# MESG
## MESTRADO EM ENGENHARIA
## DE SERVIÇOS E GESTÃO

## Understanding the Customer Experience for Service Design

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**Relatório do Projecto ou Dissertação**

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2010-07-06

*To those who shaped me into who I am.*

**Understanding the Customer Experience for Service Design**

**Abstract**

Understanding the customer experience is the groundwork of a service design effort. However, its complex and holistic nature makes it difficult to capture. Whenever a customer interacts with a company he has an experience, and every aspect of what surrounds him contributes to that experience. This includes people, technology and interfaces encountered throughout the customer journey, since a customer first thinks about buying the service, to when he needs the support services. This way, to achieve a rich, comprehensive, and integrated view of the service experienced by the customer, a multidisciplinary approach is in order. An approach where technology infusion can be properly addressed.

Therefore, this research integrates service design approaches with interaction design, namely Service System Design (Patrício et al. 2009) and Human Activity Modeling (Constantine 2009), to achieve a comprehensive knowledge about the customer experience. We not only mapped the customer activities, and determined their experience requirements, but addressed the contextual aspects of the service usage. This includes studying how interfaces and artifacts influence the overall service experience.

As an interaction design framework, Human Activity Modeling is system-centric. However, for this research we shifted this focus to a service-centric approach. This way we focused on the contextual aspects of service (not system) usage and introduced them into the service design, thus contributing to close the gap between Interaction Design and Service Design. We also explored new ways to represent this service-centric approach in a visual manner to improve the communication between both fields.

For this research, we interviewed seventeen customers of ZON Madeira, a multimedia and telecommunications company, and mapped their activities and customer experience requirements. We also gathered data about contextual aspects relevant to the performance of such activities, like the interaction with artifacts, or the interfaces used. This provided the necessary inputs to undertake a service design effort destined to improve the existent company services. Service Experience Blueprints were used to illustrate both the actual state (as-is) and the proposals for the future state (to-be).

**Acknowledgments**

**Table of Contents**

**List of Figures**

**List of Tables**

# 1    Introduction

**Value added in services**
*As a percentage of total value added*

| ■ 2008 or latest available year | ◆ 1990 or first available year |

Figure showing bar chart with countries: IDN, CHN, CHL, NOR, IND, SVK, RUS, KOR, CZE, MEX, SVN, POL, TUR, IRL, FIN, CAN, HUN, BRA, AUT, EST, AUS, ESP, NZL, DEU, JPN, ISL, SWE, CHE, ITA, EU27, OECD, NLD, DNK, PRT, GBR, ISR, BEL, USA, GRC, FRA, LUX

**Figure 1- Value added by service sector to each of OECD's member countries** *(OECD 2010)*

Services add the most value to almost every industrialized economy in the world, as seen in Figure 1. Not only they represent more than 70% of value added in OECD, as their importance has increased for the last twenty years. However, despite this undisputed predominance, the service sector suffers from a surprising lack of attention from academia (Chesbrough and Spohrer 2006). It is only since the beginning of the twenty-first century that the research about services gained momentum, with IBM pushing towards a Service Science Management and Engineering (SSME). This new field gave the motto for a structured approach to service research and attracted the necessary attention from the academic community.

This research was envisioned as part of a SSME inspired project that wants to put in practice methodologies related with service design, interaction design and business-IT alignment. As part of a cooperation with a service company we can test, in a real-life setting, the advantages or disadvantages of these methods. Also, we want to understand how these fields of knowledge can cooperate in order to achieve a better, more comprehensive and integrated view of the company.

However, here, we address fundamentally the service design and interaction design areas. By mapping customers' activities and finding out what is their desired service experience, we achieve the necessary knowledge to design the service. But we not only map their activities, but also contextual aspects relevant to the performance of such activities (Beyer and Holtzblatt 1998). We have used qualitative methods to gather the necessary information, a software tool to enhance the analysis, and presented the findings through several visual representations that aim to provide a better view of the customer experience requirements. In the end we used Service Experience Blueprints (Patrício et al. 2009; Patrício, Fisk, and Cunha 2008; Patricio et al. 2003) to illustrate the improvements based on our findings. All of these steps are framed within the Service System Design framework (Patrício et al. 2009) framework, with important contributions from Human Activity Modeling (Constantine 2009).

To address these points, this document is divided into six sections:

- Section 1 - Introduction; presents the context of this research, the business partner characteristics, and our research goals.
- Section 2 - Literature Review; discusses the relevant research fields and works in which this research was based and presents the basic premises that guided it.
- Section 3 - Methodology; describes in detail the data collection and analysis procedures.
- Section 4 - Mapping the Customer Experience; presents the data collected and explains its analysis.
- Section 5 - Designing the Service; presents improvements based in the findings.
- Section 6 - Conclusion and Future Work.

## 1.1 The Company: ZON Madeira

ZON Madeira is one of Madeira's island multimedia and communication providers. Its main stockholders are ZON Multimédia (Portuguese media holding company based on the mainland) with 78% of the equity and BANIF (Portuguese bank based at Madeira Island) with 17% (ZON TV Cabo Madeirense 2010). It employs roughly 100 persons and has more than 50.000 customers. It operates in a fiercely competitive duopoly with the main rival, Portugal Telecom's MEO. These companies provide essentially the same services and both have high-visibility profiles, investing heavily in advertisement and to continually put forward new offers for their clients. They operate on a market regulated by the National Agency for Communications (ANACOM).

Until 2007 ZON was part of Portugal Telecom. They separated as mandated by ANACOM as a consequence of a failed public offer of acquisition by SONAECOM (Portuguese communication holding). ZON Madeira handles all the commercial contacts, and the technical and customer support for Madeira Archipelago (Madeira and Porto Santo Island).

While part of ZON Multimedia, ZON Madeira offers a comprehensive set of services:

- Cable TV; ZON Madeira has available three different channel bundles with 23, 90 or 116 channels. They also have a series of premium channels;
  - TVCine; four movie channels.
  - Festa Brava HD; bullfight related.
  - Brava HD; opera, ballet and classic music.
  - Caça e Pesca; hunting and Fishing contents.
  - TV Globo Portugal; Brazilian channel.
  - Premier Futebol Clube; Brazilian football.
  - Dysney Cinemagic; Cartoons.
  - Sport TV; three sport channels, with an additional one in high-definition (HD) and another exclusively golf related.
  - Playboy; Adult contents.
  - Hot; Adult contents.
- Internet; ten different offers, two of them based on fiber-optics (higher bandwidth) and four of them directed to the business segment. With each offer varies the bandwidth availability (download and upload), download limitations and technical assistance priority (business versus domestic services).

- Phone; two different offers, depending on price per minute and a free communications during night hours.

There are also eight different bundles based on these three services (the so-called Triple Play offer), with the pricing depending upon the number of channels available, Internet bandwidth and phone tariffs.

Many of the TV services require a specific hardware;

- Powerbox; for decoding channels (premium). In addition it has a series of features as a TV Guide, with short descriptions of what is on, a Video on-demand where it is possible to rent movies, and multi-game, multi-camera feature for football games in channel that support this characteristic.
- ZON Box HD+; for seeing high-definition channels. These have a higher resolution than traditional television, providing an image with substantially higher quality and definition.
- ZON Box HD+DVR; along with the high-definition availability, also provides Digital Video Recording (DVR). This enables video capture and storage, with the possibility to schedule which programs to record in advance.

Every service is provided on a subscription basis, with monthly payments and several conditions regarding obligatory loyalty periods and discounts when multiple services are subscribed.

Recently, ZON launched a mobile phone operator called ZON Mobile. Those who subscribe this service, in addition to other ZON services, have substantial price reductions. ZON however doesn't own any mobile related infrastructure, they rent the service to a mobile operator (Vodafone).

Also, as ZON Multimedia acquired a movie importer who owned several movie theaters around Portugal (ZON Lusomundo), they introduced a card (myZONcard) who gives free movie tickets to ZON's customers.

In order to better understand the competitive and strategic landscape where ZON develops its activity, we have done two very straightforward and popular analysis: Michael Porter's Five Forces Model (Figure 2), and the Strength-Weaknesses-Opportunities-Threats (Figure 3) matrix. To build both we met with key senior ZON staff in order to get their insights.

Considering Porter's Five Forces Model the highlight is on the determinants of supplier power. These are the strongest constraints to ZON and, perhaps the most difficult to surpass as they depend largely on the regulatory power. As ZON doesn't control in any way the submarine cable that connects Madeira Island to the mainland (this control remained with PT after the companies split) it has to rent it at prices greatly over the market value. Similar situation occurs with some infrastructure that ZON needs to connect to, in order to provide the service. In spite of this access being granted by regulatory imposition, it takes longer than what is commercially viable and provides clues to the rival company about where ZON is concentrating its efforts. This "force" adds to the fierce rivalry already in place in this market.

**Threat of New Entrants**

High-barriers to entry:
- Infrastructure Investment;
- Market Regulation;
- Highly competitive market where is expectable a vigorous defense of market share by the existent players.

**Determinants of Supplier Power**

Very strong constraints regarding bandwidth supply and essential infrastructure. The submarine cable which links Madeira Island to the mainland, and the support infrastructure for delivering the service are owned by the rival company.

The bandwidth available to ZON Madeira is scarce and expensive with clear competitive disadvantages.

Access to the infrastructure is delayed beyond commercially reasonable limits(20+ days).

**Rivalry Among Existent Firms**

Fierce rivalry between ZON Madeira and its mainland based counterpart (Portugal Telecom).

**Determinants of Buyer Power**

Low switch costs after the mandatory loyalty term.

As the market is extremely competitive, customers have some bargaining power.

Present macro-environment is also heavily damaging to families purchasing power, increasing the pressure over the service provider.

Finally, there's an increased awareness and information exchange between customers, further enhancing their bargaining power.

**Threat of Substitute Products**

Not significant in short and medium term. On the long run mobile services can pose a threat.

**Figure 2- Porter's Five Forces Model for Competitive Advantage**

|  | Positive | Negative |
|---|---|---|
| Internal Factors | **Strengths**<br><br>• Strong dominance in the residential market.<br>• Very motivated and experienced team.<br>• Experienced company, with many years in the market.<br>• Competitive services in TV, internet and landline phone. | **Weaknesses**<br><br>• Poor presence in the business market and absence of means (people, organizational and technological) to compete in this market.<br>• Lack of competitive services in the mobile market (ZON doesn't have its own mobile infrastructure). |
| External Factors | **Opportunities**<br><br>• Lots of available bandwidth in the region, along with beneficial VAT rates, provides the opportunity to develop many technological and hosting services. | **Threats**<br><br>• Mobile operators are beginning to provide some services that compete with ZON (mobile tv and Internet), but there's still a considerable technological gap to cross in order to provide the same service level/quality. |

**Figure 3- ZON SWOT Analysis.**

The last "force" to be reckoned with is the buyer side. Generally, customers are contractually obliged to remain with a company one or two years after they subscribe a service. After this period has ended its easy to switch from provider. Also, nowadays, customers are increasingly more aware of the different competing offers, taking advantage from the rivalry between companies by bargaining with them.

The SWOT matrix shows a clear market segmentation of ZON customers. ZON has the major market share in the residential market, but lacks almost everything to attain even a small part of the business market. The latter has much higher revenues per customer, but also much higher demands concerning, for example, service availability. ZON knowledge of the business and ZON staff are also important strengths that distinguish it from the rival. The opportunities quadrant provides an interesting view of the submarine cable issue. Despite the restrictions to use the cable, it remains largely underexplored, with large amounts of bandwidth available. As Madeira Island benefits from reduced VAT rates, this setting can provide interesting new opportunities to host services in the island.

From this short portrait of ZON Madeira we see it is an important regional company, with a broad offer of services and struggling with the strong pressure from the competition. It is fair to assume that, in this setting, there is a large potential for developing new services and improving the existent ones.

## 1.2 ZON Service Engineering Project

This research takes place as part of a bigger project called ZON Service Engineering (ZON SE). ZON SE joined a multi-disciplinary team of Software Engineers, Interaction Designers, and Management experts with the goal developing and testing, in a real world setting, concepts of business-IT alignment (Chen 2008; Chen, Kazman, and Garg 2005; Chen, Perry, and Kazman 2009), Interaction Design (Constantine 2009) and Service Design (Patrício, Falcão e Cunha, and Fisk 2009; Patrício et al. 2009; Patrício, Fisk, and Cunha 2008).

As we already explained, ZON Madeira is a service-oriented company, heavily reliant on technologies, in an industry with fierce rivalry and very dynamic service offers. This provides the adequate setting to explore each of the research fields while being able to receive feedback from the company.

The work done so far is but an initial phase of a larger improvement effort that will involve both the systems architecture, as managerial and design areas. In this research our focus is in the last two topics, as we listened to customer's inputs to guide the design of new services. In addition, we put forward a further integration of Service Design and Interaction Design by using tools from the latter to improve the contextual aspects of the former.

Yet, as ZON services are technology infused, many of their characteristics will be dependent on the IT architecture. To avoid having technology as a restriction to service design efforts, we integrate the Business-IT Alignment Method (BITAM) in this project (Chen, Kazman, and Garg 2005). The goal where is to turn technology into a true enabler of the service and not another restriction to it. The first steps of this process have begun but, so far, are not integrated with this research. In section 6 we argue how this integration might be possible.

### 1.3 Dissertation Project

As part of ZON SE project we studied ZON's customer experience and applied this knowledge to (re)design their services. Our aim was to follow a customer-centric approach to service design, grounding the suggested improvements in experience requirements conveyed by the customers.

We integrated the Service System Design (Patrício et al. 2009) and the Service Experience Blueprint method (Patrício, Falcão e Cunha, and Fisk 2009; Patrício, Fisk, and Falcão e Cunha 2008; Patrício et al. 2009; Patricio et al. 2003) with Human Activity Modeling (Constantine 2009), in order to enrich the mapping of the service experience, thus enabling a better service design.

We define these frameworks through the words of their authors. Service System Design (or Service System Design for Value Co-creation) is "a new interdisciplinary approach to the design of technology enabled multi-channel service systems, which joins contributions from new service development and interaction design". Service experience blueprinting (SEB) is "an interdisciplinary method that integrates the work of requirements engineers, interaction designers and service managers, for the development of technology enabled services" (Patrício, Falcão e Cunha, and Fisk 2009). And Human Activity Modeling (HAM) is "a systematic approach to organizing and representing the contextual aspects of tool use" (Constantine 2009).

The main challenge was to adapt HAM to a service context. We wanted to maintain the rich contextual aspects description, while we shifted the focus from the tool, or system, to the service. Adjusting the HAM definition, we might say we wanted a systematic approach to organize and represent the contextual aspects of service use. While we didn't systematize our approach, we did introduce HAM concepts and developed visualizations to help understand the usage context of the service. This approach enabled ways to introduce activities, interfaces and artifacts into the service design, enhancing its contextual detail and interdisciplinarity. It also improves the abidance by the customer experience requirements as we broadened their scope to contextual aspects of the service, like the interfaces and artifacts.

However, to achieve this we had to attain an in-depth knowledge of ZON's customers, focusing on four complementary goals;

- Discover what customers want to accomplish, or what is their need, when they subscribe a ZON service.
- Map customer activities and actions related with the service, or others that contribute to satisfy the same goals, in a complementary, or in a substitute way.
- Determine which are the contextual aspects of service usage, and how they influence the service experience.
- Determine the customer experience requirements for each activity and action, or for each service.

Figure 4 aims to represent these goals in a visual manner. We begun by considering an overall customer activity and see how it is related with other activities, related or not with the company. We also consider contextual aspects of these activities, like the artifacts or the interfaces used to perform them. Then, we see how the overall customer activity is related with the company and which is the customer journey associated with it. When possible we detail each activity into smaller components; the actions. The plus and minus icons represent

the customer experience requirements for each activity or action. These will contribute in a positive or negative way to the service experience. In Section 4 we draw several similar figures with actual evidence collected from the field.

Having accomplished the proposed objectives, we also:

- Blueprint the service, illustrating an As-Is model of the interaction between customers and ZON;
- Make improvement proposals based on the previous findings, illustrating them with Blueprints, representing the To-Be state.

All these more practical objectives have in mind the theoretical goals described above.
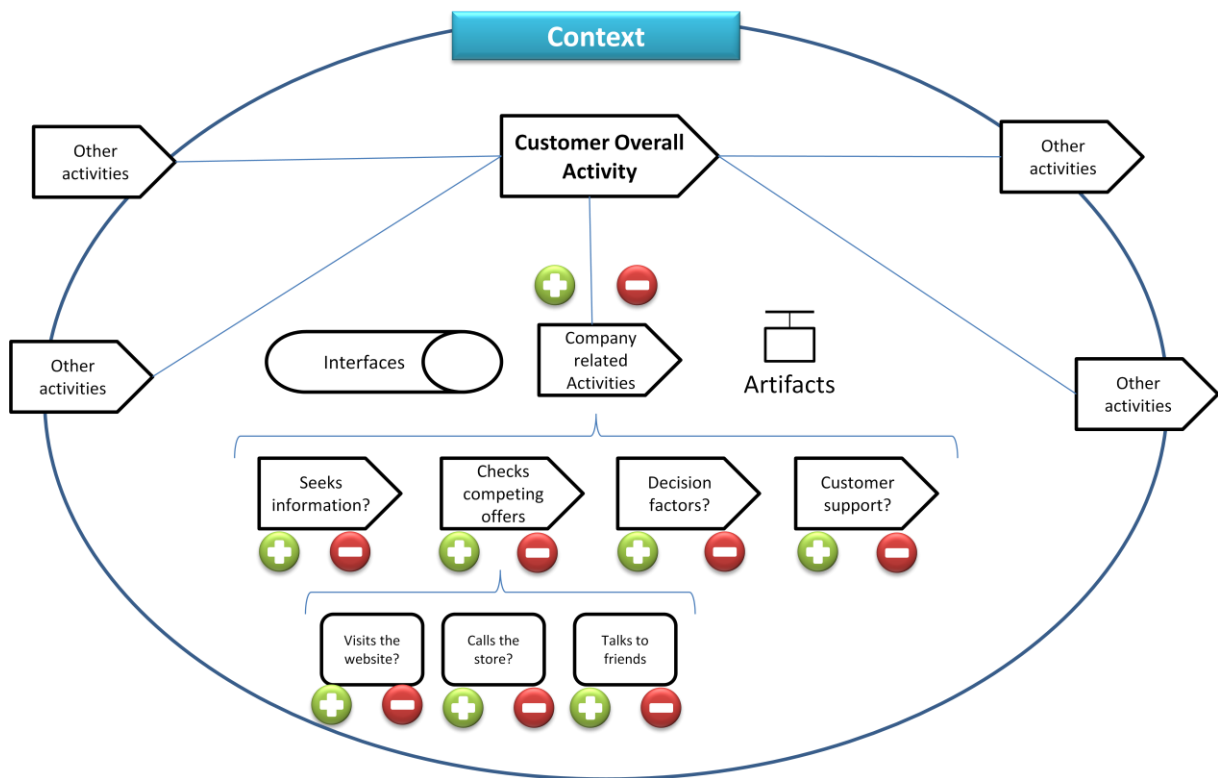


**Figure 4- Research goals**

## 2 Literature Review

This section addresses the different research areas relevant to this research, so to provide an organized walkthrough along the research topics, before addressing, in the next section, the methodology followed.

### 2.1 Service Science, Management and Engineering

As referred in the introduction, the service sector is nowadays, and by large margin, the one which adds most value to developed countries (OECD 2010). The declining in agriculture and industry sector, in terms of added value, is constant throughout the last decades and yet, it is disconcerting the lack of attention this sector receives by universities (Chesbrough and Spohrer 2006). Even statistical services haven't catch up with the new economic reality; industry and agriculture have a disproportionate attention compared to their actual contribution to countries GDP. For example, the United Nations considers most services as an all encompassing and "residual" category called "Other Activities" (United Nations 2008).

Services are also much more complex than a few decades ago, as technology broke down restrictions to information access and enabled other ways/channels to reach/interact with customers. Improved information access made possible new configurations of resources (Chesbrough and Spohrer 2006), while the focus shifted from tangible resources to intangible ones (Spohrer et al. 2007), and their unique ways to create value (Hitt, Ireland, and Hoskisson 2003). As a new economy emerged, even traditional manufacturing companies became "service infused" as they learned they can differentiate from the competition by providing services along with their products (Edvardsson 2000). With this new service dominant logic, as a replacement for the former good-dominant (Chesbrough and Spohrer 2006), a lack of competences, policies, and research on this new reality became evident (IFM and IBM 2008).

In addition, the scarce research about services was, until recently, constrained in "service silos" (Chesbrough and Spohrer 2006) from different academic fields; design, management, engineering, marketing, to name a few. However, since the beginning of the XXI century, this reality is changing with an attempt to unite these different fields into an independent one, devoted to research in services. This service science, or Service Science, Management, and Engineering (SSME) has it is called, aims to surpass those research silos and develop an integrated view of service systems (IFM and IBM 2008).

A concept of system is not trivially applied where; services are a complex adaptive system of people and technologies working together to create value (Spohrer et al. 2007) and to face the real-life complexity of a service an abstraction has to be created; the service system (Maglio et al. 2009). While there are several definitions of service system, their focus is on viewing a service system as a configuration of resources (people, technology, processes, and other relevant ones) to co-create value with the costumer (IFM and IBM 2008; Maglio et al. 2009).

But value creation is not linear, or something that can be taken for granted, after all "Service systems frequently fail to meet expectations" (IFM and IBM 2008). As Shostack pointed out in 1984 (Shostack 1984); services have an increase propensity to failure as they tend to rely heavily in people. He also pointed out that "this obscures the underlying cause: the lack of systematic method for design and control". For a service to create value a systematic, holistic

and multi-disciplinary plan and analysis must take place; the service must be designed. Or better still; the service system must be designed.

