The consumer behavior in heuristic evaluation for web	Maria Julia Benini, Leandro L. Batista, Marcelo K. Zuffo
7	Implementation of a User-Centered Design Process in a large Software Development Organization	Natalie Woletz, Dirk Zimmermann
8	Studies on the Design Marketing Strategies in the Experiential Economy through the Case Study of ‘the Starbucks Company’	Yung Joo Jang and Eui Chul Jung
9	Interaction-Driven Design: A New Approach for Interactive Product Development	Seungwoo Maeng, Youn-kyung Lim, KunPyo Lee
10	Integrating Usability Engineering in the Software Development Lifecycle Based on International Standards	Holger Fischer
11	User-Centered Design and Fundamental Need	Turkka Keinonen
12	Towards a Marketing Strategy for Open Source Software	Valentina Lenarduzzi
13	The Evolution of Emerging Technologies in Market-Driven Software Product Development	Carina Alves, Jaelson Castro
14	Introducing Usability Activities into Open Source Software Development Projects – a Participative Approach	Mikko Rajanen, Netta Iivari and Eino Keskitalo
15	How can usability contribute to user experience? A study in the domain of e-commerce	IM Moczarny, MR (Ruth) de Villiers, JA (Judy) van Biljon

16	Obstacles to Usability Evaluation in Practice: A Survey of Software Development Organizations	Jakob Otkjær Bak, Kim Nguyen, Peter Risgaard, Jan Stage
17	Increasing Advertising Value of Mobile Marketing – An Empirical Study of Antecedents	Parissa Haghirian, Maria Madlberger, Andrea Tanuskova
18	Understanding Usability in Mobile Commerce	Viswanath Venkatesh, V. Ramesh, Anne P.Massey
19	Video Game Market Segmentation Based on User Behavior	Kaveh Khaleghi, Artur Lugmayr
20	Search Engine Visibility of National Tourism Promotion, Websites: A Case of Nepal	Bimal Pratap Shah
21	Taiwan’s challenges for Significant International Tourism Market Growth	Yau-Tzu Ma, Dr. Andrea Crestan
22	The Challenge of Information Visualization Evaluation	Catherine Plaisant
23	Mobile Advertising: Evaluating the Effects of Animation, User and Content Relevance	Marco de Sa, Vidhya Navalpakkam, Elizabeth F. Churchill
24	Putting the Person back into Personalization	Elizabeth F. Churchill
25	Benefits of Social Media in Business-to-Business Customer Interface in Innovation	Jari Juhani Jussila, Hannu Kärkkäinen, Maija Leino
26	An Analysis of Services for the Mobile Tourist	Esther Meng-Yoke Tan, Dion Hoe-Lian Goh, Yin-Leng Theng, Schubert Foo
27	Marketing Positioning System Designing Based on Extenics	Limei Zhou, Yongqing Zhang, Haolan Zhang
28	Looking for Win/Win Solutions between Lab-work and Hands-on Experience in IT Research	Johan F. Hoorn, Simon van Dam, Guido Fambach
29	Multi-channel Marketing: An experiment on leading	Marije L. Teerling, Willem Pieterse
30	User-centered design approach for interactive kiosks: evaluation and redesign of an automatic teller machine	Marco Camilli, Massimiliano Dibitonto, Alessandro Vona
31	Towards a Marketing Strategy for Open Source Software	Valentina Lenarduzzi
32	A study on OSS Marketing and Communication Strategies	Vieri del Bianco, Luigi Lavazza, Valentina Lenarduzzi, Sandro Morasca, Davide Taibi, Davide Tosi

Table 7. ACM Digital Library Final Results

Springer Link

No.	Title	Author
1	An Interdisciplinary Approach for Successfully Integrating Human-Centered Design Methods into Development Processes Practiced by Industrial Software Development Organizations	Eduard Metzker and Michael Offergeld
2	The Value of User Centered Design in Product Marketing: A Simulated Manufacturing Company Product Offering Market Strategy	April Savoy ¹ and Alister McLeod ²
3	Addressing Marketing Requirements in User-Interface	Lia Patrício ¹ , J. Falcão e

	Design for Multiple Platforms	Cunha ² , Raymond P. Fisk ³ , Nuno J. Nunes ⁴
4	Human-Centered Aspects	Olga Kulyk, Robert Kosara, Jaime Urquiza, and Ingo Wassink
5	Alignment of Product Portfolio Definition and User Centered Design Activities	Ron Hofer ¹ , Dirk Zimmermann ² , and Melanie Jekal ³
6	The Challenge of Dealing with Cultural Differences in American Case Studies Industrial Design in Emerging Countries: Latin-	Alvaro Enrique Diaz
7	A Business-Process-Driven Approach for Generating E- Commerce User Interfaces	Xulin Zhao, Ying Zou, Jen Hawkins, and Bhadri Madapusi
8	A Study on OSS Marketing and Communication Strategies	Vieri del Bianco, Luigi Lavazza, Valentina Lenarduzzi, Sandro Morasca, and Davide Taibi, and Davide Tosi
9	Design of Experience: Measuring the Co-production with the Consumer Engagement during the Product Development Process	Sabrina Oliveira, Virgínia Kistmann, Adriano Heemann, Maria Lúcia L.R. Okimoto

Table 8. Springer Link Final Results

IEEE Xplore

No.	Title	Author
1	Analysis on corporation exerting cyber marketing strategies	Zhi-cheng Liu, Guo-jun Shi
2	Enterprise Marketing Strategies – Transformation Enabled by Information Technology	Sifan Huang, Jiawei Li, Li Li
3	A study on determining marketing strategies for E- business	Yutong Yuan, Yan Li, Yang Xiao, Siying Ge
4	The Internet Marketing Strategies Theory and Empirical Research Based on Product Value	Wei Zhang, Jingdong Chen, Wei Han
5	Marketing Strategy Research on Tobacco Commercial Enterprise – Developing E- commerce	Zhao Guangsheng

Table 9. IEEE Xplore Final Results

2.3 Marketing

2.3.1 Definition

Marketing, more than any other business function, handles customer issues. The general definition that can be given to this process is: “*Marketing is managing profitable customer relationships*” [11]. In this way, Marketing can pursue the goal of attracting new customers by promising superior value and also, keeping and growing current customers by delivering satisfaction. In addition, Marketing can be viewed as the process by which companies create value for customers and build strong customer relationships in order to capture value from customers in return. It is a well-known fact that Marketing needs to be viewed as a sense of *satisfying customer needs* [11]. The main goal of Marketing is to sell products easily. This can easily be achieved by understanding consumer needs, developing products that provide superior customer value and prices, distributing and promoting them effectively.

As one of the fathers of modern Marketing stated, “*The aim of marketing is to make selling unnecessary*”. As it is stated in his book [11], selling and advertising are only part of a larger marketing mix, which is a set of marketing tools that work together in order to satisfy customer needs and build customer relationships.

2.3.2 Marketing Strategies

A marketing strategy represents the marketing logic by which the company hopes to create customer value and achieve profitable relationships [9]. It is very important to decide which customer it will serve (by applying methods of segmentation and targeting) and in what way it will serve them (by differentiation and positioning). From a general point of view, it identifies the total market, and then it divides it into smaller segments. After that, it selects the most important segments and focuses on satisfying customers in these segments.

Normally, each company has the role of designing its own marketing process model or marketing mix, based on the most important factors under its control, which are Product, Price, Place and Promotion, which are also called the Four P's. Nowadays, these four P's have evolved into seven P's, in this category entering the Physical Environment, the People and Processes. Taking into account that in the present work, the software development category is being considered, only the most important factors have been explicitly mentioned, which are the four P's.



Figure 4. Marketing Mix

As it can be observed in Figure 4, finding the best marketing strategy for a company requires many steps like: marketing analysis, planning, implementation and control, by which the company tries to adapt to the actors and forces in the marketing environment. This entire process represents the Marketing Mix, which handles the management and correct presentation of the marketing strategies, but also how are these strategies correctly in a Marketing Process Model. In section 2.1.3, definition and more detail explanation will be given to the Marketing Mix.

According to [11], a marketing strategy consists of specific strategies for target markets, positioning, the marketing mix and marketing expenditure levels. It outlines how the company intends to create value for target customers in order to capture value in return.

In order to find a correlation between the marketing strategies and the usability strategies, that will be further used in the user centered process model, the most important marketing strategies focused on Product have been chosen for the following analysis.

In order to realize an analysis, the SWOT technique has been chosen, in which the advantages, disadvantages, opportunities and strengths of every strategy, taking into account the Human Computer Interaction field will be presented.

2.3.2.1 *PRODUCT SWOT*

Table 10 presents a SWOT analysis that has been made taking into account the most important strengths, weaknesses, opportunities and threats that a software product could face when entering a concrete market. After the analysis of this table, the usability features of a product can be included in the strengths or weaknesses category, depending on the fact that the product possesses or not the specified features. Also, the competitive analysis can represent an important opportunity, by outreaching the other competitor's vulnerabilities or it can be considered a weakness because of the low competitive strength that it shows when launched on the market.

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> - a good functionality, ease of use and relevancy; - having usability attributes, like: learnability, efficiency, memorability, satisfaction; - design's originality; - having good results on the market reach; - good quality market offer; - in the case of a software application, having good interfaces; - cultivating a powerful brand image associated with quality and superior design; - the powerful brand may lead to a loyal database of users, that are eager to find out the next releases of the future versions of the product; - having the customers centered on new product development; 	<ul style="list-style-type: none"> - errors' detection; - low competitive strength; - if we talk about the launching of superior versions of the product, then there is a possibility of having few additional features in comparison with other products that are already on the market; - the absence of some of the usability attributes;
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> - currently aspects of technology development and innovation; - possibility of expanding on other market niches; - outreaches the competitors vulnerabilities; 	<ul style="list-style-type: none"> - low demand on software market; - high competition with other software companies.

Table 10. Analysis SWOT of the Product Marketing Strategy

2.3.3 Marketing Process Model (also known as the Marketing Mix)

As a general knowledge, the marketing mix consists of everything the firm can do to influence the demand for its products [9]. Many companies usually use the same group of 4 strategies based on the product, price, promotion and price. The success of each company consists in the way each of them managed to develop their own key focuses. For instance, in the case of Starbucks Company, the marketing strategy is mostly centered in 4 key elements: Authenticity, Human Connection, Participation and Core Focus [15].

As mentioned above, the marketing mix depends on four variables that are: the product, price, place and promotion.

2.3.3.1 Product

As a general definition, the product represents the most important aspect that can be offered to a market for attention, acquisition, use or consumption that might satisfy a want or need. It is considered as being the key element in the marketing planning.

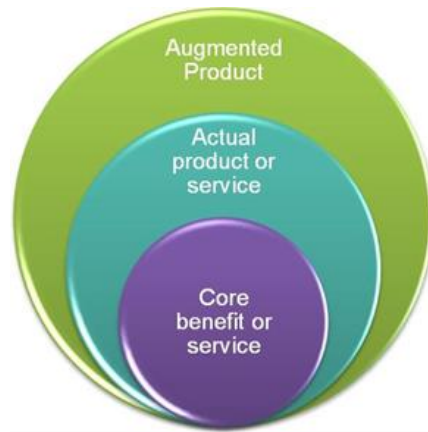


Figure 5. Types of products [11]

Product planners need to think about products and services on 3 levels. **Figure 5** shows that the most important part when thinking about a product is the main core or the benefit of the product. This represents the most important part that defines exactly what is the buyer actually buying.

In the second level, product planners have to transform the core benefit of the product into an actual product. This step requires developing product features, service features, design a quality level, a brand name and packaging, as shown in **Figure 6**.

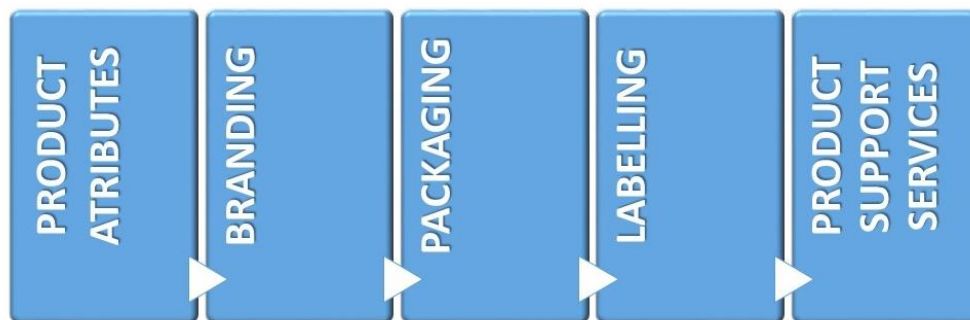


Figure 6. General Product's Features

The new product development starts with idea generation as shown in **Figure 7** – the systematic search for new product ideas. The purpose of idea generation is to create a large number of ideas, while the purpose of the succeeding stages is to reduce that number. The first idea-reducing stage is idea screening, which helps spot good ideas and drop poor ones as soon as possible. Product development costs rise greatly in larger stages, so the company wants to go ahead only with the product ideas that will turn into profitable products.

An attractive idea must be developed into a product concept. It is important to distinguish between a product idea, product concept and product image. A product idea is an idea for a possible product that the company can see itself offering to the market. A product concept is a detailed version of the idea stated in meaningful consumer terms. A product image is the way consumers perceive an actual or potential product.

The marketing strategy development consists of three parts:

- the first part describes the target market: the planned product positioning; and the sales; market share and profit goals for the first few years;
- the second part of the marketing strategy statement outlines the product's planned price, distribution and marketing budget for the first year.

- the third part of the marketing strategy statement describes the planned long-run sales, profit goals and marketing mix strategy.

Once management has decided on its product concept and marketing strategy, it can evaluate the business attractiveness of the proposal. So far, for many new product concepts, the product may have existed only as a word description, a drawing or perhaps, a mock-up. If the product concept passes the business test, it moves into product development.

After that comes test marketing, the stage in which the product and marketing program are introduced into more realistic market settings. Test marketing gives the marketer experience with marketing the product before going to the great expense of full introduction. It lets the company test the product and its entire marketing program – positioning strategy, advertising, distribution, pricing, branding and packaging and budget levels.

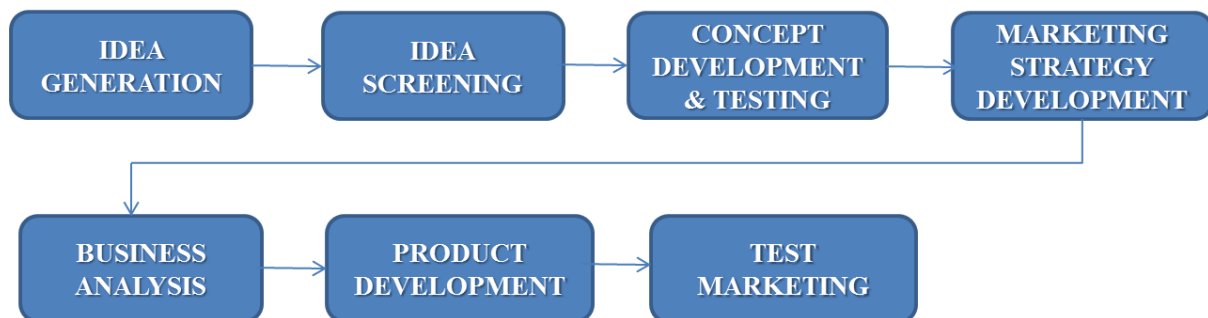


Figure 7. The Sequential Product Development Approach

2.3.3.2 Price

Price represents the quantity of money that customers need to pay in order to obtain the product. It is important to mention that the price doesn't represent the exchange of money, but also must represent a characteristic of the service, experience and an entire culture of the product [15].

2.3.3.3 Promotion

Promotion includes activities that communicate the merits of the product and persuade target consumers to buy it.

The most important aspect is that an effective marketing program tries to mix all the above components into an integrated marketing program built on achieving the company's marketing objectives, by delivering the value to customers.



Figure 8. Marketing Strategies

2.4 User Centred Design Process

2.4.1 Definition

According to [16], a User Centred Design Process offers established processes, methods and tools to understand and consider the part of the six buying roles (which are the initiator, the influencer, the decider, the buyer, the user and the gatekeeper).

The UCD (User Centred Design) is a term that was first used by [17]. Also, [18] it is an often early reference to UCD principles that include early and continuous contact with users, quantitative usability criteria and evaluations and iterative design. Also, the term is defined by the Usability Professionals' Association UPA as an approach to design that grounds the process in information about the people who will use the product. UCD processes focus on users through the planning, design and development of a product. UCD processes focus on users through the planning, design and development of a product [19].

2.4.2 Marketing and UCD

The main goal of User Centered Design is to focus on the understanding of customer needs. Nowadays, more and more specific usability goals take part at the product requirements in product definition documents, which are normally generated by marketing. Marketing can have an ongoing influential role in development as initial requirements are renegotiated in the course of product development [20]. In most cases, marketing is even known as being the "owner" of the product requirements and when facing some questions about the users, marketing may have the answers. The involvement of Marketing in the User Centered Design is not considered as being accidental. For instance, the mind-set, role and organizational placement of marketing and its role in product definition can be considered.

After analyzing from a general point of view, marketing can be viewed as the discipline focusing on what to build for the market and how to attract buyers to it, whereas the UCD is focused on how to implement the product. However, after closely analyzing at a

more deep level, the two fields, not only do they have points in common related to different aspects, but also it might help each other during the development process of a product.

The main area in which Marketing is centered represents the strategic level. Marketing is involved in different areas like social and market trends, perceived customer needs, trying to draw out the strategic implications of the information for product opportunities, product mix and ways of shaping perception of the company and its products. The information which is nearly dealt by Marketing is influencing purchasing and market share, which represent influencing purchasing behavior at a population level, instead of individual one.

On the opposite side, the UCD focuses more on the tactical level. Its main area of interest consists in specific details of implementation of a product or a whole line of products. Its priority represents the satisfaction of a customer after purchase, instead of the purchase alone. Even if marketing it is mostly used at incremental increases in market share, UCD needs to focus on the design that is important for all target users.

Another important aspect that we must take into account, when analyzing the two disciplines is the audience to whom we are addressing. It is a general fact that people are unique individuals, with different mind-sets, concerns, problems and accountabilities. Generally, the consumer of marketing input is traditionally the executive that has the necessary authority for deciding what product opportunities to pursue and in what way we have to position the company and its products in the market. In contrast, the consumer of UCD input during the design phase is the designer, architect, engineer or development manager which normally needs help in order to find the specific design solutions.

Furthermore, the methodology and data of interest used for the two disciplines is different. While marketing focuses on more subjective data, retrospective self-report and opinion, UCD is more skeptical of self-report and opinion.

2.5 Integration between the three disciplines: Marketing, Usability and Software Engineering

2.5.1 Description

In order to try and relate different disciplines, it is necessary to obtain a common understanding of each field, in this case defining usability engineering and Marketing.

Usability engineering is a discipline that involves user participation during the development of software and systems and ensures the effectiveness, efficiency and satisfaction of the product through the use of usability specification and metrics [9].

As mentioned in [11], Marketing can be defined as the process by which an organization relates creatively, productively and profitably to the marketplace. It can also be viewed as the art of creating and satisfying customers at a profit. Furthermore, the Marketing domain can be related to the Marketing Research field, by offering market oriented business strategies, in order to satisfy customer needs and expectations [9].

As stated in [9], there is an important issue presented not only in the marketing area, but also in the software development, which is the fact that the customer cannot be viewed as the end user. Also, the end-user can be considered as a stakeholder for marketing research even like the customer, as the user's needs will have a major impact on the success of the

product. The only integration point that has been presented nowadays is the one between software engineering and usability engineering.

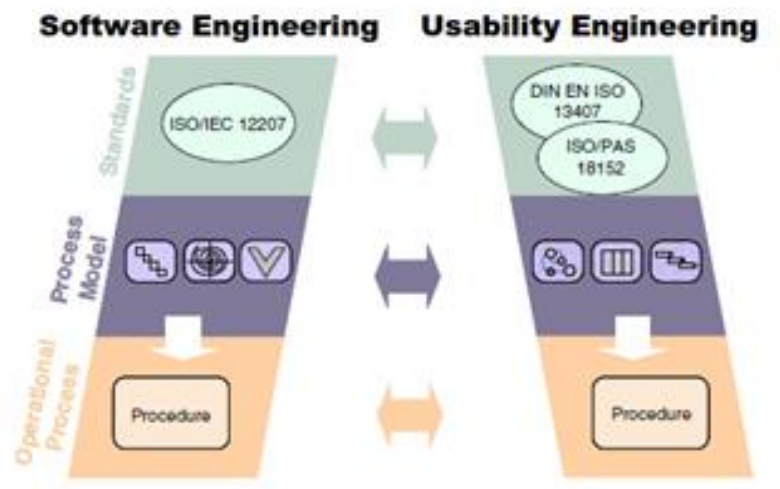


Figure 9. Software Engineering vs. Usability Engineering [9]

The main goal of [9] was to discover points of integration where results from marketing might enrich the overall development process. Unfortunately, the authors did not give some specific integration points related to the Marketing field. Their conclusion was that they were looking for integration points to an overall process. Some examples of synchronization tasks are presented as: the identification of user characteristics (from Usability Engineering) with the analysis of the consumer behaviour (from Marketing) or the identification environment (from Usability Engineering) with the analysis of the macroeconomic environment (from Marketing) which both can influence the context of use description.

The majority of the UE and SE integration approaches can be viewed in four different categories relative to: concrete implementation, common specification, aspects of definition of processes and process models and abstract and generic approaches. In **Figure 9**, the integration approaches for the two disciplines can be observed and it is based on: standards that define the overarching framework, process models that describe systematic and traceable approaches and the operational level in which the models are tailored to fit the specifics of an organization. This type of integration exists only between the disciplines of Usability Engineering and Software Engineering.

2.5.2 Specific interaction points between Marketing and Usability

Continuing the previous statements, it is recommended to identify the common points of interaction that exist between the two disciplines of Marketing and Usability.

One of the main points of connection is the consumer behaviour. As stated in [15] there are a lot of commercial websites that have a unique goal of inducing users to take part in an idea or by inducing decision-making for a purchase by using Marketing strategies. In the fields of the two disciplines six elements which form the decision-making long-term process were discovered: awareness, knowledge, liking, preference, conviction and purchase. By analysing these, we can observe that these six steps do not follow a hierarchical route, but

can easily be influenced by the consumer's involvement with a product. Also, the buying decision is an exhaustive cognitive effort that involves the balance and the psychological and social variables.

Furthermore, specialists consider that, especially in the software industry it is highly recommended for an interaction between Marketing Research and Usability to exist. The main distinction that exists between the two fields is that, market research shows basically what consumers want, while usability is in charge of helping us lean how to deliver on that promise and when we have succeeded. In general, this example comes from the fact that product managers and software developers work tiresome in some situations on a product, but never meet the people who will use it or also, they base their designs on assumptions about the markets that have never been tested.