## 2.2    Service Design

Service Design concerns both the improvement of new services and the creation of new ones, and involves the "overall experience of a service as well as the design of the process and strategy to provide that service" aiming to develop a "useful, usable, desirable, effective and efficient service experiences" (Moritz 2005). In spite of the differentiation provided by a well designed service (Bitner, Ostrom, and Morgan 2008), most services we encounter on a routine basis have an *ad hoc* planning and delivery. Companies who provide them don't have a clear perception of processes, neither of systems involved in providing the service. Even the concept of the service is also diffuse for many employees. These three parts; service concept, service system and service process are considered by Edvardsson as the necessary ones to develop a service (Edvardsson 2000):

- Service concept; clarifies the customer need that will be meet by the service. This step begins with a need analysis and should also involve employees that interact directly with the customer.
- Service System; as we have seen a service is performed within a system that includes several resources specifically configured to create value to customers. It is this configuration that must be carefully planned to ensure a good quality and the desired customer experience.
- Service Process; to provide a service there are several activities that must be performed in a certain order, involving different participants, physical environments or channels of contact. A useful tool to design a process is the service blueprint (Bitner, Ostrom, and Morgan 2008; Shostack 1984) as it will be described ahead.

More recently, Service System Design integrated these three layers into a service design approach creating a set of interrelated models, each one addressing a different layer (Patrício et al. 2009). In this framework the service concept is characterized by the customer value constellation, a representation of the offerings available to meet the customer's need. The Service System is developed as a multi-interface system, enabling customers to co-create their service experience by offering an integrated and complementary set of channels. A Service System Architecture and Service System Navigation represent this multi-interface service system. The former provides a static view of the multi-channel mix, while the later presents a dynamic representation of the paths available for the customer through the channels. Finally, the service process is described with Service Experience Blueprints. Our approach was similar to the Service System Design, except concerning the middle layer, as we addressed it by further integrating Human Activity Modeling concepts to explain the configuration of resources within the service system.

Following the three steps, or more generally, a systematic and holistic approach to service design is a critical aspect. Many companies just concentrate efforts in developing or improving specific areas or activities of the service, leaving the overall system unchanged (Berry, Carbone, and Haeckel 2002). Ultimately, customers will come across the areas or activities left unchanged and all the effort will come to nothing, as the pieces won't come together and the ill features of the service will show themselves, ruining the customer experience.

This points out another important aspect of service design; it is usually focused on developing new services in existing companies. Edvardsson (Edvardsson 2000) clearly states "when a new service is developed it is important that it fits into a larger context.", failing to comprehend this can invite a series of problems into the existent organization (Tax and Stuart 1997).

Finally, it is important to underpin the importance of involving all the sectors of a company, from front-line employees to higher management levels, to develop an integrated view of the service.

## 2.3   Customer Experience

Explaining why, and how, to design a service is inevitably addressing the customer's experience. Buttle defines customer experience as " the cognitive and affective outcome of the customers' exposure to, or interaction with, a company's people, processes, technologies, products, services or other outputs" (Buttle 2009). Again there is an explicit reference of a company resources and, yet, the emphasis is on the customers' intangible feelings and perceptions. This naturally presents some challenges to more quantitatively oriented researches. In the classic economic theory, for example, the customer is viewed as a rational decision maker (Gentile, Spiller, and Noci 2007). In the other hand, a qualitative research is more capable to handle these issues, as described in section 3.

Also, talking about intangibles and such subjective issues as feelings, poses difficulties when trying to design and control a service outcome. Nevertheless, despite the challenges, focusing on the customer experience has its rewards, as several authors consider it as the most sustainable competitive advantage for a company (Gentile, Spiller, and Noci 2007; Berry, Carbone, and Haeckel 2002; Shaw and Ivens 2005). To obtain the necessary knowledge about customer experiences, Buttle (Buttle 2009) suggests a series of methods;

- Mystery shopping; recruiting paid shoppers to report their shopping experience with the company.
- Experience mapping: chart and improve what happens at customer touchpoints via focus groups, face-to-face interviews or telephone interviews.
- Process Mapping: Producing blueprints as graphical representations of business processes
- Customer activity cycle: aims to depict the processes that customers go through in making and reviewing buying decisions.
- Ethnographic methods: with participant or non-participant observation.

As described further ahead, if not by the same concepts, this research combines all the above mentioned methods, except the mystery shopping. By conducting in-depth interviews we mapped the customer experience and the customer activity cycle. On a secondary role, we initially approached the field using ethnographic methods to grasp the internal view of the company. So,  with contextual inquiry we observed some daily routines at the company and assumed a master/apprentice role model to map some business processes (Beyer and Holtzblatt 1998). While this did not produce formal inputs to this research, it helped to gain a better understanding about the company. Using several methods to understand and provide feedback for a service design effort is recommended, because neither of them is broader enough to provide the needed information (Edvardsson 2000).

Again, any design effort should be performed with the outcome of all interactions with the company in mind. Since a customer doesn't distinguish between different experiences, they all merge into one view and feeling about the service and the company which provides it (Gentile, Spiller, and Noci 2007). This relates with the concept of customer journey, defined by Mager (Mager 2009) as how the customer perceives and experiences the service along the time axis. Mager considers, therefore, a service as process that extends over time, involving phases before and after the actual interaction with the service interfaces. So, a holistic approach, considering the customer journey is once more needed to create a consistent experience across all activities and points of contact with the company (touchpoints). Companies that just focus their attention in isolated activities of their business, will fail to achieve the sustainable competitive advantages attainable by a planned customer experience (Berry, Carbone, and Haeckel 2002).

## 2.4 Service Blueprinting

As have been argued before, a careful planning of the service reduces its failure risks and provides greater customer experiences, thus ensuring long-term sustainable competitive advantages. Still, to plan a service one must take into account the entire service system; from the people involved, to the physical evidence and the performed activities both visible to the customer (front-office) and invisible (back-office). The task complexity increases as technology enabled new ways to interact with the customer; after the telephone the Internet made possible new experiences and possibilities to co-create value and richer customer experiences. We can add the channels (along with the processes, people, physical evidence…) as another way to provide value (Buttle 2009) and enrich the customer experience (Prahalad and Ramaswamy 2000). However, a new channel must also ensure the same level of quality and experience as the others, as well as guaranteeing the continuity along with the overall service system (Prahalad and Ramaswamy 2000).

Service Blueprinting is a very useful technique to deal with some of the challenges presented. First introduced by Shostack (Shostack 1984), it is a customer-focused, visual schematic that allows companies to "visualize the service processes, points of customer contact, and the physical evidence associated" (Bitner, Ostrom, and Morgan 2008). Its flowchart and visual characteristics also provide more useful insights than verbalized content. It is less prone to misinterpretation (Shostack 1984), and improves cross-company visibility, helping every participant to understand which part it plays on the activity portrayed. In addition, service blueprinting is not a so formal method as, for example, business process modeling, thus, making it accessible to all stakeholders (Bitner, Ostrom, and Morgan 2008).

Table 1 represents a quick and more structured (yet simplified) comparison between three service blueprinting techniques. The different lines illustrated in Table 1 (line of interaction, line of visibility, line of internal interaction and line of employee visibility) are important features when considering designing a service. Every time a customer crosses the line of interaction a moment of truth occurs (Bitner, Ostrom, and Morgan 2008), these are important moments as "these are moments when the customers form evaluative judgments about their experience" (Buttle 2009). The line of visibility divides what the customer sees, from what they don't, the front office from the back office. The back office has its own visibility line, delimiting what the employees can and cannot see (the inner workings of a technological system), and the interaction line, that is crossed whenever a customer interacts with a service interface.

**Table 1- Evolution of Service Blueprinting**

| | | | Service Blueprint (Shostack 1984) | Service Blueprint (Bitner, Ostrom, and Morgan 2008) | Service Experience Blueprint (Patrício, Falcão e Cunha, and Fisk 2009; Patrício, Fisk, and Cunha 2008) |
|---|---|---|---|---|---|
| Frontstage | Physical Evidence | | "The orquestration of tangible evidence- everything the customer uses to verify the service's effectiveness" | In a service the customer "is in the fabric" and, not only it cannot be hidden, it also has strong impact on customers' experience (Bitner 1992). The perceived environmental conditions related with the ambient (temperature, air quality, music...), space (layout, equipment, furnishing) and signs, symbols and artifacts (signage, style) triggers cognitive, emotional and physiological responses that can change the customer behavior (Bitner 1992) and his customer experience. | Each SEB diagram portrays a specific interface and includes a specific element, the *service interface link* that indicates "the process of service delivery moves from one interface to another". Interfaces are selected according to Customer Experience Requirements |
| | Customer Actions | Line of Interaction | Customer's actions aren't considered in the blueprint. | Customer actions are the center of the blueprint. It is based on their actions that every others will take place. They are depicted chronologically following a specific process. | Actions are considered in the context of Human Activity Modeling (Constantine 2009) and are named as activities, tasks or actions (if they are system related or not), and operations, depending on the level of interaction referred. |
| | Visible employee actions | Line of Visibility | Mapping the processes that constitute the service, along with non-subjective and quantifiable measures | Actions performed by the employees that are visible to the customer. | Actions are first described as essential use cases; "abstract, generalized, and technology-free descriptions of the essence of a problem" (Constantine 2001). This higher-level representation don't commit designers to any particular interface beforehand, thus allowing to incorporate the customers' inputs (via Customer Experience Requirements) in the selection of the interface that best suits their preferences. |
| Backstage | Invisible employee actions | Line of Internal Interaction | Even if the customer doesn't see these processes they impact the way the service is perceived. "These sub processes are integral to the success of the service" | Actions performed by employees that are invisible to the customer | Distinguishes from user who cross the internal line of interaction (actor), from those who doesn't (player); "For design purposes it is also important to distinguish participants who actually interact directly with the user interface from those who are not engaged with the system..." (Constantine 2009) |
| | Support processes | Line of employee visibility | | "Activities carried out by individuals and units within the company who are not contact employees but that need to happen in order for the service to be delivered" | |
| | Backend System | | | | Systems role in the service delivery process is more detailed. Swimlanes map both the customers' actions and the system actions. |

Changing the line of interaction or visibility is an important feature that designers can use to improve a service. This way they can choose to what extent the customer creates the service, and how much he sees into it.

For all the advantages this technique has, it does not handle conveniently a multi-interface service. As we have seen, while new interfaces provide value to the customer, a poorly integrated interface can ruin the customer experience. Unfortunately, companies usually only look to provide new channels for communicating with their customers, and forget to consider them as part of a whole experience. This ends up with frustrated clients, discovering that their information submitted online is not available to the call-center, for example.

Also, replicating all the service features in all the available interfaces is costly and does not take into account the specificities of each interface; the Internet might be valued by its availability, but not for personal contact, while a visit to the physical store might not be convenient, but it certainly provides that human touch many people value. This follows the common sense reasoning of doing what one does best. Designing an interface in isolation might not be, therefore, the best solution compared to an integrate approach that leverage the capabilities of each interface, and its complementarities with the other available interfaces (Patricio et al. 2003).

For introducing these variables into the analysis we must extend the service blueprint in a way that assures the consistency of the customer journey, while maximizing the capabilities of each interface; the Service Experience Blueprint (SEB) (Patrício, Falcão e Cunha, and Fisk 2009; Patrício, Fisk, and Cunha 2008) method provides a solution to these questions.

### 2.5 Service System Design and Service Experience Blueprinting (SEB) Method

As we already defined, service experience blueprinting (SEB) is "an interdisciplinary method that integrates the work of requirements engineers, interaction designers and service managers, for the development of technology enabled services" (Patrício, Falcão e Cunha, and Fisk 2009). This method empowers managers and interaction designers to choose the best mix of channels, based on customer experience requirements, maintaining this way a customer-centric focus while capitalizing on the best features of each channel.

A further development of this research is the Service System Design (Patrício et al. 2009) that, considers three levels of experience;

- the overall customer experience; addressed by the customer value constellation.
- the overall service experience; addressed by the Service System Architecture and Service System Navigation.
- the service interaction experience; addressed by the Service Experience Blueprint.

After the comprehensible study of the customer experience, including the construction of the customer value constellation, we used SEB to represent the As-Is and To-Be version of selected activities. However, SEB is a method, and not only a visual representation. It establishes three different implementation phases (Patrício, Falcão e Cunha, and Fisk 2009; Patrício, Fisk, and Cunha 2008). On the first one a qualitative study is performed, prior to any other data collection methods, in order to obtain a rich perspective of the field under analysis. This will "produce exploratory results that are not generalizable to the overall population…but allowed the development of a survey questionnaire… to a statistically representative sample" (Patricio et al. 2003). Thus, the qualitative research provides the

groundwork for a quantitative survey that will validate and measure the findings. SEB method first stage is completed when the quantitative data gathering is finished.

The next phase involves the developing of a Goal Oriented Analysis based upon the previous phase findings, followed by the Service Design, in the third phase. The research presented on this document does not follow this method through, has its objectives are constrained to the exploratory inquiry. However, Service Experience Blueprints were used to illustrate both the service actual state (as-is) and the proposals for the future state (to-be)

## 2.6    Human Activity Modeling (HAM)

We already defined   Human Activity Modeling (HAM) as a systematic approach to organizing and representing the contextual aspects of tool use (Constantine 2009). By integrating activity theory and usage-centered design, HAM provides a framework that addresses the context within which a tool is used. The importance of context in design is described by Beyer and Holtzblatt as a backbone for organizing a customer-centric design process (Beyer and Holtzblatt 1998). Constantine additionally reinforces "For designed artifacts to be most effective as tools, they must be suited to the operational context …the purposes of the activities…the community of participants" (Constantine 2009).

As explained earlier, HAM uses activity theory and usage-centered design to develop its framework. Activity theory is foremost a philosophy that "holds that the human mind is the product of our interaction with people and artifacts in the context of everyday activity" (Kaptelinin and Nardi 2006). Usage-Centered design is a process in which the usage is the center of attention, instead of the users (Constantine 2001). Despite having the user concerns in mind, this process addresses the tasks they perform, rather than the user, per se.

HAM is focused in the contextual aspects of a tool use. However, in this research we adapted this view to place services at the center. While we do not make a distinction between contributes from activity theory, and usage-centered design, the former is more related with our work. However, usage-centered design has considerable interest for service design as Patrício's work with essential and concrete cases has showed (Patricio et al. 2003).

## 2.7    Business-IT Alignment Method (BITAM)

While BITAM was not directly related with this research, it assumes an important role within the ZON SE project and as part of the future work suggested. BITAM is a twelve steps process that aims to align the business and IT architecture of a company (Chen, Kazman, and Garg 2005). Further developments considered a multi-dimensional business-IT alignment (architecture, governance, communication) integrated with a Service Oriented Architecture (Chen 2008). This last work developed a three layer schematic where the architectural alignment extends through the business model, the business architecture and the IT architecture.

Today's fast pace of change both in businesses and, especially, in technology make misalignments inevitable (Chen, Kazman, and Garg 2005). However, the advantages of an aligned business model with its infrastructure are reflected in better business performances and strategy effectiveness (Chan et al. 1997). Therefore, as this research is centered around a company where technology has a central role, there are obvious advantages in such a method. Also, for the service design, this alignment can cut the shackles technology imposes in many

new, innovative ideas. This way we can see technology as a true enabler of a service, and not a constraint.

## 2.8   Summary and Research Gaps

As services gained economic supremacy and became increasingly technology infused, their complexity also increased. Today, a service is viewed as a system where configurations of resources (including technology) create value for both the company and the customer. The design of a service is, therefore, a complex task, as it involves developing a concept, but also the process with which the service is to be provided. While Service Science is, since its inception, a multidisciplinary field, it has particular affinities with Interaction Design due to the strong technological component present in today's services. However, Interaction Design is focused in systems and a service-centric approach is needed for further interdisciplinary integration.

This research aims to further close the gap between service design and interaction design, by integrating Service Experience Blueprint and Service System Design with Human Activity Modeling. This approach enhances the contextual detail of the service design and its interdisciplinarity, by combining concepts from management, requirements engineering and interaction design.

## 3    Methodology

For this research, we conducted a qualitative analysis of the service experience, using grounded theory methodology. We interviewed seventeen customers, and each interview has recorded and then partially transcribed, or annotated, in order to capture the most relevant information. This data was coded and analyzed with a Computer-Assisted Qualitative Data Analysis Software (CAQDAS) in order to map the customers' activities, experience requirements and other contextual factors, like artifacts and interfaces. With this information we were able ground the service design proposals.

### 3.1    Qualitative Research and Grounded Theory

Neuman distinguishes two categories for data collection; quantitative provide data in the form of numbers; qualitative provide data in form of words and pictures (Neuman 2000). As it is explained throughout this document, the basic underlying research principles of this work are related with qualitative research. This does not mean that quantitative methods should be neglected in the considered fields, they are rather complementary, but this way of doing science is far better suited to the goals and time set. Qualitative research (in comparison with quantitative methods) doesn't aim to achieve absolute an undeniable truths and it is not measured in absolute, quantifiable terms, instead, it is flexible, context-specific and situational (Neuman 2000) and, rather than avoiding involvement by the researcher, instead prescribes it. This last point is of special importance, since the researcher assumes an active role in all aspects of a qualitative study; he's required to be creative, trust and insightful, and also flexible (Corbin and Strauss 2008). As Corbin and Strauss (Corbin and Strauss 2008) observe qualitative research can be "many things, but it is not a process that can be rigidly codified", so the researcher assumes a central role in it.

In spite of numerous arguments pointing towards it, this is not to say that qualitative research lacks method. To challenge such frequent judgment and the supremacy of quantitative orientated methods in sociology, Glaser and Strauss proposed a "general method of comparative analysis…as the best approach initial, systematic discovery of the theory from the data of social research" (Glaser and Strauss 1967). This method is called Grounded Theory and is, nowadays, accepted both by quantitative and qualitative researchers for combining both flexibility and legitimacy (Charmaz 2006).

Charmaz summarizes the defining components of grounded theory with a short recollection of main characteristics whereby explained;

- Simultaneous involvement in data collection and analysis; data collection is not detached from the respective analysis. Along with the collection, data must be scrutinized in search of relevant concepts and interesting insights, this provides a guiding path for future data collection. This iterative approach ends when there is a saturation of themes or categories. While there is not a predefined way to tell when a sample is saturated it is generally when "no new categories or relevant themes are emerging" (Corbin and Strauss 2008). This also means there is no predefined sample as in a quantitative-oriented research as it is explained ahead.
- Constructing analytic codes and categories from data; in grounded theory there is not a theoretical framework for obligatory abidance, instead theory emerges from the data

by means of inductive reasoning. First by coding the data, an activity defined by Charmaz (Charmaz 2006) as "naming segments of data with a label that simultaneously categorizes, summarizes, and accounts for each piece of data", then by developing higher level categories, the "cornerstones of developing theory" (Corbin and Strauss 1990). Categories broader aspects encompass related codes and provides an abstract conceptualization so that the research produces theory, instead of a mere recollection of events or actions.

- Using constant comparative methods; codes and categories must be compared to each other and to the data from where they emerged, so to ensure they are credible and portray the reality upon which the research looked upon. Constant comparison helps to guard against a researcher bias and achieve greater precision and consistency (Corbin and Strauss 1990).

- Advancing theory development during each step of data collection and analysis; the aim of a grounded theory research is to construct theory so every step must be taken with that aim in mind. From codes to categories, and from categories to concepts, all iterations should follow an analytic purpose, so to create higher-level concepts and, with them, theory.

- Memo-writing to elaborate categories; writing memos should be an activity transversal to all research steps. Memos help to elaborate ideas and give them a consistent form. This way they constitute an important help to develop the analytic thinking about data and, with that, developing the theory itself.

- Sampling aimed toward theory construction, not for population representativeness; unlike quantitative methods of collecting data, in grounded theory, sampling does not pursue statistical significance, instead it advocates a theoretical sampling. As generalization to a broader population is not a goal in grounded theory the sampling is directed to where the researcher thinks it is more interesting and relevant to go. The objective in this is to achieve the saturation of categories. For example, if after some interviews the analysis points out to an interesting topic (remember that data collection and analysis are simultaneous), the researcher can change the sample, so to reorient it in a way it provides additional insights over that recently discovered and interesting topic.

- Conducting the literature review after developing an independent analysis; this is meant to reduce the influence and possible bias induced by researcher's preconceived ideas. This is also a controversial point of grounded theory and it is subject of many viewpoints as discussed ahead.

Charmaz summary coincides, partially, to the cannons prescribed by Corbin and Strauss (Corbin and Strauss 1990) but left aside the following, which are considered to be of importance giving the context of the present study;

- A grounded theorist need not work alone; when a study is developed as part of a broader project, the insights and opinions of fellow researchers can lead to a better theory development.

- Broader structural conditions must be analyzed; while not directly related with the research or even mentioned in the data collecting process, the context of each encountered phenomenon should be brought into the analysis and included in the theory, if founded relevant.

Yet another important characteristic not yet referred is the research question. Since qualitative studies have usually an exploratory aim (Corbin and Strauss 2008), a research question in qualitative studies mustn't be precisely defined and closed for further analysis on the beginning of the research, instead it should follow an open ended approach. Thus, it is important to define the general area under study but maintain the topic flexible so to it can be adapted, bearing the circumstances.

### 3.2 Critique within Grounded Theory

As a dynamic and developing methodology, grounded theory generates much discussion. Perhaps the most interesting one is between the "founding fathers", Glaser and Strauss. Kelle describes " after having finished their cooperation in joint research projects Glaser and Strauss followed different paths in their attempts to elaborate and clarify crucial methodological tenets" (Kelle 2007). Glaser quite vehemently accused Strauss and Corbin of forcing the data by subjecting the analysis process to a too strict framework (Glaser 1992). He advocates a more flexible, close to the roots, approach condemning an over-conceptualization (Allan 2003). However, Kelle advocates that Glaser view of grounded theory is more disconnected and confused ("hotchpotch") while Strauss and Corbin view is more "straightforward and less complicated" specially for novice social researchers (Kelle 2007). This study recognizes this stance as valid and, therefore, follows the approach proposed by Corbin and Strauss. Charmaz while assuming a detached position from these discussions, is also more close to Corbin and Strauss position (Charmaz 2006).

Another of Glaser's disagreement towards his former colleague is related his coding practices; he regards them as too time-consuming and excessively attentive to detail. To tackle this issue, instead of adopting a word-by-word, or line-by-line, coding in this research was done incident to incident, a procedure already contemplated by Corbin and Strauss (Charmaz 2006; Corbin and Strauss 2008). This practice was far less time consuming and was compatible with the interviews audio segments.

Yet another point of discussion is the literature review process. While in the beginning Strauss and Glaser recommended an almost *tabula rasa* approach by the researcher (Glaser and Strauss 1967), this point proved to be too naïve. Allan justifiably argues "busy people in industry and commerce expect meeting to have an agenda and research project to be scoped. Time and resource constraints prohibit unfocused investigation" (Allan 2003). This stance was later revised by Strauss (Corbin and Strauss 2008) acknowledging "in some instances theoretical frameworks can be useful", while Glaser maintained a position of more ambiguity (Charmaz 2006). This research assumes a stance closer with Corbin and Strauss view. After all its research field and theoretical framework are well defined since the beginning, proving also Allan point(Allan 2003).

Concerning qualitative methods in general a usual stance concerns their supposed lack of objectivity, pointing towards an increased chance of influence by a researcher bias (Allan 2003; Neuman 2000). Grounded theory addresses this issue pointing out that every concept is included into the theory only if it is mentioned in the data collected; each concepts "earns" it is place in the theory (Charmaz 2006; Corbin and Strauss 1990). This avoids any researcher's preconceptions to leak into the theory, assuring descriptive and interpretative validity. Johnson defines descriptive validity as factual accuracy of the account reported in the

research, and interpretative validity as the understanding of participants' viewpoints, thoughts, intentions and experience (Johnson 1997).

In comparison, a quantitative method does not guarantee objectivity, or even immunity to any bias, *per se*. A survey can easily provide a statistically significant answer to a wrong question. Foddy presents an extensive analysis on these issues providing the tools to develop the researcher's necessary awareness towards any potential bias (Foddy 1993).

Despite what has been said, "grounded theory research process is fluid, interactive, and open-ended" (Charmaz 2006) so, accepting Glaser and Strauss invitation (Glaser and Strauss 1967) to use grounded theory strategies in personalized fashion, this research cannot be said to adhere completely to any vision, being Charmaz's, Glaser's, Corbin's or Strauss'. It is an interpretation of grounded theory, using its adaptability to fold it to a project criteria and goals. Notwithstanding, most of the principles followed have precedent on the research trail left from the above mentioned authors.

### 3.3    Using Computer-Assisted Qualitative Data Analysis Software (CAQDAS)

Doing qualitative research presents a series of specific problems related with the quantity and types of data collected. As Tesch (Tesch 1990) mentions, "qualitative data are all data that cannot be expressed in numbers", and considering that qualitative data "are also typically unstructured, context-specific and recalcitrant" (Fielding and Lee 1998) its handling can be troublesome. Also, grounded theory has an approach that relies heavily on the ability to conveniently revisit the data, requiring flexible ways to deal and categorize it. To address these issues, this research was done with the assistance of the Computer-Assisted Qualitative Data Analysis Software (CAQDAS) QSR NVIVO8 (QSR 2009).

Since CAQDAS use is sometimes subject of discussion (Corbin and Strauss 2008) and following recommendation from Bringer, Johnston and Brackenridge (Bringer, Johnston, and Brackenridge 2004) that "researchers should include a discussion of how CAQDAS was used", this sub-section provides some insight regarding this topic.

The coding and analysis processes were the ones were this software played an important role. Firstly, QSR NVIVO8 can directly handle audio files, and segment them in fragments as shown in Figure 5. Since that, due to time constraints, interviews were not literally transcribed in all their extent, this ability addressed a fundamental issue in grounded theory; it improved the ability to return to the data and to constantly refer to it.  This way, further down the analysis process, it was possible to return to the audio content, whenever the partial transcription or interpretation wasn't clear enough. By doing this, the use of a CAQDAS reinforced the grounding on the data, helping to retain the fundamental feature of grounded theory.
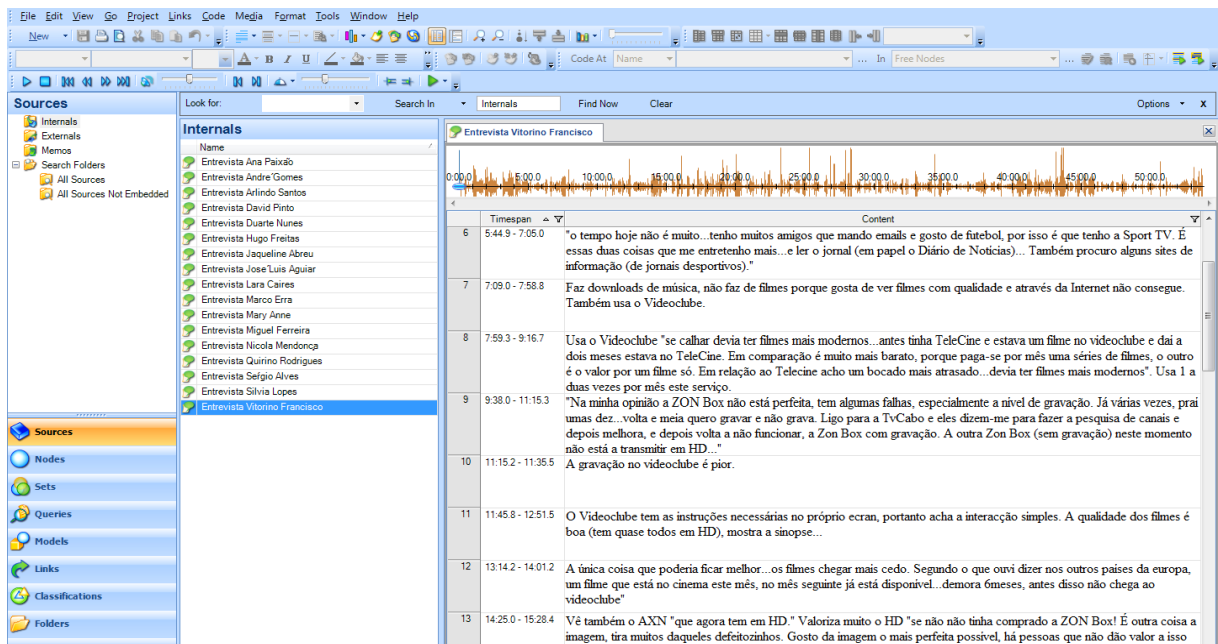
**Figure 5- Screenshot of one interview divided in several audio segments.**

Concerning the analysis, the software greatly increased the flexibility and manageability of the data collected in the interviews, and helped the analytic process by allowing an easy category handling. Without wanting to detail too much this matter, it is still relevant to point out the ability to create and deploy queries (Figure 6) and then being able to explore in detail the results, reverting to the coded references with ease. This way it is not difficult to explore the data and put at work another necessary feature of grounded theory; the researcher creativity(Fielding and Lee 1998; Corbin and Strauss 1990).

The use of a CAQDAS, its implications and possibilities is further developed in Fielding and Lee (Fielding and Lee 1998) and Bringer, Johnston and Brackenridge (Bringer, Johnston, and Brackenridge 2006; Bringer, Johnston, and Brackenridge 2004)



**Figure 6- Example of a Matrix Query.**

### 3.4   Data collection methods

Ulwick presents an interesting explanation about how to listen to customers (Ulwick 2002). He argues that we should not approach them expecting to obtain solutions, instead we should ask them for desired outcomes. A customer doesn't have the knowledge to come up with new ideas, that is the researcher work. What the customer is good at, is telling what he likes and when he likes it to happen. While this might be a rather simplistic way of addressing a data collection process based on customer interviews, it is nonetheless a clear statement of how not simplistic is to collect this data. A simple questionnaire, or an improvement suggestion box, would certainly not provide the necessary input for a service design effort.

Also, data is the foremost important concept of grounded theory, after all it aims to construct theory grounded on data. In this research intensive interviewing was the method that provided the great bulk of information.  As Charmaz argues, interviewing "fits grounded theory methods particularly well" (Charmaz 2006). If approached correctly, interviews can provide the kind of rich information that an exploratory research is after.

However, was we have said, collecting data is not a straightforward process. Accordingly, to match with the complexity of collecting qualitative data, two works guided the interview's making and delivering; Charmaz's *Constructing Grounded Theory* (Charmaz 2006) and Foddy's *Constructing Questions for Interviews and Questionnaires (Foddy 1993).* These books provided the necessary guidelines to both construct an interview, specifying the desired characteristics, and then deliver it, focusing on the conduct and interaction between researcher and interviewed.

Again, it is important to emphasize that the SEB method uses both kinds of data complementarily (qualitative and quantitative). Despite having used only qualitative data, we can also use quantitative methods and still be according to what grounded theory postulates. Concerning data, Corbin and Strauss stated "one of the virtues of qualitative research is that there are many alternative sources of data" (Corbin and Strauss 2008), Glaser further emphasized; "Grounded theory methods are not bound by either discipline or data collection" (Glaser 1992). This compromise, in spite of the diametrically opposed characteristics of quantitative research is desirable and accepted within grounded theory, since it embraces all kinds of data, if they can provide a more clear and rich picture about the studied field.

### 3.5   Sampling

In a grounded theory research the sample isn't a rigid list defined prior to any analysis. On the contrary, the sample is defined as the research develops, it adapts itself as new ideas surge or, if existing ones need additional proof to gain strength. Though, owing to the scope of this research, time related issues limited and shaped the data collecting process. Due to constraints related with contacting the customers these procedures were adapted to fit the context.

Corbin and Strauss argue that data collection and analysis are interrelated processes and that "analysis begins as soon as the first bit of data is collected" (Corbin and Strauss 1990). However, in a business setting, resources are limited and information security is a concern, so we achieved a compromise with the company; their call-center would contact the customers in a single batch, and those interested in participate would then be contacted by the researcher, in order to appoint the interview. This naturally impeded a sampling exactly according to grounded theory cannons, as the simultaneous data collection and analysis should guide

subsequent sampling, in order to achieve the theoretical saturation of categories. This way, sampling should only end when any new data doesn't add anything new to the theory.

In spite of this limitation, during the interviews several annotations were taken with observations concerning participants' reactions and possible new topics to explore, granting some degree of adaptation to the following interviews. Sampling was also based in company criteria, has they tried to contact customers with different bundles of services.

While these constraints produced a less than ideal sample, it remained, nevertheless, sufficient and satisfactory for the proposed goals; produce an exploratory insight about customers' activities and experience requirements.

### 3.6    Interviewing

Having explained the sampling process, we now address the actual data gathering. For this research seventeen interviews were done between the 31$^{st}$ of March and the 14$^{th}$ of April, 2010. After an initial contact by ZON's call-center, customers who accepted to be part of this study were then contacted by the researcher to schedule the interview. The interviews were done at customer's time and day of choosing, spanning from 9 A.M to 9 P.M., to reduce any availability issues. Each interview was audio recorded to be later analyzed. These recording were done with the customer's written agreement, having them signed and retained a duplicate of an Informed Consent form.

The interviews started with a short introduction about the research scope and goals. It also included some reassuring and contextualizing information to reduce the interviewed possible anxiety and provide a frame of behavior to guide him (Foddy 1993). For example, it explained that;

- the interview was made of open questions.
- the interviewed should provide all the details he could remember.
- there were no right or wrong answers, the interview would only gather personal opinion.

Concerning the interview, it involved open ended questions and a flexible framework. Desirably an interview like this would proceed as a normal conversation, with the interviewer setting the topic and making only small corrections to its course, if necessary. So, the interview structure was secondary and adaptable, depending on how each interviewed behaved. The more communicative persons would usually go through all the questions almost without any intervention of the interviewer. Others, shyer, would force a more structured interview by always staying close to the topic at hand. The interview questions are available in Appendix A.

As for the structure itself, it started with two questions intended to explore the overall service activity (Figure 1). This is the activity the customer wants to accomplish, without explicit intent to contact the service provider. In this case, the service provider only acts as part of a larger system (the service system) to satisfy the customer's need. So, we asked about the broader activities where ZON seemed to fit; communication and entertainment. We explicitly told the interviewed to speak about every activity or mean related to their communication and entertainment habits, and not only those that were related with ZON. For each one referred, we then asked what the interviewed liked about that specific activity.

The second part of the interview addressed the usage of ZON's services; how the interviewed used them, why, what was his opinion about them and if he had any complaints or improvements he would like to talk about. Again, for each activity we then tried to scrutinize it, in order to decompose it into several, more simpler actions. If this produced any results, why would then repeat the questions about each action, trying to detail what contributed to create a good or bad experience with the service.

Finally, we would address the activities before and after the service usage. For this we followed the same procedure detailed above.

Before the interview ended we would also ask if anything remained to be said, or if the interviewed would want to correct or add to what we have talked about.

In overall the interviews were well received by the customers as they welcomed the interest of ZON Madeira in their opinion.

As explained in the first subsection the sample characteristics need not to be tuned to achieve statistical significance. Still it is convenient that they are broad enough to ensure a relevant coverage of ZON's customer portfolio.

Table 2 presents a basic socio-demographic picture of the seventeen interviewed. In Appendix B we have the complete information about the sample.

In a simple overview we can see that our sample is;

- A young one, with 88% of the interviewed below 36 years old.
- Concerning gender, it is somewhat unbalanced with 65% males.
- Low percentage of college graduates 18%.
- Majority of customers are employed.

However, there are several considerations to be made about these numbers. As the interviews implied an effort for the customer's to attend (travelling to the interviews location), they sometimes would suggest a family member whose availability was better suited. This generally tended to be a younger relative of the customer. That explains the number of students in the sample, and also the percentage of high-schools graduates, as many of these were still college students. We have not erected any constraint to this situation, since these relatives were also using ZON's services, thus being able to provide the information we were after.

The interviews lasted, in average, 43 minutes, which is a considerable length and a good indicator for the amount of information received. An interesting fact is displayed in Table 3. This table shows the interview length by gender and it is clearly shown that males' interviews lasted longer. While we could not distinguish any relevant differences in the service usage (except in the TV channels viewed), there was a pronounced involvement and interest in talking about it by male users. We can't venture any specific reason for this as it also might be caused by gender dynamics during the interviews (Charmaz 2006).

**Table 2- Customers Socio-Demographic Information**

| Age | Female | Male | % Aggregate |
|---|---|---|---|
| 18-25 | 2 | 3 | 29% |
| 26-30 | 2 | 2 | 53% |
| 31-35 | 2 | 4 | 88% |
| 36-40 | 0 | 0 | 88% |
| 41-45 | 0 | 1 | 94% |
| 46-50 | 0 | 0 | 94% |
| 50+ | 0 | 1 | 100% |
| Total | 6 | 11 | |
| % of Total | 35% | 65% | |

| Occupation | Female | Male | % |
|---|---|---|---|
| Employed | 3 | 8 | 65% |
| Student | 3 | 2 | 29% |
| Working Student | 0 | 1 | 6% |
| Total | 6 | 11 | |

| Education Level | Female | Male | % |
|---|---|---|---|
| College | 2 | 1 | 18% |
| High-School | 4 | 5 | 53% |
| Incomplete High-School | 0 | 5 | 29% |
| Total | 6 | 11 | |

**Table 3- Interviews Average Length**

| Interviews | Female | Male | Average |
|---|---|---|---|
| **Average Length** | 32min | 49min | 43min |

### 3.7 Data Analysis

Within grounded theory the foremost process of data analysis is coding. Charmaz defines coding as "naming segments of data with a label that simultaneously categorizes, summarizes, and accounts for each piece of data" (Charmaz 2006). In this research we have accomplished this process with the CAQDAS NVIVO 8, which proved to be an excellent aid in registering and handling data and codes.

To code all the data we first imported the audio files containing the interviews and divided them in audio segments with the respective transcription or summary. This process is called open coding and defined as the "interpretative process by which data are broken down analytically" (Corbin and Strauss 1990). Charmaz names the concept differently (she calls it initial coding) but it remains the same in essence (Charmaz 2006). This process is meant to generate the concepts and categories that frame the next analytical steps.

However, the goals of this research enabled some categories to emerge naturally; Activities, Experience Requirements, Artifacts and Interfaces. These were many times addressed directly during the interviews and many of the data segments were coded in each category. For example, when a customer described having waited too long while contacting the call-center for obtaining some information we would code that information in;

- Interface; Call-Center.

- Experience Requirement; Negative and long waiting time.
- Activity: Asking for information.

In this example, call-center, negative, long waiting time and asking for information are concepts of each category.

Whereas the research goals provided these categories this doesn't mean others haven't emerged. It would be unpractical, to say the least, to conduct such an analysis if otherwise. So, categories like time-of-the-day, rival company, suggested improvements and customer information were eventually created to address the information customers were conveying. These categories are discussed in more detail later, in the Findings section.

Both concepts and categories are flexible and evolve during the coding process, as even more concepts and categories emerge. The researcher should be constantly analyzing the data, searching for new meanings and comparing against the previous codes, trying to assure that his research portrays the best way possible the reality he is studying. Data can be coded multiple times, and in different categories and concepts as the research evolves. The coding process is, therefore, an iterative one.

Further ahead, when the concepts and categories are well developed, we enter into another coding phase, the axial coding. In this phase we take the research one step ahead by strengthening the most relevant categories and their mutual relationships.

Axial coding was especially important to collect the fragmented codes and congregate them around homogeneous categories. During this phase emerged the clear division between negative and positive experience drivers and their respective subcategories, and activities were sorted hierarchically.

Again, it is worth emphasizing that these two steps, open and axial coding, have not clear boundaries or are chronologically dependant. Instead, their occurrence is alternated as, during open coding, there is the necessity to sort through the data, shifting this way to axial coding. Yet again, we must remember this is an iterative process.

### 3.8    Sorting through the data

When all data is coded, the analysis process can begin. Once more NVIVO played an instrumental role as it enabled querying the data in a matrix format. This way we could address directly our research goals by comparing, for example, each activity or artifact with the customer experience requirements. While querying we can still retain the focus on the data, as each cell refers to the content coded that satisfies both the vertical and horizontal values. Addressing again Figure 4 we can this way "fill" the scheme with the relevant data.

However, that is not enough for a service design endeavor, as we need a systematic way to represent the service elements in more detail. This is where the service experience blueprints play a role.

We present the queries and example blueprints in the next section as we analyze and interpret the results they conveyed.

## 4 Mapping the customer experience

In this section we present the outcome of the interviews, according to the methodology already explained. We begin by introducing the central categories, has these are the "building blocks" of this research. Then we address each one, building an increasingly complex picture, as the various relationships between categories are shown. In the mean time we provide some insights about the potential improvements suggested in the next section.

The great challenge in this section is to articulate in a consistent way contributes of Human Activity Modeling, Service Experience Blueprint and Service System Design. We structured our analysis around activities and used the Human Activity Modeling notation whenever necessary (Constantine 2009). Into this we incorporated contributes from Service Experience Blueprint as we introduce the customer experience requirements to characterize the service experience. The customer experience acts where as an ultimate result of all the other categories, a blend of an organization's physical performance, stimulus and emotions against an expected performance (Shaw and Ivens 2005). Also, we considered the customer activity constellation, the higher level view focused on the overall customer activity, and introduced by Service System Design (Patrício et al. 2009).

By the end of this section we have the necessary information structured in a way that can enable a successful service design.

### 4.1 Categories

As part of the analytic process each category is properly defined. This is an important step because it helps reason about the categories. Having to define them involves checking if the category is cohesive enough, what are the category characteristics, and if they are well purveyed in the definition. In essence, it helps the researcher obtain an increased knowledge of his own research, as it obliges an additional reflection about the data. When explaining each category we also provide citations from the customers to add further detail and clarify any code.

In this research we have developed the following categories;

- Activities; collection of actions directed toward goals that contribute to or are related to the purpose of the activity (Constantine 2009).
- Artifacts; physical entity that plays a part in some activity (Constantine 2009).
- Interfaces; points of contact with the customer that require interaction between him and some aspect of the company (people or information systems).
- Customer Experience Requirements; requirements related to the user experience goals (Patrício, Falcão e Cunha, and Fisk 2009).
- Suggested Improvements; customer's ideas to enhance their experience with ZON's services.
- Rival Company; customer's observations related with competitor companies of ZON Madeira.
- Customer Information; general characteristics of the interviewed customers.

The first four categories were the ones that directly addressed the research goals. Since the data was collected with these categories in mind, the definition is clearly more

straightforward. When applicable the category definition relates directly to the relevant research field.

The other two categories (Suggested Improvements and Rival Company) emerged during the coding process. Their appearances are certainly significant and provide an interesting insight on how the customer views this service. The category Rival Company reflects the duopoly nature of this market, as explained in Section 1, and shows how the customer is well aware of the rivalry between companies. While this is not unexpected due to the high-profile of both companies, it is interesting to see how many of the opinions conveyed are framed by comparison with the rival company. This suggests that the opinion of the customer about the other company has an effect on the perceived value of the service.

*"ZON service is acceptable, considering the competing offers"*

Male, 25 years old, employed, About ZON service

The last category was created merely to store the customer's socio-demographic and service subscription information and be able to relate it with other information. As this category concerns the sample characteristics, and such topic was already explored in Section 3, we do not develop it any further in this section.

Before moving on, there are some important considerations to make. First, these categories and their subcategories are, by themselves, a primary finding of this research. They are grounded on the data provided, as a customer referred to each one. While the interview sought to collect data that would provide an answer to the research questions, it didn't impose any of the categories contents. For example, the interviewed asked about customer's activities but never addressed any as a given fact. This is a clear distinction from traditional surveys, like the ones so familiar to Marketing, that frame what it is important from the start (Beyer and Holtzblatt 1998). Here very little is taken for granted as we leave space for the customer's data to build the frame we will be working with.