Moreover, when we know little about the people who will use the product, usability fills the gap by site visits, personas and other type of analysis. It is a known fact that when market research is also available, it can and should work together with usability to amplify and inform. When market research, usability and user research are combined, it is recommended to have a way to listen to both the mass market and individual users; to try and suggest design solutions and to test whether they work.

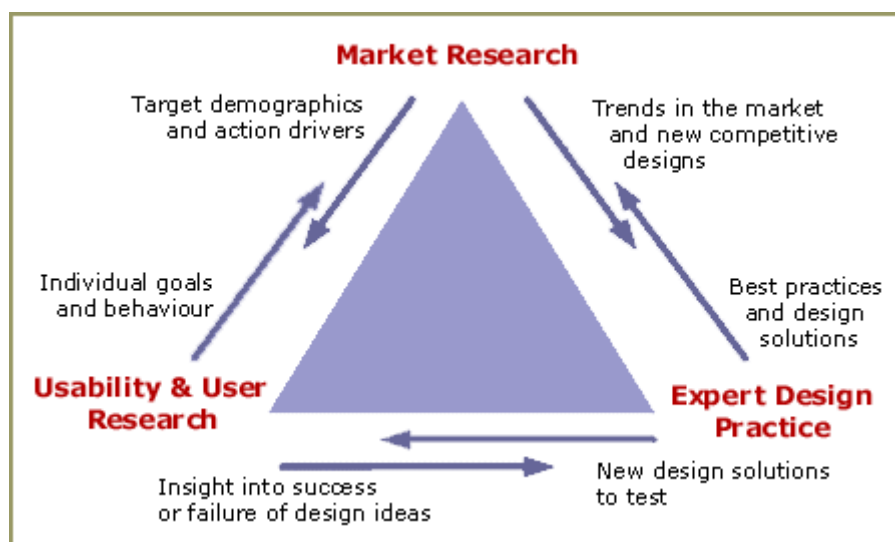


Figure 10. Relationship between Market Research, Usability and Exert Design Practice

Where Market Research looks at mass demographics, usability is interested in a qualitative understanding of people as individuals with a history, goals, interests and a relationship to the website or product. User research looks at a few specific individuals and builds a design concept around what we learn from them.

2.5.3 Conclusion

As it is shown in the previous sections from the above chapters, unfortunately there is not a specific integration between the three disciplines found in the current literature. The articles, books and papers found that cover this aspect, are mostly dedicated to the part of studying the interaction that exists between the fields of usability engineering and software engineering, which has been made based on different international standards, according to

[9]. Also, it is referred to from a general point of view, about the fact that market research and usability are two disciplines that should need more interaction points, because of the many reasons that they are interrelated. Unfortunately, those concrete examples and points of interactions are not very clear defined, not to mention, better structured.

This is the reason for which the realization of this Master Thesis is something new, that has not been yet mentioned in the previous bibliography, which represents that the following explanation of the following chapters will try and explain the *HII* which is mentioned in Section 1.3.

2.6 User Centred Process Models

One of the most important aspects in the User Centred Process Models is knowing and correctly characterizing the user, which requires describing and characterizing its tasks and the way in which he is going to realize them. However, in the majority of existent models of User Centred Process Models, there is no explicit support for the analysis of the Marketing concepts and which can be considered as their main impact on the user and the development of its tasks. As we are going to see in the following sections, there are some general details offered regarding Marketing information in one of the models, but are offered only as general information without explicitly presenting the Marketing tasks.

As mentioned above, in the following section, the main and most important user centred process models are being analysed with the goal of trying to determine their compatibility with a Marketing environment. In order to realize the analysis, the most cited and documented user centred process models have been selected for which their main structure and documentation would allow a correct analysis of their activities. The main goal of the study was to identify the activities of the models that were focused on identifying and correctly analysing the main marketing activities centred for instance in the competitive analysis, market analysis, etc.

One of the most important aspects explained in the user centred process models represents the understanding and the user's correct characterization, which involves the contextualization characterization of its tasks and the way in which they can be realized, without taking into account the aspect of talking about an individual person or if it belongs to a group of persons. Not only, the aspect of defining and correctly characterize a user is important, but also organizational aspects of a software company can be a significant aspect. It is important to analyse not only the users as a whole but also, the company environment in which they can interact.

In order to see, in which type of User Centred Process Model, can Marketing Activities be easily integrated, there has been made an analysis of the most cited user centred process models that exist in the current literature. The main goal of this analysis is to study closely the activities of each model and see in which of these, can Marketing Activities be more easily integrated.

2.6.1 Usability Engineering (Nielsen)

2.6.1.1 Description

Usability engineering represents a set of activities that ideally take place throughout the lifecycle of the product, with significant activities happening at the early stages before the user interface has been even designed. Usability applies to the development of entire product families and extended projects where products are released in several versions over time.

The model has the following structure [8]:

- 1. Know the user**
 - a. Individual user characteristics
 - b. The user's current and desired tasks
 - c. Functional analysis
 - d. The evolution of the user and the job
- 2. Competitive analysis**
- 3. Setting usability goals**
 - a. Financial impact analysis
- 4. Parallel design**
- 5. Participatory design**
- 6. Coordinated design of the total interface**
- 7. Apply guidelines and heuristic analysis**
- 8. Prototyping**
- 9. Empirical testing**
- 10. Iterative design**
 - a. Capture design rationale
- 11. Collecting feedback from the field use**

The lifecycle model emphasizes that before applying design concepts it is also necessary to take into account other aspects. The least expensive way for usability activities to influence a product is to do as much as possible before design is started, since it will then not be necessary to change the design in order to comply with the usability recommendations. Also, usability work done before the system is designed may make it possible to avoid developing unnecessary features.

Pre-design usability activities might be considered part of a market research or product planning process as well, and may sometimes be performed by marketing groups. But, traditional market research does not usually employ all the methods needed to properly inform usability design, and the results are often poorly communicated to developers. However, there should be no need for duplicate efforts if management successfully integrates usability and marketing activities. One outcome of such integration could be the consideration of product usability attributes as features to be used by marketing in order to differentiate the product. Also, marketing efforts based on usability studies can sell the product on the basis of its benefits as perceived by users (what it can do that they want) rather than its features as perceived by developers (how does it do it).

2.6.1.2 *Knowing the User*

An important chapter of this model refers to the knowledge that one can achieve regarding the user. It is unbelievable, how much time can be wasted on certain development projects by arguing over what users might be like or what they may want to do. The author strictly suggests that, instead of discussing these issues it is much better, and also less time consuming, to try and achieve these important facts directly from the users.

Knowing the user is the first phase of the Usability Model and it refers to the importance of visiting the customer website before starting developing the new software product, in order for him to realize how the product will be used.

Also, there are two important user characteristics that need to be taken in to account and these are: **individual user characteristics** and **variability in tasks**. The author insists on the importance that the term *user* has on the product development and that it needs to be defined carefully, by including every person whose work can be affected by the product in some way, as for example: directly the users of the system's end product or output.

According to [8], analyzing the user is one of the basic guidelines in every usability process, it can also be difficult for developers to find the information needed and access to these users. In this complex process, there are some obstacles that can be found, such as:

- The importance of protecting the developers inside a development company from its customers. In this way, it's being avoided that the customers might call directly users, side-tracking them from their main job;
- The importance of avoiding sales representatives to talk to customers;
- User organizations only making users available for a short time.

The individual user characteristics refer to the need of knowing exactly the class of people that will be using the system. Also, it is possible to anticipate the learning difficulties of the users by knowing in addition some of the user's background: work experience, educational level, age, previous computer experience, reading and language skills, the amount of learning time that users will have available for learning and whether they will have the time for attending learning courses.

Knowing the actual user tasks is strictly important in order to define the main activities, in order to realize the design of a software system. Instead of knowing all the possible information of the user, it is also important to know which are his main goals and the tasks that he pursues in order to reach them.

The functional analysis refers not only to random functionalities that the system has or the random tasks that the user needs to do in order to achieve its goals, but also the most important aspect stands in the reason behind, why do the users accomplish all their tasks. This means, the usability engineer should not analyze just the way users currently do the task, but also the underlying functional reason for the task. What actually needs to be done and which are the surface procedures, which can be changed.

The model also refers to an evolution of the users, and the fact that users will become at some point in time experts and will want and need interaction shortcuts. This actually means that it is very important not to design for a short period of time, but also it would be very important to try and design the product for the way users will try and use the product for a longer period of time.

2.6.1.3 Competitive Analysis

Furthermore, another chapter in the book regards the competitive analysis, which it is known to be an important marketing strategy. According to the author, a competing product is considered as being already fully implemented and can therefore be tested very easily. Also, the developers of the existing systems have put a reasonable amount of effort into their development process so that, the competing products may work accordingly, which means that user testing with existing products can be more realistic than a test of other prototypes. In this way, users can perform real tasks on the competing system, making this way possible to learn how well its functionality and interaction techniques support the kind of tasks. In conclusion, competitive analysis does not imply stealing other people's copyrighted user interface designs, but hoping to do better than the previous designs as a result of the analysis of their strengths and weaknesses.

2.6.1.4 Model Analysis

In conclusion, the Usability Engineering model of Nielsen takes into account the specific characteristics of the User, analyzing him from different points of view. However, it does not provide a clear definition of other actors that could be involved in the development market, even though if these actors could have an important impact in the system's definition. The use of this model in a Marketing field will probably involve the possibility of not considering the specific tasks that are involved in the Marketing field, the specific Market analysis, competitive analysis and other activities that are specific to the Marketing field.

2.6.2 IEEE Standard 1074-2006

2.6.2.1 Description

This represents another example of software process model, which is not entirely user centred, but provides a full description of the activities that take place during the development of a software product. This standard is used in order to provide a process for creating a software lifecycle process (SPLCP) [18]. This standard is addressed to the process architect for given software. The standard begins with a selection of an appropriate software project lifecycle model (SPLCM) for use on the specific project. It continues through the definition of the software project life cycle (SPLC), using the selected model, the activities provided in this methodology and the portion of the software lifecycle that is relevant to the project.

For the present project and in order to explain the marketing activities included in this project (explained in Chapter 3), the classification of activities explained in this Standard has been used. The activities provided for the software project lifecycle were used in order to develop the project-specific life cycle process.

According to the Standard, the classification of the activities is the following:

- **Project Management Section of Activity Grouping** – this group includes activities that handle the initiation, monitoring and full control of a general software project throughout a lifecycle.

- ***Pre-development Section of Activity Grouping*** – this category includes the activities that explore and allocate system requirements before the beginning of the software development.
- ***Development Section of Activity Grouping*** – this category includes the activities performed during the development and enhancement of a software product.
- ***Support Section of Activity Grouping*** – this activity group includes the activities that install, operate, support, maintain and retire a software product.

For the present project, the activities for the Pre-development, Development and Post-development Groupings were taken into account, which will be explained in more detail in the following sections.

2.6.2.2 Pre-development Activity Grouping

The activity groups that are included in the section of Pre-development are those that explore and allocate system requirements before software development can begin. Firstly, the development process is started by the identification of the idea or need for a system to be developed, whether it is a new effort or a change to all or part of an existing application.

According to [18] this phase is divided into three main groups:

- Concept Exploration Activity Group;
- System Allocation Activity Group;
- Software Importation Activity Group.

The Concept Exploration Activity Group analyses the requirements at the system level, which has the main goal of producing a document, entitled Statement of Need that furthermore has the goal of initiating the Software Requirements Activity Group. Also, this group includes the identification of an idea or need, the evaluation and refinement of the idea or need, producing in the end the Statement of Need developing system document.

The System Allocation Activity Group represents the union between the concept Exploration and the definition of software requirements. Throughout this category, the system architecture will be developed. The analysis of the system functions will be further explained in two documents: System Functional Software Requirements and System Functional Human and Hardware Requirements.

The Software Importation Activity Group is in charge of dealing with activities that provide the means to extract the software requirements that will be satisfied through importation, by evaluating candidate sources from which the imported software might be obtained, to determine the method of importation and to import the software, including documentation, into the project.

2.6.2.3 Development Activity Grouping

The activity groups from the Development Section include the activities performed during the development and enhancement of a software project. These activities need to be mapped onto a software project life cycle model (SPLCM) or joined together by a process architect to become processes appropriately tailored and relevant to an organization or project.

This Activity Grouping is formed of the following categories:

- Software Requirements Activity Group;

- Design Activity Group;
- Implementation Activity Group.

The Software Requirements Activity Group includes mainly the activities that are directed toward to the development of software requirements. In the development of a system that contains hardware, human and software components, the Software Requirements Activity Group refines the software requirements allocated from the total system requirements.

The goal of the Design Activity Grouping is to develop a coherent, well-organized representation of the software system that meets the Software Requirements. At the architectural design level, the main focus is on the software components, that form the software system and on the structure and interfacing of those components. At the detailed design level, the emphasis is on the data structures and algorithms for each software component.

This category includes the transformation of the software product into a programming language. This activity

2.6.2.4 Post-development Activity Grouping

The activity groups of the Post-development section include the activities that install, operate, support, maintain and retire a software product. The activities listed are not processes. They need to be mapped onto a software life cycle model (SPLCM) or joined together by a process architect to become processes appropriately tailored and relevant to an organization or project.

This category includes the following activity groupings:

- The Installation Activity Group;
- Operation and Support Activity Grouping;
- Maintenance Activity Group;
- Retirement Activity Group.

From a general point of view, this activity group consists of the transportation and installation of a software system from the development environment to the target environments, user operation of the system and ongoing support, the identification of enhancements and the resolution of software errors, faults and failures and the removal of an existing system from its active support or use either by ceasing its operation or support or by replacing it with a new system or an upgraded version of the existing system.

2.6.2.5 Model Analysis

In conclusion, this Standard has been very helpful in the part of classification of the Marketing Model, which will be further be detailed in the third Chapter. Also, by analysing much closer the model, there have been some Marketing Activities being discovered in the part of pre-development activities, referring to as simple: *Marketing Information*. This represents another reason for which, the Marketing Domain has been described and characterized only from a general point of view, fact that again requires the further motivation of the **HI** hypotheses.

2.6.3 Usability Engineering Lifecycle (Mayhew)

2.6.3.1 Description

This model has been proposed by Deborah J. Mayhew in her book “The Usability Engineering Lifecycle: A Practitioner’s Handbook for User Interface Design” [10] and describes the achieving of usability in product user interface design through a process called Usability Engineering. The book is based on a detailed characterization of defining in a more detailed manner the tasks, activities, methods and necessary technics used to realize a usability oriented design. It also defines the term Usability as being a measurable characteristic of a product user interface that is present to a greater or lesser degree [10]. The basic characteristics of usability are “easy to learn” and how “easy to use” can the user interface become for frequent and proficient users, after they have mastered the initial learning of the interface.

In the book it is mentioned that the Usability Engineering Lifecycle consists of several types of tasks, such as [10]:

- Structured usability requirements analysis tasks;
- An explicit usability goal setting task, driven directly from requirements analysis data;
- Tasks that support a structured, top-down approach to user interface design driven directly from usability goals and other requirements data;
- Objective usability evaluation tasks for iterating design towards usability goals.

The user process model defines three main phases: Requirements Analysis, Design/Testing/Development and Installation phase. Having considered the Marketing field, the analysis of this model is based on the “Requirements Analysis”, because of the fact that it has grouped all the tasks in which the users are being analyzed and also, the restrictions of the system are being analyzed.

The main phases in the “Requirements Analysis” are the following:

- **User Profile:** A description of the specific user characteristics relevant to user interface design is obtained for the intended user population. After you obtain who your users are, you obtain a description of the whole user population in terms of characteristics relevant to user interface design. These characteristics can be divided in the following categories: psychological (ex. attitude, motivation), knowledge and experience (ex. typing skill, task experience), jobs and task characteristics (ex. frequency of use, task structure), physical characteristics (ex. colour blindness).
- **Contextual Task Analysis:** A study of user’s current tasks, work-flows patterns and conceptual framework is made, resulting in a description of current tasks and work flow and an understanding and specification of underlying user goals. These will be used to set usability goals and drive Work Reengineering and user interface design.
- **Usability Goal Setting:** specific *qualitative goals*, reflecting usability requirements extracted from the User Profile and Contextual Task Analysis, and *quantitative goals*, defining the minimal user performance and satisfaction criteria based on a subset of high-priority qualitative goals, are developed. These usability goals focus later design efforts and form the basis for latter iterative usability evaluation.
- **Platform capabilities and constraints:** The user interface capabilities and constraints (for example, windowing, direct manipulation, colour) inherent in the

technology platform chosen for the product are determined and documented. These will define the scope of possibilities for user interface design.

The tasks that have been presented will be documented in a work product called the product Style Guide.

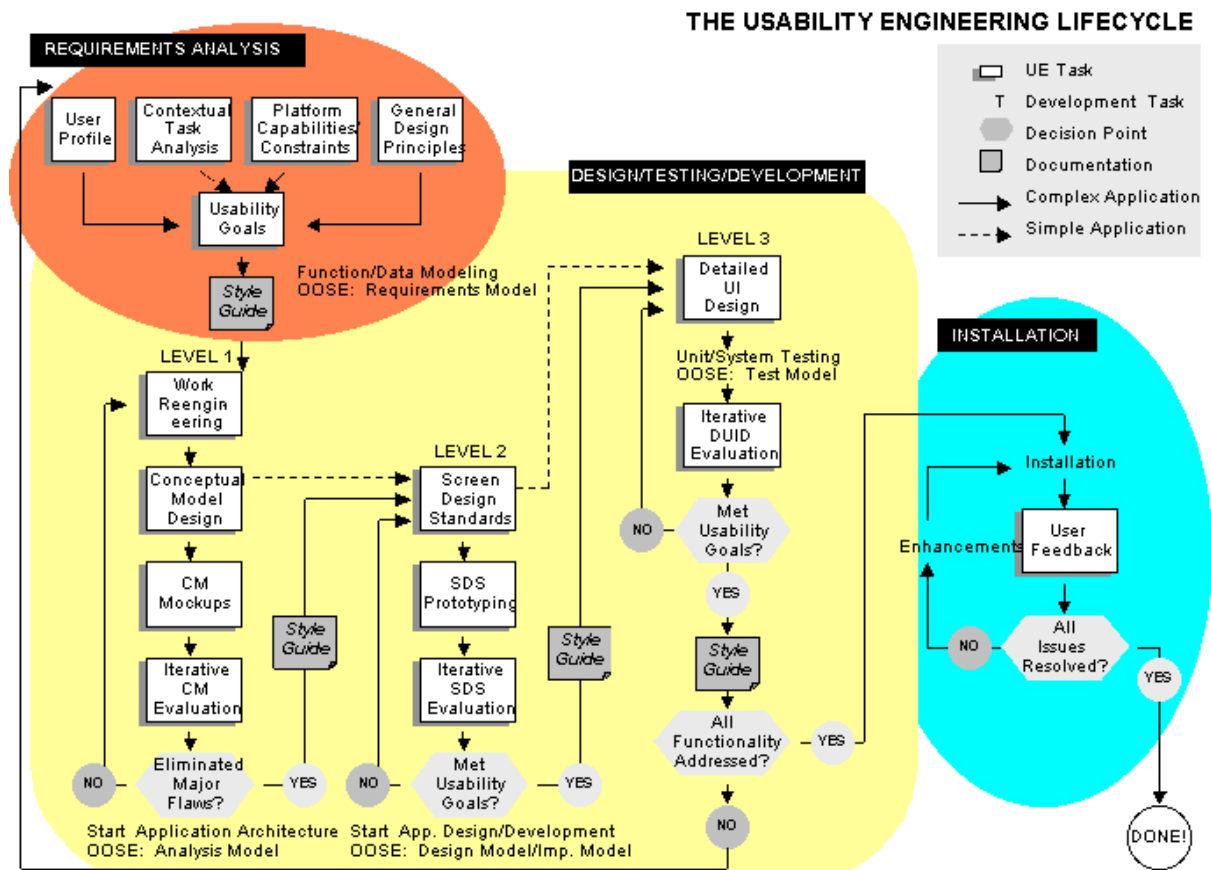


Figure 11. The Usability Engineering Lifecycle [10]

2.6.3.2 Model Analysis

First of all, the model explains in a more detailed way the activities of the user centred process model, as well as the methods and technics used in every activity.

However, the model doesn't present a specific activity which is focused on analysing the application environment, which requires the identification of all the Marketing activities and tasks or mentioning the previous tasks that are usually realized before the beginning of the software development process.

For these reasons, it doesn't seem appropriate to use this model in a Marketing environment, because of the fact that the activities of the model will be insufficient in order to correctly identify the tasks of each Marketing expert and correctly identify the role of each one and also trying to include the Marketing expert's knowledge in the development of software product.

2.6.4 ISO Standard 9241-210:2010

2.6.4.1 Description

The ISO 9241 is a multi-part standard from the International Organization Standardization covering ergonomics of human-computer interaction. The part of the ISO which was mostly used in this paper is the one related to the ISO 9241:210 [7]. This part studies the ergonomics of human system interaction, provides guidance on human system interaction throughout the life cycle of interactive systems.

In order to try and integrate the marketing activities in the user centered design model, first we need to know the actual activity groupings of the design process. After analyzing each activity grouping with its own specific characteristics and tasks, it seems to be more suitable to integrate the Marketing activities in this model.

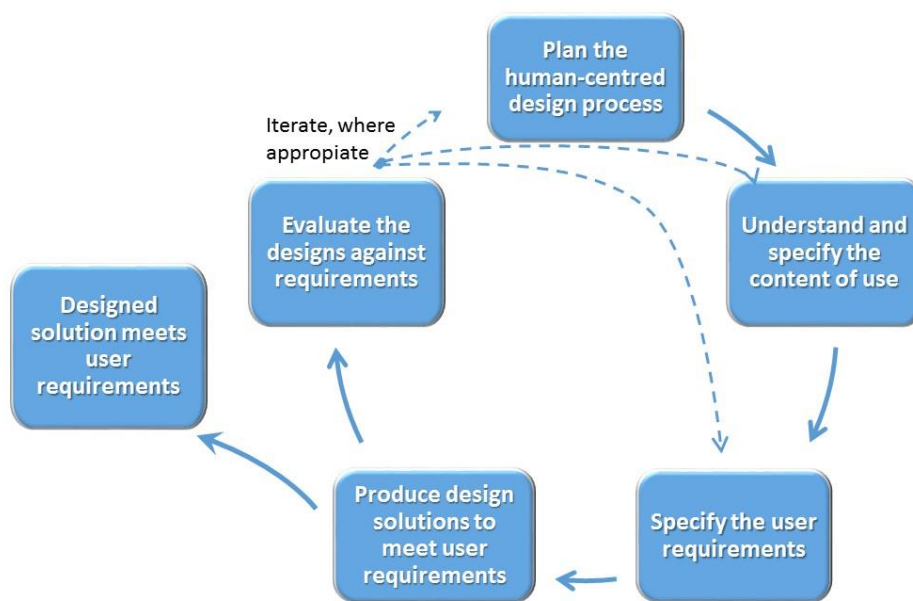


Figure 12. ISO Standard 9241-210:210 [7]

As it can be observed in **Figure 12**, the Standard defines the following three activity groupings which are key factors regarding the design centered in humans, activities that can be defined as requirements. These activities can be divided in an iterative process oriented in analyzing, specifying, and design and continuously evaluating, in order to produce a solution that can be adequately integrated to the user's requirements and organizational requirements.