Therefore, each category, or code, was referred to by an interviewed customer who used it to characterize part of his experience with the service. Broadening this reasoning, we can say it is also significant to have a loyalty related subcategory in the negative side, instead of the positive. On the other hand, there is a customer support related category in the positive side. Having this meaningfulness in mind, we argue that categories, and their structure, pose as the first important findings of this research. Further ahead we present thoroughly each category in order to strengthen this argument.

Second, the categories and subcategories are not strictly mutually exclusive. A code could possibly be included in a different category as a different interpretation of the data could be made. In the end, it is all about the researcher's construal. However, we consider that the present structure is the closest to the data and the one that conveys a more meaningful understanding of it.

Finally, any code or category whereby mentioned is not necessarily related with ZON Madeira. They can only be interpreted as something that was said during the interviews, either they are related to ZON, or not. For example, a customer requirement can be interpreted as something that, if happens, or when happens, influences negatively the customer perception of the activity he is doing. That activity might be related to ZON, or might not. Thus, the only

way to say that a customer requirement is related to a ZON service is by cross-checking with the codes referring to their specific services or activities performed.

For the following categories presentation we developed several visual representations. We consider them as a useful way to convey the complex relationships we want to depict. After all, "a picture is a better representation than a page of text because it is easier to see what you are talking about" (Beyer and Holtzblatt 1998).

## 4.2   Activities

The activities category draws its definition from the Human Activity Modeling framework (Constantine 2009). Using this framework enables to introduce the interaction design aspect into this research, giving additional detail to the activities representation.

Recalling the concept of service system, we see that ZON does not provide its services in isolation. It is involved in a larger, broader, setting where several services contribute to satisfy a customer's goal. For this reason, our objective is not only to study ZON's service, but to see how it fits into a constellation of value-creating offers that seek to support a customer's activity. We call this a customer value constellation (Patrício et al. 2009).

To address this objective, the activities category is divided into two subcategories; ZON related activities and activity constellation. The activity constellation tree is also twofold, matching the two overall customer activities considered; Entertainment and Communication. These overall customer activities represent something the customer wants to accomplish, without explicit intent to contact the service provider. As for ZON related activities, these are the ones involving direct interaction with ZON services.

Table 4 shows the complete coding tree for the activities category with the number of interviewed (sources) who referred to that code and the respective percentage. As we can see this listing is quite extensive when completely expanded. This is why axial coding is necessary; to produce the higher level categories that enable a more concise and meaningful analysis. If we hadn't created homogenous subcategories the work would hardly make any sense.

This category provides interesting paths of analysis. We can start mapping the activities related to ZON in a sequential manner to illustrate a high-level customer journey. This is shown in Figure 8. The notation used is borrowed from Constantine's work (Constantine 2009) and shown in Figure 7. We try, this way, to incorporate the various fields of this research since the beginning of the analysis.
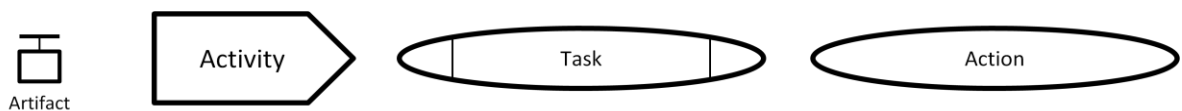


**Figure 7- Notation (Constantine 2009).**

Each activity encompasses several actions or tasks. As we said in Section 2 the difference between actions or tasks lies in the interaction with some system; tasks are actions that involve a system interaction (Constantine 2009). In Figure 8 we haven't included an all exaustive representation of all the tasks and actions. Such a feature would imply additional

data collection, and even different methods of collecting it (contextual inquiry for example), so we opted not venture further. Also some of the codes shown in Table 4 aren't considered in Figure 8 has they don't involve a deliberate action by the customer, they are just part of the experience surrounding the activity (for example the advertises).
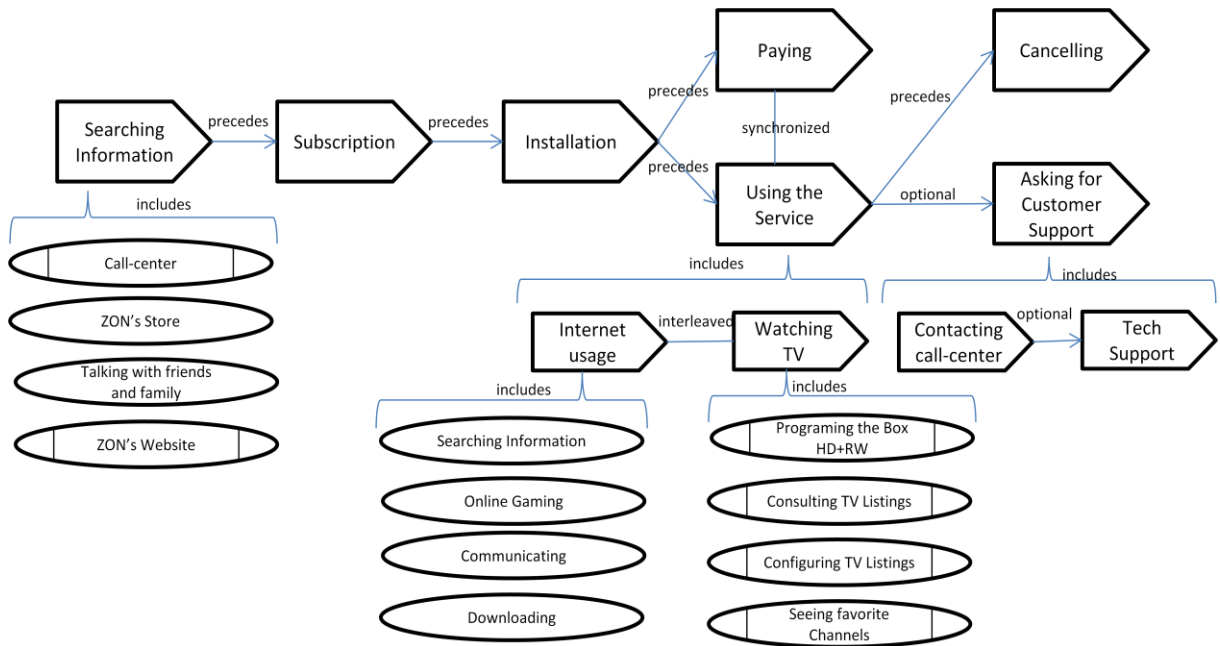


**Figure 8- Customer's Activity-Task Map for ZON.**

We have broaden our field of view to encompass other activities than those directly related with the company. This way we want to see what the customer does to satisfy his overall activities, and which activities are competing, or working together, with the ones performed by ZON. This enabled us to construct a constellation of activities and see how ZON is positioned to address those activities, thus situating it within the value creating system. Figure 9 shows the customer value constellation and also the links between the most relevant subcategories. Appendix C provides all the data in which this figure was based.

This is a slightly different approach than the one present in Service System Design, where the customer value constellation depicts the services that support the overall customer activity. But, to be more coherent with the structure of this research, we adapted Patrício's work with the Customer Value Constellation (Patrício et al. 2009) and introduced the customer's activities in the representation.

As intended, we can see which activities are more closely connected with ZON's services, and how they are associated with other activities that involve a ZON service. The most meaningful and representative connections are quantified with the number of sources and percentage.

By including these quantitative findings we are not implying any kind of generalization to a larger population like a quantitative study would. As stated before, the primary findings are the categories, the respective coding tree, and their relationships. It is to clarify the latter that we present the number of sources and percentage. In addition, with such information we can establish a hierarchy to orient future data collection, or even service improvements.

In addition, the number of sources reflect the absolute number of interviewed whose statements were coded in both the ends of a link. This means that when we see, for example, that 82% have referred to surfing the Internet as part of a ZON related activity this doesn't mean there's another 18% who referred another kind of link. Instead, the other three interviewed probably don't use internet, or this topic hasn't spoke at the interview, or a similar connections in the data hasn't deemed relevant. Having clarified this we can analyze Figure 8.

It is noticeable that the communicate activity is closely related with ZON, as both the purposes considered (work related and family and friends) are supported by ZON activities, namely messenger services (MSN), email, and social networks.

*"When I am not face-to-face [the communication] is centered around the mobile phone and the Internet. In the Internet: Messenger and email account, both for friends and for college."*

Female, 27 years old, college student, About how she communicates

The constellation of activities related with entertainment is substantially broader. From those, Watching TV and Surfing the Internet, are the ones most closely related with ZON. We expand this analysis as intended by introducing other categories into the picture, like the artifacts and the interfaces. By doing this we develop a better understanding of the contextual surroundings related with the service usage.

*"Concerning communication what is more used is the mobile phone… email address and landline phone. Nobody uses letters anymore"*

Male, 43 years old, employed, About how he communicates

**Table 4- Coding Tree for the Activities Category**

| Activities | | | | | Sources | % |
|---|---|---|---|---|---|---|
| Activities Constellation | | | | | 17 | 100% |
| | Communicate | | | | 17 | 100% |
| | | Communicate with friends and family | | | 16 | 94% |
| | | Communicate with work purposes | | | 14 | 82% |
| | Entertainment | | | | 16 | 94% |
| | | Watching TV | | | 17 | 100% |
| | | Surfing the Internet | | | 14 | 82% |
| | | Going to the cinema | | | 7 | 41% |
| | | Exercise or sports | | | 7 | 41% |
| | | Outdoor Activities | | | 6 | 35% |
| | | Coffee place | | | 3 | 18% |
| | | Walking | | | 3 | 18% |
| | | Seeing a Soccer Match | | | 3 | 18% |
| | | Play Games | | | 3 | 18% |
| | | Reading | | | 3 | 18% |
| | | Listen to music | | | 2 | 12% |
| | | Shopping | | | 2 | 12% |
| | | Resting | | | 1 | 6% |
| | | Going to the restaurant | | | 1 | 6% |
| | | Drawing | | | 1 | 6% |
| | | Going out at night | | | 1 | 6% |
| Zon related Activities | | | | | 17 | 100% |
| | Using the Service | | | | 17 | 100% |
| | | Watching TV | | | 17 | 100% |
| | | | Favorite Channels | | 17 | 100% |
| | | | | Series | 12 | 71% |
| | | | | Movies | 10 | 59% |
| | | | | Sports | 9 | 53% |
| | | | | News | 7 | 41% |
| | | | | Portuguese Channels | 6 | 35% |
| | | | | Soap Operas | 6 | 35% |
| | | | | Cartoons | 4 | 24% |
| | | | | Travel&Adventure Channels | 2 | 12% |
| | | | | Wrestling | 1 | 6% |
| | | | | Playboy TV | 1 | 6% |
| | | | | Comedy | 1 | 6% |
| | | | Consulting the TV listings | | 15 | 88% |
| | | | Programing the Box RW | | 5 | 29% |
| | | | Recording | | 3 | 18% |
| | | | Configuring the TV Listing | | 2 | 12% |
| | | | Advertises | | 2 | 12% |
| | | | Listening to Radio | | 2 | 12% |
| | | Internet usage | | | 17 | 100% |
| | | | Searching Information on the Internet | | 16 | 94% |
| | | | | For work purposes | 8 | 47% |
| | | | | For study Purposes | 7 | 41% |
| | | | | News | 6 | 35% |
| | | | | Personal Preferences | 3 | 18% |
| | | | Email | | 14 | 82% |
| | | | Downloading Entertainment Contents | | 12 | 71% |
| | | | | Movies | 7 | 41% |
| | | | | Music (MP3) | 7 | 41% |
| | | | | Abusive Downloading | 4 | 24% |
| | | | | Series | 2 | 12% |
| | | | | Website with links | 2 | 12% |
| | | | | P2P Software | 1 | 6% |
| | | | | Games | 1 | 6% |
| | | | Social Networks | | 8 | 47% |
| | | | | Games | 5 | 29% |
| | | | MSN | | 7 | 41% |
| | | | NetMadeira's Website | | 5 | 29% |
| | | | VPN | | 4 | 24% |
| | | | Videoconferencing | | 2 | 12% |
| | | | Foruns | | 2 | 12% |
| | | | Blogs | | 1 | 6% |
| | | | Online gaming | | 1 | 6% |
| | | | Auctions Websites | | 1 | 6% |
| | | | Streaming | | 1 | 6% |
| | Asking for customer support | | | | 16 | 94% |
| | | Call-Center Contacts | | | 13 | 76% |
| | | Tech support | | | 12 | 71% |
| | | | At customer's home | | 9 | 53% |
| | | | By Phone | | 3 | 18% |
| | Searching information about the service | | | | 16 | 94% |
| | | Talking with friends or family | | | 11 | 65% |
| | | At a ZON's Store | | | 7 | 41% |
| | | ZON's website | | | 7 | 41% |
| | | Advertises | | | 6 | 35% |
| | | From the Call-Center | | | 4 | 24% |
| | | Regional Newspaper | | | 1 | 6% |
| | Service Installation | | | | 8 | 47% |
| | Service Subscription | | | | 7 | 41% |
| | Paying | | | | 6 | 35% |
| | Cancelling Service | | | | 5 | 29% |

## Customer Value Constellation
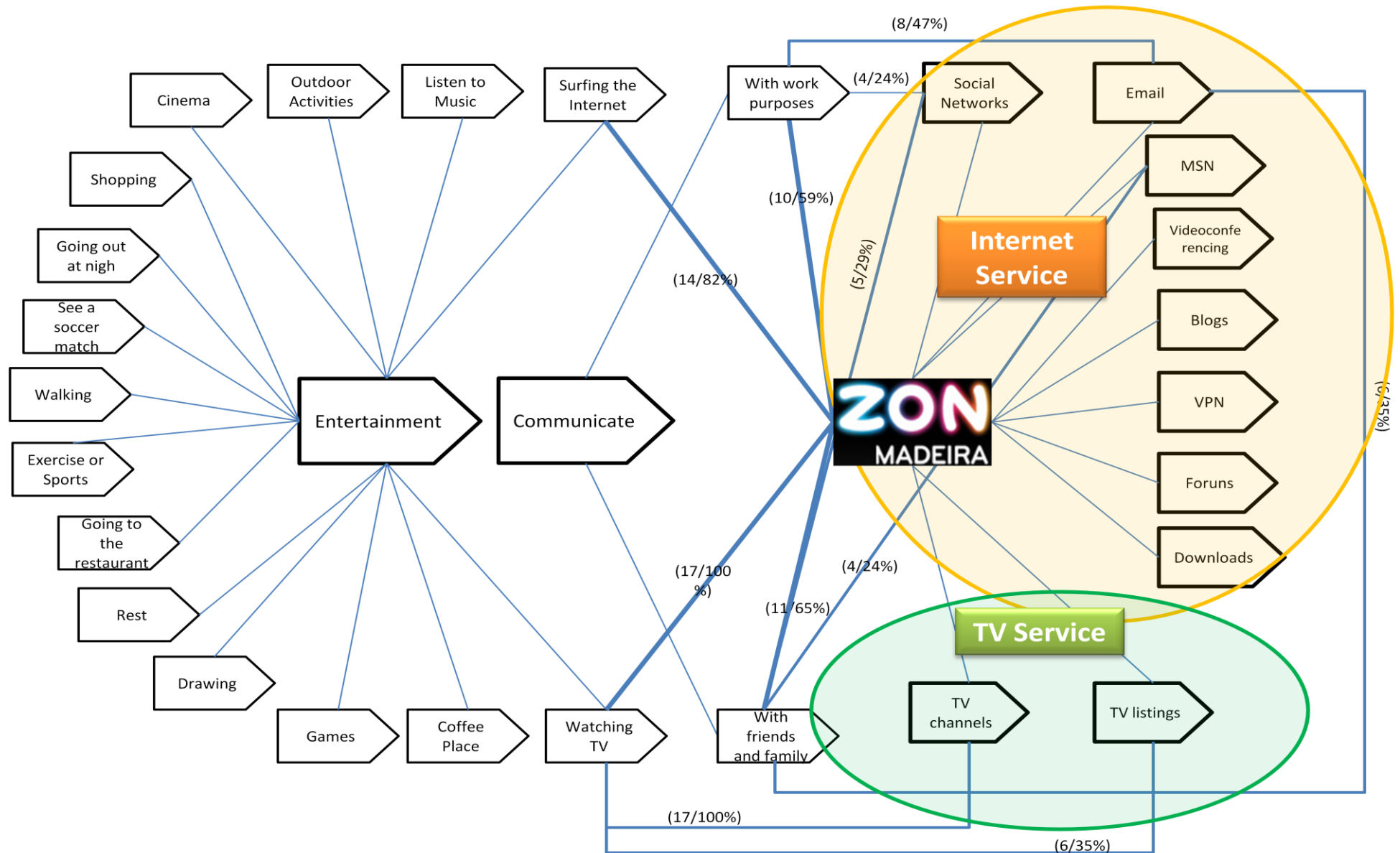


**Figure 9 - Customer Value Constellation and its connection with ZON services.**

**4.3    Artifacts**

Again we cited Constantine's work for defining this category; artifacts are physical entities that play a part in some activity (Constantine 2009). The relationship between the artifacts and the activities is considered in the definition, as a design effort should consider not only the artifacts, but their usage context. While this view seems too close to a product design perspective, it is also relevant for this work as the artifacts act most of the times as enablers of the service. Examples are quite simples; a cable TV service is useless without a TV, an Internet services is useless without a computer and a modem and a phone service is useless without the physical telephone. As technology develops, other artifacts entered this scene, such as various boxes for decoding the channels and provide additional services (TV listings, HD TV, Recording) or routers for wireless Internet. Service Experience isn't independent on how these artifacts perform (or enable to perform) the customer's activities, thus we have also dedicated some attention to this point by pinpointing which artifacts ZON customer's interact with.

*"The remote control has a "Back" button, it irritates me so much! It is there but doesn't work!"*

Male, 34 years old, employed, about his experience with the TV service

In Table 5 we show the coding tree for this category, enumerating all the artifacts we heard about in the interviews. Not surprisingly the "enablers" are the ones which appear on the top, as the most referred to.

**Table 5- Coding Tree for the Artifacts Category**

| Artifacts | Sources | % |
|---|---|---|
| Phone | 16 | 94% |
| Mobile | 16 | 94% |
| TV | 15 | 88% |
| Computer | 13 | 76% |
| HD TV | 9 | 53% |
| ZON Box | 8 | 47% |
| ZON Box HD | 8 | 47% |
| ZON Box HD+RW | 7 | 41% |
| MyZonCard | 4 | 24% |
| Regional Newspaper | 4 | 24% |
| Cables and support infrastructure | 3 | 18% |
| Modem | 3 | 18% |
| Remote Control | 2 | 12% |
| Satellite Dish | 2 | 12% |
| TV Guide | 1 | 6% |
| Mobile charger | 1 | 6% |
| Installation CD | 1 | 6% |
| Advertising Brochure | 1 | 6% |
| Interactive whiteboard | 1 | 6% |
| Pen Drive | 1 | 6% |
| Batteries | 1 | 6% |
| Hard Drive | 1 | 6% |
| Books | 1 | 6% |
| Game Console | 1 | 6% |
| Letters | 1 | 6% |

We are now able to follow the lead provided earlier and implement another modification to the customer value constellation. We related each activity with the artifacts to discover which ones are the most relevant to them. This information is included in the customer value constellation shown in Figure 10.

The artifact listing is not exhaustive since we opted to include only the most relevant ones. Appendix D displays all the relevant data about the connections between the two categories (Activities and Artifacts).

What is immediately noteworthy is how ZON has already expanded its value proposition to an activity not related with their services; the cinema. When customers subscribe a service for more than a year, ZON presents them with a card (MyZONCard) that significantly reduces the movie tickets cost. By doing so, ZON is providing additional value to its customers.

> *"And ZON has those fantastic free tickets… I always make use of them"*

> Female, 19 years old, Student, about going to the cinema

Like before the number of sources represent the interviewed whose data was coded in both the activity and artifact at the same time. If needed, we could provide other kinds of analysis, shifting the focus to any activity or artifact and detailing their relation with each other. Even within the Artifacts category we can relate each subcategory in a matrix to see if some artifact has relevant connections with others. This is shown in Appendix E, and while the findings aren't fruitful we see there's a relation between HD TV and both HD boxes. Considering that nine customers addressed the HD TV, seven have also addressed one of the boxes (1 addressed both). Thus we see a strong relation between these artifacts, and since ZON only provides one part of this relationship (the boxes), the possibility to integrate the other must be considered as a way to provide additional value to the customer.

> *"I value the HD, otherwise I wouldn't have bought the ZON Box!"*

> Male, 43 years old, employed, About enjoying HD TV

> *"It would satisfy me if ZON could find a way to provide HD to everyone."*

> Male, 35 years old, employed, Suggesting new services
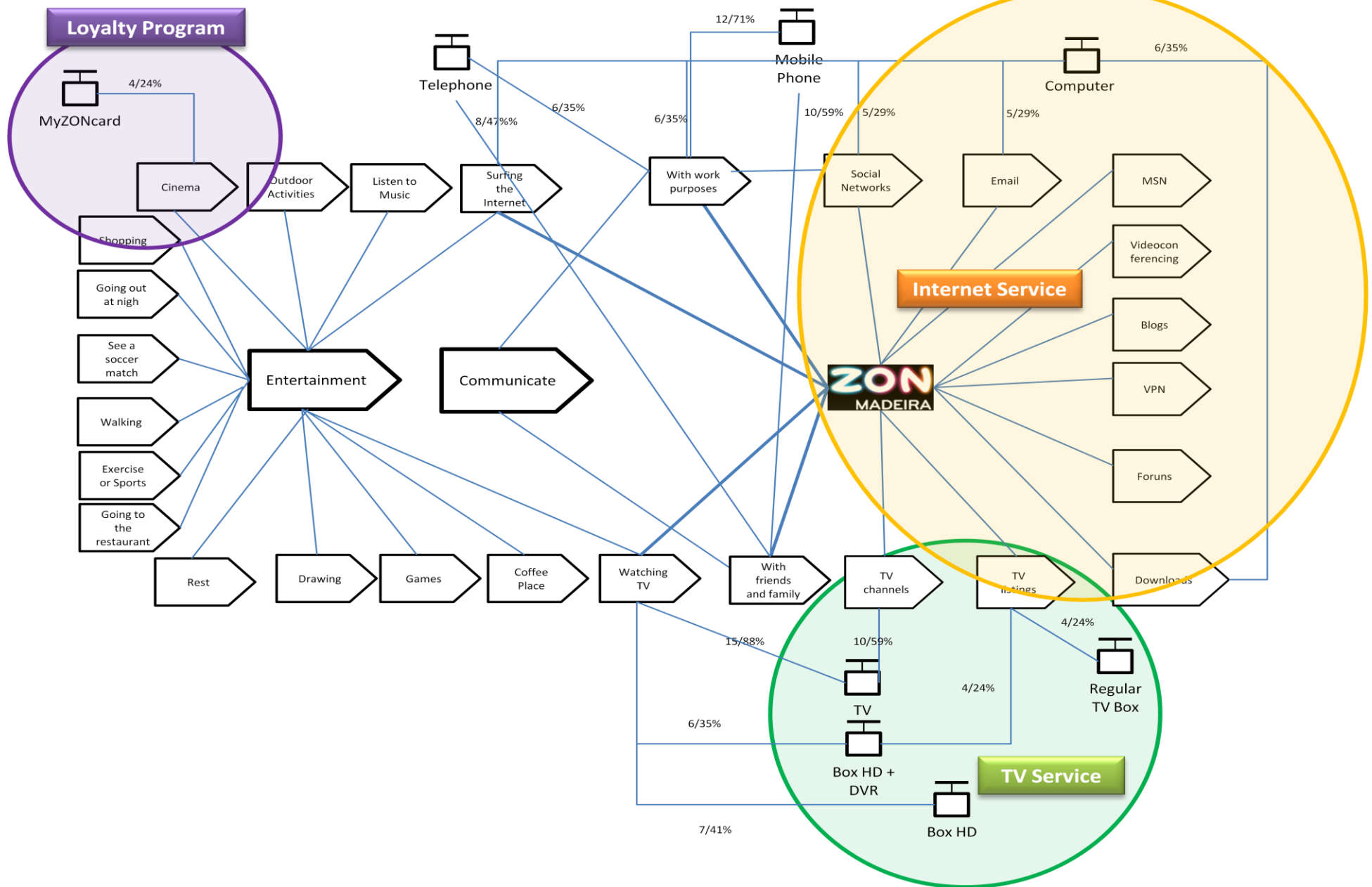
**Figure 10- Extended Customer Value Constellation.**

### 4.4    Interfaces

We now attend to the Interfaces category. These are points of contact with the customer that require interaction between him/her and some aspect of the company (people or information systems). Again, we present the complete coding tree for this category in Table 6.

**Table 6 – Coding Tree for the Interfaces Category**

| Interfaces | | Sources | % |
|---|---|---|---|
| Call-Center | | 15 | 88% |
| Friends at ZON | | 11 | 65% |
| Technician | | 10 | 59% |
| Internet | | 9 | 53% |
| Store | | 8 | 47% |
| | Dolce Vita | 5 | 29% |
| | Nazaré | 3 | 18% |
| | Loja do Cidadão | 2 | 12% |
| Shopping Center | | 2 | 12% |

In Section 2 we saw how designing a multi-interface service can be difficult, especially because it is not only necessary to support the channel, but also to integrate it with the remaining operation. Moreover, we cannot simply replicate all the services in each channel as they have specific characteristics that make them more suitable to specific activities, rather than others. We should then carefully plan which services to provide in each channel.

ZON Madeira reaches its customer via 5 channels; Call-Center, Friend at ZON, Technician, Internet and Stores (the Shopping Center code relates to customer's contacts with rival salespersons at the shopping center). All the interfaces are easily understandable, except probably one, the "Friend at ZON". This interface reflects the proximity between some customers and the employees. Customers view this interface as having an "insider" in the company, someone who they know, which provide them with personalized advice and preferential customer support. This pattern caused some concerns about the sample quality. Yet, they proved to be unfounded, as the customers seemed ordinary enough and perfectly able to speak freely about their experience with ZON.

Originally, this code was included in the experience requirements category as a positive catalyst for some activities. However as the coding progressed, these friends seemed more and more as a preferential mean of contact with the company. Actually, when performing the contextual inquiry by observing ZON employees and registering their work routine, we realized how flexible their functions were, especially regarding the customer support. Almost everybody could go to the front desk and answer some question, or be contacted by the call center to provide some specific answer. While unsystematic and seemingly chaotic this approach might seem, it actually provided some results as, actually, many of these "friends" aren't really friends. They are some special employee that, one time, provided a customer delight; an above the call of duty care for the customer. An action like this developed a closer relation between the customer and the employee, transforming the latter into a preferential interface with the company. More than a privileged interface with ZON, this friend at the company also promotes customer retention as it poses as a barrier to exit (Buttle and Burton 2002).

As ZON encourages every employee to perform any kind of functions if deemed necessary, they unintentionally opened another interface to these customers. And, more than a nuisance to the analysis, this proved to be a focus of some interesting reflections about the interaction with the customer. We will come back to this point further ahead.

*"There was a problem with the phone…I didn't even call the customer support…she [the friend] did something and it was all fixed…it is much easier to do something"*

<div align="right">Female, 27 years old, Student, About her friend at ZON</div>

This category gives additional information for our edification of the customer perspective. As neither of the theoretical frameworks we encountered displays the connection between activities and interfaces, we created an Activity-Interface Map. An additional symbol created by Nunes (Nunes 2010) was used to represent the interface, as Human Activity Modeling does not address this particular concept. By relating Interfaces with Activities we can see which interface the customer uses to interact with ZON in each activity. With this objective in mind we have been able to construct Figure 11 showing a quite comprehensive Activity-Interface map. The additional data is provided in Appendix F.

However, collecting data about all the interfaces was not particularly easy with the methodology followed. This is because many customers do not have experience with several interfaces. The only one that spanned to most customers was the call center, as it is the most used interface.

Two remarks must be made at this point. First, the interfaces shown in Figure 11 are not the only ones available for each activity. There are merely the ones that customers talked about more. Second, the internet interface does not refer to the Internet as the World Wide Web. It refers to the interaction between the customer and ZON over the Internet, like checking ZON's website or their portal (NetMadeira.com).
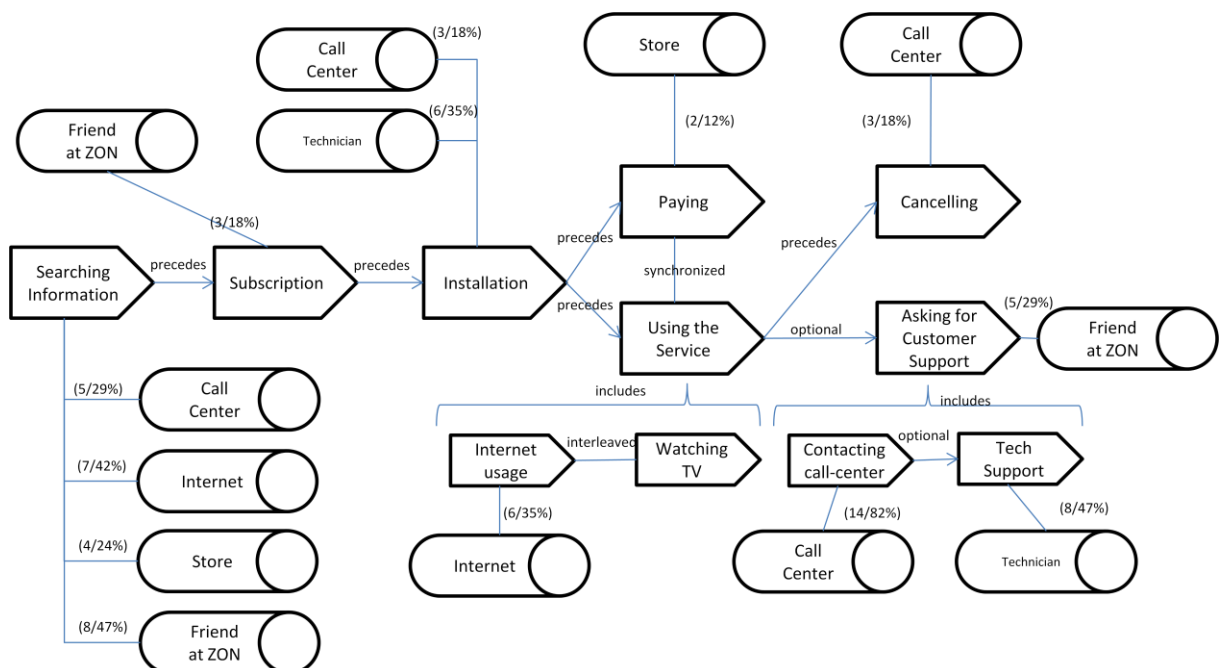


**Figure 11 – Customer's Activity-Interface Map.**

Obtaining this kind of results provide another angle of the customer's activities picture. Of course, some information is obvious enough, since some activities are named after the interface (like "Contacting Call Center"). Yet, as we have seen, some interesting insights can be obtained with such a display. As most interfaces are under direct control of the company, we can design any interaction through them. And, as we now know which activities are performed through which interfaces, we can focus our attention in designing the interfaces to better support each activity. This is fundamentally what multi-channel service design is.

We can also detect and take advantages of special company features like the unconventionally interface (Friends at ZON) and capitalize on its uniqueness and privileged role. For that we must systematize its use by including it formally into the service design.

### 4.5 Customer Experience Requirements

The last of the main categories aims to unravel one of the research goals, the determination of the customer experience requirements for each activity and action, or for each service. We have explained before that these experience requirements are intangible and subjective in nature. As we are speaking of requirements, we can borrow the concept of non-functional requirement as an acceptable similar to an experience requirement.

Many times experience requirements convey customer's feelings when interacting with the service. Due to this setting, sometimes, even the customers cannot conveniently explain their experience. One thing is certain, however, a customer will always have an experience when interacting with a service (Berry, Carbone, and Haeckel 2002). To try to tap such elusive information for all the activities and actions/tasks was especially difficult in the latter case. It was difficult for the customers to separate their impressions of the service into smaller components, proving Gentile's et al claim that customer view the outcome of all interactions with the company as a whole, not distinguishing between different experiences (Gentile, Spiller, and Noci 2007).

Performing the analysis of this category proved to be a difficult task due to the multitude of ways in which the customers expressed their experience. In a first phase this resulted in a long and dispersed list of categories with thinly significant meaning on their own. We had to perform several iterations to achieve some higher-level codes with convenient explanatory power. Table 7 portrays this multitude of codes.

Following the same line of thought as before, we continued to support our analysis in the customer journey through the several activities related with the service. So, in Figure 12 we show the most significant customer experience requirements for each activity. We opted for a code of colors to increase its readability; green for positive customer experience requirements, red for negative customer experience requirements. By positive we mean requirements that, if satisfied, contribute in a favorable way to the customer's service experience. We also assume that the customer's satisfaction with the service increase if more positive experience requirements are present in each activity. The inverse reasoning applies for the negative experience requirements.

**Table 7- Coding Tree for the Customer Experience Requirements category.**

| Negative | Sources | % | Positive | Sources | % |
|---|---|---|---|---|---|
| Scarce use | 15 | 88% | Speed | 14 | 82% |
| Lack of Interest | 10 | 59% | High-Speed-Fast | 14 | 82% |
| Having time to | 9 | 53% | Fast Resolution of Service's Problems | 6 | 35% |
| No need | 5 | 29% | Correct and fast diagnosis | 1 | 6% |
| Unnecessary | 1 | 6% | Emotionally Satisfying | 14 | 82% |
| Malfunctions | 14 | 82% | Fun | 5 | 29% |
| Bad reception | 8 | 47% | Personal Preference | 4 | 24% |
| Lack of Network Connection | 7 | 41% | Escape from routine | 3 | 18% |
| Inconsistent Service | 7 | 41% | Personal Contact | 3 | 18% |
| Reliability | 5 | 29% | Honesty | 3 | 18% |
| Sluggish | 2 | 12% | Pleasing Environment | 2 | 12% |
| Bad Image Quality | 1 | 6% | Plot | 2 | 12% |
| Pricing | 10 | 59% | Engaging | 2 | 12% |
| Expensive | 9 | 53% | Not work related | 2 | 12% |
| Pricing between different service packs | 4 | 24% | Entertaining | 2 | 12% |
| Fixed Cost | 2 | 12% | Interactivity | 1 | 6% |
| Price&service comparison with other countries | 1 | 6% | Easy or convenient | 13 | 76% |
| Oligopoly | 1 | 6% | Convenient or Easy | 12 | 71% |
| More expensive than other basic services | 1 | 6% | Easy search | 2 | 12% |
| Long Run Price Increase | 1 | 6% | Easy to send a file or document | 1 | 6% |
| Internet Speed | 9 | 53% | Wealth of accessible contents | 13 | 76% |
| Customer's Downloading priorities | 4 | 24% | Wealth of contents or information | 9 | 53% |
| Internet speed tests | 2 | 12% | Variety of Channels | 9 | 53% |
| External Limitations | 9 | 53% | Portuguese Channels | 6 | 35% |
| Lack of other artifacts prevents the Activity | 4 | 24% | Fast or immediate release of contents | 1 | 6% |
| TV Spots | 3 | 18% | Portuguese Subtitles | 1 | 6% |
| Lack of entertainment contents | 3 | 18% | Up to Date Content | 1 | 6% |
| Contracts with other companies | 2 | 12% | Pricing | 12 | 71% |
| Legal Issues | 2 | 12% | Price | 9 | 53% |
| Hard-disk space | 2 | 12% | Free service | 6 | 35% |
| Too repetitive | 1 | 6% | Fixed Monthly Payment | 2 | 12% |
| Re-airings | 1 | 6% | Giving correct and timely information | 10 | 59% |
| Spam | 1 | 6% | Having detailed Information about a customer | 1 | 6% |
| Slow | 1 | 6% | Great Employees | 10 | 59% |
| Interaction Difficulties | 8 | 47% | Employees Sympathy | 10 | 59% |
| Bad First Experience | 4 | 24% | Going beyond the call of duty | 3 | 18% |
| Confusing Listings | 4 | 24% | Social Pressure | 9 | 53% |
| Frustration about a functionality | 2 | 12% | Basic Need | 7 | 41% |
| Not appealing | 1 | 6% | Everybody has it | 4 | 24% |
| Net Lingo | 1 | 6% | Good Company | 2 | 12% |
| Inadequate Information | 8 | 47% | Popular | 2 | 12% |
| Deceiving Information | 4 | 24% | Availability | 8 | 47% |
| Lack of Information | 4 | 24% | Available | 8 | 47% |
| Incoherent Information | 3 | 18% | Always connected | 4 | 24% |
| Lack of Credibility | 1 | 6% | Light | 1 | 6% |
| Privacy concerns | 1 | 6% | Improved communication | 1 | 6% |
| Lack of Added Value | 8 | 47% | Equipment Technical Characteristics | 8 | 47% |
| Lack of Updates | 4 | 24% | Image Quality | 4 | 24% |
| Lack of added value | 2 | 12% | Enjoy the BOX's RW Capability | 3 | 18% |
| Blocked Functionality | 1 | 6% | Good Equipment | 3 | 18% |
| Poor Functionalities | 1 | 6% | BoxHD+HD TV | 3 | 18% |
| Stressful Situation | 8 | 47% | Audio Quality | 2 | 12% |
| Hearsay | 5 | 29% | Long-distance Communication | 6 | 35% |
| Handling with emotions | 3 | 18% | Flexibility | 6 | 35% |
| Distress | 3 | 18% | Flexible processes | 5 | 29% |
| Delays | 7 | 41% | Flexible Service Offerings | 3 | 18% |
| Customer Relationship Management | 5 | 29% | Punctuality | 5 | 29% |
| Offers to the unhappy customers | 4 | 24% | Well structured information | 5 | 29% |
| Negligent towards loyal customers | 2 | 12% | Improvement Efforts | 5 | 29% |
| Dependence towards a single service provider | 1 | 6% | Regional Company | 5 | 29% |
| Lack of Personal Contact | 3 | 18% | Regional Customer Support | 4 | 24% |
| Dehumanization of the customer support | 2 | 12% | Regional Information | 2 | 12% |
| Inattentive Employees | 1 | 6% | Reliability | 4 | 24% |
| Personal Dislike | 2 | 12% | Information Registry | 3 | 18% |
| Ethics and Social Responsibility | 1 | 6% | Technical Knowledge | 3 | 18% |
| Equipment Wrapping | 1 | 6% | Past Experience | 3 | 18% |
| Not flexible | 1 | 6% | Lack of distinct features between companies | 3 | 18% |
| Demand Peak | 1 | 6% | Respect the service level agreement | 2 | 12% |
|  |  |  | Good weather | 2 | 12% |
|  |  |  | Memorize the air date | 2 | 12% |
|  |  |  | Credibility | 2 | 12% |
|  |  |  | Explain technical interventions | 2 | 12% |
|  |  |  | Multitasking | 1 | 6% |
|  |  |  | Service Reviews and Comparisons | 1 | 6% |
|  |  |  | Increased Frequency | 1 | 6% |

As we can see, some activities have a richer content than others. Searching information, asking for customer support and, especially, using the service, are activities very well depicted with many customer experience requirements. Once more, we introduced the number of sources to provide additional detail to the picture. But, more important than the number of sources is the requirements themselves. Of course it is highly relevant to have the scarce use as the primary negative experience requirement, both in the coding tree as when related to the Using the Service activity.

*"I have all those channels and, yet, I almost don't see any"*

<div align="right">Male, 54 years old, employed, talking about the TV service.</div>

But it is also relevant to have a code which relate to the regional setting of the company. Even if it was spoke only by five customers, four of them related it to the customer support.

*"Madeira has very peculiar characteristics…having the customer support in the region increases the proximity"*

<div align="right">Male, 25 years old, employed, About the Customer Support</div>

*"Why ZON manages to provide a good service? Because it is ZON MADEIRA. MADEIRA. If it was a nationwide service it might not be so good"*

<div align="right">Male, 34 years old, employed, About the Customer Support</div>

Certain activities are not so abundantly characterized but this doesn't mean customers don't have a strong posture concerning them. Take for example the Cancelling the service activity. From the five customers who talked about this activity, four have stated the Customer Relationship Management as a negative requirement.

*"If I call now for ZON and say that I am going to switch for [the rival company] they will offer me this world and the other to stop me from changing. They will give me free stuff. How is this, I have been your customer for five years and I need to complain for you to give me something free?"*

<div align="right">Male, 25 years old, employed, About Loyalty</div>

These are just a few insights to this category as it is an especially fruitful one. While, for the service design, interfaces can be changed and artifacts can be improved, customer experience requirements are something that fundamentally frame any effort made. We must always look to them to guidance, as they illustrate how the customer likes the service and, as Hart puts it; "The battle for market share is won not by analyzing demographic trends… but by pleasing customers one at a time" (Hart, Heskett, and Sasser 1990),
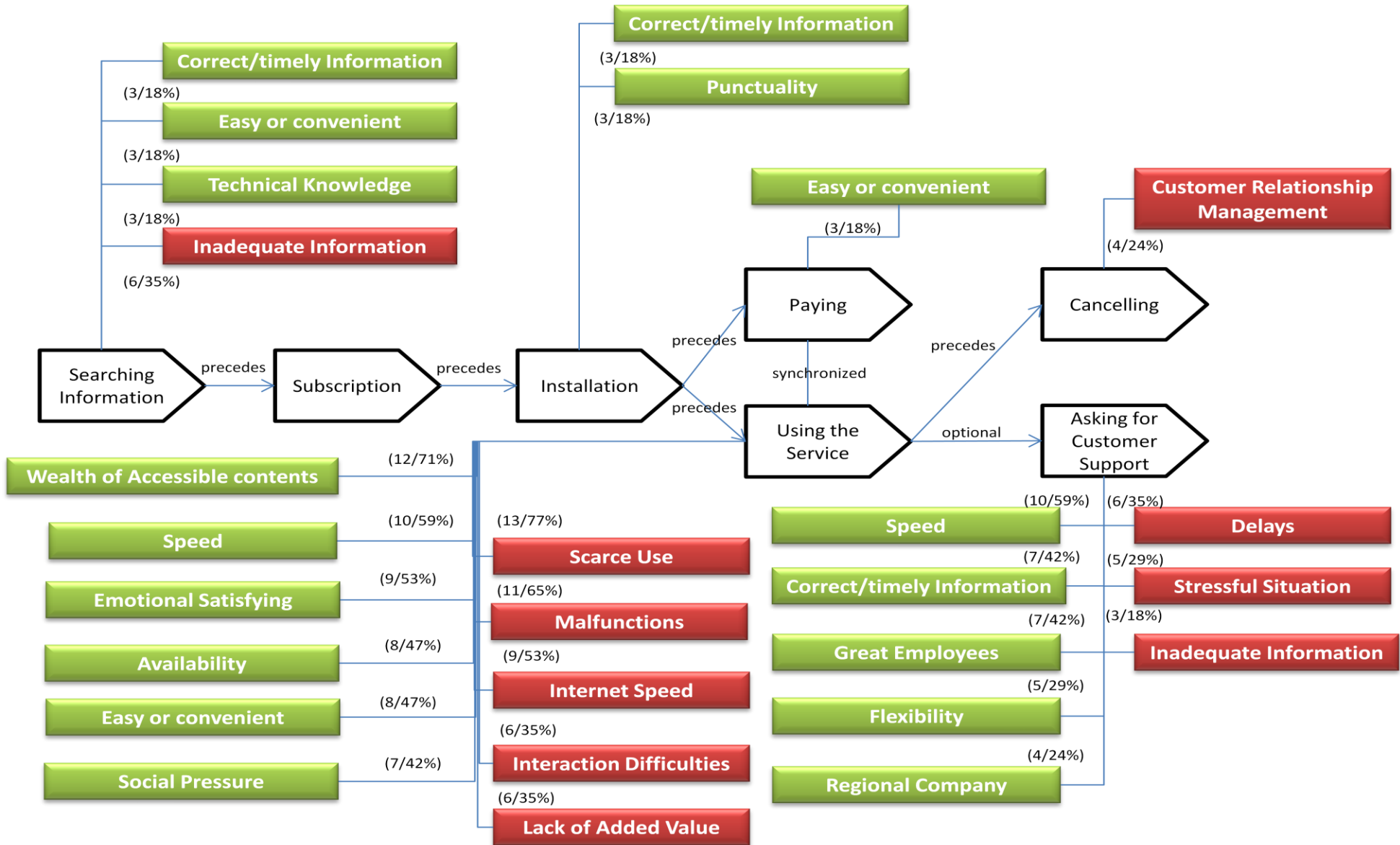
**Figure 12- Activities and their Customer Experience Requirements.**

### 4.6    Suggested Improvements

Before weaving any considerations about this category we must quote Ulwick's work again by emphasizing "customers should not be trusted to come up with solutions; they aren't expert or informed enough for what that part of the process" (Ulwick 2002). When we consider these suggested improvements we must take into account that they wield limited value. We should not consider these suggestions as an utmost priority, but they can present some additional value to the service design. Like before, the coding tree of this category is presented (Table 8).