From the following activity grouping, only three of them, were chosen for the analysis:

- Planning the human centred process;
- Specifying the context of use;
- Specifying the user and the organizational requirements.

2.6.5 Planning the Human Centered Design Process

This activity grouping refers to the fact that human-centered design will be planned and integrated into all phases of the product life cycle, like conception, analysis, design, implementation, testing and maintenance. It is very important in this activity grouping that,

those in charge with the planning of the project must consider the relative importance of human factors in the project by evaluating:

- a) the manner in which usability relates to the purpose and use of the product, system or service;
- b) the types of risk that can be produced after using poor usability;
- c) the nature of the development environment.

In order to select the human centered design methods, the following steps that must be taken into account are:

- a) identify the required human activity.
- b) identify the potential methods and techniques that could be used to achieve this activity.
- c) consider the potential business benefits and/or reduction in risks to the project that would be achieved by use of each potential method or technique.
- d) select the most cost-effective method taking account of the associated strengths, weakness and constraints of the type of method: time, cost, skills available, access to stakeholders and other users.

2.6.6 Specify the Context of Use

This activity grouping refers to the context in which the system is defined by the characteristics of the users, tasks and the organizational, technical and physical environment. Basically, during the course of design, an increasing amount of detail is added, to the context of use description. More detail, may also lead to reassessment of other information, on behalf of use description, resulting possibly in changed descriptions.

The context of use descriptions may be provided for the following purposes during development:

- a) initial high-level description of the context of use, documenting assumptions, and providing a basis for identifying users and undertaking user needs analysis;
- b) the current context of use;
- c) intended context of use of an interactive system, to provide a basis for designing the product or system for specified types of users, tasks and environments.
- d) specified context of use in which user requirements apply, to make scope of user requirements explicit.
- e) context of use for evaluations, as part of the specification of an evaluation, or as a part of the evaluation report.
- f) context of use as part of product description, that is intended for potential acquirers, purchasers or users.

Context of use information can be gathered by a combination of interviews, workshops, questionnaires and/or observation, depending on the complexity of the context of use and how well it is understood. Specific methods include context of use analysis, contextual inquiry, diary study, and ethnography and field study.

2.6.7 Specify the User Requirements

This activity grouping refers to the fact that the majority of design project consider a major activity, the identification of user needs and the specification of the functional and

other requirements for the product or system. Depending on the scope of the system, the user requirements can include requirements for organizational changes and revised work styles and may suggest, opportunities to combine products and services. If the proposed interactive system will affect organizational practice, the development process should involve organizational stakeholders with the aim of optimizing both the organizational and technical systems.

2.6.7.1 Model Analysis

As it may be observed from the previous section, the development category of this present work (described in Section 3.3.2) has been made based on the activity grouping that was explained in the previous section.

As it might be observed, the standard recognizes the existence of different Marketing experts, that can be included in the category of different Marketing stakeholders and also the importance of analysing their specific goals, tasks and main description, taking into consideration that the final users are not the only stakeholders that we have to take into consideration in order for the development of a software product.

Furthermore from the category of user centred process models analysed in the previous sections, this standard is the only one that recognizes the importance of different categories of stakeholders that can be included in the software product development. Considering for instance different Marketing experts that can be included in this software application development, the standard presents different specific activities in order to identify the needs and requirements of those that are not users, but have a big importance in the development of the system. The standard also, presents specific activities that are used in order to identify the necessities and requirements of those that are not users, but have an importance in the development of the system.

2.6.8 Marketing Process Model (Philip Kotler)

2.6.8.1 Description

This following model described in Section 2.6.8.1 is based on the description of correctly managing the marketing effort. In order to accomplish this goal, a very important aspect in strategic marketing represents the management of marketing activities. There is a group of four categories that we need to take into account, like: Marketing Analysis, Planning, Implementation and Control.

This model has been presented in the book of Philip Kotler [11] and basically presents the steps that are made when launching a product from the perspective of a company and all the steps that are made in this sense. The company first develops company-wide strategic plans and then translates them into Marketing and other plans for each division, product and brand. Through implementation, the company turns the plans into actions. The control step consists of measuring and evaluating the results of marketing activities and taking corrective action when needed. Finally, marketing analysis provides the information and evaluation needed for all the other marketing activities. Figure 13 shows how the four steps of the model are related to one another and in what measure the Analysis step is the most important, being related to every other step.

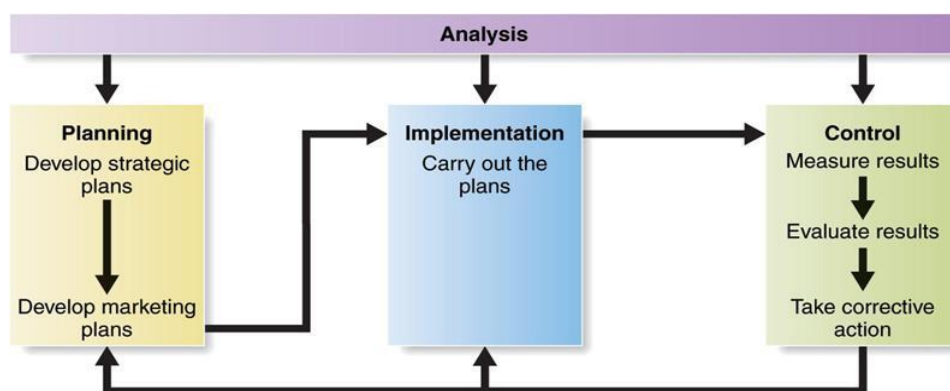


Figure 13. The Marketing Process Model [11]

2.6.8.2 Marketing Analysis

This part stands for realizing a complete analysis of the company's situation. Normally this kind of analysis is conducted with the help of a SWOT analysis. This diagram contains the company's strengths (S), weaknesses (W), opportunities (O) and threats (T). Strengths include internal capabilities, resources and positive situational factors that may help the company serve its customers and achieve its objectives. Weaknesses include internal limitations and negative situational factors that might interfere with the company's performance. Opportunities are favorable factors or trends in the external environment that the company may be able to exploit to its advantage. Threats are unfavorable external factors or trends that may present challenges to performance.

The company should analyze its markets and marketing environment to find attractive opportunities and identify environmental threats.

Internal	Strengths Internal capabilities that may help a company reach its objectives	Weaknesses Internal limitations that may interfere with a company's ability to achieve its objectives
	Opportunities External factors that the company may be able to exploit to its advantage	Threats Current and emerging external factors that may challenge the company's performance

Positive **Negative**
 Figure 14. SWOT Analysis [11]

2.6.8.3 Marketing Planning

Marketing planning represents deciding on marketing activities that will help the company attain its overall strategic objectives. A detailed marketing plan is needed for each business, product or brand.

A marketing strategy consists of specific strategies for target markets, positioning, the marketing mix and marketing expenditure levels. It outlines how the company intends to

create value for target customers in order to capture value in return. Normally in this section, the planner explains how each strategy responds to the threats, opportunities and critical issues spelled out earlier in the plan. Additional sections of the marketing plan lay out an action program for implementing the marketing strategy along with the details of a supporting marketing budget. The last section outlines the controls that will be used to monitor progress, measure return on marketing investment and take corrective action.

The Marketing Plan has the following content: Executive summary, current Marketing situation, threats and opportunities analysis, objectives and issues, marketing strategy, action programs and budgets.

2.6.8.4 Marketing Implementation

Marketing implementation is the process that turns marketing plans into marketing actions in order to accomplish strategic marketing objectives.

2.6.8.5 Marketing Control

Marketing Control involves evaluating the results of marketing strategies and plans and taking corrective action to ensure that objectives are attained. Marketing control involves four steps. Management first sets specific marketing goals and it then measures the performance in the marketplace and evaluates the causes of any difference between expected and actual performance. Finally, management takes corrective action to close the gap between expected and actual performance.

2.6.8.6 Model Analysis

The model describes the most important steps that are made during a marketing program. As it can be observed in the previous sections, it describes a logic marketing plan, that start with the marketing analysis and finishes with the Marketing control plan.

As it can be observed in the present work, the part of market analysis and marketing planning have been thoroughly analysed in the following sections.

The market analysis section has been considered the basis of the creation of the pre-development activities presented in section 3.3.1., and the activities for the marketing plan have been considered not only, the marketing mix process, but also the analysis of the existent competition that might be presented in the market.

Also, the marketing plan relates to the explanation of the marketing mix and to the presentation and description of the marketing strategies.

2.6.9 Summary

After analysing the different user centred process models, it can be concluded that none of them is completely adequate for a Marketing environment, because there are no specific activities for the identification of the distinct Marketing experts and other Marketing environment strategies. However, the ISO 9241-210 standard is a good alternative to be used as a starting point for a user centred process, because of the fact that can integrate the description of Marketing activities and also, it allows the integration of the Marketing process model.

Furthermore, the IEEE Standard has proven to be very useful, especially in the part of categorizing the activities according to their main role and moment of realization, as being

mentioned in the lifecycle process. Another important key element in defining the structure of the Marketing Model has been the analysis of the Marketing Process Model. After the analysis of Section 2.6.8, it has been concluded that the Analysis step is the most adequate to be taken into consideration for the further integration of Marketing Activities, explained in more detail in Chapter III.

2.7 Conclusions

The present State of the Art chapter, allowed by the use of the systematic mapping study of the current literature that there are no previous works, that might have concrete approaches of the Marketing activities field, combined with the usability domain.

Also, after the identification of the Marketing strategies and the explanation of the Marketing process, it has been described that there is no explicit relationship between the Marketing field and the Usability field, with the exception of some techniques that were explained in section 2.6.1.3, as the Competitive Analysis of Nielsen. Also, it has been explained the importance and the advantages of including the Marketing field in the software process development team.

After the detailed analysis of the Marketing field and its main features, there was a need of describing the most important User-Centred Process Models. In this way, it has been revised that the user centred process models analysed do not have specific activities that can allow the integration of Marketing activities inside the model.

In conclusion, the hypothesis **HI** has been thoroughly explained because of the inexistence of the previous studies. In this way, the elaboration of the present work is justified and also the realization of a concrete proposal.

Chapter III. Proposal of activities and their Integration in a User-Centred Process Model

3.1 Description of the integration framework

The major contribution to this present work, besides the analysis of the existent bibliographical literature already mentioned in previous sections, represents the definition of different Marketing activities that can be implemented in the software development field, taken into account their specific characteristics, in a user centred process model. These specific characteristics are based on the necessity of taking into account not only the importance to realize a market analysis before starting developing a software product, but also include a marketing process during the development activities presented in the development process. Furthermore, it is highly worth mentioning that the activities have the main goal of bringing advantages not only to the user, but also improve the usability of a software product.

As stated in previous sections and based on the previous analysis that were made, the following new model of Marketing activities can be integrated in the analysis phase of the user model process described in the international standard ISO 9241-210 [7], because of the fact that this standard offers an adequate framework in order to recognize the stakeholders and user's requirements in the development process and also it offers details of the context of use that needs to be explained in the process. Furthermore, the standard has been used only as a model, because of the fact that this present goal was to present new activities, inspired from the Marketing field. Also, the classification of the following activities has been realized based on the classification made in the IEEE Standard: 1074:2006 [18]. As explained in previous sections, the categorization of Pre-development activities, Development activities and Post-development activities, has been considered adequate in order to better integrate the Marketing Activities in the software development model.

In conclusion, the following proposed model has been inspired from the model of analysis form the ISO 9241-210 and the classification of activities was inspired from the IEEE 1074-2006 Standard. The activities proposed in this model, have the following structure:

- The Activity Groupings which represent a whole group homogenous activities that were presented;
- The Activities;
- The existent sub-activity, if there is the reason for including a sub-activity in its definition;
- The adequate tasks and technics necessary for the evaluation of the current activity;
- The definition of the results or expected products for each activity;

The main goal is that these Marketing activities can be used accordingly, in order to improve the usability of software applications.

Figure 15 presents an image of the organization and classification of the activities by categories. Also, following the sections, these activities will be more thoroughly presented.

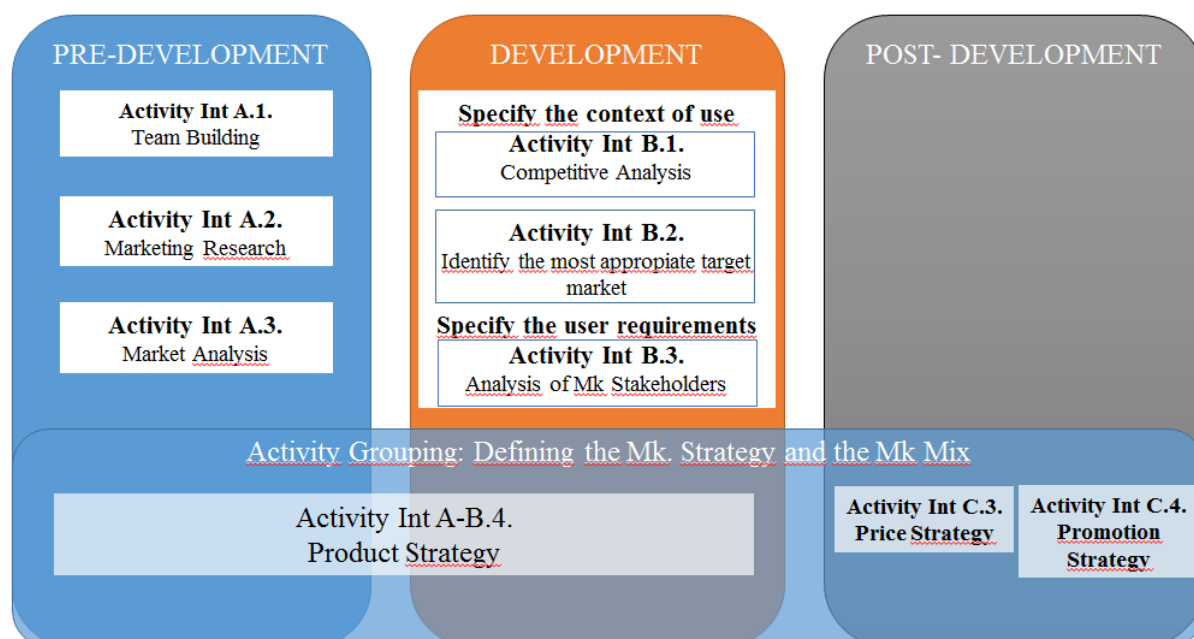


Figure 15. Proposed Marketing Activities Model

The integration of the activities is the following:

Activity Grouping – Pre-Development

- **Activity IntA.1. Team Building:** In this activity, the team members of the software development product will be identified. This especially refers to the Marketing Experts that are going to be included in the development team, alongside engineers, requirements analysts, developers, etc.
- **Activity IntA.2. Marketing Research:** This activity refers especially to the Marketing steps that are realized at the beginning of the software product development.
- **Activity IntA.3. Market Analysis:** Information about the target markets are being offered, as well as the most important segments identified in the present market and which are the most important segments to be approached.

Activity Grouping – Development

Specify the context of use category

- **Activity IntB.1. Competitive Analysis:** This activity has the main goal of presenting an analysis of the most important competitors that exist in a concrete market, realising tables with their main advantages and disadvantages.
- **Activity IntB.2. Identify the most important appropriate target market:** After selecting the most important markets, from the previous activities, this one is used for identifying the most relevant market.

Specify the user requirements category

- **Activity IntB.3. Analysis of Marketing Stakeholders:** This activity is focused on identifying the most important Marketing Stakeholders that exist and realising tables with their main advantages and disadvantages, a description and feature tasks of each and every one of them.

The following activity can be presented as an integration activity and an activity that practically includes the Marketing Mix in the software development lifecycle. Because of the fact that it contains strategies that need to be included in all of the three activity groupings, it needs to be included in all three main activity categories, like: Product, Price and Promotion Strategy.

Activity Grouping – Defining the Marketing Strategy and the Marketing Mix

- **Pre-development Activity:** Activity IntA.4. Product Strategy: This activity is focused on describing the existent Marketing strategies that are centred on the development of a product, starting with the new development strategies that are used before starting the development of a software product;
- **Development Activity:** Activity IntB.4. Product Strategy: After identifying the new development product strategies, there is also a need of managing these strategies, even until the test Marketing;
- **Post-development Activity:** Activity IntC.3. Price Strategy and Activity IntC.4. Promotion Strategy: These two different types of activities refer to the most important activities that need to be put in practice when launching a product on a specific market, which are identifying the correct price and managing the most important promotion strategies.

3.2 Process Model Description

3.2.1 Model Notation

The way in which the activities and tasks are being described and also the products that are being generated follow the below description of annotations.

3.2.1.1 Structure

In general, the proposal structure has four levels: Activity Groupings, Activity Categories, Activities, Tasks and Sub-tasks. The description is as follows:

Activity Grouping: Refers to the activity groupings that are defined according to the IEEE 1074-2006 Standard [18] and also corresponds to the Marketing Strategy defined in the Marketing Mix [11].

Activity Category: Refers to the activity groups defined in the ISO 9241-210:2010 Standard [7].

Activity: is according to the description and details of the proposed activity.

Task: is according to the description of the tasks in order to realize the proposed activity.

Sub-task: is according to the description of the sub-tasks that are necessary in order to realize the described task. It is needed to be mentioned that this level is not required for all tasks.

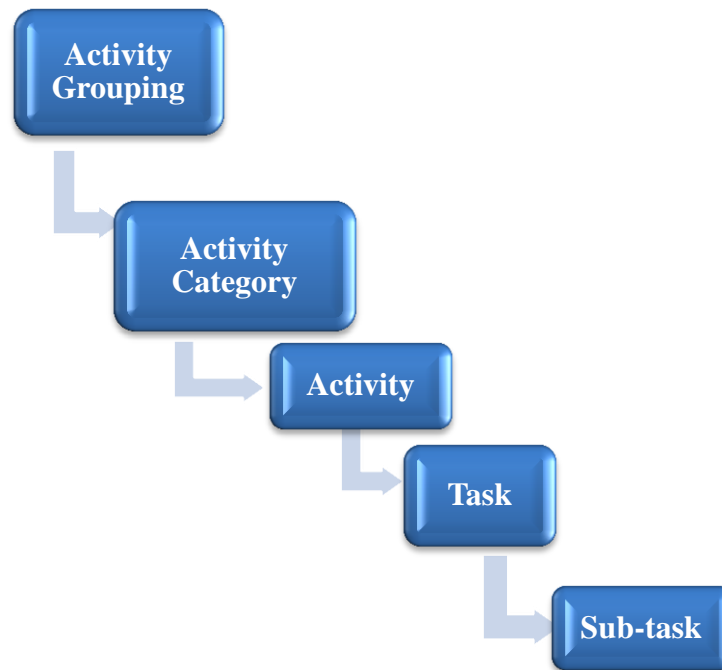


Figure 16. Hierarchy of the Activities Structure

3.2.1.2 Description

The details of every element described in previous sections are described in the following:

- **Activity Grouping:** a brief description of every activity grouping is offered, as well as a presentation of its main targets and goals.
- **Activity Category:** the categories for this process model are being described as well as the further activities that belong to each activity grouping.
- **Activity:** for each activity, the main goal of the Activity is being described as well as the tasks that are necessary for the realization of the presented Activity.
- **Task:** For each, the following elements are also being presented:
 - **Description:** Description of each task, specifying what external information is needed and also the input products.
 - **Techniques and Methods:** A list of the described techniques is presented in order to realize the following task. The technics chosen

for this model are specifically the ones used in the development of software applications, user centred design and Marketing field.

- **Roles:** A list of roles that were used for the description of the following tasks. Lists of Marketing experts that can take part in the development team of a software product are presented in the following sections.
- **Input Information:** A list of the information needed for the realization of the following task. The entry or input information is composed by the following: external information and products that were generated from other tasks.
- **Output Products:** A list of output products has been generated. Each and every product has a description, example and also a destination field.
- **Sub-tasks:** There are some situations in which the presentation of some subtasks is necessary for the explanation of some tasks.

3.2.2 Description of Technics and Methods

In the following section the most important technics that have been used in the current work will be presented. In each section, a brief description will be offered, followed by bibliographical references.

1. **Unstructured interviews:** represent an interview in which questions are not prearranged, allowing flexibility and for questions to develop during the course of the interview. It is considered to be the opposite of structured interviews that offers a set amount of standardized questions. It is considered as being a qualitative research method and it is considered more useful than a structured interview, because it prioritises validity of the interviewees' answers and also it makes it more difficult to draw patterns between interviewees' responses [10].
2. **Force-field analysis:** represents an influential development in the field of social science and has been widely used by organization development practitioners to plan and implement organizational changes [25]. Basically it provides a framework for analysing the factors (also known as *forces*) that influence a situation. Usually, it looks at forces that are driving toward a goal (which represent helping forces) or blocking movement toward a goal (which represent hindering forces).
3. **Ethnography field research:** this method is used in many aspects of the Human Computer Interaction research, including gathering user requirements, understanding and developing user models and new product evaluation and iterative design [21]. These research methods have been used in the design of a great variety of products and the use of these methods increases the product development lifecycle from gathering customer requirements to field evaluation of new products and services.

- 4. Delphi method:** this technique is a structured communication technique, originally developed as a systematic, interactive forecasting method which relies on a panel of experts. The experts have the role of answering questionnaires in two or more rounds and after each round, a facilitator provides an anonymous summary of the expert's forecasts from the previous round as well as the reasons they provided for their judgement. The Delphi Method it has proven to be a popular tool in information systems research in order to identify and prioritize issues for managerial decision-making [22].
- 5. Focus groups:** this technique can be a powerful tool in system development. In interactive systems development, the proper role of focus groups is not to assess interaction styles or design usability, but discover what users want from the system. Focus groups are often used to present user's spontaneous reactions and ideas and allow the expert to observe some group dynamics and organizational issues. Software products, websites and other interactive systems also need to be liked by customers, but no amount of subjective preference will make a product viable if users cannot use it. This is the main reason for which focus groups are used: to allow the users to sit down, one at a time and offer them some time to interact with the system [23].
- 6. Conceptual Maps:** this method represents graphical tools for organizing and representing knowledge. They include concepts, usually enclosed in boxes and relationships between concepts indicated by a connecting line linking two concepts. One of the characteristics of the map is that the concepts are represented in a hierarchical manner with the most inclusive, most general concepts at the top of the map and the more specific, less general concepts arranged hierarchically below. The hierarchical structure for a particular domain of knowledge also depends on the context in which that knowledge is being applied or considered [24].
- 7. Online Research Community:** this technique is a part of an emerging and developing area in market research making use of developments in Web 2.0. technologies and online communities. This allows the qualitative research to be conducted efficiently and deeply online. This actually represents a group of members that talk to each other, by exchanging ideas and discussing issues.
- 8. Surveys:** are being considered a field of applied statistics, survey methodology studies the sampling of individual units from a population and the associated data collection techniques, such as questionnaire construction and methods for improving the number and accuracy of responses to surveys [8].
- 9. Questionnaires:** This method represents a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents. The basic advantages that questionnaires have is that they are cheap, do not require as much effort from the questioner as verbal or telephone surveys, and often have standardized answers that make it simple to compile data [8].