**Table 8- Coding Tree for the Suggested Improvements Category**

| Suggested Improvements | Sources | % |
|---|---|---|
| Additional Channels | 5 | 29% |
| Add value to existing Services | 5 | 29% |
| Shopping basket of Services | 3 | 18% |
| Loyalty development | 3 | 18% |
| Layout or technical improvements | 3 | 18% |
| Additional Information | 3 | 18% |
| Pro-Active approach | 3 | 18% |
| More resources to the Customer Support | 2 | 12% |
| Flexible Subscriptions | 1 | 6% |
| More interviews | 1 | 6% |

Suggestions were sparse, and they reflect what customer's usually propose. They focus on incremental improvements, rather than real innovations (Ulwick 2002).

*"[like to have] more disk space, increased speed…"*

Male, 27 years old, employed, About his ZON BOX with Digital Recording

These don't provide a sustainable competitive advantage as they are easily imitated by competitors.

From Table 8 we these kinds of suggestions (Additional Channels, Add value to existing services) and we also see some general policy considerations (Loyalty development, Pro-active approach, more resources to the Customer support). The latter reinforce what has been said in the customer experience requirements section, they are very muck linked with the desire for a close relation with the company.

Finally, there is also a desire for increased transparency and flexibility in the relation with the company with customers asking for a shopping basket of services (similar to the ones in electronic commerce stores) and more flexible subscription of services.

While not assuming a guiding role, during the service design phase these suggestions can prove valuable.

### 4.7    Rival Company

This category addresses the information about ZON's competitor. It is also a secondary category, as it was not an objective to collect data about it. It is composed mainly by sparce comments made by the interviewed. What it is interesting, nonetheless, is that customer's

seem to put ZON always in comparison with their competitor. The subcategories reflect exactly that, as it is shown in Table 9.

**Table 9- Coding Tree for the Rival Company Category**

| Rival Company | | Sources | % |
|---|---|---|---|
| Worst than ZON | | 13 | 76% |
| | Quality of Service | 11 | 65% |
| | Pricing | 6 | 35% |
| | Deceiving Information | 4 | 24% |
| | Call-Center | 2 | 12% |
| | Advertising | 2 | 12% |
| Better than ZON | | 9 | 53% |
| | Advertising | 5 | 29% |
| | Quality of Service | 3 | 18% |
| | Pricing | 2 | 12% |
| | Momentum | 2 | 12% |

From an overall perspective we can see some encouraging signs; 65% of the customers think ZON has a higher quality service, against 18% who think otherwise, 35% regard ZON has cheaper, against 12%, and 24% consider that ZON's rivals provide deceiving information. On the other side, 29% think the rival's advertising is better and 12% indicate that the rival is gaining momentum since it is arrival on market.

*"[the rival company] support is exhausting…I would rather shoot my feet than having some malfunction with [the rival company]."*

Male, 25 years old, employed, about the rival company call center.

*"[the rival company] went for the killing, they have great advertises."*

Female, 28 years old, employed, About the rival company.

However encouraging this number might be, there are no indications that they might be generalized to a more far reaching sample. This type of analysis is far better suited for a quantitative study, than a qualitative one. Yet, this provides important leads to follow if a quantitative study ever takes place.

### 4.8   Understanding the Customer Experience

In this section we provided a detailed account of ZON's customer experience. Again, we stress the importance of this process and its results. By obtaining coding trees like the ones presented in this section, we are effectively constructing a depiction of the customer's experience observed in various angles. The primary findings are not the number of sources in each code, but the codes themselves. These are all grounded on customer's inputs and represent a systematization of the customer's point of view.

We also explored the relationships between categories and, in doing so, tried to develop a link between activities and the customer experience along the customer journey. However, the sheer quantity of data, and the ways we could analyze it, is simply not compatible with the time scope of this research. Even if we disposed of more resources, exploring all the possible paths of analysis doesn't seem to be a productive way to approach a service design effort.

Here is where everything can come together. So far we have weaved some aspects of the Human Activity Modeling (Activities) with Service Marketing (Customer Experience) to provide a more comprehensive and inter-disciplinary view of the service. Now, BITAM methodology can play an important role as we can use it align, not only the business goals with the technology that enables it, but align the service design with the business goals (Chen 2008). Centering our focus in the business goals can provide a guideline for an analysis as we have done so far. This way we would obtain a good understanding of the overall service experience and a more focused orientation for the analysis and posterior service design.

## 5    Designing the Service

Without a clear setting of business goals to guide our service design, we choose to focus on those activities whose experience requirements are more similar to non-functional ones. Figure 12 show two types of customer experience requirements. One is related to the usage of the service and addresses essentially technical (functional) aspects of the service, like more speed or contents. We consider those functional aspects to be easily imitable by ZON's competitors as they don't really reinforce the company's service. They are mostly technical tweaks that improve functional requirements without implying a change in the service delivery. As we argued before, these don't contribute to obtain a sustainable competitive advantage for the company.

The other type of customer experience requirements focus on qualitative aspects of the service delivery. These are observed in activities like Service Information, Asking for Customer Support or Cancelling. We argue that designing the service to meet these requirements is the most sustainable way to obtain competitive advantage for the company. Therefore, this section demonstrates a possible way to design the services to address those requirements.

For this, we used the Service Experience Blueprint (SEB) method (Patricio, Falcao e Cunha, and Fisk 2009; Patrício, Fisk, and Falcão e Cunha 2008). Its notation is expressed in Figure 13 and is all based in Patrício's work, except for the activity. To maintain the coherence with the rest of the work we are where blueprinting activities, not processes. Processes have a strong relation with the internal perspective of a company. By maintaining the focus on the activity we also maintain the focus on the customer, and adopt an outside-inside perspective of the service design (Shaw and Ivens 2005). The service is designed according to the customers activities and experience requirements and, what we see in the SEB, is the actions the company perform to achieve the goal set for the activity. This way we hope to emphasize again the central role of the customer, instead of the system or the internal processes, for example.
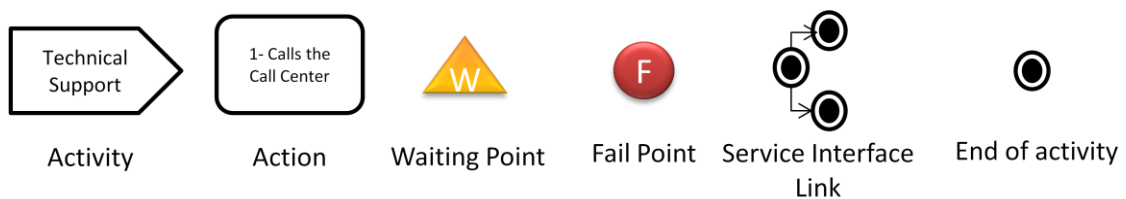


**Figure 13- SEB Notation.**

The SEBs whereby presented are not a finished proposal. They are foremost a foundation to work upon, in an effort where the company's inputs are most needed. Like a canvas they will have many drafts before the final painting. In addition, the implementation of such blueprints is subjected to various constraints that need to be studied alongside with the company. Again, we argue about the importance of having an alignment method to help service designers adjust their proposals to the business goals, business architecture and IT architecture of a company (layers considered in BITAM).

In each SEB, actions are numbered for easier reference while explaining each one. We point out each action within square brackets during the SEBs walkthrough. We also continue to

quote customers, when relevant, to clarify some point and strengthen further the connection with the original data.

## 5.1    Asking for Customer Support
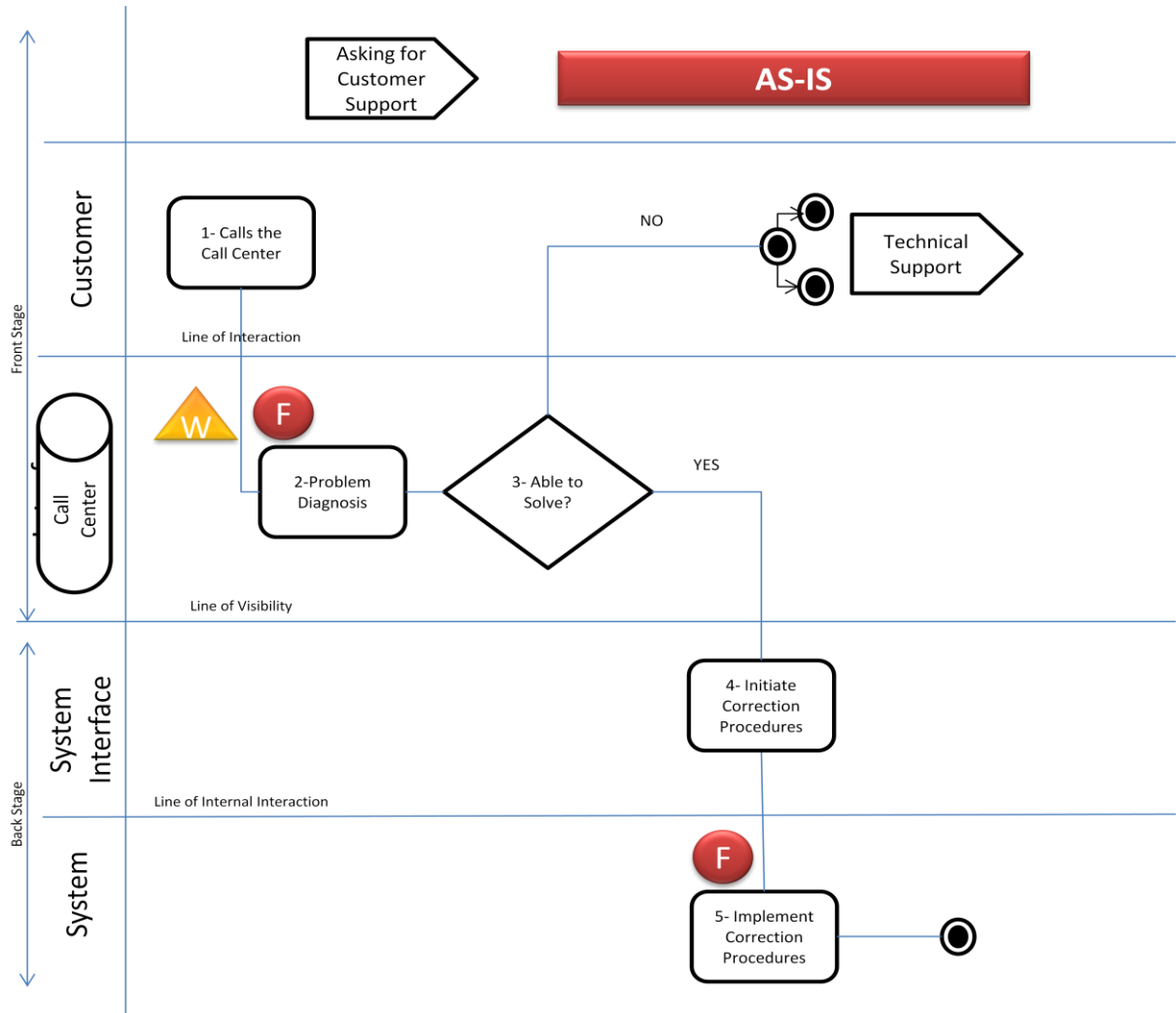


**Figure 14- As-Is version of the Asking for Customer Support Activity.**

In Figure 14 we see the Service Experience Blueprint for the current (As-Is) Asking for Customer Support activity. From what we saw in the previous section, namely Figure 11, customers usually contact the call center when they are in need of support [1]. Also, they expect this activity to be swift, the process to be flexible, and value the quality of information they receive (Figure 12).

*"[values] the person in the other side knows what he's talking about… and if I have a more technical question I want them to tell me if they are able to answer it or not… I don't like to be chewing time on the telephone"*

Male, 25 years old, employed, about customer support

ZON currently performs this activity very well. Their call center is flexible and empowers employees to make their own decisions, not constraining them to predefined queries or processes.

*"I knew what the problem was, the SMTP port was blocked, and she patched me through the technical support. Others don't do that. In five minutes the problem was fixed."*

Male, 34 years old, employed, about customer support

So, this As-Is blueprint reflects exactly that, with the employee accessing by himself if he is able to solve the problem [2] [3] and, if not, connecting immediately to the technical support or initiate the necessary correction procedures [4]. In this activity, speed is very important so, the waiting point between action [1] and [2] must be carefully monitored. The fail points are related with the employee's ability do correctly diagnose the problem and them implement the necessary correction procedures. Providing training to the call center employees could prevent these fail points. The service interface link contemplate the switch of interfaces if the need arises for a technical support intervention.
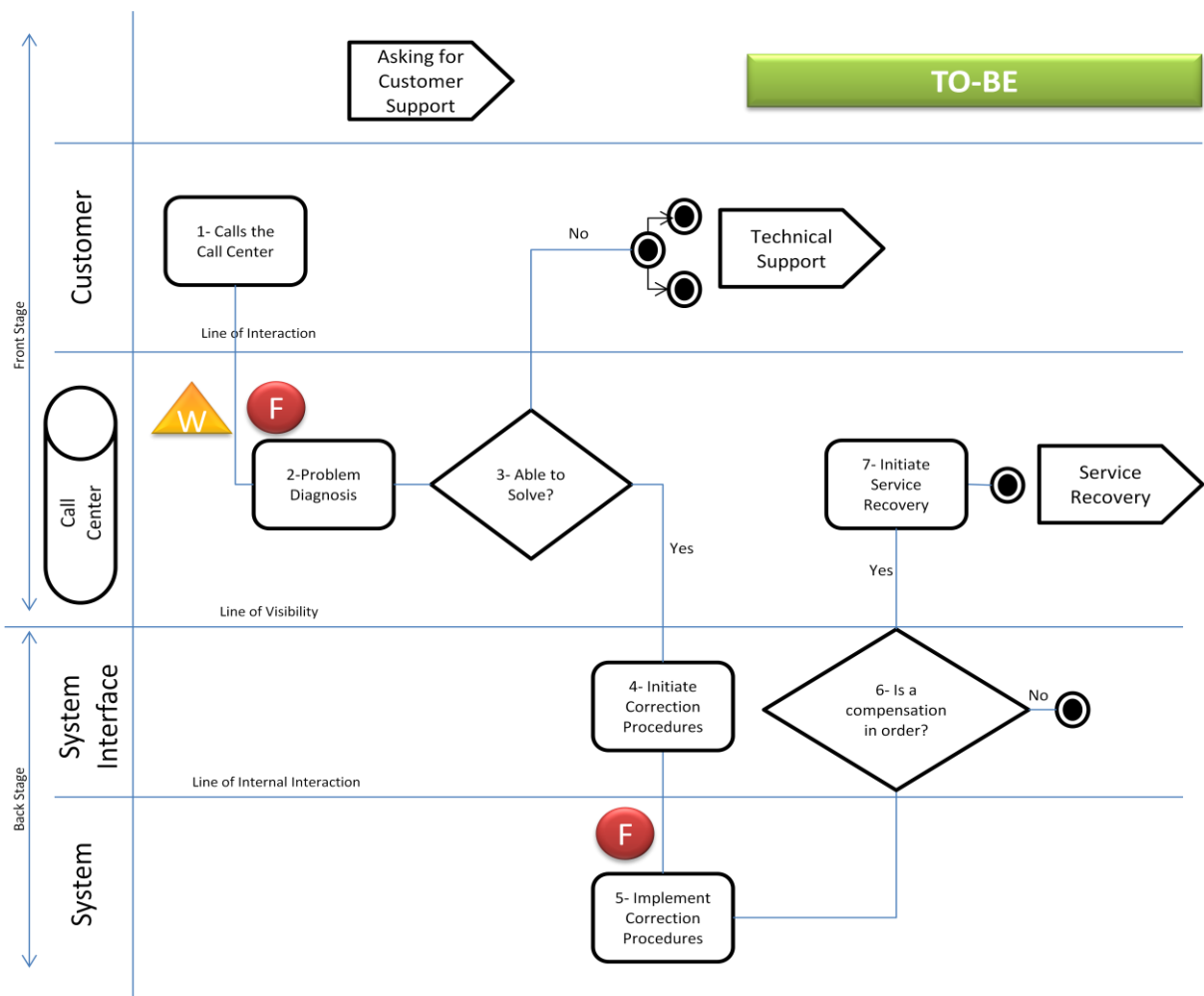


**Figure 15- To-Be version of the Asking for Customer Support Activity.**

As ZON addresses fairly well this activity, only few changes were made in the SEB To-Be version. As a recovery process is more likely to have greater impact on the customer's loyalty than the failure itself (Buttle and Burton 2002) we introduced a connection with a new activity; the Service Recovery [6] [7]. This way we raise the stake to a higher level by revising the goal of this activity and the customer support service. From a "mission" to successfully solve the customer's problems, we change it to not only solve, but erase any damage the failure as created and, better yet, to leave the customer better served than before.

We expect this way to exceed customer's expectations and provide a true customer delight, boosting this way their loyalty to the company. Additional details about the Service Recovery Activity are provided ahead.

## 5.2 Searching Information

In the previous section we discussed the would-be importance of the unconventional interface, Friends at Zon, associated with many activities but, especially with the Searching Information activity. Figure 16 represents this activity through the interface Friends at ZON. It depicts a somewhat improvised flow of action, with a lack of technology infusion in the service and severe fail points. In addition, as we discovered during the contextual inquiry done at ZON, this activity disrupts the usual work routine and is very unpredictable.
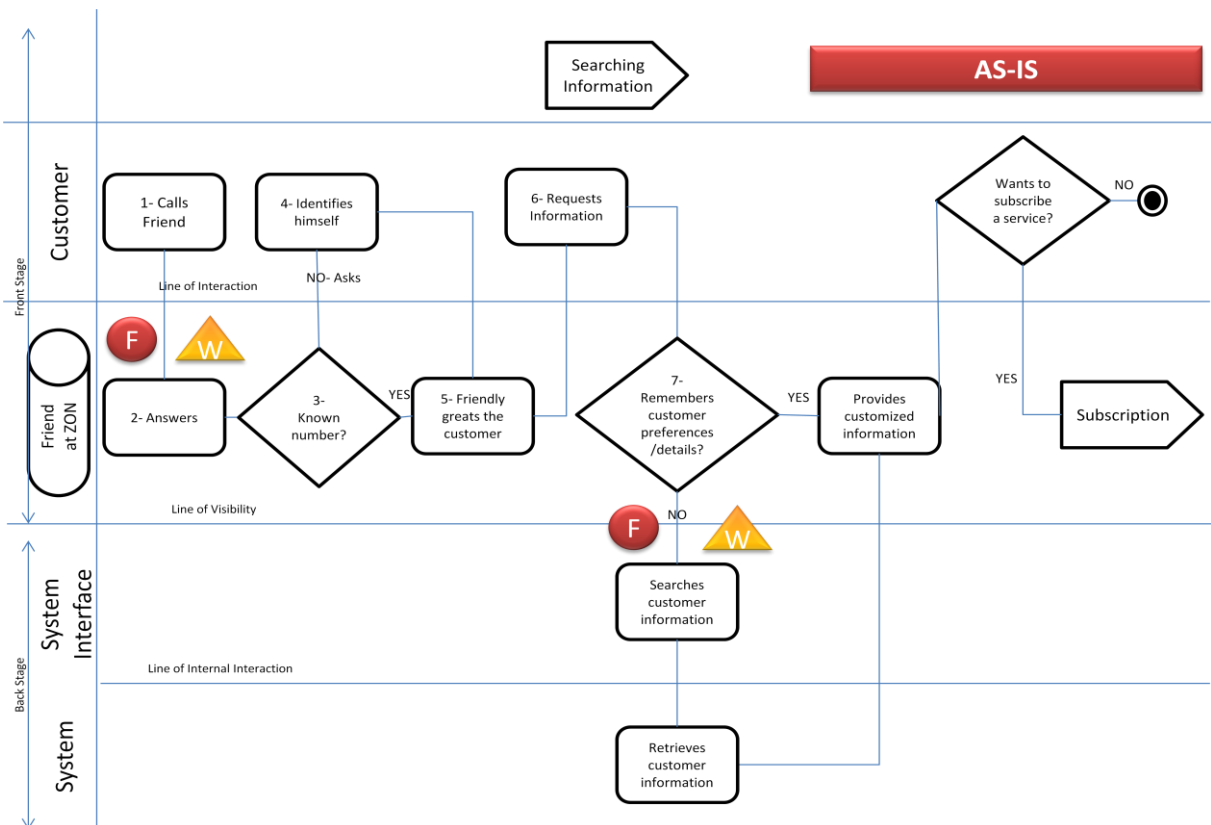


**Figure 16- As-Is version of the Searching Information Activity.**

The activity begins with the customer calling his friend [1] who might not answer [2], as it is not his primary occupation at the company. In addition, many times the customer is not a real friend but just someone acquainted who has the employee phone number. So, it is possible that he might not recognize who is calling [3] forcing the customer to identify himself [4]. As the employee greats the customer [5], and listens to the information request, [6] he was to remember the information about the customer to be able to provide a customized answer.