- 10. Statistical Methods:** represent the study of the collection, organization analysis, interpretation, presentation and organisation of data. It also deals with all aspects of data including the planning of data collection in terms of the design of surveys and experiments.
- 11. SWOT Analysis:** is a structured planning method used to evaluate the strengths, weaknesses, opportunities and threats involved in a project or business venture. It involves specifying the objective of the business venture or project and identifying the internal and external factors that are favourable and unfavourable to achieve that objective [11].
- 12. Bibliographical research:** this technique represents information research activities in bibliographical resources like, books, journals, papers, etc. It needs to be realized based on an investigation theme and the main objectives are to ensure a complete perspective regarding the knowledge that was accumulated of the studied theme and find appropriate information to respond the questions that might arise during the process. The bibliographical research can be realized without using any formal method or by using a systematic approach, for instance like the “Mapping Study” [13].
- 13. Advantages/ Disadvantages Matrices:** This method represents a general technique used in investigation processes. Usually, when a new concept is being analysed, in order to identify its benefits, a pros vs. cons matrix is being created. This is a useful method that has been used in different areas and fields of study, especially because of its simplicity and efficiency in realizing the final goal of the process.

3.2.3 Description of Roles

When describing each activity, there is an important need for assigning the roles, of those in charge of realizing the specific activity. For this reason, it is necessary to define the profile of the professionals in charge of realizing the tasks or that will participate in them, with the final goal of applying the proposed model. The corresponding choice of the roles is made in function of all the criteria analysis, their main tasks and their defined profiles.

Following, the main roles that are presented in this work for the target activities definition are:

- **Project Manager:** The Project Manager is the professional which is responsible with the project implementation and needs to have a general perspective of the product or service that is being created. Project managers, in general, have the responsibility of the planning, execution and closing of any project, typically relating to different fields, including software development [11]. This role is explained in much more detail in Activity Int.A.1., included in Section 3.3.1.
- **Requirements Engineer:** The requirements engineer is a professional in the TIC area, which is in charge of realising the main processes of requirements analysis. He

is the responsible of correctly detailing each and every one of the requirements and in the end generating the document of requirements analysis. At the beginning of the software development, he works alongside with the Project Manager, when his main task is to analyse the basic client necessities, which eventually will be transformed in specific requirements. Also, he is the one in charge of the administration of the requirements change in the different iteration steps from the model [8].

- **Usability Engineer:** The usability engineer is a professional from the TIC field which specializes in the analysis of the main usability characteristics of the software solution. His main tasks are to focus on the analysis of usability requirements and eventually the analysis of the design usability [8].
- **Marketing Expert:** Because of the fact that the Marketing field is so diverse and wide-spread, there are also a lot of marketing professionals that are in charge of different tasks that cannot be accomplished by only one expert. For example, if we refer to a big company, there is a very well defined Marketing department, that has some employees like: Product Marketing Manager, Market Researcher, Market Analyst, and Marketing Communication Manager. In order to correctly identify the roles that can be used for the development software product, an explanation table has been created in Section 3.3.1, defining a brief description of their main jobs and also, listing some of their most important tasks.

3.2.4 Description of Products

The products that were obtained after the generation of every activity are of two types:

- Entry Products (PI-X): the following generated products, described in Chapter IV are considered as being valuable input information;
- Output Products (PO-X): the following generated products are being used as output products.

3.3 Activities Grouping and Description

3.3.1 Pre-development Activity Grouping

It is a common fact that there are different factors to be taken into account before starting the development of a software product, like: process and workflow, authorization and assignment control, who, what, when and where change happens and communicates the impact of that change across the lifecycle to all involved. Before starting developing a usability software product or service, the usability company must take into account some external sources, used later on in the development of the Preliminary Statement of Need product [18]. The idea or need for a new usability system is generated from one of the following sources: Changing Customer Requirements, User Requests, Marketing Information Sources, and Enterprise Constraints.

The Marketing Information Sources category is a complex domain, with different Marketing characteristics and features that need to be taken into account before developing a software product [18]. Based on the activity grouping presented in the IEEE Standard

1074:2006, the Marketing activities that are proposed in this paper will be divided in three main categories: Pre-development, Development activities and Post-development activities. The activities that are proposed in the Pre-development category are related to the international standard ISO 9241:2010 [7]. In order to aggregate the new activities in the ISO 9241 Standard, the “Planning the Human Centered Design Process” activity grouping has been analyzed.

First of all, this important phase presented in the development of a software product, must be integrated into all phases of the product life cycle: for example, conception, analysis, design, implementation, testing and maintenance.

The part of Marketing Activities that this paper proposes has an important role in the part of Analysis of a software product. As it is stated in the ISO Standard 9241:210, it is very important to mention that the goal of these proposed Marketing Activities is to improve the usability of a final software product and that the activities aggregated in the present document respect the activity grouping already proposed in the “Planning the human-centered design process”.

Having analyzed this category of activity grouping, it is thought that the pre-development activities proposed from a Marketing perspective, could enter in the evaluation of the 5.2 a) sub-activity phase, in which it is stated that all the persons involved in planning the project shall consider the relative importance of the human factors/ergonomics in the project by evaluating in which way does usability relate to the purpose and use of the product, system or service.

There is another important aspect that needs to be taken into account, the fact that, when referring to a usability company, we must take into account different organizational points of view [26]. Before starting the development of the marketing plan, marketing usability must be analyzed from three different organizational perspectives. Each of these organizational situations has particular characteristics that require different marketing approaches:

- An **internal group** (IG): it is part of the larger company and it is the one responsible for the usability of the company’s products.
- A **lone consultant** (LC): that is an independent consultant that in most of the time works independently for other companies.
- An **external group** (EG): represents a group of consultants that provides consulting services to other companies. The external group might be large enough to have a support staff responsible for administrative and marketing functions.

The Marketing activities that are proposed in **Table 14** are part of the overall system development project plan and are meant to improve the usability of a software product. This table only refers to the pre-development activities, but for each Activity Grouping a separate table will be presented.

Classification inspired by IEEE 1074-2006[18]	Activities	Tasks
IntA.1.	Team Building	Incorporation of Marketing experts in the

		software development project
		Analysis of the main goals and interests of every Marketing expert
IntA.2.	Marketing Research	Defining the problem and research objectives
		Developing the research plan for collecting information
IntA.3.	Market Analysis	Determining Market size
		Market Segmentation
		Market Targeting
		Market Differentiation
IntA.4	Defining the Marketing Strategy and the Marketing Mix	Product Strategy

Table 11. Pre-development Activities IntA.

Activity IntA.1. Team Building

Description: The main goal of this activity is to form the team in charge of the development of the software product. The most important aspect that needs to be taken into account here is that not only, usability engineers, requirements engineers, developers, analysts, but also Marketing experts need to be included. In this category of Marketing experts, some important roles will be given to Marketing Analysts and Marketing Researchers. Usually, a Marketing specialist is a person that helps a company manage promotions, design advertisements and build strategies for attracting and retaining customers. Some may be considered as being Marketing managers or executives who direct teams and create campaigns, while others are more junior-level analysts who watch buying trends or study consumer purchasing power [11].

The activity, as it will be described in the following section, is composed of Task IntA.1.1. the task in charge of identifying the category of Marketing experts that will be included in the software development project. Basically, it contains a table in which every category of Marketing expert has a brief description and a few tasks that are mentioned for each category. This task needs input information that is basically presented only from external information, regarding the Marketing experts that need to be included in the project development (E1), the importance that every Marketing expert must possess in the development of the project (E2), the role that every Marketing Manager has in the project development (E3) and also, testing the basic knowledge of computer science that each Marketing Expert needs to have (E4). This information is obtained by performing non-structured interviews and ethnographical analysis that are being realized by the Project Manager and the Requirements Engineer.

The output product that is obtained in this case is a report on different categories of Marketing experts that can be used in the software development project (P1). This product will contain every marketing expert accompanied by the role that each Marketing expert performs in the software development product.

Furthermore, after having identified the exact Marketing experts that will be included in the product development, an analysis of their main goals and interests is needed. This necessity is resolved by applying Task IntA.1.2. This task requires the use of input information being the product (P1) that was generated in the previous task. The information that needs to be extracted for each marketing expert will be accomplished by realizing non-structured interviews, focus groups and concept maps, to the marketing experts, by project managers and requirements engineers. In this way, at the end of the realization of this task, an output product (P2) will be obtained.

The main goal of this activity was to firstly form the correct development software product teams, by also including the Marketing experts that are necessary in order to improve the final quality of the software product, to offer better customer attractiveness and also to improve the usability of the final product.

Finally, the output product (P2-O) will be used as an input information for the following tasks that are used in Activity IntA.2.

In the following sections, the tasks that are being realized in this activity will be further detailed.

Task IntA.1.1. Incorporation of Marketing experts in the software development project

Description: This task requires the identification of marketing experts, which can be included in the software development team. When talking about the different roles that a marketing employee might have, we can analyse the following examples listed in **Table 15**:

Types of Marketing Experts	Description	Tasks
Brand Marketing Manager	This position refers to ensuring the appearance and integrity of the brand of the software product and its quality features.	<ul style="list-style-type: none"> ➤ Monitoring market trends; ➤ Meeting with clients and various departments; ➤ Carrying out consumer research; ➤ Writing and presenting reports to clients and senior management; ➤ Overseeing a team of junior staff;
Product Marketing Manager	It requires a responsibility for the outbound marketing activities of the products.	<ul style="list-style-type: none"> ➤ Develop product positioning and messaging that differentiates the products in the market; ➤ Communicate the value of the proposition of the products to the sales team and develop the sales tools that support the selling process of the products; ➤ Planning the launch of new products and releases and management of the cross-functional implementation of the plan; ➤ Provide market intelligence – being an expert on buyers, how they buy and what is their buying criteria;

		<ul style="list-style-type: none"> ➤ Demand generation – develop the strategy and manage the marketing programs that drive demand for products.
Search Engine Marketing Manager	It represents being responsible for coordinating and implementing Search Engine Optimization (SEO) and Social Media Optimization (SMO) strategies for clients.	<ul style="list-style-type: none"> ➤ Define requirements, tasks and resources associated with the SEO Strategy; ➤ Manage and execute implementation of the SEO Strategy; ➤ Communication to clients, team and management on strategy/project development, timelines and results; ➤ Collaborate on client strategy and goal definition for success; ➤ Being updated in the fields of SEO, social media and internet marketing industry trends and development; ➤ Contribution to the company blog and at least one social media community.
Market Researcher	Market researchers collect and analyse data and information that is valuable to their clients who are made up of organizations, businesses and government departments.	<ul style="list-style-type: none"> ➤ Meeting with clients to negotiate and agree research projects; ➤ Preparing briefs and commissioning research; ➤ Formulating a plan/proposal and presenting it to the client or senior management; ➤ Writing and managing the distribution of surveys and questionnaires; ➤ Briefing interviewers and researchers.
Market Analyst	The market analyst is responsible for performing research and providing insights regarding the market, trends, competitors, potential and existing customers, and current campaigns.	<ul style="list-style-type: none"> ➤ Identify new market opportunities; ➤ Complete concept –testing for new products; ➤ Perform extensive market research; ➤ Determine brand perceptions and reputations; ➤ Evaluate market penetration; ➤ Develop groups and solicit customer feedback.
Manager of Competitive Analysis	The Manager of Competitive Analysis is responsible for all competitive research conducted on behalf of the company.	<ul style="list-style-type: none"> ➤ He will analyse competitive market strategies through analysis of the related products and services. He must try to identify future trends by watching the new product roll-out of competitors and by being informed of consumer reports on future needs.

<p>Manager of Marketing Statistics</p>	<p>It has the main features and characteristics as the Market Research Manager and it is responsible for selecting the appropriate research methodology and supporting techniques to meet a defined business objective.</p>	<ul style="list-style-type: none"> ➤ Communicating with clients to understand and document the business objectives; ➤ Selecting the most appropriate research methodology and techniques; ➤ Designing qualitative and quantitative research plan for products in all stages of the Product Life Cycle; ➤ Interpreting data, writing reports and making actionable recommendations.
<p>Marketing Communication Manager</p>	<p>Being a Marketing communication Manager embodies the whole Marketing process: from client's relations, personal relations and marketing strategies, to the creative side of promotional literature, advertising and artwork.</p>	<ul style="list-style-type: none"> ➤ Creating marketing plans; ➤ Organising trade shows; ➤ Customer events; ➤ Managing the marketing budget; ➤ Developing marketing materials to generate sales leads; ➤ Producing press releases.
<p>Strategic Marketing Manager</p>	<p>Successfully build and provide a company's businesses in close partnership with Executive Management by providing sound, innovative, strategic leadership and initiatives.</p>	<ul style="list-style-type: none"> ➤ Communicate a thorough knowledge of product information: science, marketing initiatives, market research techniques, promotional venues, brand strategy, etc. ➤ Develop and maintain client-valued relationships as a marketing strategist. ➤ Provide strategic recommendations to existing or prospective clients to include new customer/audiences managed care, innovative programs and market research.
<p>Technical Marketing Manager</p>	<p>Technical marketing employees are technical experts in charged with the promotion and sell of technical products or services. They must be able to combine their technical and marketing knowledge and competences in order to fulfil the company's sales objectives and goals.</p>	<ul style="list-style-type: none"> ➤ Design, develop an carry out technical marketing strategies; ➤ Establish and develop technical marketing objectives and goals; ➤ Analyse and interpret marketing trends concerning technical products or services; ➤ Evaluate the consumer's needs and expectations and design and introduce new products. ➤ Provide technical advice to staff, etc.
<p>Marketing Consultant</p>	<p>Marketing consultant are typically independent contractors who are responsible for advising</p>	<ul style="list-style-type: none"> ➤ Work with clients on strategic positioning and planning; ➤ Guide clients in branding,

	<p>as well as formulating marketing strategies in order to help launch their client's products and services effectively, while also collaborating with their clients' advertising and public relations departments so as to create successful and unified plans.</p>	<p>positioning and marketing implementation;</p> <ul style="list-style-type: none"> ➤ Write marketing plans including strategic analysis, competition, positioning, messaging, tactics and budget. ➤ Research industries and markets to identify growth opportunities for clients; ➤ Recommend and lead approach form primary and secondary research to support client branding projects; ➤ Actively present ideas or expand service offering and enhance positioning of the firm.
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Table 12. Definition of Marketing Experts

Techniques and Methods: unstructured interviews, force-field analysis, ethnography field research, Delphi method.

Roles: Company Manager, Project Manager, Requirements Engineer.

Input Information	Source
(E1) The Marketing Experts that need to be considered when developing the project.	External
(E2) The importance of every Marketing Expert in the development of the project.	External
(E3) The role that every Marketing Expert has in the development of the project.	External
(E4) Test the basic knowledge of computer science that each Marketing Expert needs to have.	External

Output Product	Destination
(P1-O) Report on different categories of Marketing Experts that can be used in the Software Development Product.	Task IntA.1.2.

Task IntA.1.2. Analysis of the main goals and interests of every Marketing expert

Description: Analyze the characteristics and necessities of every marketing expert and detail their main objectives, goals and tasks that they will provide in the development software team.

Techniques and Methods: unstructured interviews, focus groups and concept maps.

Roles: Company Manager, Project Manager, Requirements Engineer.

Input Information	Source
(P1) Report on different categories of Marketing Experts that can be used in the Software Development Product.	Task IntA.1.1.

Output Product	Destination
(P2-O) Report of the main interests, goals and necessities of Marketing experts.	Task IntA.2.1, Task IntA.2.2.

Activity IntA.2. Marketing Research

Description: This activity represents the systematic design, collection, analysis and reporting of data relevant to a specific marketing situation facing an organization. Usability companies use marketing research in order to give marketers insights into customer motivations, purchase behavior and satisfaction [26]. It can help them to assess market share or market potential or measure the effectiveness of pricing, product, and distribution and promotion activities. Also, choosing an appropriate market research methodology is challenging within the context where the market forces for developing software applications is rapidly changing [27].

In order to achieve a good research plan, there are some steps that need to be accomplished. First of all, the definition of the problem and main research objectives, stated in Task InA.2.1. needs to be accomplished. During this task, the Marketing consultants gather round with the company manager in order to plan out a strategic plan. Also, because of the fact that research is a very complex process, it needs to be divided in three different types of researches, exploratory, descriptive and causal. The techniques that are used for achieving this task are based on bibliographical research, online communities' research, in order to look for external information, but also interviews or focus groups, when addressing specialists from the inside or outside the company. In this way, after gathering the entry information in form of internal information (E 5) and external information (E 6), an initial document will be provided (P3-O). This product will be used as input information for the next task, as the product generated from the next task is considered as being a continuation of the first product.

Secondly, after gathering all the research information from the previous task, the information needs to be thoroughly analyzed, Task IntA.2.1. In this situation, the company manager alongside the marketing consultant, divide the information in two main categories: primary and secondary data. Because of the fact that the secondary data is much difficult to be obtained, in the input information, more information outside the company needs to be achieved and also the product that was used as input information. The next output product has been achieved, as (P3-O), which contains not only the problem and the research objectives, but also the analysis of the research data.

In the following sections, the tasks that are being realized in this activity will be further detailed.

Task IntA.2.1. Defining the problem and research objectives

Description: During this stage, Marketing managers and researchers must work together in order to define the problem and agree on the research objectives. Each individual from the team has a specific role assigned. For example, each manager best understands the decision for which every information is needed and the researcher best understands marketing research and how to obtain the information.

Sub-task IntA.2.1.1. Exploratory research: the action of gathering preliminary information that will help define the problem and suggest hypotheses.

Sub-task IntA.2.1.2 Descriptive research: all the marketing research that better describes marketing problems, situation or markets, such as the market potential for a product or the demographics and attitudes of customers.

Sub-task IntA.2.1.3 Causal research: marketing research to test the hypotheses about cause and effect research.

Techniques and Methods: bibliographical research, ethnographical research, focus groups, interviews, market research online communities, mobile research, online surveys.

Roles: Marketing consultant, Marketing Communication Manager, Company Manager

Input Information	Source
(E5) Provide internal information from the company	External
(E6) Provide external information from outside the company	External

Output Product	Destination
(P3-O) Research Document I	Task IntA.2.2.

Task IntA.2.2. Develop the research plan for collecting information

Description: Researchers must determine the exact information needed, develop a plan for gathering it efficiently and present the plan to management. The research plan outlines sources of existing data and presents the specific research approaches, contact methods, sampling plans and instruments that researchers will use to gather new data. To meet the manager’s information needs, the research plan can call for gathering secondary data, primary data or both.

Sub-task IntA.2.2.1. Analysis of primary data: The design of a plan for a primary data collection requires a number of decisions on research approaches, contact methods, sampling plan and research instruments.

Sub-task IntA.2.2.2 Analysis of secondary data: Researchers usually start with the secondary data. Even if the internal database of the company provides a good source of information gathering, the company can also tap a wide assortment of external information sources, including commercial data services and government sources. Companies can also buy secondary data reports from outside suppliers. Using commercial online databases, marketing researchers can conduct their own searches of secondary data sources. Beyond commercial Web sites offering information for a fee, almost every industry association, government agency, business publication and new medium offers free information to those tenacious enough to find their Websites. Secondary data can usually be obtained more quickly and at a lower cost than primary data. Also, secondary sources can sometimes provide data an individual company cannot collect on its own, information that either is not directly available or would be too expensive to collect. Secondary data can also present problems. The needed information may not exist; researchers can rarely obtain all the data they need from secondary sources. The researchers must evaluate secondary information carefully to make certain it is relevant (fits research project needs), accurate (reliably collected and reported), current (up-to-date enough for current decisions) and impartial (objectively collected and reported).

Techniques and Methods: survey, interviews, questionnaires, focus groups.

Roles: Marketing consultant, Marketing Communication Manager, Company Manager.

Input Information	Source
(E6) Provide external information from outside the company	External
(P3) Research Document I	Task IntA.1.1.

Output Product	Destination
(P4-O) Research Document II	Task IntA.3.1. Task IntA.3.2.

Activity IntA.3. Market Analysis

Description: The current activity refers to the market analysis that generally needs to be accomplished before starting the development of a software product.

From a general point of view, the market analysis refers to the identification of a target market in which the product will be further developed and in the end launched, identifying the size of the market, segmenting the market and in the end, targeting the most important segments of the chosen market.

Before developing or creating a new usability service or product, the usability company must refer to the attractiveness and dynamics of a special industry. During this research the

marketer of the usability company should realize a SWOT analysis, with the help of which the company's overall strengths (S), weaknesses (W), opportunities (O) and threats (T) on a specific market are being evaluated [26].

The **strengths** normally include internal capabilities, resources and positive situational factors that may help the usability company to serve its customers and achieve its objectives.

Weaknesses include internal limitations and negative situational factors that may interfere with the company's performance.

Opportunities usually refer to favorable factors or trends in the external environment that the company may be able to exploit to its advantage.

Threats represent unfavorable external factors or trends that may present challenges to performance.

The company should analyze its markets and marketing environment to find attractive opportunities and identify environmental threats. This analysis should contain the company's strengths and weaknesses as well as current and possible marketing actions to determine which opportunities it can best pursue. The goal is to match the company's strengths to attractive opportunities in the environment, while also eliminating or overcoming the other marketing management functions.

The goal of a marketing analysis is to determine the attractiveness of a market, both now and in the future. Organizations evaluate the future attractiveness of a market by gaining an understanding the evolving opportunities and threats as they relate to the organization's own strengths and weaknesses.

First of all, Task IntA.3.1. refers to the identification of the market size, in which the products will be further developed. The identification of the market size is realized by the analysis of the market volume and the competitive sales identified in the market, which are further detailed in the following subtasks. By analyzing the top sales that have been reached in previous years on a specific market, a general idea of the market size and dimension can be made. The general technics that are being used by the marketing experts are statistical methods. The input information required for this task is basically made of the list of the marketing experts identified and their main tasks and descriptions (**P2**), the research document II form the previous activity (**P4**), external information that can be achieved from outside the company and the possible revenues that can be obtained from other existent companies from the market. After the analysis of the given information, a SWOT analysis of the company can be accomplished (**P4-O**).

After identifying the market size, the following step is to segment the market and analyze each segment in much more detail (**Task IntA.3.2.**). First of all there are a lot of types of segmentation: geographic, demographic, behavioral and psychographic, which are detailed in the sub-tasks, as it can be observed in the following section. In order to achieve this, statistical methods and bibliographical technics need to be used for obtaining the necessary information related to the segments. In order to obtain the necessary details of these methods, the SWOT analysis from the previous task is used and also pie matrices (**P6-O**) are being presented and an exploratory report of each segment (**P7-O**).