> *"because I have friends who work at ZON [spoke to them] and they made the suggestion"*

Female, 28 years old, employed, About subscribing ZON's services.

Additionally, if the friend wants to subscribe a service based on that information, it is the friend who accompanies all the Subscription activity, further disrupting his usual work routine.
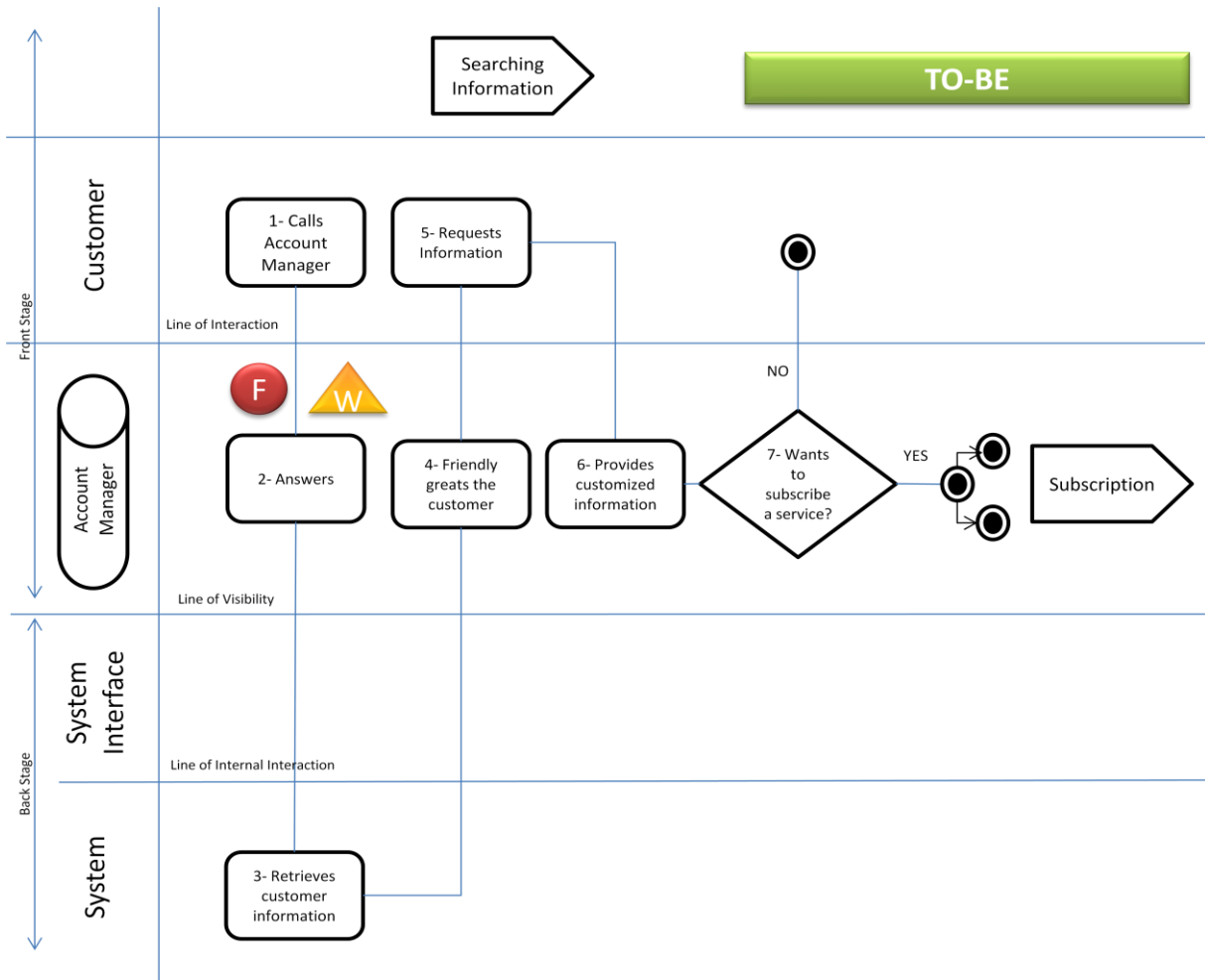
**Figure 17- To-Be version of the Searching Information Activity.**

*"[subscribing, activating the service] it was all done by my friend"*

Female, 31 years old, employed, about subscribing ZON's services.

For the To-Be version of this activity we look to formalize and systematize this interface. So, we no longer talk about a "Friend at ZON", instead we introduce an Account Manager. This interface assumes a role similar to other account managers of many service companies, namely the banking industry. He is responsible for a portfolio of customers with whom he should create a relational attachment. By building such an attachment we are erecting a barrier to the customer exit, thus promoting his retention (Buttle and Burton 2002). Also, an account manager should be aware of every service offer and be trained in some technical matters, to also provide support.

*"[having] someone who is qualified, who has the knowledge about all the services and problems that may appear, so that we can be informed"*

Female, 31 years old, employed, complaining about the lack of information.

The SEB in Figure 17 illustrates other features of the To-Be version. It is more technology infused as the system supports this role and immediately provides the needed information for

the account manager [3]. Also, as his role implies a more thorough knowledge of the customer's preferences, he should be able to provide better and faster information [6]. This way we also address some of the customer experience requirements displayed in Figure 12.

To limit the impact of having full time Account Managers we maintained the role as a shared one. An employee can perform his regular duties and also be account manager for some customers. But, in order to restrict the impact of this role in his primary function, we restricted this activity solely to information related actions. If a customer wants to subscribe a service [7] he is redirected to another channel where he may do so. Someone whose job is actually that one then attends him.

### 5.3 Cancelling

Cancelling a service might be an enerving task. If the customer is angry with something the potential for confrontation is high. Whatever the situation he is expecting resistance from the company and he is probably mentally prepared to resist it. Also, alerted by the very competitive market, he might be expecting to get some freebie from a company poised to defend its market share.

*" they give offers to their customers only when they are squeezed… if I called them saying I am going to change [to the rival company] they are going to offer… by that time it is too late…when I was a customer they never had such ideias…then is too late"*

Male, 34 years old, employed, about customer loyalty
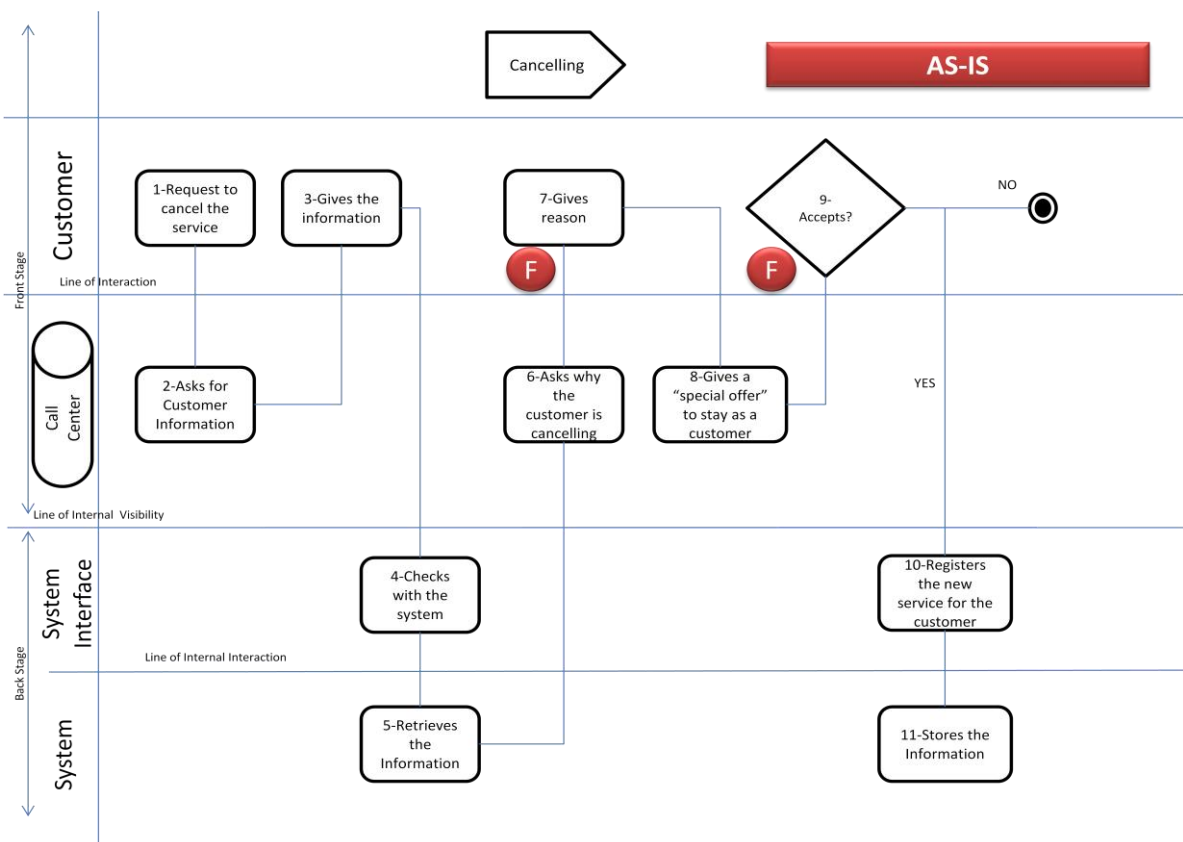


**Figure 18- As-Is version of the Cancelling Activity.**

These almost haphazardous recuperation attempts seem to attest why more than a half of the customers who complain actually reinforce their negative perception of a company after its response (Hart, Heskett, and Sasser 1990). Findings in Figure 12 and the SEB pictured in Figure 18 seem to corroborate this state of affairs.

Therefore, when a customer wants to cancel a service, he contacts the call center (Figure 10) [1] and requests the cancellation [2] [3]. He is then subjected to a series of questions [6] and tempted with various offers [8], in an attempt to make him reconsider. This procedure does not take into consideration the emotional state of the customer, who is probably distressed and annoyed with the company. Actually, as said before, it is credible that the negative reaction towards the company is, in the end, reinforced. The fail points represented in Figure 18 correspond to actions whose outcome has a probability to reinforce the negative perception about the company.

There is not an easy solution for the problem posed by this activity. To address it we put forward two additional activities, one to prevent the occurrence of a cancellation, and other dedicated to the service recovery.
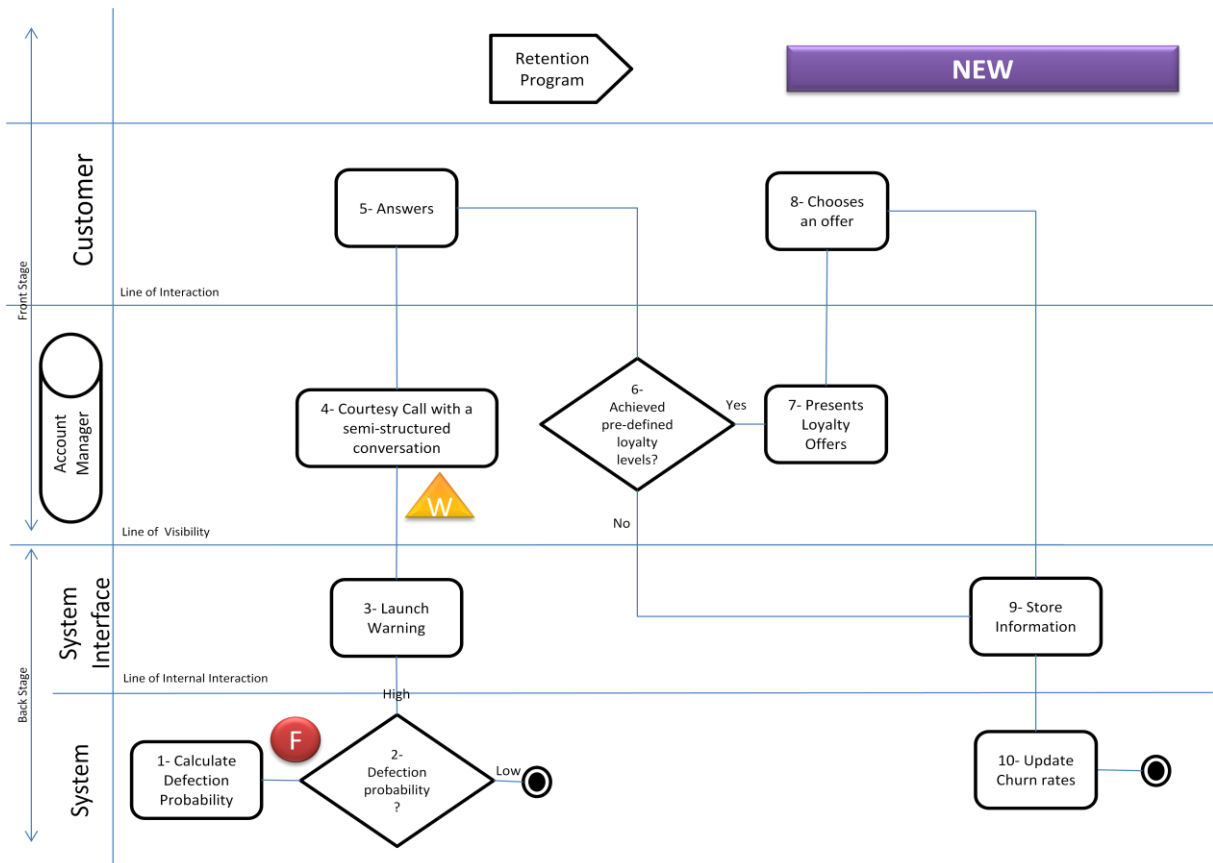


**Figure 19- New Retention Program Activity.**

We called the first activity a Retention Program (Figure 19). It aims to prevent customer's defection by taking preventive measures to develop his loyalty towards the company. In this way we shift the stance from a reactive posture to a proactive one. The company does not sit quietly hoping nothing goes wrong, but assumes the lead and goes forward to meet the customers and their opinions and expectations.

*"Why not a courtesy call? Be proactive instead of reactive…companies only react when we complain."*

Male, 25 years old, employed, about customer's loyalty

For this activity we choose the Account Manager interface, but it could also be performed by the call-center. This activity was also designed to increase the part played by technology. With the use of predicting models [1] the system warns the account manager for the possibility of a customer defection [2] [3]. The account manager promptly calls the customer in order to obtain feedback from the service and provide some kind of offer, depending on how long he was been a customer [4] [5] [6]. To avoid any confusion with a regular commercial offer, some kind of choice can be given to the customer [7] [8]. Any information obtained during this interaction is stored for future reference [9]. The fail point in this activity relates to the capability of the system to predict with some accuracy the defection probability. The waiting point reflects the account manager availability to make the call.

In the next SEB (Figure 20) we present the To-Be version of the Cancelling Activity. The objective of this version was to render the activity innocuous to prevent any upheaval. To achieve this we removed the actions that might harass the customer and created a link with other activity and channel; the Service Recovery. The fail and waiting points are related with the engagement of this other activity, as they occur in different moments in time.
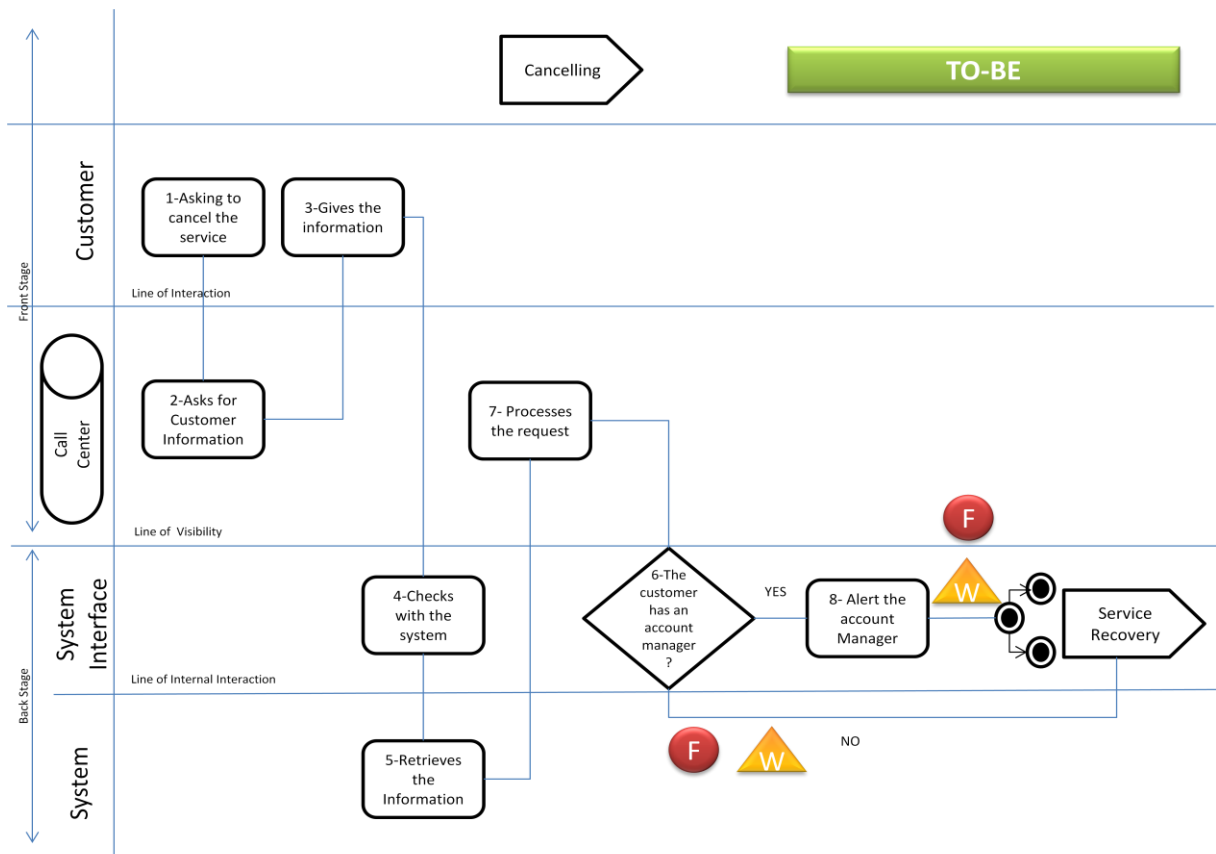


**Figure 20- To-Be version of the Cancelling Activity.**

The Service Recovery activity (Figure 21) is performed by the account manager after the cancellation. It begins with an apology for any inconvenience that might have caused the cancellation in the first place [1], followed by a quick assessment of the situation at hand [2]. Every information is registered and then it is offered some form of compensation to the

customer in order to try to regain his trust [6]. If he accepts it, the compensation is given [8] and a follow up is scheduled [9]. If the compensation is not accepted a follow up is scheduled all the same, to try to recover the customer at a later time.

*"I now [the rival company] has problems too. I know about customers who quit ZON and now they regret it"*

Female, 28 years old, employed, about the rival company

The activity has multiple fail points as its outcome is very uncertain. Nevertheless it is an activity were the company is under control, avoiding the sense of "desperation", that the original version of the Cancelling might convey, and replacing him by a demonstration of concern.

Service Recovery is uncertain but it is a vital part of the business, since there is no infallible services. And, as Hart puts it " to err is human, to recover is divine" (Hart, Heskett, and Sasser 1990).
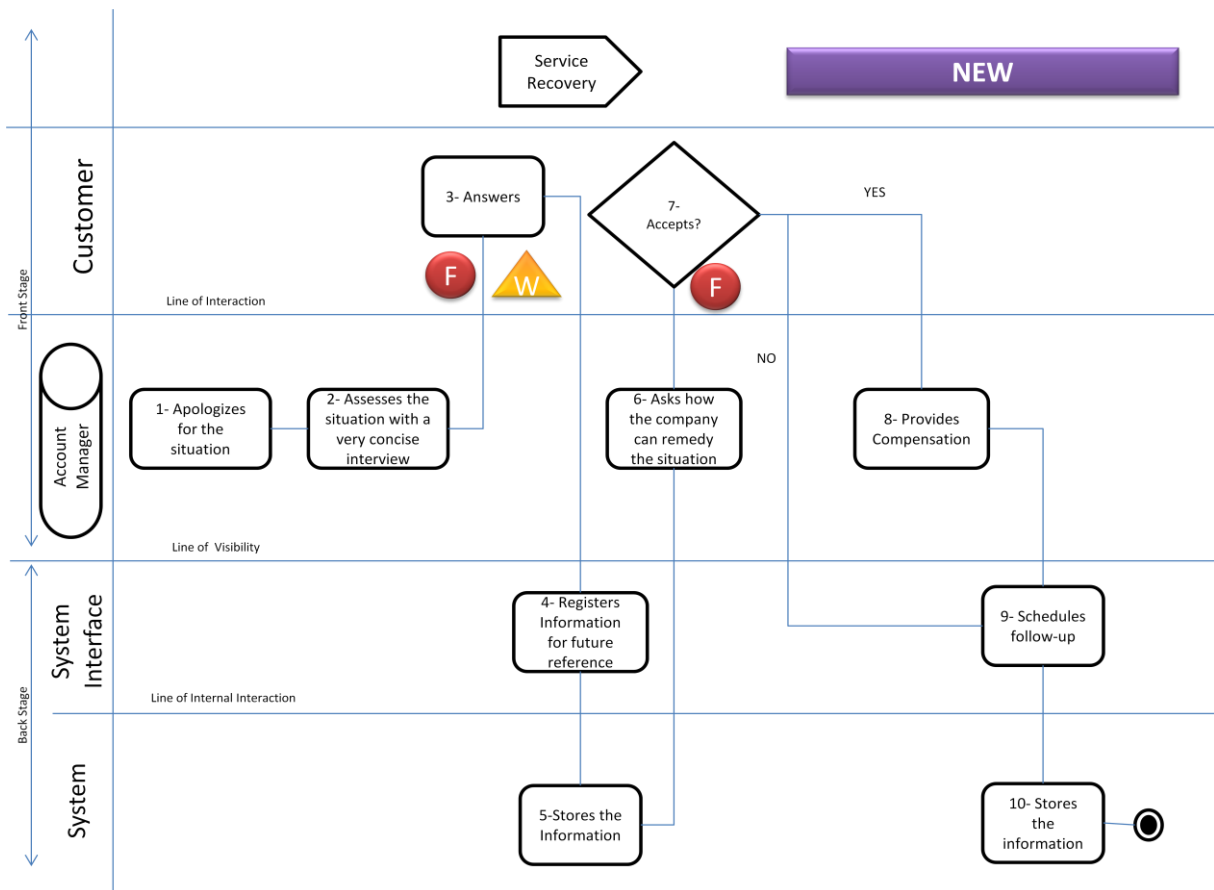


**Figure 21- New Service Recovery Activity.**

## 6 Conclusion and Future Work

We set forth this research aiming to understand ZON's customer experience in order to improve their services through service design methods. During this task we have broaden our view to encompass new ways of looking into the problem. By embedding Human Activity Modeling concepts we have strengthen the knowledge about the contextual settings of a service. We not only looked into the customer journey, but also considered which artifacts the customer interacts with along the way, which interfaces he uses and how they have an effect over the customer experience. From the qualitative study performed additional categories gained their place in the analysis and shaped the designed service. Still, other methodologies for data collecting should be followed for collecting additional information about some categories.