Finally, after selecting and identifying the most appropriate segments, the target segments and positioning need to be identified. In this situation, after a company has defined

its market segments, it can enter one or more of these segments. Market targeting involves evaluating each market segment's attractiveness and selecting one or more segments to enter. At the end of this task, a differentiation (**P9-O**) and targeting product (**P10-O**) will be obtained.

Task IntA.3.1. Determining the market size

Description: The market size is defined usually through the market volume and the market potential. The market volume shows the total sales volume of a special market. The volume is dependent on the quantity of consumers and their ordinary demand. The market potential is also very important. It defines the upper limit of the total demand and it takes potential clients into consideration. Also, the market size offers valuable information regarding various subgroups or market segments, in the overall market along with each of the unique features and preferences. In the case of usability companies, each group can be analyzed separately. Some members of the group could be interviewed and finally we could consider realizing focus groups among each group in order to identify their preferences and needs.

Sub-task IntA.3.1.1. Analysis of market volume and market potential: shows the sales volume of a specific market, being dependent on the number of consumers and their basic demand. The market potential shows the upper limit of the total demand, by taking potential clients into consideration.

Sub-task IntA.3.1.2. Analysis of competitive sales (bottom-up approach): a bottom up analysis is calculated by estimating potential sales in order to determine a total sales figure. This is in charge of evaluating where the products can be sold and the sales of comparable products. The analysis takes a lot more effort, but it is much more accurate than the top-down approach.

Sub-task IntA.3.1.3. Analysis of competitive sales (top-down approach): by differentiating with the other analysis, the top down analysis is usually calculated by determining the total market, then estimating the share of the software product that will be developed on that market.

Techniques and Methods: statistical methods.

Roles: Marketing Experts – Strategic Marketing Managers.

Input Information	Source
(P2) Report of the main interests, goals and necessities of Marketing experts.	Task IntA.1.2.
(P4) Research Document II	Task IntA.2.2, Task IntA.2.1.
(E7) Identify external information of the market	External
(E8) Identify possible revenues of other	External

companies in the market	
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Output Product	Output (Destination)
(P5-O) SWOT Analysis of the company in a particular industry.	IntA.3.2.

Task IntA.3.2. Market segmentation

Description: Market segmentation represents the process of dividing a market into distinct groups of buyers who have different needs, behaviors and who might require separate products or marketing programs. Because the market consists of many types of customers, product and needs, the marketing analyst, in this situation has to determine which of these groups can offer the best opportunities [11].

Every market usually has many segments, but not all ways of segmenting a market are equally useful. A market segment consists of consumers who respond in a similar way to a given set of marketing efforts. A usability company should always be informed of the segments of market in which it would want to grow its own business.

Sub-task IntA3.2.1. Geographic segmentation: requires dividing the market into different geographical units, such as nations, regions, states, countries, cities. A company might decide to operate in one or a few geographical areas or operate in all areas but pay attention to geographical differences in needs and wants.

Sub-task IntA3.2.2. Demographic segmentation: dividing the market into segments based on variables, such as age, life-cycle stage, gender, occupation, education, religion, ethnicity and generation.

Sub-task IntA3.2.3. Behavioral segmentation: dividing a market into segments based on consumer knowledge, attitudes, uses or responses to a product.

Sub-task IntA3.2.4. Psychographic segmentation: dividing a market into different segments based on social class, lifestyle or personality characteristics.

Techniques and Methods: bibliographical research, matrices, statistical techniques.

Roles: Marketing Analyst.

Entry	Source
(P5) SWOT Analysis of the company in a particular industry.	Task IntA3.1.
(E9) Bibliographical research	External

Output Product	Output (Destination)
(P6-O) Pie Matrix representing each segment	Task IntA3.3.
(P7-O) Explanatory Report of each segment	Task IntA3.3.

Task IntA3.3. Market targeting

Description: After a company has defined its market segments, it can enter one or more of these segments. Market targeting involves evaluating each market segment's attractiveness and selecting one or more segments to enter. Normally, a company should target segments in which it can profitably generate the greatest customer value and sustain it over time. Alternatively, a company might choose to serve several related segments, here referring to different kinds of customers but with the same basic wants. Most companies enter a new market by serving a single segment; if this proves successful, they add more segments.

Sub-Task IntA.3.3.1. Selection of two important market targets: After analyzing all the important markets in which the software developers can launch their product, there will be selected only two important market segments.

Techniques: SWOT Analysis;

Roles: Marketing Analyst.

Entry	Source
(P6) Pie Matrix representing each segment	Task IntA.3.2.
(P7) Explanatory Report of each segment	Task IntA.3.2.

Output Product	Output (Destination)
(P8-O) Final report of two segments	Task IntA3.4.

Task IntA3.4. Market differentiation and positioning

Description: After the company has decided which market segments to enter, it must determine how to differentiate its market offering for each targeted segment and what positions it wants to occupy in those segments. A product's position is the place it occupies relative to competitor's products in consumer's minds. If a product is perceived to be exactly like others on the market, consumers would have no reason to buy it.

Positioning is arranging for a product to occupy a clear, distinctive and desirable place relative to competing products in the minds of target consumers. Marketers plan positions that distinguish their products from competing brands and give them the greatest advantage in their target markets.

Sub-Task IntA.3.4.1. Undifferentiated Targeting: This approach views the market as one group with no individual segments, therefore using a single marketing strategy. This kind of differentiation it is used for a business or product with little competition where there are no strategies needed for different preferences.

Sub-Task IntA.3.4.1. Concentrated Targeting: This approach focuses on selecting a particular market niche on which marketing efforts are targeted. In this situation, the firm is focusing on a single segment so the marketing expert can focus on understanding the needs and wants of that particular market. Usually small firms benefit from this strategy as focusing on one segment allows them to compete effectively against larger firms.

Sub-Task IntA.3.4.1. Multi-segment Targeting: This approach is required, when the firm is focusing on two or more well-defined market segments and wants to develop different strategies for them. Multi segment targeting offers many benefits, but can also be costly as it involves greater input from management, increased market research and increased promotional strategies.

Techniques: Resume tables, bibliographical research.

Roles: Manager of Marketing statistics, Marketing Analyst.

Entry	Source
(P6) Pie Matrix representing each segment	Task IntA.3.2.
(P7) Explanatory Report of each segment	Task IntA.3.2.
(P8) Final report of two segments	ActivityIntA3.4.

Output Product	Output (Destination)
(P9-O) Differentiation Report	Task IntA.4.1.
(P10-O) Positioning Report	Task IntA.4.1.

Activity Grouping: Defining the Marketing Strategy and the Marketing Mix

This type of Activity Grouping – Defining the Marketing Strategy and the Marketing Mix is a group of activities that starts in the Pre-Development set of activities, with the activities used for describing the Product Strategy, especially referred to new-development activities involved when creating a software product. This Activity Grouping continues with other product activities that are defined in the second Activity Grouping, the Development Activities form. Last, but not least, the final two product strategies continue with implementing the promotion and the price strategies applied in the post-development section of activities.

Activity IntA.4. Product Strategy

Description: The product is a set of services that the usability group makes available to the market. Also, the market needs the organization capabilities to determine the appropriate mix of services. The services related to the most usability organizations could be classified as:

- **Research:** this includes needs-finding analysis, requirements gathering and prioritizing, cognitive modelling, literature reviews and reviews of competitive product.
- **User Interface design:** includes web site design, traditional software user interface design and development, graphic design, prototyping and storyboards.
- **Usability evaluation:** includes expert evaluation, heuristic evaluations and usability evaluation.
- **Training:** includes short courses, tutorials, lectures, workshops and lunchtime seminars.
- **Strategy:** includes strategic design planning, consulting with management and process improvements.

This activity represents the beginning of the Marketing Mix description, which is the main phase that is being detailed regarding the Marketing Process Model. This Activity Grouping begins in the Pre-Development Activity Grouping and starts by detailing Task IntA.4.1. regarding the initiation of the product development process. In this category, there are three important sub-tasks that are being detailed starting by explaining the entire process of idea generation until the task regarding development and testing. For the realization of this task, all the products that have been obtained from previous activities need to be included in the process, as for in the end obtaining the last activity, which is the Initial Product Development Report (P11-O).

Task IntA.4.1. The New-Product development process

Description: Products are a key element in the overall market offering. Marketing mix planning begins with building an offering that brings value to target customers. This typical offering becomes the basis on which the company builds profitable customer relationships.

Sub-task IntA.4.1.1. Idea Generation: analyzing internal idea sources of the company and also analyzing external idea sources of the company.

Sub-task IntA.4.1.2. Idea screening Concept: this is a good sub-task in helping choosing good ideas and dropping poor ones as soon as possible. Because of the fact that product development costs rise greatly in larger stages, the company wants to continue only with the product ideas that will turn into profitable products. Many companies require their executives to write up new-product ideas on a standard form that can be reviewed by a new-product committee.

Sub-task IntA.4.1.3. Concept Development and Testing: Whenever confronted with an attractive idea, there are three terms that need to be defined:

- a) Product idea: an idea for a possible product that the company can see itself offering to the market;
- b) Product concept: a detailed version of the idea stated in meaningful consumer terms.
- c) Product image: the way consumers perceive an actual or potential product.

The concept development and testing refer to testing new-product concepts with group of target consumers.

Techniques: bibliographical research, focus groups, interviews.

Roles: Product Marketing Manager.

Input Information	Source
(P1) Report on different categories of Marketing Experts that can be used in the Software Development Product.	Task IntA.1.1.
(P2) Report of the main interests, goals and necessities of Marketing experts.	Task IntA.2.
(P3) Research Document I	Task IntA.2.2, Task IntA.2.1.
(P4) Research Document II	Task IntA.2.2, Task IntA.2.1.
(P5) SWOT Analysis of the company in a particular industry.	Task IntA3.1.
(P6) Pie Matrix representing each segment	Task IntA.3.2.
(P7) Explanatory Report of each segment	Task IntA.3.2.
(P8) Final report of two segments	ActivityIntA3.4.
(P9) Differentiation Report	Activity IntA.4.
(P10) Positioning Report	Activity IntA.4.

Output Product	Output (Destination)
(P11-O) Initial Product Development Report	Development Activity Grouping

3.3.2 Development Activity grouping

This category of activities represents the development activities that take place in the software product development. This category grouping is based on the ISO 9241-210 [7] iterative process, in which the design solution is always evaluated and validated by the user after implementing the final system.

This category of activities is divided into three main categories of main activities: understanding and specifying the context of use, specifying the user requirements and defining the marketing strategy and the marketing mix category.

The characteristics of the users, tasks and organizational, technical and physical environment define the context in which the system is used. It is very useful to gather and analyze information on the current context in order to understand, and then specify, the context that will apply to the future system. For this reason, a thorough competitive analysis and the identification of the most appropriate target market need to be done.

Usually, when a company identified its main competitors, it also needs to carefully identify them. The term of knowing who the competitors are and what are their main characteristics, it is also known as **competitive advantage**. Normally, the competitive advantage is achieved through differentiation, which furthermore is achieved by branding and imaging. Differentiation is obtained in the moment that one of the company's customers is interested in the product by name. Creating differentiation is a very complex process that that

is achieved by identifying the firm’s strengths, weaknesses, and limitations, following by creating a brand that is identified by logos, tag lines, color scheme, and other additional elements that create a visual or recognizable memory of the firm.

The competitive advantage of a product or service also depends on variables such as the level of sophistication of the product, prior experience with that product or service in a certain country or part of a country and the types of distribution channels available.

In an organization the most important step in creating an action plan is by defining its marketing strategy. The way in which usability services organizations implicitly or explicitly address the seven P’s: product, price, promotion, place, physical evidence, processes and people, fundamentally define their Marketing Strategy. Organizations combine these marketing tools in order to obtain the results they want in their target markets.

The activities from this category will be thoroughly detailed in **Table 16**:

Activity Grouping	Classification inspired by IEEE 1074-2006[18]	Activities	Tasks
Understanding and specifying the context of use	IntB.1.	Competitive Analysis	Identify the competitor’s goals
			Selecting the most or least dangerous competitors
			Competitive strategies
	IntB.2.	Identifying the most appropriate target market	Analysis of the internal factors of the usability company
			Analysis of the external factors of the usability company
Specifying the user requirements	IntB.3.	Analysis of the Marketing Stakeholders	Identifying the stakeholders
			Analysis of the goals, interests and conflicts of the stakeholders
Defining the Marketing Strategy and the Marketing Mix	IntB.4.	Product Strategy	Managing the new product development
			Test Marketing

Table 13. Development Strategies IntB.

Activity Grouping Understanding and specifying the context of use

Activity IntB.1. Competitive analysis

Description: Competitive marketing strategies refer to – how companies analyze their competitors and develop successful, customer value based strategies for building and maintaining profitable customer relationships [11].

The first step in this process is: competitor analysis, the process of identifying assessing, and selecting the key competitors. The second step is developing the competitive marketing strategies that strongly position the company against competitors and give it the greatest possible competitive analysis.

One of the most important rules in being successful in Marketing states that a company has to provide greater customer value and satisfaction than its competitors do. In this situation, marketer's analysts must adapt to the needs of target consumers and also, they must gain strategic advantage by positioning their offerings strongly against competitor's offerings in the minds of consumers. It is important not to adopt only one competitive marketing strategy, because in most of the cases, some different strategies can also be adapted for more companies. In particular, each firm must consider its own size and industry position compared to those of its own competitors [11].

When referring to competition from the perspective of a usability company, we need to take into account some factors. In order to position usability services correctly in the marketplace, consultants need to have a good understanding of their competition. Because of the fact that the usability field matures, also the number and variety of potential competitors is also increasing. When referring to the types of competitors that exist nowadays, there are two types. Some of them are considered as being in the same line of work and pursue the same type of customers. Other competitors are non-traditional in the sense that they may not have any formal usability training, yet customers might view them as offering viable solutions. Some examples of competitors could include: other consulting firms, independent usability consultants, design firms, internal usability groups, and other internal groups.

When analyzing the competitors it is valuable to evaluate each competitor's strengths and weaknesses, especially relative to those of the usability group. It is important to find out the background of the principals, what services does the organization offer, what are the costs of charging, the limitations they might have and what is their perceived competitive advantage. Methods used for researching competitors are: company web Sites, customers, publications, conferences, as well as other marketing material distributed by the competitor.

As it was mentioned above, this activity is structured in three different tasks. First of all, it is very important to identify the competitors that company has and also to know their goals (Task IntB.1.1.). The person that is in charge with the entire analysis of the existent competitors that exist on a market is the Manager of Competitive Analysis. The entry information needed in order to realize the correct analysis and identification of competitors, some of the products obtained in the part of pre-development activities, are needed, such as: P5, P6, P7, P8, P9, P10. These selected products will help realize the main product, at the end of this activity, which is "The Final Competitive Analysis Report" (P13-O).

After having identified the most important competitor's goals and interests, the next step is to identify the most or least dangerous competitors. In order to do this, the previous Competitive Analysis Report I is needed. In this way, the two main reports that are needed are incremental.

Task IntB.1.1. Identify the competitor's goals

Description: This step can also be referred as identifying the competition's "internal balance", which means knowing where his value system lies. Because of the fact that each competitor is different it will place various levels of importance on technology, quality, cost, market share and mission.

Techniques and Methods: bibliographical research, porter's five forces, SWOT analysis.

Roles: Manager of Competitive Analysis.

Input Information	Source
(P5) SWOT Analysis of the company in a particular industry.	Task IntA3.1.
(P6) Pie Matrix representing each segment	Task IntA.3.2.
(P7) Explanatory Report of each segment	Task IntA.3.2.
(P8) Final report of two segments	Task IntA3.4.
(P9) Differentiation Report	Task IntA.3.4.
(P10) Positioning Report	Task IntA.3.4.

Output Product	Output (Destination)
(P12-O) Competitive Analysis Report I	Task IntB.1.2.

Task IntB.1.2. Selecting the most or least dangerous competitors

Description: Marketers need to carefully assess each competitor's strengths and weaknesses in order to answer a critical question: "What can our competitors do?" Firstly, companies can gather data on each competitor's goal, strategies and performance over the past few years. Companies normally learn about their competitors' strengths and weaknesses through secondary data, personal experience and word of mouth. They can also conduct primary marketing research with customers, suppliers and dealers. They can also check competitors' online and social networking sites. Or they can also benchmark themselves against other firms, comparing the company's products and processes to those of competitors or leading firms in other industries to identify best practices and find ways to improve quality and performance. Benchmarking in this way has become a powerful tool for increasing a company's competitiveness.

Techniques and Methods: interviews, bibliographical research.

Roles: Manager of Competitive Analysis.

Input Information	Source
(P5) SWOT Analysis of the company in a particular industry.	Task IntA3.1.
(P6) Pie Matrix representing each segment	Task IntA.3.2.
(P7) Explanatory Report of each segment	Task IntA.3.2.
(P8) Final report of two segments	Activity IntA3.4.
(P9) Differentiation Report	Activity IntA.4.
(P10) Positioning Report	Activity IntA.4.
(P12) Competitive Analysis Report I	Task IntB.1.1.

Output Product	Output (Destination)
(P13-O) Competitive Analysis Report II	Task IntB.1.3.

Task IntB.1.3. Competitive strategies

Description: Having identified and evaluated its major competitors, a company now must design broad marketing strategies by which it can gain competitive advantage. The problem in this situation is what broad competitive marketing strategies might the company use and from these, which are best suited for a company or for the company's different visions and products. There is not only one strategy that is best for all companies. Each company must determine what makes more sense given its position in the industry and its objectives, opportunities and resources. Even within the same company, different strategies may be required for different businesses or products.

Companies also differ in how they approach the strategy-planning process. Many large firms develop formal competitive marketing strategies and implement them religiously. However, other companies develop strategy in a less formal and orderly fashion. These are the type, kind of companies that do not operate large marketing departments, conduct expensive marketing research, spell out elaborate competitive strategies and spend huge sums on advertising.

In order to identify the basic competitive strategies that are used in general in the wide majority of companies, Michael Porter [11] suggested three winning competitive positioning strategies that are:

Sub-task IntB.1.3.1. Adopting overall cost-leadership: In this situation the company works hard in order to achieve the lowest production and distribution costs.

Sub-task IntB.1.3.2. Differentiation: In this situation the company concentrates on creating a highly differentiated product line and marketing program so that it comes across as the class leader in the industry.

Sub-task IntB.1.3.3. Focus: In this case the company focuses its effort on serving a few market segments well, rather than going after the whole market.

Techniques and Methods: interviews, bibliographical research.

Roles: Manager of Competitive Analysis.

Input Information	Source
(P11) Competitive Analysis Report I	Task IntB.1.1.
(P12) Competitive Analysis Report II	Task IntB.1.2.

Output Product	Output (Destination)
(P14-O) Final Competitive Analysis Report	Task IntB.2.1.

Activity IntB.2. Identifying the most appropriate target market

Description: In an organization the most important step in creating an action plan is by defining its marketing strategy. The way in which usability services organizations implicitly or explicitly address the seven P's: product, price, promotion, place, physical evidence, processes and people, fundamentally define their Marketing Strategy. Organizations combine these marketing tools in order to obtain the results they want in their target markets.

After having realized a market and Marketing research and also an analysis of the most important competitors that exist nowadays on the market, there is high demand of determining the most important target market. In order to realize this activity, there are two main steps that need to be accomplished, which are: the analysis of the internal factors of a company (**Task IntB.2.1.**) and the analysis of the external factors the company (**Task IntB.2.2.**). In the end of this activity, there are two main output products that need to be portrayed, the analysis of the interior forces of the company (**P15-O**) and the analysis of the exterior forces of the company (**P16-O**).

Task IntB.2.1. Analysing the internal factors of the usability company

Description: As referring to a usability consulting organization, in order to develop a market plan there has to be made a planning of its strengths and weaknesses. In this way we need to analyze the most important internal factors of the organization, for determining the services that the organization has to offer. Factors that need to be taken into account, when referring to providing usability services, are the following: people, client base or contacts, facilities, equipment and finances.

- **People:** it is very important for the marketing analysts to discover what skills do the people in the usability organization have, what are their areas of expertise, what are the domains in which they possess a good experience and most importantly, describing their own attitude towards their work and the organization's.
- **The client base/contacts:** knowing the organization's potential customers, in what other organizations does the usability group have contacts, if there are some previous clients that can be used as references and knowing the organization's reputation.

- **Facilities:** it is extremely important to know if the company has a usability lab or access to one, if there are sufficient offices in order to perform focus groups, interviews and usability tests.
- **Equipment:** the type of computer support that the organization has, if it is unable to or restricted form delivering some types of services because of limitations that might appear in the infrastructure.
- **Finances:** knowing the state of the organization's finances, the willingness of the company facing the possibility of investing in the present with the possibility of future gains.

From a more general point of view, the analysis of the internal factors of a company is equivalent to the study of the microenvironment of the company. As stated in [11], the microenvironment consists of the actors close to the company that can affect its ability to serve its customers. This includes the following: the company, suppliers, marketing intermediaries, customer markets, competitors and publics.

- **Company:** for realizing adequate marketing plans, usually other departments from the internal company are important for having a marketing success, like: top management, finance, research, development, purchasing, operations, accounting.
- **Suppliers:** are very important for marketing because they form the entire delivery network of the company. Also, they intervene in the problems that might appear, like: supply shortages, delays, labour strikes, natural disasters and other events that can not only affect customer satisfaction, but also can disturb cost sales for a longer period of time.
- **Marketing intermediaries:** help the company promote, sell and also distributes its products to final buyers. They could be formed by: resellers, physical distribution firms, marketing services agencies and financial intermediaries.
- **Competitors:** One of the most important rules in being successful in Marketing states that a company has to provide greater customer value and satisfaction than its competitors do. In this situation, marketer's analysts must adapt to the needs of target consumers and also, they must gain strategic advantage by positioning their offerings strongly against competitor's offerings in the minds of consumers. It is important not to adopt only one competitive marketing strategy, because in most of the cases, some different strategies can also be adapted for more companies. In particular, each firm, must consider its own size and industry position compared to those of its own competitors. When referring to competition from the perspective of a usability company, we need to take into account some factors. In order to position usability services correctly in the marketplace, consultants need to have a good understanding of their competition [26]. Because of the fact that the usability field matures, also the number and variety of potential competitors is also increasing. When referring to the types of competitors that exist nowadays, there are two types. Some of them are considered as being in the same line of work and pursue the same type of customers. Other competitors are non-traditional in the sense that they may not have any formal usability training, yet customers might view them as offering viable solutions. Some examples of competitors could include: other consulting firms, independent usability consultants, design firms, internal usability groups, and other internal groups

[26]. When analysing the competitors it is valuable to evaluate each competitor's strengths and weaknesses, especially relative to those of the usability group. It is important to find out the background of the principals, what services does the organization offer, what are the costs of charging, the limitations they might have and what is their perceived competitive advantage.

Methods used for researching competitors are: company web Sites, customers, publications, conferences, as well as other marketing material distributed by the competitor.

- **Publics:** the public represents any group that has an actual or potential interest or impact on an organization's ability to achieve its objectives. The examples of publics that could take part of this category could be: financial publics, media publics, government publics, citizen-action publics, local publics, general public, and internal publics. The public environment includes groups that may have an impact on the usability organizations, such as clients, the usability community, the media and the general public. The increasing awareness of usability has reported in the general media has certainly contributed to a growth in the demand of the usability services.
- **Customers:** They are the most important actors in the company's microenvironment. The main goal of this value delivery network is to serve target customers and also create strong relationships with them.

Techniques and Methods: analysis of customer websites, bibliographical research, statistical techniques, etc.

Roles: Market Researcher.

Input Information	Source
(E10) Obtaining information referred to the internal factors of the company	External
(P14) Final Competitive Analysis Report	Task IntB.1.3

Output Product	Output (Destination)
(P15-O) Analysis of Interior Forces Document	Task IntB.2.2.

Task IntB.2.2. Analyzing the external factors of the usability company

Description: In creating the marketing plan, not only the internal factors are important, but also the external ones. According to [26], there are six types of exterior forces that influence and affect the macro environment: demographic, economic, natural, technological, political and cultural environments. These are considered as being important forces that will affect the usability organization [26].

- **Demographic environment:** demography represents the study of human populations in terms of size, density, location, age, gender, race, occupation and other statistics.

The demographic environment represents a major interest to marketers, because it involves people and people are the one composing markets.

- **Economic environments:** these are economic factors that affect consumer purchasing power and sending patterns.
- **Natural environment:** involves the physical environment and the natural resources that are needed as inputs by marketers or that are affected by marketing activities.
- **Political environment:** marketing decisions are strongly affected by developments in the political environment. The political environment is made of laws, government agencies and pressure groups that influence or limit various organizations and individuals in a given society.
- **Cultural environment:** that consists of institutions and other forces that affect a society's basic values, perceptions, preferences and behaviours.

Techniques and Methods: Bibliographical research, interviews

Roles: Market Researcher.

Entry	Source
(E11) Obtaining external information referred to the external factors of the company	External
(P15) Analysis of Interior Forces Document	Task IntB.2.1.

Output Product	Output (Destination)
(P16-O) Analysis of Exterior Forces Document	Task IntB.3.1.

Activity Grouping: Specifying the user requirements

Activity IntB.3. Analysis of Marketing Stakeholders

Description: In this category of activity the requirements of the Marketing Stakeholders will be analysed, especially the Marketing Stakeholders referred to the different users that can use the software application. In order to realize this activity, there are two main tasks that need to be accomplished which refer to the report of different categories of Marketing Stakeholders that can be identified (P17-O) and the analysis of the goals, interests and possible conflicts of stakeholders (P18-O).

Task IntB.3.1. Identifying the Stakeholders

Description: Identifying all the specific stakeholders related to the software product. Because of the fact that the Marketing Experts have already been identified, the stakeholders that are referred task IntB.3.1. are strictly referring to the users of the final software product.

Techniques and Methods: unstructured interviews, questionnaires, ethnographical analysis.

Roles: Project Manager, Requirements Engineer.

Input Information	Source
(P14) Final Competitive Analysis Report	Task IntB.1.3.
(P15) Analysis of Interior Forces Document	Task IntB.2.1.
(P16) Analysis of Exterior Forces Document	Task IntB.2.2.

Output Product	Output (Destination)
(P17-O) Report on different categories of Marketing Stakeholders that can be used in the Software Development Product.	Task IntB.3.2.

Task IntB.3.2. Analysis of the goals, interests and conflicts of the stakeholders

Description: Analyse the different stakeholders identified in the previous section, stating their goals, necessities, interests and conflicts.

Sub-task IntB.3.1.1. Identifying and characterizing individually the necessities and the interests of each stakeholder. In this sub-task the document will be documented.

Techniques and Methods: Non-structured interviews, focus groups, conceptual maps.

Roles: Project Manager, Requirements Engineer

Input Information	Source
(P17) Report on different categories of Marketing Stakeholders that can be used in the Software Development Product.	Task IntB.3.2.

Output Product	Output (Destination)
(P18-O) Report of the main interests, goals and necessities of Marketing stakeholders.	Task IntB.4.1.

Activity Grouping Defining the Marketing Strategy and the Marketing Mix

Activity IntB.4. Product Strategy

Description: After the product has passed the business test, it goes to the next stage, which is the product development. In this stage, the R&D (Research and Development Department) or engineering department develops the concept product into a physical product. The product

development step however shows whether the product idea can be turned into a workable product or not. This activity refers to the development of the product that comes as a continuation from the previous activity that has been started in the Pre-development activity grouping. At the end of this activity, a Final Product Report will be obtained, that also takes into account the previous product report that has been generated from the pre-development activities (P19-O).

Task IntB.4.1. Managing New Product Development

Sub-taskC.4.1.1. Customer-Centered New Product Development: thorough understanding of what consumers need and value focusing on finding new ways to solve customer problems and create more customer satisfying experiences. Also, the products that are differentiated solve major customer problems and offer a compelling customer value proposition.

Sub-taskC.4.1.2. Team Based New Product Development: Company departments working closely together in cross-functional teams, overlapping the steps in the product development process to save time and increase effectiveness. Instead of passing the product from department to department, the company assembles a team of people from various departments that create the product from start to finish. As an advantage of this subtask, teams are considered as being very complex, they usually include people from different departments (not only marketing), but also: finance, design, manufacturing, legal, supplier and other customer companies. Also, as disadvantages it is highly recommended to mention that, in the sequential process, a bottleneck at one phase can seriously slow down the entire process and it can sometimes create more organizational tension and confusion than the more orderly sequential approach.

Sub-taskC.4.1.3. Systematic New Product Development: finally, the new product development should be holistic and systematic rather than hazardous. Otherwise, few new ideas will surface and many good ideas will sputter and die. To avoid these problems, a company can install an innovation management system to collect, evaluate and manage new-product ideas.

Techniques and Methods: Tables, Matrices, Reports;

Roles: Product Marketing Manager.

Entry	Source
(P11) Initial Product Development Report	Task IntA.4.1.

Output Product	Output (Destination)
(P19-O) Final Product Report	Task IntB.4.2.

Task IntB.4.2. Marketing Test

Description: the stage at which the product and its proposed marketing program are introduced into realistic market settings. Marketing Test gives the marketer experience with marketing the product before going to the great expense of full introduction. It also, lets the company test the product and its entire marketing program, targeting and positioning strategy, advertising, distribution, pricing, branding and packaging, and budget levels. The amount of marketing test needed varies with each new product. Marketing Test costs can be high and it takes time that may allow competitors to gain advantages. When introducing a new product requires a new investment, when the risks are high and management is not sure of the product or its marketing programs. As an alternative to extensive and costly standard test markets, companies can use controlled test markets or simulated test markets. In controlled test markets, new products and tactics are tested among controlled panels and stores.

Techniques and Methods: bibliographical research, advantage/disadvantage tables;

Roles: Product Marketing Manager.

Entry	Source
(P11) Initial Product Development Report	Task IntA.4.1.

Output Product	Output (Destination)
(P19-O) Final Product Report	Task IntC.1.1.

3.3.3 Post-development Activities

After having accomplished the part of pre-development and development of the software product, the post-development activities need to be taken into account. In this situation, the activities that belong to the Marketing Mix enter into discussion and these are the activities referred to: Price Strategy and Promotion Strategy.

These two categories of activities have been chosen to be treated in this category, at the end of the development of a software product, because of the importance that they can bring to the software development. These two steps are considered as being the most important, especially from the Marketing field point of view, in order for the software/usability company to obtain a certain amount of benefits after finishing the software product.

Activity Grouping	Classification inspired by IEEE 1074-2006[18]	Activities	Tasks
Defining the Marketing Strategy and the Marketing Mix	IntC.1.	Pricing Strategy	Market skimming pricing
			Market Penetration Pricing
			Product Mix Pricing

			Price Adjustment Pricing
	IntC.2.	Promotion strategy	Identifying the promotion strategies

Table 14. Post-development Activities IntC.

Description: In the domain of marketing usability services, one of the most difficult and important elements is the decision on money and how much to charge the customer. If the amount of money is too little, the consultants may be overwhelmed with a lot of work and this might lead also to a decrease in demand, because of the fact that customers can easily associate higher price with higher quality. Also, such a pricing approach (known as premium or prestige pricing) could also attract high-end clients that want to authenticate their success or status by hiring a high-profile consultant. Also, if the usability organization charges too much money, it could find itself with too much free time. From a general point of view, pricing should be based on the market's requests, needs and necessities. In order to accomplish this goal, the understanding of the needs and resources of the customer, the usability organization and the competition is needed.

Usually in the case of usability organizations, pricing strategy is influenced by the following factors:

- Competition
- Consultant
- Customer

Philip Kotler proposes in his book four alternative fee-setting objectives [11]. Firstly, **current profit maximization**, has the highest possible profit levels by setting price to maximize the difference between the consultant's expected revenue and the cost of delivering the service.

Secondly, **market penetration**, consists of the firm charging fees lower than what the competition charges. The explanation of this is that the market is sensitive to differences in pricing or if the consultant needs to acquire more experience to attract and retain customers. Thirdly, in the case of market skimming, the consultant wants to make a large amount of profit from a small number of clients by charging very high fees. The explanation of this is based on the fact that the market associates high fees with high quality or for independent contractors that do not wish to add personnel. In the final case, the consultant charges just enough to cover its costs, to live comfortably and to enjoy a reputation for quality work at a reasonable price.

In the case of usability services we need to take into account that there are some strategies based on the release of a new product in the market. In this case the strategies that we need to take into account are only referred to market-skimming and market-penetration.

Task IntC.1.1. Market Skimming pricing

Description: Setting a high price for a new product to skim maximum revenues layer by layer from the segments willing to pay the higher price, in this way the company making fewer but more profitable sales. The conditions under which these type of marketing techniques/strategies make sense in adopting. Firstly, the product's quality and image must

support its higher price and also enough buyers must want the product at that particular price. Secondly, the cost of producing a smaller volume cannot be so high that they cancel the advantage of charging more. Another important fact is that competitors cannot be able to enter the market that easily and undercut the high price.

Techniques and Methods: Research, Tables, Matrices, Statistical Techniques.

Roles: Market Analyst, Manager of marketing statistics.

Input Information	Source
(E12) Analysis of the existing market prices	External
(P4) Research Document I	Task IntA.2.1.
(P5) SWOT Analysis of the company in a particular industry	Task IntA.3.1.
(P14) Final Competitive Analysis Report	Task IntB.1.1.

Output Product	Output (Destination)
(P20-O) Pricing Report I	Task IntC.1.2.

Task IntC.1.2. Market Penetration Pricing

Description: In this situation companies set a low initial price to penetrate the market quickly and deeply, in order to attract a large number of buyers, quickly and win a large market share. The high sales volume results in falling costs, allowing companies to cut their prices even further. In this case, there are several conditions that need to be met for this low-price strategy to work. Firstly, the market must be highly price sensitive, so that a low price could produce more market growth. Secondly, production and distribution costs must decrease as sales volume increases. Finally the low price must help keep out the competition and the penetration price must maintain its low-price position. If these conditions are not met, then the price advantage may be only temporary.

Techniques: Research, Tables, Matrices, Statistical Techniques, Analysis of ROI of different companies.

Roles: Market Analyst, Manager of marketing statistics.

Input Information	Source
(P20) Pricing Report I	Task IntC.1.2.

Output Product	Output (Destination)
(P20-O) Pricing Report II	Task IntC.1.3.

Task IntC.1.3. Product-Mix Pricing

Description: The strategy of setting a product's price, often has to be changed when the product is part of a product mix. In this case, the firm looks for a set of prices that maximizes its profits on the total product mix. Pricing is difficult because the various products have related demand and costs and face different degrees of competition.

Sub-task IntC.1.3.1. Product-line pricing: Companies usually develop product lines rather than single products. In this category, management must determine the price steps to set between the various products in a line. The price steps should take into account cost differences between products in the line. More importantly they should account for differences in customer perceptions of the value of different features.

Sub-task IntC.1.3.2. Optional product pricing: Many companies use optional product pricing – offering to sell optional or accessory products along with the main product. This can result in a bit complex and complicated process. Companies must decide which items to include in the base price and which to offer as options.

Sub-task IntC.1.3.3. Captive product pricing: Companies that make products that must be used along with a main product are using **captive product pricing**. Also, in this situation, companies that use this type of products must be careful. Finding the right balance between the main product and captive product prices could be a bit dangerous.

Sub-task IntC.1.3.4. By-product pricing: Producing products and services often generates by-products. If the buy-product have no value and if getting rid of them is costly, this can affect the pricing of the main product. Using by-product pricing, the company seeks a market for these by-products to help offset the costs of disposing of them and help make the price of the main product more competitive. The by-products themselves can even turn out to be profitable.

Sub-task IntC.1.3.5. Product bundle pricing: Using product bundle pricing, sellers often combine several products and offer the bundle at a reduced price.

Strategy	Description
Product line pricing	Setting price steps between product line items
Optional-product pricing	Pricing optional or accessory products sold with the main product
Captive-product pricing	Pricing products that must be used with the main product
By-product pricing	Pricing low-value by-products to get rid of them
Product bundle pricing	Pricing bundles of products sold together

Table 15. Price strategies

Techniques: Research, Tables, Matrices, Statistical Techniques, Analysis of ROI of different companies.

Roles: Market Analyst, Manager of marketing statistics.

Input Information	Source
(P20) Pricing Report II	Task IntC.1.3.

Output Product	Output (Destination)
(P20-O) Pricing Report III	Task IntC.1.4.

Task IntC.1.4. Price Adjustment Strategies

Description: companies usually adjust their basic prices in order to account for various customer differences and changing situations.

Sub-task IntC.1.4.1. Discount allowance pricing: Discounts and allowances are used to reward customers for some responses such as, early payment of bills, volume purchases and off-season buying. Normally, discounts and allowances can take many forms, like:

- **Cash discounts:** which is a price reduction to buyers who pay their bills promptly.
- **Functional discount** (known as trade discount): is offered by the seller to trade channel members who perform certain functions, like selling, storing, record keeping.
- **Seasonal discount:** price reduction to buyers that buy merchandise or services out of season.

Allowances: represent another type of reduction from the list price.

- **Trade-in allowances:** price reductions given for turning in an old item when buying a new one.
- **Promotional allowances** are payments or price reductions to reward dealers for participating in advertising and sales support programs.

Sub-task IntC.1.4.2. Segmented pricing: Selling a product or service at two or more prices, where the difference in prices is not based on differences in costs.

Forms:

- **Customer segment pricing:** different customers pay different prices for the same product or service.
- **Product form pricing:** different versions of the product are priced differently, but not according to differences in their costs.
- **Location pricing:** different prices for different locations, even though the cost of offering each location is the same.

Condition in order for segmented pricing to be a valuable strategy: the market must be segmental and the segments have to show different degrees of demand. The costs of segmenting and watching the market cannot exceed the extra revenue obtained from the price difference.

Sub-task IntC.1.4.3. Psychological pricing: This means that the price is used to say something about the product. For example, it is a well-known fact that users usually see higher priced products as having higher quality. When they can judge the quality of a product by examining it or by calling on past experience with it, they use price less to judge quality, but when faced with a situation in which they cannot judge quality because they lack the information or skill, price becomes an important quality signal.

Reference prices: prices that buyers carry in their minds and refer to when looking at a given product. This can be formed by current prices, remembering past prices or assessing the buying situation.

Sub-task IntC.1.4.4. Promotional pricing: Companies will temporarily price their products below list prices and sometimes even below cost to create buying excitement and urgency.

Forms:

- Loss leaders in order to attract customers;
- Special event pricing;
- Cash rebates offerings to consumers who buy the product from dealers within a specified time; in this way the manufacturer sends the rebate directly to the customer. Rebates have been popular with automakers and producers of durable goods and small appliances, but they are also used with consumer packaged goods.

Sub-task IntC.1.4.5. Geographical pricing

A very important aspect of pricing is the fact that a company must decide how to price its products for customers located in different parts of the world. There are 5 different types of geographical pricings:

1. **FOB-origin pricing:** a geographical pricing strategy in which goods are placed free on board a carrier, the customer pays the freight from the factory to the destination. Customers of this kind of pricing feel that this is the fairest way to assess freight charges.
2. **Uniform-delivered pricing:** opposite of FOB pricing. In this case, the company charges the same price plus freight to all customers regardless of their location. The freight charge is set at the average freight cost.
3. **Zone pricing:** the company sets up two or more zones. All customers within a zone pay the same total price, the more distant the zone, the higher the price.
4. **Basing-point pricing:** the seller selects a given city as a basing point and charges all customers the freight cost from that city to the customer location, regardless of the city from which the goods are actually shipped.
5. **Fright-absorption pricing:** the seller who is anxious to do business with a certain customer or geographical area might use freight-absorption pricing. Using this strategy, the seller absorbs all or part of the actual freight charges in order to get the desired business. The seller might reason that if it can get more business, its average costs will fall and more than compensate for its extra freight cost. Freight-absorption pricing is used for market penetration and to hold to increasingly competitive markets.

6. Dynamic and Internet pricing: adjusting prices continually to meet the characteristics and needs of individual customers and situations.

Sub-task IntC.1.4.6. International pricing: Companies that market their prices internationally must decide which prices to charge in the different countries in which they operate.

Techniques and Methods: Research, Tables, Matrices, Statistical Techniques, Analysis of ROI of different companies.

Roles: Market Analyst, Manager of marketing statistics.

Input Information	Source
(P20) Pricing Report III	Task IntC.1.3.

Output Product	Output (Destination)
(P20-O) Final Pricing Report	Task IntC.2.1.

Activity IntC.2. Promotion Strategy

Description: This represents an activity that refers to the identification of the promotion strategies that exist nowadays, Task IntC.2.1., and with the generation of the output product that refers to the promotion report (P21-O).

There are six promotional tactics upon which they depend to develop business. By analyzing first the external consultants, there are the following tactics: repeat business, word of mouth, tutorials, industry event speeches, publishing and public relations.

The tactics are listed in the following order: articles, proprietary research, community/civic networking with potential referral sources, newsletters, publicity, brochures, seminars, direct mail, cold calls, advertising and video brochures.

The internet has also developed into an essential tool for promoting usability services.

The challenge of promoting UCS to a skeptical audience is significant. There are some important steps that can be followed, in order to keep in mind the strongest business case for UCD.

- Show a conservative bias;
- Identify hard-to –measure impacts of usability that are not included in your analysis;
- When using anecdotes, show in which way they are relevant;
- Target your analysis;
- Lay your own groundwork;
- Be careful about highlighting that your recommendation is coming from a different paradigm of product development;

Focus on effectiveness in doing what the company is already trying to do.

The promotion’s Mix is also called marketing communications mix, consists of the specific blend of advertising, public relations, personal selling, sales, and promotion, direct marketing

tools that the company uses to persuasively communicate customer value and build customer relationship.

Task IntC.2.1. Identifying the promotion strategies

Description: The promotion strategies are the following:

- **Advertising:** Any form of non-personal presentation and promotion of ideas, goods or services by an identified sponsor.
- **Sales promotion:** short-term incentives to encourage the purchase or sale of product making sales and building customer relationships.
- **Public relations:** building good relations with the company’s various publics by obtaining favourable publicity, building up a good corporate image and handling or heading off unfavourable rumours, stories and events.
- **Direct marketing:** direct connections with carefully targeted individual consumers to both obtain an immediate response and cultivate lasting customer relationships.

When referring to advertising, marketing management must make four important decisions, when developing an advertising program: setting advertising objectives, setting the advertising budget, developing advertising strategy (message decisions and media decisions) and evaluating advertising campaigns.

- a) Setting advertising objectives: informative advertising, persuasive advertising, reminder advertising.

Informative Advertising	Persuasive Advertising	Reminder Advertising
Communicating Customer Value Building a brand new company image Telling the market about a new product Explaining how the product works Suggesting also new uses for a product Informing the market of a price change Describing available services and support Correcting false impressions	Building brand preferences Encouraging switching to a brand Changing customer perceptions of a product value Persuading customers to purchase now Persuading customers to receive a sales call Convincing customers to tell others about the brand	Maintaining customer relationships Reminding consumers that the product may be needed in the near future Reminding consumers where to buy the product Keeping the brand in a customer’s mind during off-seasons.

Table 16. Advertising Objectives

Developing the advertising strategy

This stage consists of two major elements: creating advertising messages and selecting advertising media. More often, companies viewed media planning as secondary to the

message-creation process. After the creative department created good advertisements, the media department then selected and purchased the best media for carrying those advertisements to the desired target audiences.

Techniques and Methods: bibliographical research, online communities' research.

Roles: Marketing Communication Manager.

Output Product	Output (Destination)
(P21-O) Promotion Report	-

3.3.4 Conclusion

After having analyzed and explained in more detail each activity and task required for the Marketing Model, in **Table 19**, it can be observed a resume of all the activities that have been presented in the current section.

Chapter III. Proposal of activities and their Integration in a User-Centred Process Model

Activity Grouping	Classification inspired by IEEE 1074-2006[18]	Activity Name	Task	Sub-task	Technique and Method	Role	Input Information	Output Product
PRE-DEVELOPMENT	IntA.1.	Team Building	Incorporation of Marketing experts in the software development project	-	<ul style="list-style-type: none"> ➤ unstructured interviews; ➤ force-field analysis; ➤ ethnography field research; ➤ Delphi method; 	<ul style="list-style-type: none"> ➤ Company Manager; ➤ Project Manager; ➤ Requirements Engineer; 	<p>(E1) The Marketing Experts that need to be considered when developing the project.</p> <p>(E2) The importance of every Marketing Expert in the development of the project.</p> <p>(E3) The role that every Marketing Expert has in the development of the project.</p> <p>(E4) Test the basic knowledge of computer science that each Marketing Expert needs</p>	(P1-O) Report on different categories of Marketing Experts that can be used in the Software Development Product.

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							to have.	
			Analysis of the main goals and interests of every Marketing expert		<ul style="list-style-type: none"> ➤ unstructured interviews; ➤ focus groups; ➤ conceptual maps. 	<ul style="list-style-type: none"> ➤ Company manager; ➤ Project Manager; ➤ Requirements Engineer. 	(P1) Report on different categories of Marketing Experts that can be used in the Software Development Product.	(P2-O) Report of the main interests, goals and necessities of Marketing experts.
	IntA.2.	Marketing Research	Defining the problem and research objectives	<p>Exploratory research</p> <p>Descriptive research</p> <p>Causal research</p>	<ul style="list-style-type: none"> ➤ bibliographical research; ➤ ethnographical research; ➤ focus groups; interviews; ➤ market research online communities; ➤ mobile research; ➤ online surveys. 	<ul style="list-style-type: none"> ➤ Marketing Consultant; ➤ Marketing Communication Manager; ➤ Company Manager. 	<p>(E5) Provide internal information from the company</p> <p>(E6) Provide external information from outside the company</p>	(P3-O) Research Document I
			Developing the research plan for collecting information	<p>Analysis of primary data</p> <p>Analysis of secondary data.</p>	<ul style="list-style-type: none"> ➤ surveys; ➤ interviews; ➤ questionnaires; ➤ focus groups; 	<ul style="list-style-type: none"> ➤ Marketing consultant; ➤ Marketing communication manager; ➤ Company manager. 	<p>(E6) Provide external information from outside the company</p> <p>(P3) Research Document I</p>	(P4-O) Research Document II
	IntA.3.	Market Analysis	Determining the Market size	<p>Analysis of market volume and the market potential</p> <p>Analysis of competitive</p>	<ul style="list-style-type: none"> ➤ statistical methods; 	<ul style="list-style-type: none"> ➤ Strategic marketing managers. 	(P2) Report of the main interests, goals and necessities of Marketing	(P5-O) SWOT Analysis of the company in a particular industry.

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				<p>sales (bottom-up approach)</p> <p>Analysis of competitive sales (top-down approach)</p>			<p>experts.</p> <p>(P4) Research Document II</p> <p>(E7) Identify external information of the market</p> <p>(E8) Identify possible revenues of other companies in the market</p>	
			Market Segmentation	<p>Geographic segmentation</p> <p>Demographic segmentation</p> <p>Behavioral segmentation</p> <p>Psychographic segmentation</p>	<ul style="list-style-type: none"> ➤ Bibliographical research; ➤ Matrices; ➤ Statistical techniques. 	<ul style="list-style-type: none"> ➤ Marketing Analyst; 	<p>(P5) SWOT Analysis of the company in a particular industry.</p> <p>(E9) Bibliographical research</p>	<p>(P6-O) Pie Matrix representing each segment</p> <p>(P7-O) Explanatory Report of each segment</p>
			Market Targeting	<p>Selection of two important market targets</p>	<ul style="list-style-type: none"> ➤ SWOT Analysis; 	<ul style="list-style-type: none"> ➤ Marketing Analyst. 	<p>(P6) Pie Matrix representing each segment</p> <p>(P7) Explanatory</p>	<p>(P8-O) Final report of two segments</p>

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							Report of each segment	
			Market Differentiation	Undifferentiated Targeting Concentrated Targeting Multi-segment Targeting	<ul style="list-style-type: none"> ➤ Research analysis; ➤ Resumes tables; 	<ul style="list-style-type: none"> ➤ Manager of Marketing statistics; ➤ Marketing Analyst. 	<p>(P6) Pie Matrix representing each segment</p> <p>(P7) Explanatory Report of each segment</p> <p>(P8) Final report of two segments</p>	<p>(P9-O) Differentiation Report</p> <p>(P10-O) Positioning Report</p>
Defining the Marketing Strategy and the Marketing Mix	IntA.4.	Product Strategy	The new-product development process	Idea Generation Idea screening concept Concept Development and Testing	<ul style="list-style-type: none"> ➤ bibliographical research ➤ focus groups; ➤ interviews. 	<ul style="list-style-type: none"> ➤ Product Marketing Manager; 	<p>(P1) Report on different categories of Marketing Experts that can be used in the Software Development Product.</p> <p>(P2) Report of the main interests, goals and necessities of Marketing experts.</p> <p>(P3) Research Document I</p> <p>(P4) Research Document II</p>	(P11-O) Initial Product Development Report

							<p>(P5) SWOT Analysis of the company in a particular industry.</p> <p>(P6) Pie Matrix representing each segment</p> <p>(P7) Explanatory Report of each segment</p> <p>(P8) Final report of two segments</p> <p>(P9) Differentiation Report</p> <p>(P10) Positioning Report</p>	
<p>DEVELOPMENT</p> <p>Understanding and specifying the concept of use</p>	IntB.1.	Competitive Analysis	Identify the competitor's goals	-	<ul style="list-style-type: none"> ➤ Bibliographical research; ➤ Porter's five forces; ➤ SWOT analysis. 	<ul style="list-style-type: none"> ➤ Manager of Competitive Analysis. 	<p>(P5) SWOT Analysis of the company in a particular industry.</p> <p>(P6) Pie Matrix representing each segment</p> <p>(P7)</p>	(P12-O) Competitive

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							<p>Explanatory Report of each segment</p> <p>(P8) Final report of two segments</p> <p>(P9) Differentiation Report</p> <p>(P10) Positioning Report</p>	
			Selecting the most or least dangerous competitors	-	<ul style="list-style-type: none"> ➤ interviews; ➤ bibliographical research; 	<ul style="list-style-type: none"> ➤ Manager of competitive analysis. 	<p>(P5) SWOT Analysis of the company in a particular industry.</p> <p>(P6) Pie Matrix representing each segment</p> <p>(P7) Explanatory Report of each segment</p> <p>(P8) Final report of two segments</p> <p>(P9) Differentiation Report</p>	(P13-O) Competitive Analysis Report II

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Specifying the user requirements							(P10) Positioning Report	
			Competitive strategies	Adopting overall cost-leadership Differentiation Focus	<ul style="list-style-type: none"> ➤ interviews; ➤ bibliographical research; 	<ul style="list-style-type: none"> ➤ Manager of Competitive Analysis; 	(P12) Competitive Analysis Report I	
	IntB.2.	Identifying the most appropriate target market	Analysis of the internal factors of the usability company	-	<ul style="list-style-type: none"> ➤ Analysis of customer websites; ➤ Bibliographical research; ➤ Statistical techniques. 	<ul style="list-style-type: none"> ➤ Market researcher. 	(P11) Competitive Analysis Report I (P12) Competitive Analysis Report II	(P14-O) Final Competitive Analysis Report
			Analysis of the external factors of the usability company	-	<ul style="list-style-type: none"> ➤ Bibliographical research; ➤ Interviews. 	<ul style="list-style-type: none"> ➤ Market Researcher. 	(E10) Obtaining information referred to the internal factors of the company (P14) Final Competitive Analysis Report	(P15-O) Analysis of Interior Forces Document

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							company (P15) Analysis of Interior Forces Document	
	IntB.3.	Analysis of the Marketing Stakeholders	Identifying the stakeholders	-	<ul style="list-style-type: none"> ➤ Unstructured interviews; ➤ Questionnaires; ➤ Ethnographical analysis; 	<ul style="list-style-type: none"> ➤ Project manager; ➤ Requirements Engineer. 	(P14) Final Competitive Analysis Report (P15) Analysis of Interior Forces Document (P16) Analysis of Exterior Forces Document	(P17-O) Report on different categories of Marketing Stakeholders that can be used in the Software Development Product.
Defining the Marketing Strategy and the Marketing Mix			Analysis of the goals, interests and conflicts of the stakeholders	Identifying and characterizing the necessities and the interests of each stakeholder	<ul style="list-style-type: none"> ➤ Unstructured interviews; ➤ Focus groups; ➤ Conceptual maps. 	<ul style="list-style-type: none"> ➤ Project manager; ➤ Requirements engineer 	(P17) Report on different categories of Marketing Stakeholders that can be used in the Software Development Product.	(P18-O) Report of the main interests, goals and necessities of Marketing stakeholders.
	IntB.4.	Product Strategy	Managing the new product development	<ul style="list-style-type: none"> ➤ Customer-centred new product development ; ➤ Team based new product 	<ul style="list-style-type: none"> ➤ Tables; ➤ Matrices; ➤ Reports. 	<ul style="list-style-type: none"> ➤ Product Marketing Manager. 	(P11) Initial Product Development Report	(P19-O) Final product report.

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				<ul style="list-style-type: none"> ➤ development; Systematic new product development 					
			Marketing Test	-	<ul style="list-style-type: none"> ➤ Tables; ➤ Matrices; ➤ Reports. 	<ul style="list-style-type: none"> ➤ Product Marketing Manager. 	(P11) Initial Product Development Report	(P19-O) Final product report.	
<p>POST-DEVELOPMENT</p> <p>Defining the Marketing Strategy and the Marketing Mix</p>	IntC.1.	Pricing strategy	Market skimming pricing	-	<ul style="list-style-type: none"> ➤ Bibliographical research; ➤ Tables; ➤ Matrices; ➤ Statistical techniques 	<ul style="list-style-type: none"> ➤ Market Analyst; ➤ Manager of marketing statistics. 	<p>(E12) Analysis of the existing market prices</p> <p>(P4) Research Document I</p> <p>(P5) SWOT Analysis of the company in a particular industry</p> <p>(P14) Final Competitive Analysis Report</p>	(P20-O) Pricing report I.	
				Market Penetration pricing	-	<ul style="list-style-type: none"> ➤ Bibliographical research; ➤ Tables; ➤ Matrices; ➤ Statistical techniques; ➤ Analysis of ROI of different companies; 	<ul style="list-style-type: none"> ➤ Market Analyst; ➤ Manager of Marketing statistics. 	(P20-O) Pricing report I.	(P20-O) Pricing report II.
				Product Mix		<ul style="list-style-type: none"> ➤ Product-line pricing; 	<ul style="list-style-type: none"> ➤ Bibliographical research; 	<ul style="list-style-type: none"> ➤ Market Analyst; 	(P20-O) Pricing report

Chapter III. Proposal of activities and their Integration in a User-Centred Process Model

			Pricing	<ul style="list-style-type: none"> ➤ Optional product-pricing; ➤ Captive product pricing; ➤ By-product pricing; ➤ Product bundle pricing. 	<ul style="list-style-type: none"> ➤ Tables; ➤ Matrices; ➤ Statistical techniques; ➤ Analysis of ROI of different companies. 	<ul style="list-style-type: none"> ➤ Manager of Marketing statistics. 	II.	III.
			Pricing Adjustment Strategies	<ul style="list-style-type: none"> ➤ Discount allowance pricing; ➤ Segmented pricing; ➤ Psychological pricing; ➤ Promotional pricing; ➤ Geographical pricing; ➤ International pricing; 	<ul style="list-style-type: none"> ➤ Bibliographical research; ➤ Tables; ➤ Matrices; ➤ Statistical techniques; ➤ Analysis of ROI of different companies. 	<ul style="list-style-type: none"> ➤ Market Analyst; ➤ Manager of Marketing statistics. 	(P20-O) Pricing report III.	(P20-O) Final Pricing report.
	IntC.2.	Promotion strategy	Identifying the promotion strategies	-	<ul style="list-style-type: none"> ➤ Bibliographical research; ➤ Online communities' research. 	<ul style="list-style-type: none"> ➤ Marketing communication manager; 	-	(P21-O) Promotion report.

Table 17. Marketing Activities Resume Table

Chapter IV. Validation of the Activities Proposed

4.1 Validation Method

The most general form of validating the proposed activities is by constructing different applications and software products, in two different situations. The first one will be related to the construction of software applications that do not use the proposed activities presented in this work and in the second situation, the opposite. In this way, by applying these criteria, it can be shown that the proposed methods improve or not the quality, usability of the built software application.

Furthermore, it needs to be mentioned that because of lack of time, a case study has been considered, based on an e-commerce application, in which some of the activities have been executed and in the end generating output products as a proof of concept. The validation that has been thought for this present work is related to the application of the present model for an e-commerce application, in which its main objective is to sell electronics, software products, entertainment products, etc.

4.2 Web Application Example for the Case Study

The on-line web application that has been selected for the study case of the present work is an e-commerce web application specialized in selling software products, electronics, entertainment products, etc. The web application selected for the use case represents a typical e-commerce web application. The term of Electronic commerce, commonly known as E-commerce represents trading in products or services using computer networks, such as the Internet. This new technology draws on technologies such as mobile commerce, electronic funds transfer, Internet Marketing, online transaction processing, inventory management systems and automated data collection systems.

4.3 Validation Activities

In order to reach the proposed goal, the activities IntA.1, IntA.2 and IntA.3 have been applied. However, and because of lack of time, only some of the products were presented with concrete examples, giving its specific description in particular.

4.3.1 Activity IntA.1. Team Building

Description: This activity is a general activity used in most software development companies. Its main goal is to take into account all the members that will take part in the following software product development. In this case, not only the analysts, requirements engineers, developers, project managers, but also the marketing experts. Because we are referring to a web application, which its main goals are to sell different products for clients, it is very important at first to involve also the marketing department in the process of developing the product.

After realizing this activity, a general idea of the marketing experts involved in the realization of this activity will be presented and also, the main interests and goals of each and every marketing expert will be presented.

4.3.1.1 Task IntA.1.1. Incorporation of Marketing experts in the software development project

Description: The following task requires the identification of marketing experts, which can be included in the software development team. These experts possess different tasks and have different roles in the development team and can also provide different features and characteristics to the development project.

In order to find the appropriate experts for realizing the job, non-structured interviews will be applied to the Marketing Department that exists in a company and in this way the selected members will be included in the development team.

Entry Information: The entry information necessary for the realization of this task is composed from the Marketing Experts that need to be considered when developing the project (E1), their importance (E2), the role that they realize and also, testing the basic knowledge of computer science that each Marketing Expert needs to have (E4). Because of the fact that this information is only made of external sources, it can also be obtained by performing unstructured interviews, force-field analysis and even applying the Delphi method of the identified candidates, by the company manager or the project manager.

Output Product: As it can be viewed in the following table, the output product for this task has been generated, containing a list of the most important marketing experts that can be used in the realization of this e-commerce application and the role that each and every one of the experts has in the application development. Some examples of Marketing experts can also be viewed in Table 15 and the Product 1 shows a concrete example of Marketing Experts that were included in the development team of the e-commerce application.

Page: 1/1

P1-O Report on different categories of Marketing Experts that can be used in the Software Development Product

Version: 1.0

- **ME1. Campaign or Program Manager**
Role: Key
- **ME2. Content Marketing Manager**
Role: Secondary
- **ME3. Digital or Acquisition Marketing Manager**
Role: Secondary
- **ME4. Email Marketing Manager**
Role: Primary
- **ME5. Event Manager**
Role: Primary
- **ME6. Field Marketing**
Role: Secondary
- **ME7. Marketing Automation Manager**
Role: Primary

- **ME8. Marketing Communications Manager**
Role: Secondary
- **ME9. Marketing Data Analyst**
Role: Primary
- **ME10. Marketing Operations**
Role: Secondary
- **ME11. Marketing Specialist**
Role: Secondary
- **ME12. Product Marketing Manager**
Role: Secondary
- **ME13. Social Media Marketing Manager**
Role: Secondary
- **ME14. Brand Manager**
Role: Secondary
- **ME15. Loyalty/CRM Manager**
Role: Secondary
- **ME16. Affiliate Marketing Manager**
Role: Secondary

Product 1. Report on different categories of Marketing Experts that can be used in the Software Development Product

4.3.1.2 Task IntA.1.2. Analysis of the main goals and interests of every Marketing expert

Description: Once the Marketing Experts have been identified in the previous task, there is also a need to specify their main goals and interests. This task generates an output product that contains a list of the Marketing experts along with their main tasks. Some examples of Marketing experts that can be considered suitable for the development team could be: Marketing Communication Manager, Marketing Data Analyst, Product Marketing Manager, Marketing Competitive Analyst, etc. All of these roles of Marketing experts, depends on the size and dimension of the company. In the situation of this study case, we are referring to an international company which has a website e-commerce application, which basically has a Marketing Department in every country in which is currently planning its main activities. For this reason, the output product generated from this task, is composed of 16 examples of Marketing Experts, which each of those has its main tasks and a fixed role inside the Marketing department inside the company.

Entry Information: The entry information required for the development of this product is the product obtained in the previous task (P1-I). As in the previous task, the main features and characteristics of the Marketing Experts are identified by realizing unstructured interviews, by the company manager and the requirements engineer.

Output Products: The output product that is generated in Task IntA.1.2. refers to the list of Marketing Experts that has been generated accompanied by their main goals and features.

P2-O Report of the main interests, goals and necessities of Marketing experts

Version 1.0.

➤ ME.1. Campaign or Program Manager

ME.1.1. Responsible for identifying, designing, planning, delivering, monitoring and modifying cross-channel marketing campaign;

ME.1.2. Responsible for designing all campaign tactics to use the marketing platform, so that tracking and reporting can be conducted;

➤ ME.2. Content Marketing Manager

ME.2.1. Responsible for enterprise-level content management;

ME.2.2. Works closely with Marketing Managers and cross-divisional project teams to create and execute effective marketing communications content and programs;

ME.2.3. Collaborates with a network of internal content creators to publish content;

ME.2.4. Publishes and manages a content calendar;

➤ ME.3. Digital or Acquisition Marketing Manager

ME.3.1. Responsible for reviewing company or department objectives in order to transform them into actionable and measurable digital marketing programs. This could include applying the following technics: SEO, social, mobile, online-media, website strategy and other digital components.

ME.3.2. Responsible for creating and measuring the digital marketing programs.

ME.3.3. Develop digital strategies and conduct analysis to make recommendations that will increase ROI program.

➤ ME.4. Email Marketing Manager

ME.4.1. Responsible for handling electronic correspondence by using an email service provider or a marketing automation platform;

ME.4.2. Could be also involved in social media marketing campaigns, because of the fact that the two domains are linked to one another;

➤ ME.5. Event Manager

ME.5.1. Responsible for planning and organizing all stages of an event, including: event definition, promotion, registration, communication, onsite management, budget responsibilities.

➤ ME.6. Field Marketing

ME.6.1. Responsible for organizing, coordinating and executing marketing campaign and events, like sales promotions and programs

➤ ME.7. Marketing Automation Manager

ME.7.1. Responsible for the Marketing Automation Software;

ME.7.2. Sales Force Automation software user;

ME.7.3. Database Management, segmentation, reporting and contact maintenance;

ME.7.4. Responsible for data analysis, reporting and business intelligence.

➤ ME.8. Marketing Communication Manager

<p>ME.8.1. Manages campaigns and communications through all phases of launch and maintenance, including reporting, analysis and optimization; ME.8.2. Supports the company's goals through a wide range of communications and marketing activities, generally lead communications initiatives. ME.8.3. Manages and monitors day-to-day conversations on social channels, making media and social engagement recommendations;</p>
<p>➤ ME.9. Marketing Data Analyst</p> <p>ME.9.1. has a data analytics background and an experience with business intelligence tools and manipulating large amounts of data; ME.9.2. responsible for reporting and metrics;</p>
<p>➤ ME.10. Marketing Operations</p> <p>ME.10.1. responsible for the marketing infrastructure, processes, integration from marketing systems to other key infrastructure systems, metrics and best practices; ME.10.2. responsible for the marketing cloud platform; ME.10.3. responsible for data flow; ME.10.4. responsible for campaign process, implementation, and execution, as it relates to the marketing platform used; ME.10.5. system training and enablement, governance and administration;</p>
<p>➤ ME.11. Marketing Specialist</p> <p>ME.11.1. becoming a general role name for a person that is responsible for managing transformational change inside marketing organizations; ME.11.2. can have similar responsibilities as the Marketing Operations role, but has more leadership skills and is considered and educator and an influence change. ME.11.3. not just an IT and technology expert, but has marketing experience as well.</p>
<p>➤ ME.12. Product Marketing Manager</p> <p>ME.12.1. In charge of the marketing of new and existing products; ME.12.2. they associate with other departments of the company in order to conceive and support new and innovative marketing programs to the new products. ME.12.3. must have a wide knowledge of the product's features and benefits; ME.12.4. formulate, direct and coordinate marketing activities and policies to promote products and services, working with advertising and promotion managers.</p>
<p>➤ ME.13. Social Media Marketing Manager</p> <p>ME.13.1. responsible for the execution of social media initiatives; ME.13.2. monitors all company-related social mentions via monitoring tools, working with the Digital Marketing team to manage the response strategy, identify and monitor influencers and build relationships with brand advocates.</p>
<p>➤ ME.14. Brand Manager</p> <p>ME.14.1. create key marketing messages for brands in alignment with brand strategy and ensure consistent brand strategy through partnership with cross-functional team. ME.14.2. identify wants and needs of target consumer and communicate the</p>

company's brand image and product and services value.

ME.14.3. drive brand strategy and differentiation, creating a unique and compelling customer experience.

➤ **ME.15. Loyalty/CRM Manager**

ME.15.1. create and manage the customer contact strategy, executing timely and accurate deliveries of marketing strategies to achieve business goals.

ME.15.2. work in order to define the Customer Experience Strategy, including mapping the customer path, identifying key touch points, highlighting break points and identifying behaviours required to deliver superior customer experience.

➤ **ME.16. Affiliate Marketing Manager**

ME.16.1. developing and monitoring affiliate promotions, while maintaining strong relationships with the current affiliates;

ME.16.2. reporting to affiliate marketing promotions and activity;

ME.16.3. monitoring and reporting on competitor's affiliate campaigns and promotions;

ME.16.4. manage any external affiliate vendors.

Product 2. Report of the main interests, goals and necessities of the Marketing Experts

4.3.2 Activity IntA.2. Marketing Research

Description: This activity represents the systematic design, collection, analysis and reporting of data relevant to a specific marketing situation facing an organization. This activity shows important details of a company, including the current situation of a company, its strategic posture, corporate governance, details about the internal factors of the company and also, important characteristics related to the external environment.

The main goal of this activity is to identify the most important characteristics and features of a company in order to know all the details that might concern the development team.

4.3.2.1 Task IntA.2.1. Defining the problem and research objectives

Description: This task requires for the company manager and the marketing researcher or consultant to work together and use the most important marketing research and how to obtain the information.

Also it requires there are three types of tasks that are being used in order to discover each information, which are divided into three types of sub-tasks:

Sub-task IntA.2.1.1. Exploratory research

Sub-task IntA.2.1.2 Descriptive research

Sub-task IntA.2.1.3 Causal research

Entry information: For this task to take place, internal information from inside the company needs to be provided and also from outside the company. This information must be collected and analyzed by the company manager alongside with the Marketing consultant.

Output product: The output product that is obtained in this case is a research document, that can be viewed in Product 3. In the following section, after completing the next task, the final research document will be explained.

4.3.2.2 Task IntA.2.2. Develop the research plan for collecting information

Description: In the previous task, the main goal for collecting the information has been analyzed. Furthermore, in the following task, the entire research plan will be developed, detailing the analysis of primary data (*Sub-task IntA.2.2.1.*) and also, the secondary data (*Sub-task IntA.2.2.2.*). In order to accomplish this request, the Marketing consultant and communication manager will use surveys, questionnaires and bibliographical research, in order to obtain the information needed for a more thorough research plan.

Entry Information: The information needed in order to develop this final research document (P4-O Research Document II) is to analyze the external information from outside the company (**E6**) and also to provide information from the first phase of the research document that has been provided.

Output product: The output product that has been obtained after having developed this activity is composed of an adapted research document in which important elements of the company are being presented, like: current situation of the company, corporate governance and an analysis of the internal and external document.

The following product is an example of the concrete situation of the company that has been presented in the study case.

P4-O Research Document II

Version 1.0.

Content

- I. Current Situation**
 - A. Current performance
 - B. Strategic posture
 - 1. Company's Mission
 - 2. Values
 - 3. Objectives
 - 4. Strategies
- II. Corporate Governance**
- III. External Environment**
 - A. Economic
 - B. Technological
 - C. Political-legal
 - D. Sociocultural
- IV. Internal Environment**
 - A. Corporate Structure
 - B. Corporate Culture
 - C. Corporate Resources

I. Current Situation

A. Current performance

The current software application based on e-commerce and e-business belongs to a multinational company, in which its primary business is primarily focused on the electronics, game, entertainment and financial services sector. The company is one of the leading manufacturers of electronic products for the consumer and professional markets.

The company has been ranked the 87th place on the 2012 list of Fortune Global 500 with a turnover of \$6.637.992.6587. In the following chart we can also observe an evolution of its turnover in the last years.

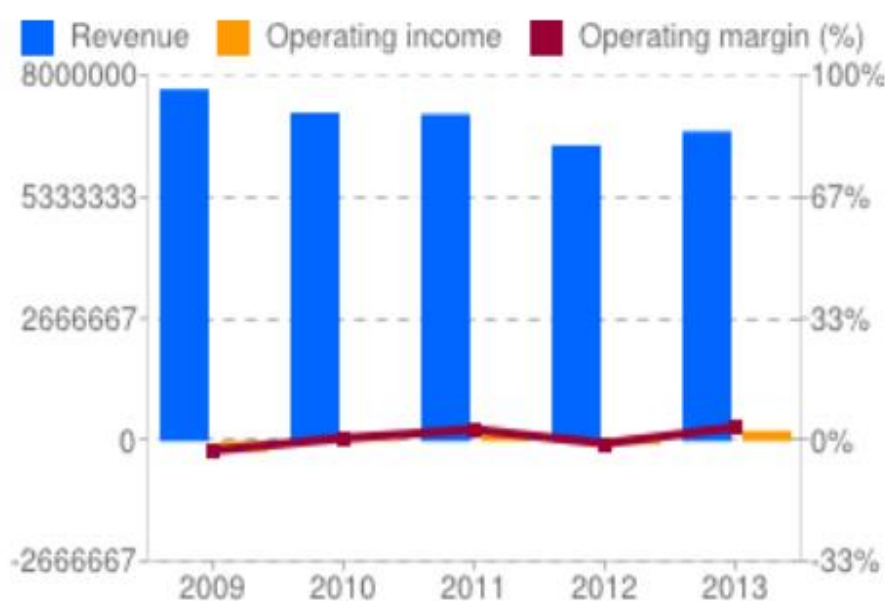


Figure 17. Income of the company in the years 2009-2013

Because the company specializes in selling also mobile products, the company has increased with 31% from 2013.

2014F Rank	Company	2013 Smartphones Units (M)	2014F Smartphone Units (M)	2014/2013 Smartphone Unit Growth
1	A	95.0	220.0	132%
2	B	93.0	133.0	43%
3	C	20.0	50.0	150%
4	D	77.3	35.0	-55%
5	E	12.0	35.0	192%
6	F	51.4	32.9	36%
7	G	24.2	31.8	31%
8	H	45.2	30.8	-32%
9	I	24.0	27.0	13%
10	J	2.2	23.2	955%
	Other	40.5	131.3	224%
	Total	485.0	750.0	55%

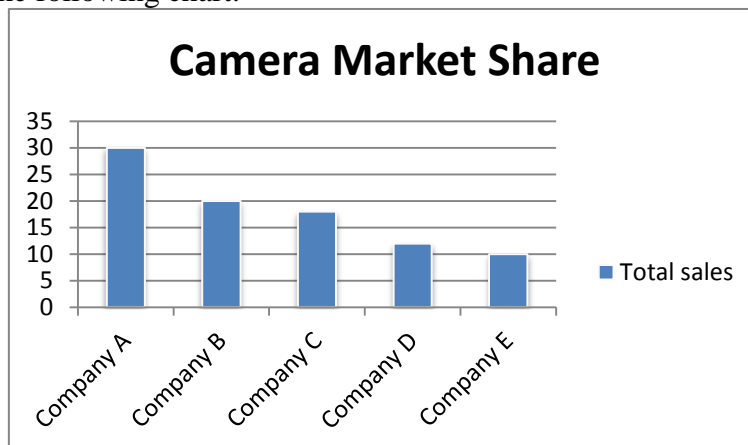
Figure 18. Total Sales in Smartphone Market

As for the Company's smartphone market share in 2013, it was situated on the fourth place after Company C with 4.5% with a change of 55.6% from 2012.

Vendor	4Q13 Unit Shipment	4Q13 Market Share	4Q12 Unit Shipments	4Q2012 Market Share	Year- over- Year Change
Company A	63.7	29.0%	36.2	22.5%	76.0%
Company B	47.8	21.8%	37	23.0%	29.2%
Company C	10.8	4.9%	5.7	3.5%	89.5%
Company D	9.8	4.5%	6.3	3.9%	55.6%
Company E	9.5	4.3%	6.4	4.0%	48.4%
Others	77.8	35.5%	69.2	43.1%	12.4%
Total	219.4	100.0%	160.8	100.0%	36.4%

Figure 19. Top Five Smartphone Vendors, Shipments and Market Share, Q4 2013 (Units in Millions)

As for the market share of cameras, the company is on second place (Company B). This can be explained in the following chart:



B. Strategic posture

1. Mission

“Being the brand of choice” for our customers by delivering the best customer experience.

2. Values

- Deliver Excellence – by exceeding our customers’ expectations, delivering exceptional quality service, demanding the best from ourselves, learning from our mistakes and celebrating success.
- Act with integrity and work ethically – by owning own actions and by having the courage to do what is right for our customers.
- Work together – collaborate and maximize the power of diversity, inspire others to excel and create a culture of joy.
- Embrace Change – by anticipating the future, remaining agile and adaptable and creating and seizing new opportunities.
- Make a difference – through creating, innovating, and taking risks, adding value and leading by example.

3. Objectives

- To reach sales of 6 trillion dollars and operating income margin of 5% in its electronic business;

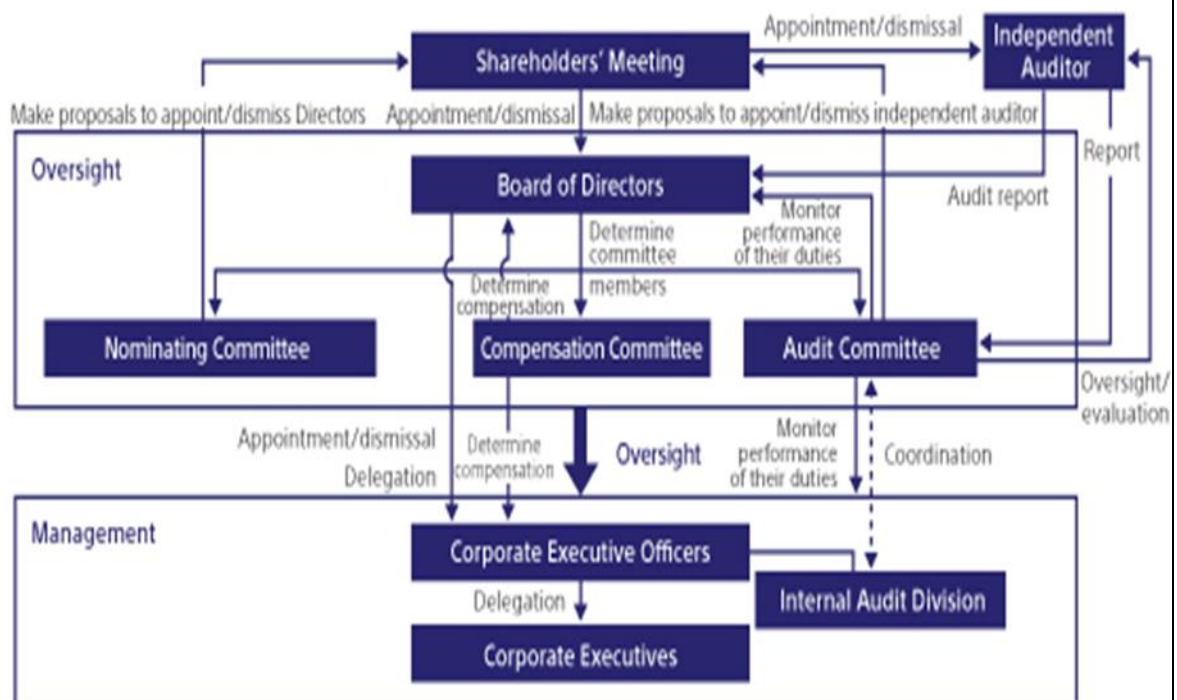
- To maintain marketing leadership;
- To strengthen the frontline leadership;

4. Strategies

1. Strengthening core businesses (Digital Imaging, Game, Mobile)
2. Turning around the television business;
3. Expanding business in emerging markets;
4. Creating new businesses and accelerating innovation;
5. Realigning the business portfolio and optimizing resources.

II. Corporate governance

Generally the board of directors determines the fundamental management policies, oversees the management of the company's business operations, appoints and dismisses the committee members.



III. External Environment

1. Economic

There can be a multitude of factors and threats that can cause the company to experience lower. First of all, the current economic downturn has caused the company to experience lower. Also, fluctuation in foreign currency exchange has some influences in the sales category.

2. Technological

The rise in black market can constitute another threat to the company. Electrical products that are counterfeited have shown a growth since the year 2010. The number is supposed to double in the near future. Although manufactured with less quality, these goods appeal to customers because they are cheaper.

3. Political-legal

Unfavorable political factors including unforeseen legal or regulatory changes, such as foreign exchange, import and export controls, political instability and potential conflicts

among developing nations.

4. Sociocultural

It is said that in some markets, customer needs and preferences are becoming more similar.

IV. Internal environment

A. Corporate structure

The company is divided into regional divisions, the major ones being divided in: USA, Europe and Asia. With a vast portfolio of digital entertainment products, the company is structured into a set of subsidiaries that specialize in different electronic industries that best match consumer needs: Electronics, Entertainment, Financial Holdings and Computer Entertainment.

B. Corporate culture

As a leading innovator in digital entertainment, the company understands the importance of creating a corporate culture that inspire employees to follow the corporate mission dedicated to providing innovative products and multimedia services that challenge the way consumers experience digital entertainment. In order to achieve this goal, the company has a culture based on the values of integrity, respect, achievement, personal growth, creativity, teamwork and friendship.

C. Corporate Resources

The corporate resources are divided into the following departments: Marketing, Finance, Operation and Logistics, Research and Development.

Product 3. Research Document II

4.3.3 Activity IntA.3 Market Analysis

Description: The market analysis refers to the identification of the target market in which the product will be further developed and in the end launched. In order to accomplish this, the market size needs to be determined, a market segmentation needs to be accomplished and a Market targeting.

Furthermore the products that were used in order to thoroughly present and give a concrete example of a Market Analysis will be presented.

4.3.3.1 Task IntA.3.1. Determining the market size

Description: In general the market size is defined through the market volume and the market potential. In the case of the analyzed company, a SWOT analysis has been made in order to find and discover the potential opportunities, threats, strengths and weaknesses does the company have in a related market.

Entry information: For accomplishing the realization of a SWOT analysis, the research document (P4-I) is needed, identifying external information of the market (E7) and also identifying other possible revenues of other companies in the market (E8).

Output Product: The output product that has been presented, regards a SWOT analysis of the company, which is presented in product 4.

P.4. SWOT Analysis of the company in a particular industry

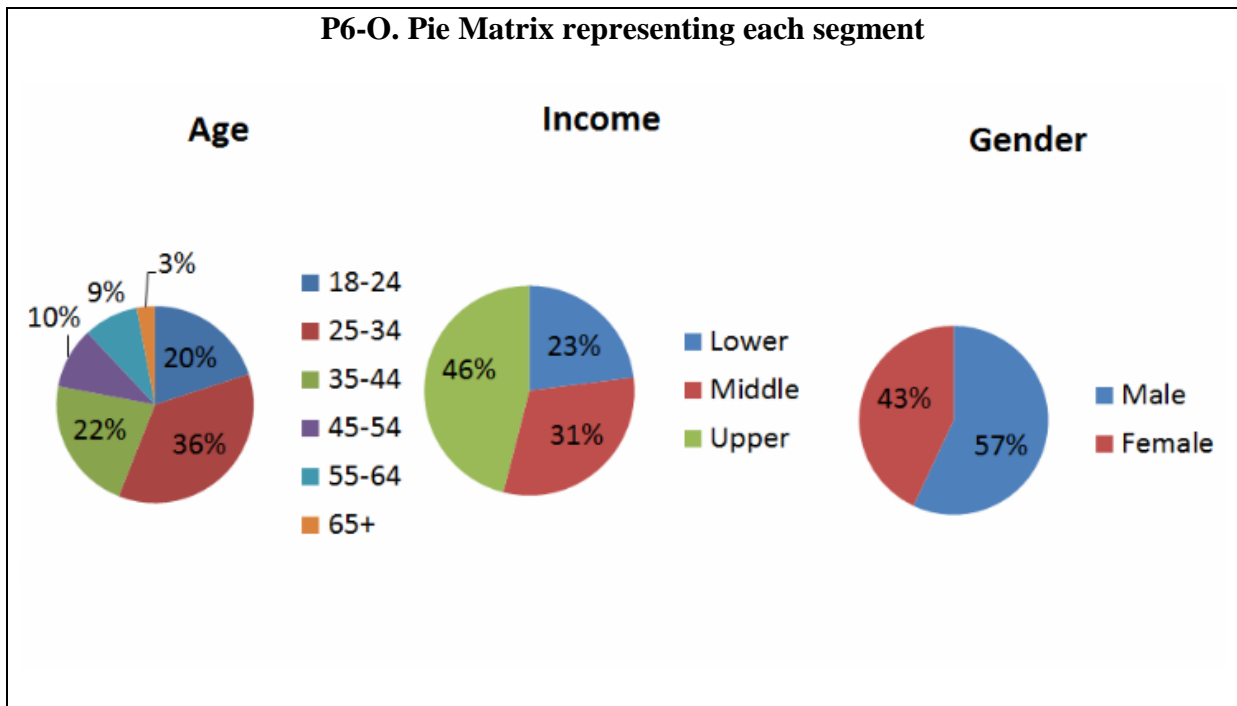
<p style="text-align: center;">Strengths</p> <ul style="list-style-type: none"> - The firm is dedicated to providing innovative products and multimedia services that challenge the way consumers experience digital entertainment; - Considered as being a digital entertainment service provider, the company wants to create new worlds via products, to give consumers new experiences that can stimulate their senses; - The firm aims to maintain market leadership by strengthening its position in areas such as television, video, audio and digital imaging. - The company would also intend to maintain their market leadership in television, digital imaging, home video equipment and gaming unit. 	<p style="text-align: center;">Weaknesses</p> <ul style="list-style-type: none"> - The firm's physical facilities and information systems are subject to damage as a result of disasters and similar events; - The company's headquarters, some of the company's major data centres and many of the company's most advanced device manufacturing facilities are located in highly affected geographical areas, where the possibility of disaster or damage from earthquakes is generally higher.
<p style="text-align: center;">Opportunities</p> <ul style="list-style-type: none"> - Economic: The firm has the opportunity of selling complementary products and Internet services in saturated markets and standard products in emerging markets; - Technological: innovative design (user friendly applications, innovative materials and attractive visual appearance) - Sociocultural: taking full advantage of all social culture opportunities; 	<p style="text-align: center;">Threats</p> <ul style="list-style-type: none"> - Economic: The current economic downturn, that has caused the company to experience lower, caused by the economic crisis. Also, the fluctuation in foreign currency exchange. The increase in the price of raw material for the manufacturing of electronic devices. - Technological: The rise in the black market. Electrical products that are counterfeited are on rise since the year 2010 and this number is supposed to double in the near future. - Political-legal: unfavourable political factor including unforeseen legal or regulatory changes such as foreign exchange, import and export controls, political instability and potential conflicts among developing nations. - Sociocultural: threats that could appear in some markets, customer needs and preferences are becoming more similar.

4.3.3.2 Task IntA.3.2. Market segmentation

Description: Market segmentation refers to the process of dividing a market into distinct groups of buyers, clients, customers, that have different needs, behaviors and who might require separate products or marketing programs. In this situation, it is very important to identify different segments in which the company can further develop its software product, depending on different aspects: geography (*Sub-task IntA3.2.1. Geographic segmentation*), Demography (*Sub-task IntA3.2.2.*), behavior (*Sub-task IntA3.2.3.*) and psychography (*Sub-task IntA3.2.4.*).

Entry information: The entry information required for realizing this task is related to a bibliographical research and applying statistical techniques in order to discover relevant information regarding the different segments. Also, the use of the SWOT analysis made in the previous task can be useful.

Output product: The output products that have been presented are related to the Pie Matrix representing each segment (**P6-O**) and an explanatory report of each segment (**P7-O**).



Product 4. Pie Matrix Representing each segment

P7-O. Explanatory Report of each segment

Segmentation base	Description
Geographic Segmentation	Geographic segmentation represents dividing the market into different geographical units, such as nations, regions, states, counties; Based on the geographical location

	<p>marketers can identify their needs and preferences;</p> <p>The company must decide to operate in one or a few geographical areas, or to operate in all areas, but pay attention to geographical needs and wants.</p>
Demographic Segmentation	<p>Demographic segmentation represents the method of dividing the market based on demographic variables, such as age, gender, income, ethnic background, etc.</p> <p>This type of demographic segmentation is useful, because of the fact that it is often related to consumers' purchasing and consuming behavior;</p> <p>Age Older groups tend to have different needs than younger groups. Specific age groups can be specifically attractive for a variety of product categories.</p> <p>Gender</p> <p>Religion It is essential for marketers to understand the cultures and norms of a particular country, when using promotional campaign.</p> <p>Ethnicity</p> <p>Income Income level influences consumers' wants and determines the buying power. Certain products are designed and priced according to customer purchasing power. Researchers have also found differences in consumption patterns between the different levels of income groups.</p>
Psychographic Segmentation	<p>The process of dividing the market based on the way people think. The variables that are used here are difficult to measure, like: personality, motives, lifestyles, social class.</p>
Behavioral Segmentation	<p>Behavioral segmentation represents dividing the purchasers into groups according to their reaction, responses, knowledge and attitude towards a product based on several variables: occasions, usage rate, user status, brand loyalty.</p>

Product 5. Explanatory Report of each segment

Chapter V. Conclusion

5.1 Main Conclusions of the Present Work

The present work has the main goal of analyzing the development of software products mixed with the Marketing field, by using a User-Centered Process model. The *HI* hypothesis, described in section 1.3 accompanied by the bibliographical research that has been made with the help of a systematic mapping study approach, have proved the inexistence of previous works, articles or documents with the specific investigation theme. Furthermore, in section 2.6, the main User-Centered Process models have been analyzed, which has also proven the absence in the current bibliography of a model containing a systematic approach in the form of marketing activities and technics focused on the development that might allow a formal integration of the Marketing technics in the user centered processes.

First of all, the state of the art chapter presents the characteristics of the Marketing field, the Marketing Process Model has been explained and most of all, an example of concrete Marketing strategies has been presented in the form of SWOT analysis. Furthermore, the SWOT analysis Tables were used as a basis for the description of the Marketing activities that have been described in Chapter III.

Secondly, based on a study discovered after the Mapping Study process, a relationship between the Marketing field and the Usability field has been found, but mostly at a general level. The reason for which no detailed relationship exists between the field of Marketing and Usability has represented another motivation for the realization of the present work.

In particular, the main contribution of the present work consists of the proposal of specific activities that try to solve the above mentioned problem. For this reason, the standard ISO 9241-210 has been considered as a user centered process model that recognizes important aspects of planning the human-centered process or the specify the user requirements and also the specification of context of use, that have been considered appropriate for considering the integration of Marketing activities inside of this model.

However, the main contribution to this present work has been the division of Marketing activities in three main groups: pre-development, development and post-development, classification made according to the IEEE 1074:2006. In total there were 8 activities that were each divided in the groups mentioned above. For each and every activity, the main objectives and concrete elements for their implementation have been defined, based on the Marketing field. For each activity, the entry information has been defined and output products and in total there were like 21 output product obtained.

The pre-development group of activities, made up of Activity IntA.1., Activity IntA.2, Activity IntA.3 and Activity IntA.4 were mostly centered on the processes that are being realized before the development of a software product: team building, marketing research, market analysis. Activity IntA.1. described the implication of marketing experts as part of the development team, among developers, requirements engineers, etc. Furthermore, in the Marketing Process Model, establishing a research plan is crucial, because in this way the characteristics of the market in which the product will be launched can be easily analyzed. Furthermore, this activity also presents the realization of some Marketing Product strategies.

When being launched on a possible target market, it is very important that at the beginning of the development activities, to know the competitors that the specific product might be facing. At the beginning of the development activities of the product, knowing the competitors that the product will be facing when launched in a possible target market is very important. Furthermore, in this activity grouping is where the stakeholders that will use the product are identified, by specifying their requirements. Also, the marketing mix process continues with the identification of another product activity strategy.

Finally, the post-development activities IntC.1. and IntC.2. are presented, in which some of the most important promotion and price strategies are being identified.

Chapter IV represents the validation of the proposed activities by explaining the most important products that have been generated, taking as an example an e-commerce application belonging to an international company that is dedicated to sell not only software products, but also electronics.

As a resume, the following main conclusions can be described:

- **There were no relevant bibliographical sources being found:** After the realization of the mapping study, there were no articles, papers relevant for the investigation theme that has been proposed at the beginning of the work;
- **There exists only a few information for the relationship between HCI, usability and Marketing:** in the current literature there are studies that approach the fields of Marketing, Usability and HCI separately, but unfortunately no study was relevant for the explanation of the possible relationship that might exist between the three fields;
- **The identified process models were not adequate for the present research theme:** the main user centred process models were not entirely adequate in order to approach the research theme mentioned in chapter I.
- **Adaptation of two important process models:** The ISO model 9241-210 has been used as an adaptation of the user centred process model, followed by the classification that was inspired by the use of IEEE 1074:2006 standard.
- **The validation of the proposed model:** The validation, by using a specific study case, of the proposed model, implies the execution of some of the designed activities, generating some of the products that can be in the end useful for improving the usability of the software product.

5.2 Future Work

In order for the investigation theme to be continued, the following aspects of future work are presented:

- **Define other development activities:** the present work defines and details analysis activities, for which it could be useful to research and propose more activities related to the development part, like: design, prototyping, results and evaluation, with the main goal of improving the usability of the software product.
- **Define other pre, post and integral activities:** It would be interesting to consider integral activities related to SQA, and also think of post-development activities related to maintenance process.
- **Complete validation of the process model:** because of the fact that not all the above mentioned products have been explained by using an adequate example, it would be definitely a plus to try, explain and give examples of all the products that were identified in Chapter IV;
- **Real application of the proposed activities:** After having integrated the found activities in the user centred process model, it would also be useful to apply the proposed activities directly to an existent company that is in charge of software product development;
- **Extend the Marketing Mix for the analysis of 7P:** the Marketing strategies that were mentioned and explained in the present work are related to the identification of the 4P, but for the future it would be interesting to amplify the study for the analysis of 7P;
- **Propose an evaluation criteria based on a quality attribute:** In order to complete the validation of the proposed model, by using a quality criteria and define the “attractiveness” attribute, based on the Standard ISO 9126 or the new one ISO 25010;

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