In a quick overview of this issue it seems appropriate to use contextual inquiry (Beyer and Holtzblatt 1998) to explore the part played by the artifacts. Interviews through each interface can provide more data about this category, as several interfaces were underrepresented in our research. The same applies to some activities. Customers frequently failed to have performed some activity or simply do not remember performing it. Interviewing customers right after having, for example, subscribed a service might prove valuable to gain additional evidence. This is also valid for eliciting the experience requirements. Expectably it would be easier to explore them if the experience is still very fresh in the customer's mind. In addition, the validation of the new services described in Section 5 requires a return to the field, where a more quantitative approach should take place, in order to ascertain if we correctly captured the customer experience requirements. This quantitative analysis can also be used to perform a Goal-Oriented Analysis as described by Patrício (Patrício, Falcão e Cunha, and Fisk 2009).

Some further integration with Human Activity Modeling is still possible by introducing Participation Maps, and detailing actions, tasks and user roles.

Concerning the other axis of the ZON Service Engineering project, the BITAM, we argue there is an opportunity to integrate it with the service design. BITAM is currently addressing the internal perspective of the company. Its objective is to align business goals with business architecture and IT architecture. However, an outside-inside perspective could be adopted by considering the customer experience as another layer. In a limited research like this one we encountered difficulties considering the span the analysis could take. Also, when considering the service design we hadn't any guidance to where we should focus our attention. If we broaden our data collection with the methods explained above this problem might also get more troublesome. While we could prioritize the customer experience requirements by means of a quantitative study (Patrício, Falcão e Cunha, and Fisk 2009), a connection with the business goals would conveniently close the gap between the interests of the customer and the ones of the company. Also, BITAM already prescribes well-defined steps to achieve the alignment within the organization and incorporates service design needs into the three layered model (Chen 2008).

In conclusion, despite these opportunities for future work, the research goals were met as we designed new services based on the understanding gained of the customer experience. The qualitative methods followed proved to be capable to provide valuable insights with limited resources. Also, grounded theory enabled a faithfully capture of the customer's inputs, as it

didn't frame them into pre-defined categories. This way it is possible to pursue different paths than the ones originally expected while remaining close to the data. With this approach a new interface was suggested that was unexpected (Account Manager) but shaped the service design.

Customer experience requirements were captured and guided the improvements made. However, we expanded their applicability to many concepts from Human Activity Modeling in order to achieve a better contextual overview of the activities, shifting its perspective from a system-centric focus to a service-centric one.

Service Experience Blueprint method enabled an efficient service design, addressing also the service multi-channel delivery. While w\e have not directly considered the interaction with artifacts in the SEB, this can also be a future advancement in this research.

Company's feedback will further shape the designed services, in multiple iterations with the stakeholders. In addition, a more thorough contextual inquiry technique (Beyer and Holtzblatt 1998) is needed to map the activities beyond the line of visibility (company internal activities).

We understand the customer experience as an holistic concept, suitable to be studied from many different, but complementary, views. In this research we made an attempt to broaden the ways to comprehend the customer experience by closing a bit further the gap between interaction design and service design. In the end, many challenges remain to be faced, as a additional integration of service design with interaction design, and other fields is possible, and desirable.

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**Appendix A- Interview**

Considering communication as a way of contacting other people, or of broadcasting information...

1. Can you tell me how do you communicate (*at home...*) ?

   - What activities do you perform? What means of communication do you use? *(social networks, email, telephone)*
   - What are the most important attributes for a good experience when performing those activities? *(emphasize the activities related to ZON Madeira services: TV+Phone+Internet)*

2. Can you tell me how do you entertain yourself/relax?

   - What activities do you perform? (*see TV, playing, listening to music....)*
   - What are the most important attributes for a good experience when performing those activities? *(emphasize the activities related to ZON Madeira services: TV+Phone+Internet)*

3. What ZON Madeira services do you use? How do you use them and what for? (*if there's a service that the client doesn't use, ask why*)

   - What do you value in each service? What are the most important attributes of each service?
   - What do you think about the services that ZON Madeira provides? (Like them, don't like them, improvement opportunities)

4. From the activities you mentioned in the last question, can you explain me how do you perform each one? *Examples according to last question's answers*

   - In each task what do you value the most?
   - What's your opinion about the performance of ZON Madeira services in each task? *Ask the opinion about each task (What you like, dislike, and improvement opportunities)*

5. Do you remember why you first started using ZON Madeira services?

6. What activities did you perform before subscribing these services? *Looked for information (where?), gone to the store, checked about financial availability...*

- What do you value the most in each performed task?
- What's your opinion about the performance of ZON Madeira services in each activity? *Ask the opinion about each task (What you like, dislike, and improvement opportunities)*

7. Have you contacted ZON Madeira since you subscribed their services? *For technical support, malfunctions, billing information, service upgrades or downgrades...*
   - When and why?
   - What do you value the most in each situation?
   - What was your opinion about ZON Madeira services (Customer Support) in each contact? *(What you liked, disliked, and improvement opportunities).*

8. Generally speaking, what do you think about ZON Madeira services? *What do you like the most, dislike or like less...*

9. *Beyond the ones you've already talked about (if some...)...* Do you want to suggest some improvement to ZON Madeira services?

10. *We're finishing this interview...* Do you like to add something to what you've told me?

Are you willing to be contacted again if we need some more information?

Thank you very much

## Appendix B- Sample Information

| Customer Information | Source | % |
|---|---|---|
| Gender | 17 | 100% |
| Male | 11 | 65% |
| Female | 6 | 35% |
| Age | 17 | 100% |
| 31-35 Years Old | 6 | 35% |
| 18-25 Years Old | 5 | 29% |
| 26-30 Years Old | 4 | 24% |
| 41-45 Years Old | 1 | 6% |
| 50+ Years Old | 1 | 6% |
| 36-40 Years Old | 0 | 0% |
| 46-50 Years Old | 0 | 0% |
| Education Level | 17 | 100% |
| High-School | 9 | 53% |
| Incomplete High-School | 5 | 29% |
| College | 3 | 18% |
| ZON Services | 17 | 100% |
| Net | 17 | 100% |
| TV | 16 | 94% |
| Phone | 13 | 76% |
| Zon Mobile | 9 | 53% |
| VideoClube | 7 | 41% |
| Sport TV | 6 | 35% |
| TV Cine | 4 | 24% |
| Occupation | 17 | 100% |
| Employed | 11 | 65% |
| Student | 5 | 29% |
| Working Student | 1 | 6% |
| Interview Length | 17 | 100% |
| More than 30 min | 13 | 76% |
| Less than 30min | 4 | 24% |
| Equipment | 11 | 65% |
| Regular ZON Box | 6 | 35% |
| ZON Box HD+RW | 4 | 24% |
| HD TV | 2 | 12% |
| ZON Box HD | 2 | 12% |
| Regular TV | 1 | 6% |

## Appendix C- Activity Constellation and Usage related Activities matrix.

| | | | Communicate | | Entertainment | | | | | | | | | | | | | | | |
| | | | With friends and family | With work purposes | Surfing the Internet | Walking | Watching TV | Coffee place | Drawing | Exercise or sports | Going out at night | Going to the cinema | Going to the Restaurant | Listen to music | Outdoor Activities | Play Games | Reading | Resting | Seeing a Soccer Match | Shopping |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Using the Service | Using the Service | | 11 | 10 | 14 | 0 | 17 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 2 | 1 | 2 | 1 | 3 | 1 |
| | Internet usage | | 11 | 10 | 14 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 1 |
| | | Auctions Websites | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Blogs | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Downloading Entertainment Contents | 1 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Email | 6 | 8 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| | | Foruns | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | MSN | 4 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | NetMadeira's Website | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Online gaming | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Searching Information on the Internet | 2 | 0 | 10 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 |
| | | Social Networks | 5 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | Streaming | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Videoconferencing | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | VPN | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Watching TV | | 1 | 0 | 2 | 0 | 17 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 1 | 3 | 0 |
| | | Advertises | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Configuring the TV Listing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Consulting the TV listings | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Favourite Channels | 1 | 0 | 1 | 0 | 17 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 3 | 0 |
| | | Listening to Radio | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Programing the Box RW | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Recording | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix D- Activities and Artifacts matrix.

| | Advertising Brochure | Batteries | Books | Cables and support infrastructure | Computer | Game Console | Hard Drive | HD TV | Installation CD | Interactive whiteboard | Letters | Mobile | Mobile charger | Modem | MyZonCard | Pen Drive | Phone | Regional Newspaper | Remote Control | Satellite Dish | TV | TV Guide | ZON Box | ZON Box HD | ZON Box HD+RW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 : Activities Constellation | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 8 | 1 | 1 | 4 | 0 | 10 | 1 | 0 | 0 | 7 | 0 | 0 | 0 | 1 |
| 2 : Communicate | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 14 | 1 | 1 | 0 | 0 | 12 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 3 : Communicate with friends and family | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 : Communicate with work purposes | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 : Entertainment | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 1 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 1 |
| 6 : Coffee place | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 : Drawing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 8 : Exercise or sports | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 9 : Going out at night | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 : Going to the cinema | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 11 : Going to the restaurant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 : Listen to music | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 : Outdoor Activities | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 : Play Games | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 : Reading | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 : Resting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 17 : Seeing a Soccer Match | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 18 : Shopping | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 : Surfing the Internet | 0 | 0 | 0 | 0 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 20 : Walking | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 : Watching TV | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 10 | 0 | 2 | 2 | 3 |
| 22 : Zon related Activities | 1 | 0 | 0 | 2 | 13 | 0 | 1 | 2 | 1 | 1 | 1 | 10 | 0 | 3 | 1 | 0 | 9 | 4 | 1 | 2 | 15 | 1 | 7 | 3 | 7 |
| 23 : Asking for customer support | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| 24 : Call-Center Contacts | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 25 : Tech support | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 26 : At customer's home | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 27 : By Phone | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 : Cancelling Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 : Paying | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 : Searching information about the service | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| 31 : Advertises | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 32 : At a ZON's Store | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 33 : From the Call-Center | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34 : Regional Newspaper | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35 : Talking with friends or family | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 36 : ZON's website | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 37 : Service Installation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 38 : Service Subscription | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 : Using the Service | 0 | 0 | 0 | 2 | 13 | 0 | 1 | 2 | 0 | 1 | 1 | 10 | 0 | 2 | 1 | 0 | 7 | 3 | 1 | 2 | 15 | 1 | 7 | 2 | 6 |
| 40 : Internet usage | 0 | 0 | 0 | 1 | 13 | 0 | 1 | 1 | 0 | 1 | 1 | 10 | 0 | 2 | 0 | 0 | 7 | 2 | 0 | 1 | 4 | 0 | 0 | 1 | 1 |
| 41 : Auctions Websites | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42 : Blogs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43 : Downloading Entertainment Contents | 0 | 0 | 0 | 0 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 51 : Email | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 1 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 52 : Foruns | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 53 : MSN | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 54 : NetMadeira's Website | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55 : Online gaming | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 56 : Searching Information on the Internet | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 61 : Social Networks | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63 : Streaming | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64 : Videoconferencing | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 65 : VPN | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 66 : Watching TV | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 1 | 2 | 15 | 1 | 7 | 2 | 6 |
| 67 : Advertises | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| 68 : Configuring the TV Listing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 69 : Consulting the TV listings | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 5 | 1 | 4 | 0 | 4 |
| 70 : Favourite Channels | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 10 | 0 | 2 | 2 | 3 |
| 82 : Listening to Radio | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 83 : Programing the Box RW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 4 |
| 84 : Recording | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |

## Appendix E- Artifacts matrix

| | A : Advertising Brochure | B : Batteries | C : Books | D : Cables and support infrastructure | E : Computer | F : Game Console | G : Hard Drive | H : HD TV | I : Installation CD | J : Interactive whiteboard | K : Letters | L : Mobile | M : Mobile charger | N : Modem | O : MyZonCard | P : Pen Drive | Q : Phone | R : Regional Newspaper | S : Remote Control | T : Satellite Dish | U : TV | V : TV Guide | W : ZON Box | X : ZON Box HD | Y : ZON Box HD+RW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 : Advertising Brochure | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 : Batteries | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 : Books | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 : Cables and support infrastructure | | | | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 5 : Computer | | | | | 13 | 0 | 1 | 1 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| 6 : Game Console | | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 : Hard Drive | | | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 : HD TV | | | | | | | | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| 9 : Installation CD | | | | | | | | | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 : Interactive whiteboard | | | | | | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 : Letters | | | | | | | | | | | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 : Mobile | | | | | | | | | | | | 16 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 : Mobile charger | | | | | | | | | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 : Modem | | | | | | | | | | | | | | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 15 : MyZonCard | | | | | | | | | | | | | | | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 : Pen Drive | | | | | | | | | | | | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 : Phone | | | | | | | | | | | | | | | | | 16 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 18 : Regional Newspaper | | | | | | | | | | | | | | | | | | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 : Remote Control | | | | | | | | | | | | | | | | | | | 2 | 0 | 0 | 0 | 1 | 0 | 0 |
| 20 : Satellite Dish | | | | | | | | | | | | | | | | | | | | 2 | 2 | 0 | 0 | 0 | 0 |
| 21 : TV | | | | | | | | | | | | | | | | | | | | | 15 | 0 | 4 | 0 | 2 |
| 22 : TV Guide | | | | | | | | | | | | | | | | | | | | | | 1 | 0 | 0 | 0 |
| 23 : ZON Box | | | | | | | | | | | | | | | | | | | | | | | 8 | 0 | 1 |
| 24 : ZON Box HD | | | | | | | | | | | | | | | | | | | | | | | | 8 | 2 |
| 25 : ZON Box HD+RW | | | | | | | | | | | | | | | | | | | | | | | | | 7 |

**Appendix F- Activities and Interfaces matrix.**

| Activities | B : Call-Center | C : Friends at ZON | C : Internet | D : Shopping Center | ZON Stores | | | | I : Technician |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | | | E : Aggregate | F : Dolce Vita | G : Loja do Cidadão | H : Nazaré | |
| 1 : Activities Constellation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 : Communicate | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 : Entertainment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 : Zon related Activities | 15 | 11 | 9 | 2 | 7 | 5 | 2 | 3 | 10 |
| 23 : Asking for customer support | 14 | 5 | 0 | 1 | 4 | 2 | 1 | 1 | 8 |
| 24 : Call-Center Contacts | 13 | 2 | 0 | 1 | 2 | 1 | 0 | 0 | 5 |
| 25 : Tech support | 7 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 8 |
| 26 : At customer's home | 4 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 6 |
| 27 : By Phone | 3 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| 28 : Cancelling Service | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 : Paying | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 1 | 1 |
| 30 : Searching information about the service | 5 | 8 | 7 | 1 | 4 | 3 | 2 | 3 | 0 |
| 37 : Service Installation | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 6 |
| 38 : Service Subscription | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 39 : Using the Service | 4 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40 : Internet usage | 3 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 41 : Auctions Websites | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42 : Blogs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43 : Downloading Entertainment Contents | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 51 : Email | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 52 : Foruns | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 53 : MSN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 54 : NetMadeira's Website | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55 : Online gaming | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 56 : Searching Information on the Internet | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 61 : Social Networks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63 : Streaming | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 64 : Videoconferencing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65 : VPN | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 66 : Watching TV | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 67 : Advertises | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 68 : Configuring the TV Listing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 69 : Consulting the TV listings | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 : Favourite Channels | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 82 : Listening to Radio | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 83 : Programing the Box RW | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 84 : Recording | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Appendix G- Activities and Negative Customer Experience Requirements matrix.**

| | A : Delays | B : Demand Peak | C : Disregard for loyal customers | D : Equipment Wraping | E : External Limitations | F : Inadequate Information | G : Interaction Difficulties | H : Internet Speed | I : Lack of Added Value | J : Lack of Personal Contact | K : Malfunctions | L : Not flexible | M : Stressful Situation | N : Pricing | O : Scarce use |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 : Asking for customer support | 6 | 1 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 1 |
| 7 : Cancelling Service | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 8 : Paying | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 9 : Searching information about the service | 2 | 0 | 1 | 0 | 0 | 6 | 2 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 2 |
| 16 : Service Installation | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 : Service Subscription | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 18 : Using the Service | 1 | 0 | 0 | 0 | 5 | 3 | 6 | 9 | 6 | 1 | 11 | 0 | 3 | 5 | 13 |
| 19 : Internet usage | 1 | 0 | 0 | 0 | 3 | 3 | 3 | 9 | 4 | 1 | 8 | 0 | 1 | 3 | 7 |
| 20 : Auctions Websites | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 : Blogs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 : Downloading Entertainment Contents | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 1 | 0 | 1 |
| 30 : Email | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 3 |
| 31 : Foruns | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 32 : MSN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 33 : NetMadeira's Website | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34 : Online gaming | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35 : Searching Information on the Internet | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| 40 : Social Networks | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 41 : Games | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42 : Streaming | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 43 : Videoconferencing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 44 : VPN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 45 : Watching TV | 0 | 0 | 0 | 0 | 4 | 1 | 4 | 1 | 3 | 0 | 7 | 0 | 2 | 3 | 10 |
| 47 : Configuring the TV Listing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 48 : Consulting the TV listings | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 4 |
| 49 : Favorite Channels | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 0 | 3 | 0 | 3 | 0 | 2 | 2 | 6 |
| 61 : Listening to Radio | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 62 : Programing the Box RW | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 3 |
| 63 : Recording | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 |

## Appendix H- Activities and Positive Customer Experience Requirements.

|  | P : Availability | Q : Credibility | R : Easy or convenient | S : Emotionally Satisfying | T : Equipment Technical Characteristics | U : Explain technical interventions | V : Flexibility | W : Giving correct and timely information | X : Good weather | Y : Great Employees | Z : Improvement Efforts | AA : Increased Frequency | AB : Information Registry | AC : Lack of distinct features between companies | AD : Long-distance Communication | AE : Memorize the air date | AF : Multitasking | AG : Past Experience | AH : Pricing | AI : Punctuality | AJ : Regional Company | AK : Reliability | AL : Respect the service level agreement | AM : Service Reviews and Comparisons | AN : Social Pressure | AO : Speed | AP : Technical Knowledge | AQ : Wealth of accessible contents | AR : Well structured information |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 : Asking for customer support | 3 | 0 | 2 | 1 | 0 | 2 | 5 | 7 | 0 | 7 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 1 | 0 | 1 | 10 | 1 | 0 | 0 |
| 7 : Cancelling Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 : Paying | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 9 : Searching information about the service | 0 | 0 | 3 | 2 | 1 | 0 | 2 | 3 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 0 | 2 |
| 16 : Service Installation | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 17 : Service Subscription | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 18 : Using the Service | 6 | 2 | 8 | 9 | 5 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 3 | 0 | 2 | 2 | 1 | 0 | 4 | 0 | 2 | 4 | 1 | 0 | 7 | 10 | 0 | 12 | 3 |
| 19 : Internet usage | 6 | 2 | 4 | 4 | 1 | 0 | 1 | 1 | 0 | 0 | 3 | 0 | 3 | 0 | 2 | 1 | 1 | 0 | 3 | 0 | 1 | 3 | 1 | 0 | 7 | 10 | 0 | 7 | 1 |
| 20 : Auctions Websites | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 : Blogs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 : Downloading Entertainment Contents | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 3 | 0 |
| 30 : Email | 2 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 3 | 0 | 0 | 0 |
| 31 : Foruns | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 32 : MSN | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 |
| 33 : NetMadeira's Website | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |
| 34 : Online gaming | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35 : Searching Information on the Internet | 2 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 3 | 0 |
| 40 : Social Networks | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 41 : Games | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42 : Streaming | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 : Videoconferencing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 : VPN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 45 : Watching TV | 1 | 0 | 6 | 8 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 9 | 2 |
| 47 : Configuring the TV Listing | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 48 : Consulting the TV listings | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 49 : Favorite Channels | 0 | 0 | 2 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 1 |
| 61 : Listening to Radio | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 62 : Programing the Box RW | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63 : Recording | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |